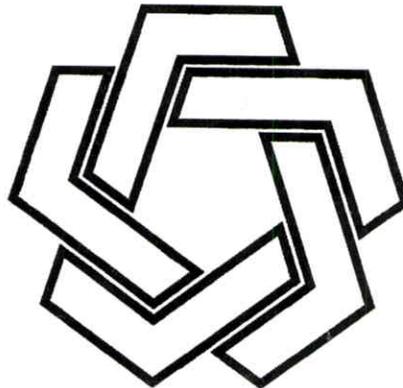


STATE DECISION PACKAGE

**Trail Mountain #9 Mine
Trail Mountain Federal Lease
Beaver Creek Coal Company**

PERMIT



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

File in:

Confidential

Shelf

Expandable

In C

Date:

01500099 Incoming
04/31/97 For additional information

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

Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract

Emery County, Utah
ACT/015/009
April 15, 1991

CONTENTS

- * Administrative Overview
- * Location Map
- * Permitting Chronology
- * Mine Plan Information Form
- * Findings
- * State Permit
- * Technical Analysis
- * Cumulative Hydrologic Impact Assessment (CHIA)
- * Affidavit of Publication
- * Reclamation and Bonding Agreement
- * Concurrence Letters

A: /TM#9FLT.TA

ADMINISTRATIVE OVERVIEW

**Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract
ACT/015/009**

**Emery County, Utah
April 15, 1991**

Background

The Trail Mountain #9 Mine is located in Emery County, Utah, 12 miles northwest of Orangeville, Utah, and has been operating since 1946. The mine was originally permitted by OSMRE in December 1984 under the Federal Lands Program and by Utah DOGM in February 1985 under the approved Utah State Program. An approval was authorized in April 1987 to increase the entire permit area to approximately 1,415 acres. The mining permit was transferred to Beaver Creek Coal Company (BCCC) on November 23, 1987, and successively renewed on February 21, 1990.

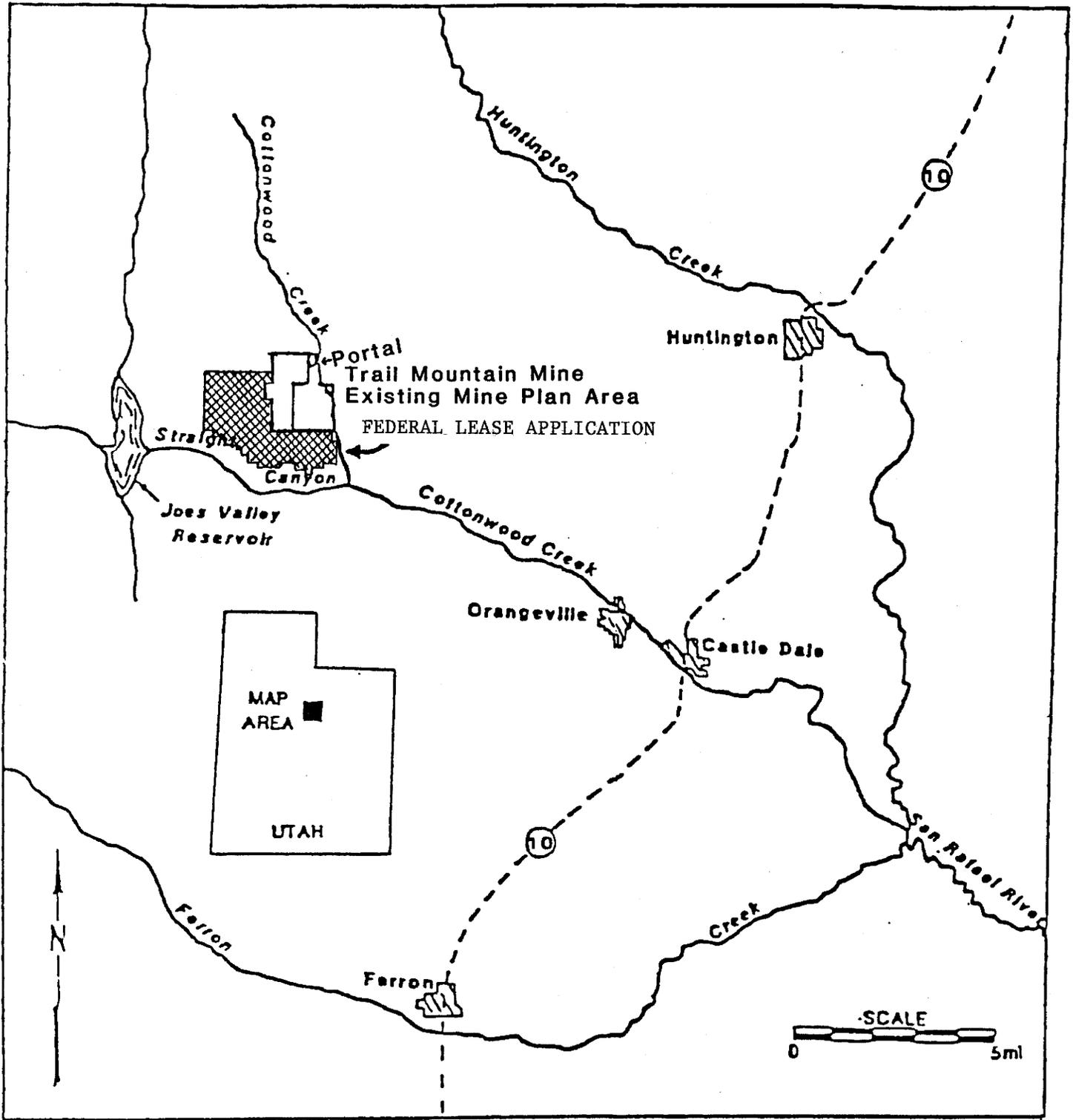
BCCC submitted an application to mine coal in Federal Coal Lease UTU-64375, which encompasses 2630.81 acres. This lease is contiguous to, and will be accessed through, the existing Trail Mountain #9 Mine. This lease adds 13,200,000 tons of recoverable coal to the mine.

The applicant published notice for the Federal Lease Tract Addition for four consecutive weeks, ending on February 19, 1991. No comments were received.

Recommendations for Approval

Approval of the mining permit for the Federal Lease Tract Addition is recommended based upon the review of the Permit Application Package.

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Location of the Trail Mountain Mine Plan Area.

**CHRONOLOGY
Beaver Creek Coal Company
Trail Mountain #9 Mine
ACT/015/009**

**Federal Lease Tract
Emery County, Utah
April 15, 1991**

July 5, 1990	Beaver Creek Coal Company (BCCC) submits the Federal Lease Tract Addition to the Division.
August 10, 1990	Division submits a copy of the PAP to state and federal agencies.
September 13, 1990	Division sends Initial Completeness Review (ICR) to BCCC.
November 20, 1990	BCCC submits ICR responses to the Division.
December 21, 1990	Division issues Second Completeness Review.
January 10, 1991	BCCC submits completeness Responses to the Division.
January 24, 1991	BCCC initiates public notice for four consecutive weeks.
February 28, 1991	Division issues Technical Deficiency Document to BCCC.
March 12, 1991	BCCC responds to Technical Deficiencies.
April 5, 1991	BCCC submits additional materials addressing technical deficiencies.
April 15, 1991	Division submits the final Technical Analysis and supporting documentation to OSM. OSM approves Permit Application Package.
May 15, 1991	Division issues State Permit.

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MINE PLAN INFORMATION

Mine Name Trail Mountain #9 Mine State ID: ACT/015/009
Federal Lease Tract Addition

Operator Beaver Creek Coal Company County: Emery

Controlled By Beaver Creek Coal Company

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

Telephone: (801) 637-5050

New/Existing _____ Mining Method Room and Pillar

Federal Lease Nos. UTU-64375

State Mineral Lease No. _____

Legal Descriptions (See Attachment A)

<u>Surface Resources</u> <u>(acres)</u>	<u>Existing</u> <u>Permit Area</u>	<u>Proposed</u> <u>Permit Area</u>	<u>Total Life</u> <u>of Mine Area</u>
Federal	<u>721.47</u>	<u>2630.81</u>	<u>3352.28</u>
State	<u>640.00</u>		<u>640.00</u>
Private	<u>53.50</u>		<u>53.50</u>
Other			
TOTAL	<u>1414.97</u>	<u>2630.81</u>	<u>4045.78</u>

Coal Ownership (Acres)

Federal	<u>721.47</u>	<u>2630.81</u>	<u>3352.28</u>
State	<u>640.00</u>		<u>640.00</u>
Private	<u>53.50</u>		<u>53.50</u>
Other			
TOTAL	<u>1414.97</u>	<u>2630.81</u>	<u>4045.78</u>

<u>Coal Resource Data</u>	<u>Total in Place</u> <u>Reserves</u>	<u>Total Recoverable</u> <u>Reserves</u>
Federal (UTU-64375)	<u>48,800,000 Tons</u>	<u>13,200,000 Tons</u>
State		
Private		
Other		
TOTAL	<u>48,800,000 Tons</u>	<u>13,200,000 Tons</u>

April 15, 1991

**TRAIL MOUNTAIN #9 MINE
LEGAL DESCRIPTIONS
ACT/015/009**

**Beaver Creek Coal Company
Emery County, Utah**

February 21, 1990

Federal

Federal Coal Lease U-082996, 80 Acres

T17S, R6E, SLB&M Sec. 25, SW1/4 SE1/4, E1/2 E1/2 SW1/4,

Federal Coal Lease U-49332, 641.47 Acres

T17S, R6E, SLB&M, Sec. 25, S1/2 NW1/4, W1/2 SW1/4,
W1/2 E1/2 SW1/4; Sec. 26, SE1/4 NE1/4, E1/2 SW1/4 NE1/4,
E1/2 SE1/4, E1/2 W1/2 SE1/4; Sec. 35, N1/2 NE1/4, SE1/4
NE1/4, E1/2 SW1/4 NE1/4, E1/2 SE1/4, E1/2 W1/2 SE1/4.

State

State Mineral Lease ML-22603, 640 Acres

T17S, R6E, SLB&M, Sec. 36

Fee

Fee Coal Land - 53 acres

Beginning Point SW Corner of NW1/4 SE1/4
Sec. 25, T17S, R6E, SLB&M, thence North 160 Rods,
thence East 44 Rods to center Cottonwood Creek,
Southward along creek to a point 76 Rods east of
the beginning, thence west 76 Rods to the point of
beginning.

FEDERAL

FINDINGS

**Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract Addition
ACT/015/009**

**Emery County, Utah
April 15, 1991**

1. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (R614-300-120).
2. The permit application is 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 (R614-300-133.100).
3. The proposed permit area is:
 - (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 (R614-300-133.220); and
 - (e) not within 300 feet of any occupied dwelling (R614-300-133.220).
4. The Division has made an assessment of the probable cumulative impacts of all anticipated coal mining and reclamation operations on the hydrologic balance in the cumulative impact area and has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The permit application has been designed to prevent damage to the hydrologic balance in the proposed permit area (R614-300-133.400 and UCA 40-10-11{2}(c)).
5. The operation would not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 et.seq.) (R614-300-133.500).

6. The Division's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) and (R614-300-133.600).

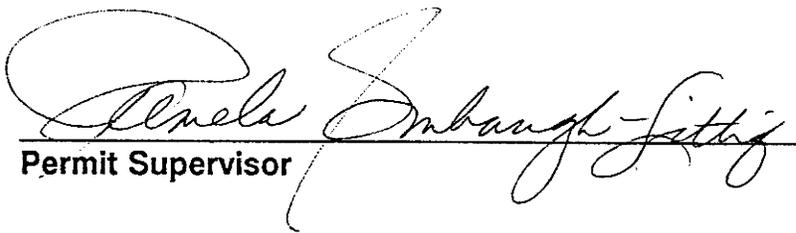
7. The applicant has demonstrated that reclamation as required by the State Program can be accomplished according to information given in the permit application.

8. The applicant has demonstrated that any existing structure will comply with the applicable performance standards of R614-301 and R614-302. (R614-300-133.720)

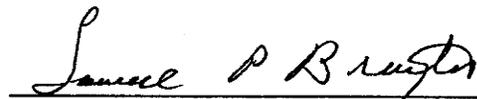
9. The applicant has paid all reclamation fees from previous and existing coal mining and reclamation operations as required by 30 CFR Part 870. A 510{c} report has been run on the Applicant Violator System (AVS), which shows that: prior violations of applicable laws and regulations have been corrected; 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 wilful 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 [R614-300-132 (OSMRE Relatedness Report dated April 15, 1991)].

10. The applicant has satisfied the applicable requirements of R614-302.

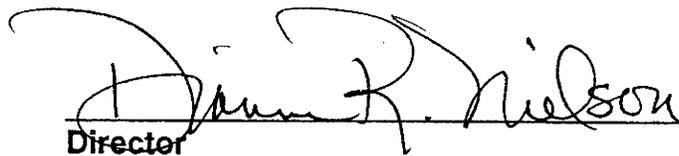
11. The applicant has filed a reclamation performance bond in the amount of \$463,711 and payable to the Division and the Office of Surface Mining, Reclamation and Enforcement (OSM).



Permit Supervisor



Associate Director, Mining



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

This permit, ACT/015/009, is issued for the state of Utah by the Utah Division of Oil, Gas and Mining (Division) to:

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

for the Trail Mountain #9 Mine. A Surety Bond is filed with the Division in the amount of \$463,711, payable to the State of Utah, Division of Oil, Gas and Mining and the Office of Surface Mining Reclamation and Enforcement (OSM). The Division 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 within the permit area at the Trail Mountain #9 Mine, situated in the state of Utah, Emery County, and located:

The legal Description of Federal Lease Tract UTU-64375 is:

Township 17 South, Range 6 East, SLM

- Section 26: S1/2 SW1/4, W1/2 SW1/4 SE1/4;
Section 27: S1/2 S1/2;
Section 34: All;
Section 35: Lots 3 and 4, W1/2 SW1/4 NE1/4, S1/2 NW1/4, SW1/4, W1/2 W1/2 SE1/4.

Township 18 South, Range 6 East, SLM

- Section 1: Lots 1-8, S1/2 N1/2, E1/2 NE1/4 SW1/4, E1/2 NW1/4 NE1/4 SW1/4, N1/2 NW1/4 NE1/4 SE1/4, N1/2 NW1/4 SE1/4;
Section 2: Lots 1-8, S1/2 N1/2, N1/2 NE1/4 SW1/4, N1/2 SW1/4 NE1/4 SW1/4, SE1/4 NE1/4 SW1/4, NW1/4 NE1/4 SE1/4, N1/2 SW1/4 NE1/4 SE1/4, N1/2 NW1/4 SE1/4, N1/2 S1/2 NW1/4 SE1/4;

Section 3: Lots 1, 2, and 8, NE1/4 SE1/4 NE1/4.

Township 18 South, Range 7 East, SLM

Section 6: Lots 4-7, W1/2 SE1/4 NW1/4, W1/2 E1/2 SW1/4

This legal description is for the permit area of the Trail Mountain #9 Mine. 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 COMPLIANCE** - The permittee will comply with the terms and conditions of the permit, all applicable performance standards and requirements of the State Program.
- Sec. 4 PERMIT TERM** - This permit becomes effective on May 15, 1991, and expires on February 20, 1995.
- Sec. 5 ASSIGNMENT OF PERMIT RIGHTS** - The permit rights may not be transferred, assigned or sold without the prior written approval of the Division Director. 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 R614-303-300.
- Sec. 6 RIGHT OF ENTRY** - The permittee shall allow the authorized representative of the Division, including but not limited to inspectors, and representatives of the Office of Surface Mining Reclamation and Enforcement (OSM), 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, R614-400-220, 30 CFR 842.13 and R614-400-110;
 - (b) be accompanied by private persons for the purpose of conducting an inspection in accordance with R614-400-100 and R614-400-200 when the inspection is in response to an alleged violation reported to the Division by the private person.
- Sec. 7 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 approved plan and approved for the term of the permit and which are subject to the performance bond.

Sec. 8 ENVIRONMENTAL IMPACTS - The permittee shall take all possible steps to minimize any adverse impact to the environment or public health and safety resulting from noncompliance with any term or condition of the permit, including, but not limited to:

- (a) Any accelerated or additional monitoring necessary 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. 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 the Division 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 EXISTING STRUCTURES - As applicable, the permittee will comply with R614-301 and R614-302 for compliance, modification, or abandonment of existing structures.

Sec. 11 RECLAMATION FEE PAYMENTS - The operator shall pay all reclamation fees required by 30 CFR Part 870 for coal produced under the permit, for sale, transfer or use.

Sec. 12 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. 13 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. 14 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. 15 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 the Division. The Division, after coordination with OSM, shall inform the permittee of necessary actions required. The permittee shall implement the mitigation measures required by Division within the time frame specified by Division.

Sec. 16 APPEALS - The permittee shall have the right to appeal as provided for under R614-300-200.

Sec. 17 SPECIAL CONDITIONS - There is a special condition associated with this permitting action, as described in Attachment A.

The above conditions (Secs. 1-17) 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 the Division and the permittee at any time to adjust to changed conditions or to correct an oversight. The Division may amend these conditions at any time without the consent of the permittee in order to make them consistent with any federal or state statutes and any regulations.

THE STATE OF UTAH

By: 

Date: 5-15-91

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


Authorized Representative of
the Permittee

Date: 5-24-91

ATTACHMENT A

Special Condition, R614-301-731.200 Water Monitoring

The applicant must monitor quality and quantity of the Star Point aquifer at a point where the flow in the aquifer leaves the permit area. The most likely place to develop this monitoring site is in the area near DH-5 (Figure 6-4). The applicant will be required to develop a well to monitor aquifer parameters, seasonal fluctuation, mining influence and hydrologic tests. The applicant will be required to construct the monitoring well within 90 days of permit approval. This information is requested in accordance with the requirements for water monitoring regulations R614-301-731.200 through R614-301-731.215.

TECHNICAL ANALYSIS

**Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract
UTU-64375
ACT/015/009**

**Emery County, Utah
April 15, 1991**

R614-301-100 GENERAL CONTENTS (SW)

112. Identification of Interests

Beaver Creek Coal Company is a Delaware corporation. The name and address of the applicant and operator is listed on page 2-1. The names and addresses of the officers, directors and principle shareholders are listed on pages 2-3 and 2-4. The applicant's corporation also operates West Elk Coal Company in Colorado and Thunder Basin Coal Company in Wyoming. Surface and coal ownership are identified on page 2-1. Surface and coal owners are the United States of America, State of Utah and Beaver Creek Coal Company. Ownership contiguous to the permit area is identified on page 2-5. The MSHA identification number is 42-01211. The applicant has no current interest in lands adjacent to the proposed permit area.

113. Violation Information

Neither the applicant nor any affiliate or persons under common control with the applicant has had a state or federal permit revoked. Nor has a performance bond or security been forfeited. A list of all violations in the past three years received by the applicant or under common control with the applicant is found in Appendix 2-2.

114. Right-of-Entry Information

The applicants right to enter and begin coal operations are found on page 2-8 through 2-10. The applicant lists the document, date of execution, and identifies the specific land to which the document pertains. A private mineral estate has not been separated from a private surface estate in this lease application.

115. Status of Unsuitability Claims

The proposed permit area is not within an area designated or under study as unsuitable for coal mining and reclamation operations (page 2-10). Additionally, there are no occupied dwellings within five miles of the permit area.

116. Permit Term

The lease permit will be renewed with the Trail Mountain #9 five-year permit renewal on February 21, 1995.

117. Insurance and Proof of Publication

Proof of publication is found in appendix 2-7. The newspaper advertisement was published January 29, 1991, through February 19, 1991, in the Sun Advocate and Emery County Progress. Insurance Certificate is found in the Trail Mountain #9 Mine permit in appendix 2-7.

140. Maps and Plans

All maps are of an acceptable scale and format. There is no mining related activity in the proposed permit area prior to August 3, 1977.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-100.

R614-301-200 SOILS (HS)

221. Prime Farmland Investigation

An investigation was conducted by the U.S.D.A./Soil Conservation Service to determine if prime farmland exists within the Federal Lease Tract. Ferris P. Allgood, State Soil Scientist, determined that no prime or important farmlands exist (Appendix 8-1{L}).

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-200.

R614-301-300 BIOLOGY (SW)

320. Environmental Resources

No surface disturbance is associated with the proposed lease tract addition, therefore, reference areas and productivity requirements are not applicable.

A detailed description of fish and wildlife resources is found in Chapter 10 of the Trail Mountain #9 Mine permit. The proposed lease area is critical value deer and elk winter range. The fishery in Straight Canyon, from the junction of Cottonwood Creek up to Joes Valley Reservoir, is classified as a crucial-critical use area. Six Buteo nests and one golden eagles nest is identified in Straight Canyon adjacent to the proposed lease tract (Figure 10-4). The US Forest Service has determined that there are no listed threatened, endangered, or sensitive plants in the lease area (page 9-1). A concurrence letter was sent to the US Fish and Wildlife Service by the Division on April 5, 1991. The proposed lease area vegetative plant communities are delineated on Figure 9-1.

330. Operation Plan

Possible subsidence should be the only potential surface impact related to the lease tract addition. The permit identifies possible surface cracks, diminished spring flow, and escarpment failure. The applicant has committed to mitigate any damage caused by subsidence (page 12-4). The lease boundary along Straight Canyon has been set back from the escarpment in order to reduce the risk of escarpment failure (12-4b) and damage to raptor nests. Subsidence will be monitored as described in Chapter 12.

340. Reclamation Plan

This section does not apply.

350. Performance Standards

This section does not apply.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-300.

R614-301-400 LAND USE AND AIR QUALITY (SW)

411. Environmental Description

The lease tract is on US Forest Service land. Land use is a horse allotment and Deer Herd unit 35 (Figure 4-3). The US Forest Service manages the area for mining, grazing, recreation, wildlife habitat, and timber harvesting (pages 3-5 and 4-4). Cultural evaluations of historical, archeological and paleontological resources is based

on record and archival examination and surveys of the lease exploration drilling areas (Appendix 5-1{L}). No significant cultural or historic resources within the proposed lease tract are shown in Figure 5-1 (page 3-6). The State Historic Preservation Officer has given clearance for the lease area (personal communication with David Schirer, Utah State History, April 9, 1991).

412. Reclamation Plan

Since no surface disturbance is anticipated, the premining land use is the same as the postmining land use.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-400.

R614-301-500 ENGINEERING (JK)

510. Introduction

The applicant proposes to extend the present mining operation into Federal Lease, UTU-64375. This lease area contains approximately 2,631 acres and lies adjacent to the present mining area on its western and southern borders.

The proposed extension of operations is described in a volume which is separate from the Trail Mountain #9 permit. However, the extension will use the existing Trail Mountain #9 surface facilities and mine portals and will create no additional surface disturbance (see Chapter 1).

512. Certification

All maps which require certification under this and other relevant sections have been certified by a qualified, registered, professional engineer. The certified maps are: Plates 6-4 (Geologic Map--Hiawatha Seam), 6-7 (Hiawatha Seam--Overburden Thickness Map), 7-2 (Location of Seeps and Springs), 7-9 (Water Monitoring Locations), and 7-9A (Underground Water Monitoring Locations). Those maps which are included in the Lease Permit Application but require no certification are 3-10 (Permit Area Map), 4-2 (Surface Ownership Map), 4-3 (Land Use Map), 5-1 (Cultural Resources Survey), and 12--6 (Subsidence Monitoring Plan).

Since the Federal Lease involves no further surface disturbance, there are no plans or engineering designs that require certification.

513. Compliance with MSHA Regulations and MSHA Approval

This section is not applicable. Any and all provisions for sedimentation ponds, refuse piles, closure of entryways, and extinguishing of coal mine waste fires are found in the Trail Mountain #9 permit.

514. Inspections

This section is not applicable. Any and all provisions for the inspection of refuse piles or impoundments are found in the Trail Mountain #9 permit.

515. Reporting and Emergency Procedures

Any time a slide occurs which may have a potential adverse effect on public property, health, safety, or the environment, the applicant will notify the Division by the fastest available means and comply with remedial measures required by the Division (page 3-14).

All provisions for notification and remediation in the case of an impoundment hazard, as well as for temporary cessation of operations, are found in the Trail Mountain #9 permit.

520. Operation Plan

521.110 Previously Mined Areas

Besides the applicant's own operation, there are only two small abandoned mining operations in the vicinity of the Federal Lease: the Oliphant Mine and the Black Diamond Mine. These are located in Straight Canyon, to the south of the Federal Lease Tract. Both are shown on Map 4-2 (Surface Ownership Map).

521.120 Existing Surface and Subsurface Facilities

All existing surface and subsurface facilities and other manmade features are shown in Figure 3-1 (Surface Facilities) in the Trail Mountain #9 permit.

521.130 Landowners and Right of Entry and Public Interest Maps

All boundaries of lands and names of present owners of record of those lands, both surface and subsurface, are shown in Figures 3-10 (Permit Area Map) and 4-2 (Surface Ownership Map). The boundaries of land within the permit area upon which

the applicant has the legal right to enter and carry out coal mining and reclamation operations are shown in Figure 3-1 (Surface Facilities) of the Trail Mountain #9 permit.

521.140 Mine Maps and Permit Area Maps

The boundaries of all areas proposed to be affected over the total life of the operation are shown in Figure 3-10 (Permit Area Map). Underground workings and areas where methods for subsidence prevention or controlled subsidence will be employed are shown in Figure 12--6 (Subsidence Monument Plan).

521.150 Land Surface Configuration Maps

This part is not applicable as no new surface disturbance will be created as a result of the Federal Lease Tract.

521.160 Maps and Cross Sections of the Proposed Features for the Proposed Permit Area

The features, facilities, buildings, etc. mentioned in this part are shown on the Surface Facilities Maps of the Trail Mountain #9 permit.

521.170 Transportation Facilities Maps

Transportation facilities are shown on the Surface Facilities Maps of the Trail Mountain #9 permit.

521.200 Signs and Markers Specifications

This part is not applicable as no new surface disturbance will be created as a result of the Federal Lease Tract.

522. Coal Recovery

The applicant estimates that there are 48,800,000 tons of coal in place in the Federal Lease Tract and 13,200,000 tons are recoverable (page 3-3, Table 3-1). The applicant maintains that this rather low rate of recovery is justified because of the necessity of leaving 12 to 18 inches of top coal to prevent air slacking of the roof. Nevertheless, the applicant has a Resource Recovery and Protection Plan approved by the Bureau of Land Management to attain maximum economic recovery of the coal resource (page 3-4).

523. Mining Method

The method of mining in the Federal Lease Tract will be the same as that employed presently in the Trail Mountain #9 Mine: room-and-pillar mining with continuous mining machinery. Panels will be driven to the property boundaries and pillar extraction will then be carried out as roof and other conditions dictate. Sixty-foot barrier pillars will be left between panels. The applicant expects to increase annual production from the present level of 450,000 tons to a maximum of 1,200,000 tons (pages 3-1 to 3-2).

524. Blasting and Explosives

This section is not applicable. There will be no surface blasting in connection with the Federal Lease Tract.

525. Subsidence (JK/DD)

The applicant has conducted a survey of the surface area above the proposed lease. Timber, wildlife, grazing areas and water seeps are the renewable resources which occur in this area. There are no oil and gas wells, pipelines, utility structures, power transmission lines, or other buildings in the area (see pages 12-2 to 12-3).

The renewable resources in the area are not likely to be adversely affected by subsidence. The seeps that are present are surficial in nature. They are fed by precipitation and are dry most of the summer. In the event that roads, trails, or land surfaces are damaged appreciably by subsidence, the applicant will repair them and restore them to presubsidence usefulness (see page 2-3).

The applicant is committed to using practices which will control and minimize subsidence. Room-and-pillar methods with pillar extraction will be used in the mine. 100-foot barrier pillars will be left between development panels and the main entry pillars will have dimensions of 80 feet by 80 feet. In order to prevent subsidence-induced spalling of rock escarpments, the applicant will mine only to that distance from escarpments which is dictated by the projected 15° angle of draw (see pages 12-1 to 12-4a).

The applicant plans to extend the subsidence monitoring system presently used at the Trail Mountain #9 Mine to include the proposed lease addition. As at the existing Trail Mountain #9 Mine, subsidence will be monitored by conventional surveying of monuments. There will be 52 new monuments, which will be designated "9-1-S" through "9-52-S". Monuments will be placed over the center and ends of each panel except for monuments 9-45-S through 9-52-S, which will be placed over

escarpments and elsewhere outside of the mining area. All monuments will be surveyed and a subsidence reconnaissance survey conducted once a year. All of the information from the combined survey will be submitted to the Division in the Annual Report (see pages 12-5 to 12-5a and Figure 12-6).

Six months prior to mining, the applicant will send to all surface owners who may be affected by subsidence a mining schedule which will detail the area in which mining is to take place and the planned date of that mining activity. Appendix, 12-1(L) contains copies of the letters of notification (see page 12-4b and Appendix 12-1{L}).

The applicant intends to protect perennial streams (page 7-18a) by identifying which drainages are perennial and restricting mining activities to first-mining (development only). The area of mining restriction will be determined by projecting the angle-of-draw from a point 50 feet on each side of the stream down to the coal seam.

526. Mine Facilities

This section is not applicable. The locations and other details of all surface facilities are contained in the Trail Mountain #9 permit.

527. Transportation Facilities

This section is not applicable. Details of all road and conveyors are contained in the Trail Mountain #9 permit.

528. Handling and Disposal of Coal, Overburden, Excess Spoil, and Coal Mine Waste

This section is not applicable. What little spoil and coal mine waste produced in the proposed lease tract addition will be handled as described in the Trail Mountain #9 permit.

529. Management of Mine Openings

This section is not applicable. There will be no additional mine openings as a result of the proposed lease tract addition.

530. Operational Design Criteria and Plans

532. Sediment Control

This section is not applicable. Sediment control measures are described in the Trail Mountain #9 permit.

533. Impoundments

This section is not applicable. Designs, specifications, maintenance and inspection procedures, and other details of impoundments are contained in the Trail Mountain #9 permit.

534. Roads

This section is not applicable. Road designs and other details are contained in the Trail Mountain #9 permit.

535. Spoil

This section is not applicable. Spoil produced in the proposed lease tract addition will be handled as described in the existing Trail Mountain #9 MRP.

536. Coal Mine Waste

This section is not applicable. Coal mine waste produced by the proposed lease tract addition will be disposed of as described in the Trail Mountain #9 permit.

537. Regraded Slopes

This section is not applicable. Regrading of slopes and fills is described in the Trail Mountain #9 permit.

540. Reclamation Plan

542. Narratives, Maps and Plans

This section is not applicable. Maps and plans having to do with all phases of reclamation, including reclamation costs, are contained in the Trail Mountain #9 permit.

550. Reclamation Design Criteria and Plans

551. Casing and Sealing of Underground Openings

This section is not applicable. During reclamation, underground openings, of which there will be none additional as a result of the proposed lease tract addition, will be sealed and backfilled as described in the Trail Mountain #9 permit.

552. Permanent Features

This section is not applicable. Any features which are to remain after final reclamation are described in the Trail Mountain #9 permit.

553. Backfilling and Grading

This section is not applicable. All plans, maps and specifications for backfilling and grading are described in the Trail Mountain #9 permit.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-500.

R614-301-600 GEOLOGY (DD)

The geology for the mine permit and adjacent area is discussed in Section 6 of the Lease Application Package. The applicant has presented a geologic description of the permit and adjacent area. A geologic map, Figure 6-4 identifies that mining will take place in the Hiawatha coal seam. The attitude of the coal seam is indicated to strike northwest and dip from 3 to 4.5 degrees to the southwest. An overburden isopach map (Figure 6-7) identifies a thickness over the mine plan area to be over 1000 feet. This lease area was established with the overburden thickness in mind. The proposed mining is designed to take place inside the limits of the escarpment to help ensure against escarpment failure, slumping and rockfalls. About one-third of Section 6 along Cottonwood Canyon, which is administered by the BLM, allows mining under lower cover (overburden), beyond the escarpment. However, mining is restricted to a maximum of fifty percent recovery. This is in conformance with the previous mining practices for earlier Trail Mountain leases.

The applicant has collected coal, roof and floor quality data. The results indicate very low pyritic sulfur and high neutralizing potentials. Monitoring will continue at intervals not to exceed 2000 feet intervals.

In a conference held with Ken Fleck on April 4, 1991 information and data was presented identifying coal resources, thickness, quality and minability. The information was reviewed separate from the mine plan because the operator had requested confidentiality and non-disclosure in accordance with Title 40-10-10 , Utah Code Annotated and R614-300-124.300 of the Utah Coal Mining and Reclamation Regulations. Ken presented a structure contour map of the Hiawatha coal seam, cross-section B-B', coal isopach map of the Hiawatha coal seam, the coal quality and geology study and analysis workbook, a geologic conditions map (Figure 5.4), minable reserves estimates and geophysical studies for ground water conditions.

The applicant has accumulated data from 10 explorations drill holes, as well as drilling data that is public domain from monitoring wells developed by U.S. Geological Survey for a hydrologic study (Lines, 1985). Surveys of the property from the surface and adjacent mines indicate that there is no large scale faulting and fracturing over the lease area. The axis of the Straight Canyon Syncline runs diagonally from northeast to southwest along the northwest corner of the lease area. A geophysical study by the applicant indicates that no structural displacement occurs that presents an anomalous ground water zone or adversely affects mining operations.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-600.

R614-301-700 HYDROLOGY (TM/DD)

722. Cross-Sections and Maps

722.100 Location and Content of Surface Water. The applicant has provided sufficient drillhole information to document that significant subsurface water was not encountered, therefore, this requirement is waived. See data presented in Appendix 7-15(L).

722.200 The locations of surface water bodies such as streams, lakes, ponds and springs within the permit area and adjacent area are shown on Figure 7-9.

722.300 The locations of monitoring stations used to gather baseline data on water quality and quantity is shown in Figure 7-9. The water monitoring program is discussed in Appendix 7-1(L).

722.400 One monitoring well, TM-1 located near the portal is monitored quarterly and shown on Figure 7-9. This well is used strictly for water monitoring (see page 7-9).

724. Baseline Information

724.100 Ground Water Information

The location and ownership for the permit area and adjacent areas of existing wells, springs, and other ground water sources is shown on Figure 7-9. The seasonal quality and quantity is collected on selected springs, wells, and surface water sources according to the schedule identified in Appendix 7-1(L).

The applicant has submitted information to describe the ground water regime to the extent as could be evaluated from the hydrologic studies that have been conducted adjacent to the area and from information and data collected by the applicant (i.e., occurrence and geologic framework).

Through an extensive drilling program no extensive ground water aquifers were shown to exist and therefore the ground water that does exist is most probably isolated and perched in nature and would be potentially impacted by mining. Since no regional aquifers appear to exist based on drilling data found in Appendix 7-15(L), no data on approximate rates of discharge or usage and depth to the water in the coal seam, and each water bearing stratum above and potentially impacted stratum below the coal seam was requested from the applicant. This assessment was based on the data submitted to date.

Spring inventories were conducted during the spring seasons of 1981 and 1985. Most springs were located in the North Horn Formation which is interbedded with sands, siltstones and mudstones. The applicant attributes the majority of springs in the area to perched aquifers that exist several hundred feet above the coal seam, and anticipates that mining will not have an influence or effect on their flow. The applicant has committed to conducting another spring study during the summer of 1991.

Information describing the ground water in the Blackhawk Formation and Star Point Sandstone Formations was derived from Lines (1985) hydrologic report. Hydraulic conductivity of the sandstones and shales, and the rapid change in facies in the Blackhawk severely restrict the flow of ground water through the formation.

The applicant identifies a potentiometric surface in the Star Point Sandstone (page 7-6). Figure 7-2 illustrates the potentiometric surface of the Blackhawk-Star Point aquifer at the level of the Hiawatha Coal Seam, which ranges from the 6400 feet

elevation at the southwest part of the lease area to 7200 feet elevation along the escarpment of the Cottonwood Creek.

724.200 Surface Water Information

The baseline water quality and quantity information is sufficient to demonstrate seasonal variation and water usage which is found in Chapter 7 of the Trail Mountain #9 Mine permit.

No wells are known to exist within or adjacent to the new lease. Water is produced in mine development from roof leaks, roof bolt holes and tension cracks. The current mine workings in Cottonwood Canyon are producing about 75 gallons per minute in the form of discharge. It is expected that expansion of the mine workings will increase mine water production proportionately. The applicant has committed to monitoring significant mine inflows.

725. Baseline Cumulative Impact Area Information

The necessary baseline hydrologic and geologic information has been submitted to assess the probable cumulative hydrologic impacts of the mining operations on surface and ground water.

Data from the applicant's drilling program has been submitted, as well as baseline data on existing surface and ground water monitoring points as shown on Figure 7-9 and in Appendix 7-15(L).

727. Alternative Water Source Information

The available source of water, if needed, would come from 20 shares of Cottonwood Creek Water owned by the applicant, Beaver Creek Coal Company. Beaver Creek Coal Company also owns 800 shares of the Huntington-Cleveland Water Rights (page 7-15).

A commitment for the repair or replacement of water rights affected by mining is found on pages 7-14 and 7-15.

728. Probable Hydrologic Consequences (PHC) Determination

The determination of the PHC is found in Section 7.1.5 of the PHC. There has been no indication of increased ground water occurrence from recent drilling in the Federal Lease Tract. There have been no documented impacts from mining on surface water resources. Adequate mitigation plans have been presented in the event

large amounts of ground water are encountered or surface water resources are impacted from subsidence. Current projections of 72.62 gallons per minute of water being produced within the mine is based on estimates of the amount of water discharged during 1990 as documented on page 7-11e of the PAP. The overall occurrence of ground water being encountered within the mine falls in line with the theory that inflows are localized and not of a regional, large aquifer.

731.200 Water Monitoring

731.210 Ground Water Monitoring

The permit application contains a monitoring plan for ground water in Appendix 7-1(L). A commitment has been made to monitoring any water sources not previously identified at the completion of the 1991 water survey. This commitment is found on page 7-13 of the PAP.

However, the applicant needs to submit information to completely identify impacts to deep ground water sources, effects of mining on the Star Point aquifer. Information presented by the applicant indicates that the Star Point aquifer will be contacted during the mining process. A positive hydrostatic head will likely be contacted as the working extend west. Monitoring of the Star Point aquifer should take place to detect any changes in water quality and to identify the any impacts. Monitoring information is needed to identify the cumulative hydrologic impacts for the Star Point aquifer as ground water moves from the mine to locations off site. Therefore, special condition R614-301-731.200 must be addressed for the applicant to be in compliance.

731.220 Surface Water Monitoring

The surface water monitoring plan is presented in Appendix 7-1(L). This plan is in compliance with Division guidelines regarding parameters and frequency of monitoring. Any new surface water sources identified in 1991 water survey will be added to the monitoring plan.

Special Condition, R614-301-731.200 Water Monitoring

The applicant must monitor quality and quantity of the Star Point aquifer at a point where the flow in the aquifer leaves the permit area. The most likely place to develop this monitoring site is in the area near DH-5 (Figure 6-4). The applicant will be required to develop a well to monitor aquifer parameters, seasonal fluctuation, mining influence and hydrologic tests. The applicant will be required to construct the monitoring well within 90 days of permit approval. This information is requested in

accordance with the requirements for water monitoring regulations R614-301-731.200 through R614-301-731.215.

731.300 Acid- and Toxic-Forming Materials (HS)

The permittee has committed to regularly sample roof and floor material to determine its acid- and toxic-forming potential. Analysis will include taking samples at intervals not to exceed 2000' along the main entries and in at least one panel entry. Samples will be bagged and analyzed in accordance with the Division Guidelines for the Management of Topsoil and Overburden, Table 6 (page 6-12).

Previous analysis of roof, floor and midseam material may be located in Tables 6-2, 6-3 and in Appendix 6-2. Results indicate (2nd Left-Floor) an acid-forming potential of -81.7 Tons CaCO_3 /1000 Tons Material. This is unacceptable when compared with Division criteria for acid forming potential (i.e., -5 Tons CaCO_3 /1000 Tons Material, Division Guidelines for the Management of Topsoil and Overburden, Table 2). Underground waste rock material will be backstowed in the mine or trucked to the Castle Valley Spur Loadout Facility (Refer to C.V. Spur PAP). Backstowed material emanating from areas having acid- and/or toxic-forming roof and floor material, will be sampled further to determine its acid- and/or toxic-forming potentials.

The acid-forming floor material (Hiawatha Bed) will be closely monitored in the future. Continued roof and floor analysis and in mine water monitoring must proceed to determine the extent and impact of this material on the ground water resource.

COMPLIANCE:

The applicant is in compliance with sections of R614-301-700, except R614-301-731.200 through R614-301-731.215 (Special Condition).

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Beaver Creek Coal Company
Trail Mountain #9 Mine
ACT/015/009

(Federal Lease Tract)
Emery County, Utah
April 15, 1991

I. INTRODUCTION

The purpose of this report is to provide a Cumulative Hydrologic Impact Assessment (CHIA) for the Trail Mountain #9 Mine located in Emery County, Utah. The 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 (UCA 40-10-1 et seq.) and the attendant State Program rules.

Beaver Creek Coal Company's Trail Mountain #9 Mine is located along the eastern margin of the Wasatch Plateau Coal Field, approximately 12 miles west of Orangeville, 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 the higher elevations to less than 10 inches at lower elevations. The area encompassed by the Wasatch Plateau may be classified as semi-arid to sub-humid.

GEOLOGY

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

VEGETATION

Vegetation varies from the sagebrush/grass community type at lower elevations to the Douglas fir/aspen community at higher elevations. Other vegetative communities include mountain brush, pinyon-juniper, pinyon-juniper/sagebrush and riparian. These communities are primarily used for wildlife habitat and livestock grazing.

HYDROLOGY

Cottonwood Creek which flows past the Trail Mountain #9 Mine is a perennial tributary to the San Rafael River. The Cottonwood Creek drainage basin encompasses about 205 square miles of mountainous country in the Wasatch Plateau. About 90 percent of the area is higher than 8,000 feet. The average channel gradient along Cottonwood Creek is about 300 feet per mile. The lower reaches of the tributaries to Cottonwood Creek typically have surface relief between the stream channel and tops of adjacent canyon walls of 2,000 feet or more.

II. CUMULATIVE IMPACT AREA (CIA)

Figure 2 delineates the CIA for current and projected Trail Mountain #9 Mine operations. The CIA includes Cottonwood Creek, two intermittent and several ephemeral drainages. The CIA encompasses approximately 14,507 acres.

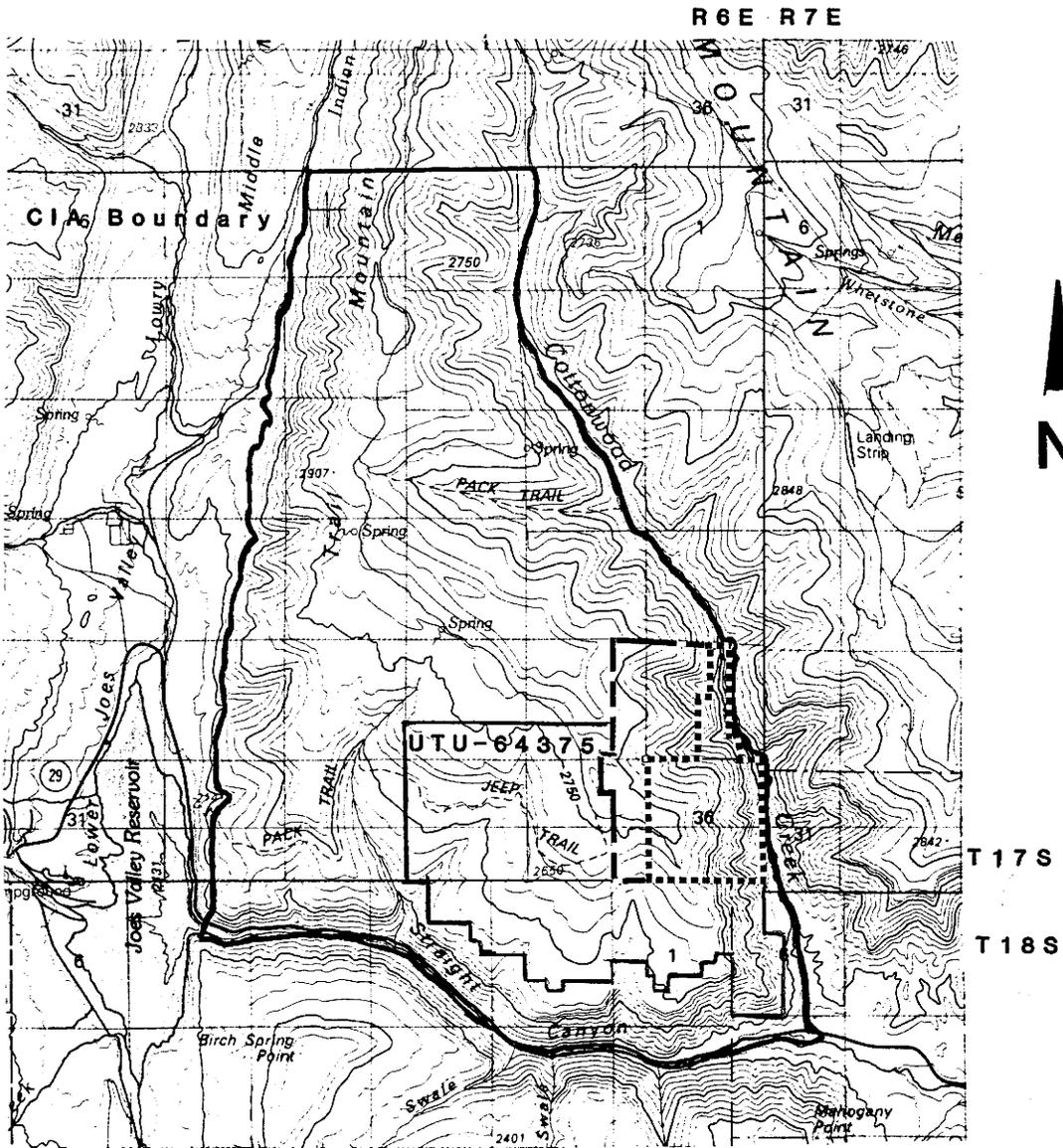
III. SCOPE OF MINING

Mining on Trail Mountain was initiated around 1898 at the Oliphant Mine and Black Diamond Mine. These mines have been shut down since the late 1940's. Portals were sealed by the Utah Abandoned Mine Reclamation Program in 1983. Both mines are located in Straight Canyon; no further mining is anticipated in this area due to U.S. Forest Service designation of Straight Canyon as a protected area.

Mining at or near the Trail Mountain Mine began in 1898 (Doelling, 1972). Large scale operations started in 1909. Mining continued up to 1967 when the mine was shut down for 10 years (Cottonwood CHIA). The mine was reopened and is currently owned by Beaver Creek Coal Company.

The Trail Mountain #9 Mine permit area encompasses 4045.78 acres of which the Federal Lease addition is 2630.81 acres. The surface disturbance associated with this mine is approximately 8 acres.

Mining will take place in the Hiawatha coal seam. It is the only coal seam within the permit area of economic interest. The Coal Seam ranges from 7' to 13' thick. Production will be from room and pillar methods using continuous mining equipment.



SCALE 1:100 000
 1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND
 CONTOUR INTERVAL 50 METERS
 SUPPLEMENTARY CONTOUR INTERVAL 25 METERS

- FEDERAL LEASE UTU-64375 —————
- TRACT 1 PERMIT AREA (dotted line)
- TRACT 2 PERMIT AREA - - - - - (dash-dot line)

FIGURE 2. CUMULATIVE IMPACT AREA (C.I.A.)

Double pass or pillar extraction may be used on retreat to maximize coal recovery. Subsidence control monuments will be established to detect the effects of mining induced subsidence. A map identifying subsidence monitoring locations is seen in Figure 12-6 of the Permit Application Package (PAP).

IV. STUDY AREA

Lithostratigraphic units outcropping within the study area include, from oldest to youngest, the Mancos Shale, Blackhawk Formation, Castlegate Sandstone, Price River Formation, North Horn Formation, Flagstaff Limestone and Quaternary deposits. Lithologic descriptions and unit thicknesses are given in Figure 3.

Rocks in the study area strike northwest and dip from two to four degrees to the southwest. The Joe's Valley Fault occurs along the western boundary of the CIA, where an estimated 2,300 feet of vertical displacement has juxtaposed North Horn Formation (west) against Blackhawk Formation (east). The Straight Canyon Syncline axis trends and plunges southwest across the central portion of the CIA, immediately north and west of the Tract 1 and Tract 2 permit areas (Figure 4).

TOPOGRAPHY AND PRECIPITATION

Topography ranges from less than 6,800 feet to over 9,000 feet in the southern and northern portions of the CIA, respectively.

The CIA is characterized by a southerly drainage system of perennial, intermittent and ephemeral streams (Figure 5). The North Fork of Cottonwood Creek is perennial and has headwaters above 9,000 feet. Straight Canyon maintains perennial flow due to Joes Valley Reservoir.

Average annual precipitation ranges from 14 inches to 30 inches in the CIA. The Wasatch Plateau may be classified as semi-arid to sub-humid.

Slopes in the permit and adjacent areas are dominated by the pinyon-juniper vegetative community with the conifer types present on north and west facing slopes at higher elevations. Grassland types are interspersed on knolls and benches of upper slopes and ridgetops. Canyon bottoms are covered by sagebrush vegetation types with riparian vegetation occurring as a narrow band along the streams.

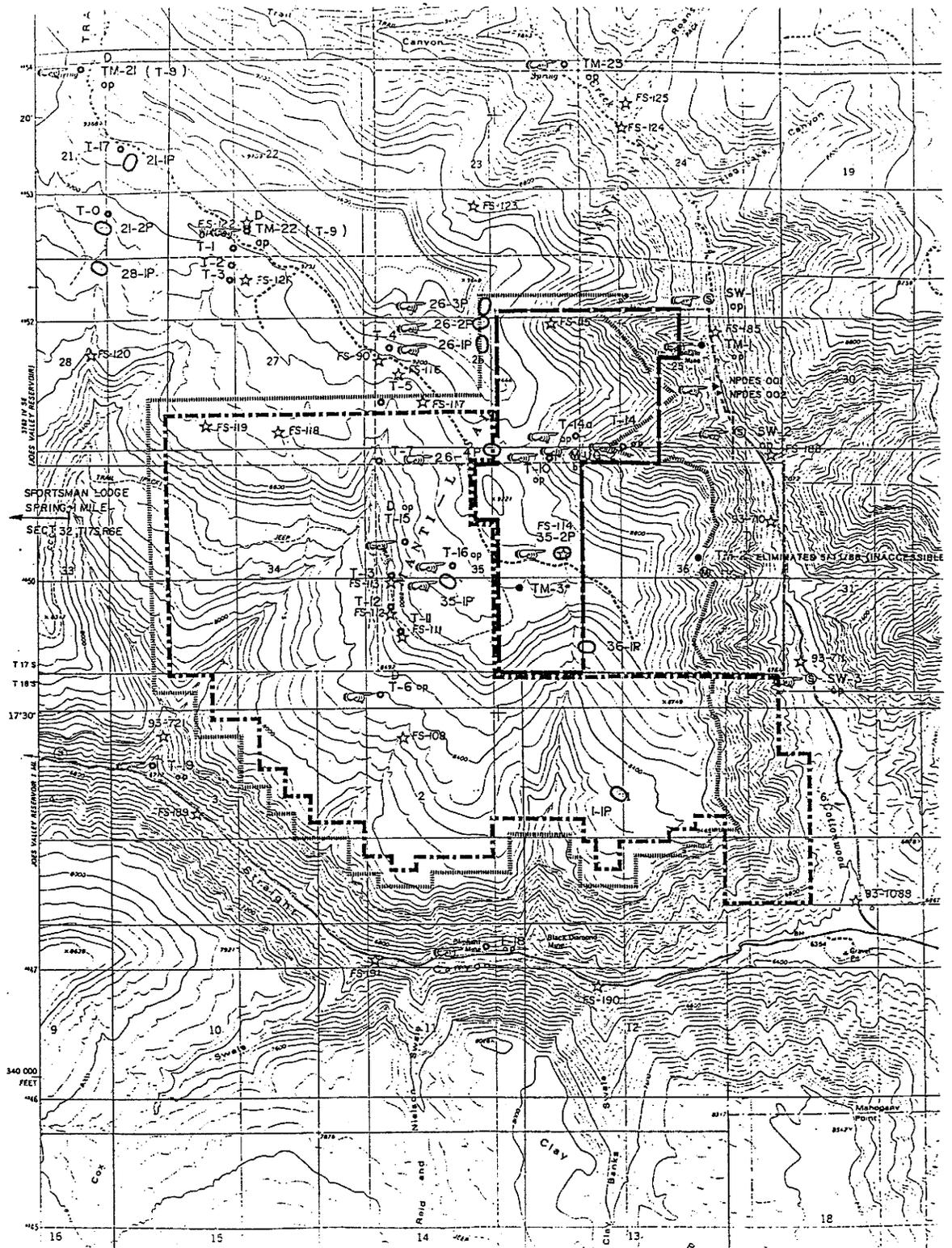
V. HYDROLOGIC RESOURCES

GROUND WATER

The groundwater regime within the CIA is dependent upon climactic and geologic parameters that establish systems of recharge, movement and discharge.

System	Series	Geologic unit	Thickness (feet)	Lithology and water-bearing characteristics
Quaternary	Holocene and Pleistocene	Unconsolidated deposits undifferentiated	0-100	Unconsolidated deposits; clay, silt, sand, gravel, and boulders; yields water to springs that may cease to flow in late summer.
Tertiary	Eocene and Paleocene	Flagstaff Limestone	10-300	Light-gray, dense, cherty, lacustrine limestone with some interbedded thin gray and green-gray shale; light-red or pink calcareous siltstone at base in some places; yields water to many springs. (See table 9.)
	Paleocene	North Horn Formation	800±	Variegated shale and mudstone with interbeds of tan-to-gray sandstone; all of fluvial and lacustrine origin; yields water to springs. (See table 9.)
Cretaceous	Upper Cretaceous	Price River Formation	600-700	Gray-to-brown, fine-to-coarse, and conglomeratic fluvial sandstone with thin beds of gray shale; yields water to springs locally.
		Castlegate Sandstone	150-250	Tan-to-brown fluvial sandstone and conglomerate; forms cliffs in most exposures; yields water to springs locally.
		Blackhawk Formation	600-700	Tan-to-gray discontinuous sandstone and gray carbonaceous shales with coal beds; all of marginal marine and paludal origin; locally scour-and-fill deposits of fluvial sandstone within less permeable sediments; yields water to springs and coal mines, mainly where fractured or jointed.
		Star Point Sandstone	350-450	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.
		Masuk Member of the Mancos Shale	600-800	Dark-gray marine shale with thin, discontinuous layers of gray limestone and sandstone; yields water to springs locally.

Figure 3. Stratigraphy of the Trail Mountain Area (From Danielson and Sylla, 1983).



SCALE 1.7 inches:1.0 mile

- T-1 ○ SPRINGS WITH STATION NUMBERS
- D ○ DEVELOPED SPRINGS (WITH STOCK WATERING TROUGH)
- b ○ SPRINGS THAT ARE CURRENTLY BEING MONITORED FOR BASELINE DATA (USING DOGM 1986 REVISED WATER QUALITY MONITORING GUIDELINES) SEE APPENDIX 7-D(3) TRACT 2 MRP
- op ○ SPRINGS THAT ARE CURRENTLY BEING MONITORED FOR OPERATIONAL PHASE DATA (USING DOGM 1986 REVISED WATER MONITORING GUIDELINES) SEE APPENDIX 7-D(3) TRACT 2 MRP
- 35-IP ○ POND PUNOFF FFD
- POND - SPRING FED - CONSIDERED DEVELOPED BY THE USFS
- IN-MINE GROUND WATER MONITORING LOCATION WITH STATION NUMBER (UG-I)
- ▶ NPDES DISCHARGE LOCATIONS WITH STATION NUMBERS LOCATION 001 IS A DISCHARGE LOCATION FROM A SEDIMENTATION POND LOCATION 002 IS AN IN-MINE DISCHARGE LOCATION AND IS METERED FOR FLOW (NOT IN SERVICE)
- ▶ WATER MONITORING LOCATIONS
- SURFACE WATER MONITORING LOCATION (COTTONWOOD CREEK) WITH STATION NUMBERS SW-1, SW-2, SW-3
- b LOCATION THAT IS CURRENTLY BEING MONITORED FOR BASELINE DATA (USING DOGM 1986 REVISED WATER QUALITY MONITORING GUIDELINES) SEE APPENDIX 7-D(3) TRACT 2 MRP
- op LOCATION THAT IS CURRENTLY BEING MONITORED FOR OPERATIONAL PHASE DATA (USING DOGM 1986 REVISED WATER QUALITY MONITORING GUIDELINES) SEE APPENDIX 7-D(3) TRACT 2 MRP
- MONITORING WELL WITH STATION NUMBERS TM-1, TM-2
- TRACT1 PERMIT AREA (PERMIT NUMBER ACT/D05/009)
- TRACT 2 PERMIT AREA (LEASE NUMBER U - 49332)
- THE PROJECT MAXIMUM AREA OF SUBSIDENCE AT THE SURFACE - THIS PROJECTION CONFORMS WITH THE ANGLE-OF-DRAW VALUES FOUND IN CHAPTER 12 OF TRAIL MOUNTAIN COAL CO. TRACT 2 MRP
- TM-3* TM-3* IS A PROPOSED IN-MINE MONITORING WELL AND WILL BE DRILLED AFTER AREA IS MINED
- ☆ WATER RIGHTS LOCATION — FS-112 = US FOREST SERVICE WATER RIGHT 93-709 = WATER RIGHT DESIGNAT

FIGURE 5. WATER RIGHTS AND WATER MONITORING LOCATIONS.

Snowmelt at higher elevations provides most of the ground water recharge, particularly where permeable lithologies or faults/fractures 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.

Ground water is present in all lithostratigraphic units that occur within and adjacent conditions (Figure 6) that often form a system of perched aquifers and associated springs and/or seeps. The U.S. Geological Survey (USGS) has identified and formally designated the Blackhawk-Star Point aquifer as the only regional ground water resource in the study area (Danielson, et al 1981 and Lines, 1984).

A total of 16 boreholes have been drilled within the CIA (Figure 3). Two boreholes (TM-1 and TM-2) were completed for the purpose of evaluating ground water resources. The fourteen (14) remaining boreholes were drilled to the west of the permit area by the U.S. Geological Survey for the purposes of assessing coal (Davis and Doelling, 1977) and ground water (Lines, 1985) resources.

TM-1 (Figure 7) penetrated the Star Point-Blackhawk aquifer as well as the Mancos Shale below the Star Point-Blackhawk aquifer. Figure 7 incorporates water-level data from TM-1, TM-2 and Lines (1985) to derive a potentiometric surface contour map for the Blackhawk-Star Point aquifer. The slope, from 7,700 to 7,100 feet, indicates a north to south direction of regional ground water flow. The hydraulically flat gradient in the permit area (Figure 7) suggests that the aquifer is being drained by Cottonwood Creek.

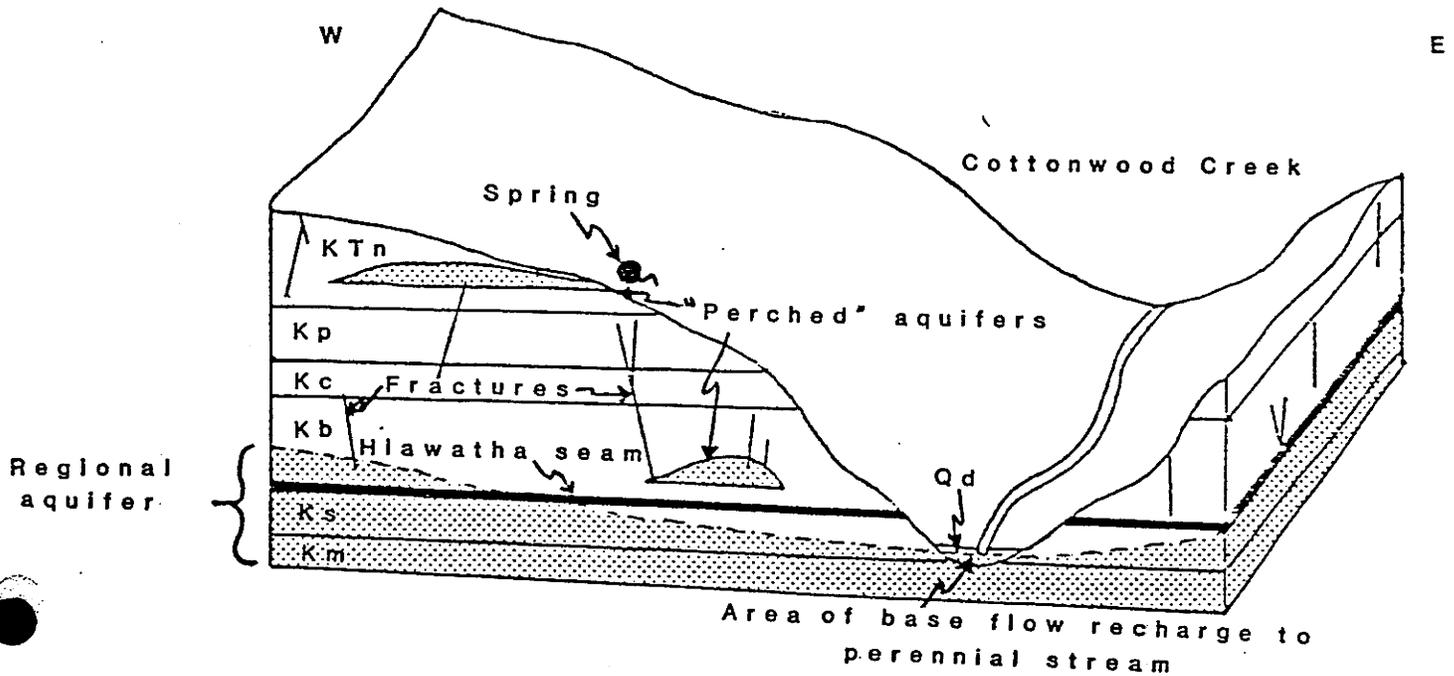
Lines (1985) conducted a testing on the regional aquifer and the results were simulated in a finite difference three-dimensional computer model. Several responses of the ground water resource to mine dewatering activities were generated. Lines concluded that mine inflows could be several hundred gallons per minute (gpm). In the Trail Mountain #9 Mine Probable Hydrologic Consequence (PHC), using acceptable methodologies, the applicant stated that mine inflows would range between 70 and 165 gpm. The resulting cone of depression would extend 2 miles to the north and south of the mine, and 5 miles to the east and west of the mine. The majority of mine inflow would be from aquifer storage (Lines, 1985). Several "perched" aquifer systems, or zones, are present in the CIA, most prevalently in the North Horn Formation. Approximately 80 percent of the identified springs in the CIA issue from the North Horn Formation. Water moves vertically through the permeable sandstone lenses of the North Horn Formation until intersecting less permeable shale lenses, whereupon water will begin to move in the horizontal direction and may discharge to the surface as a spring.

"Perched" aquifer zones and the Blackhawk-Star Point aquifer are separated by 1,000 to 1,700 feet of interburden. Lines (1985) noted that although there was a

Lithologic Key

- Qd-Quaternary deposits
- KTn-North Horn Formation
- Kp-Price River Formation
- Kc-Castlegate Sandstone
- Kb-Blackhawk Formation
- Ks-Star Point Sandstone
- Km-Mancos Shale

A. Before Mining.



B. After Mining.

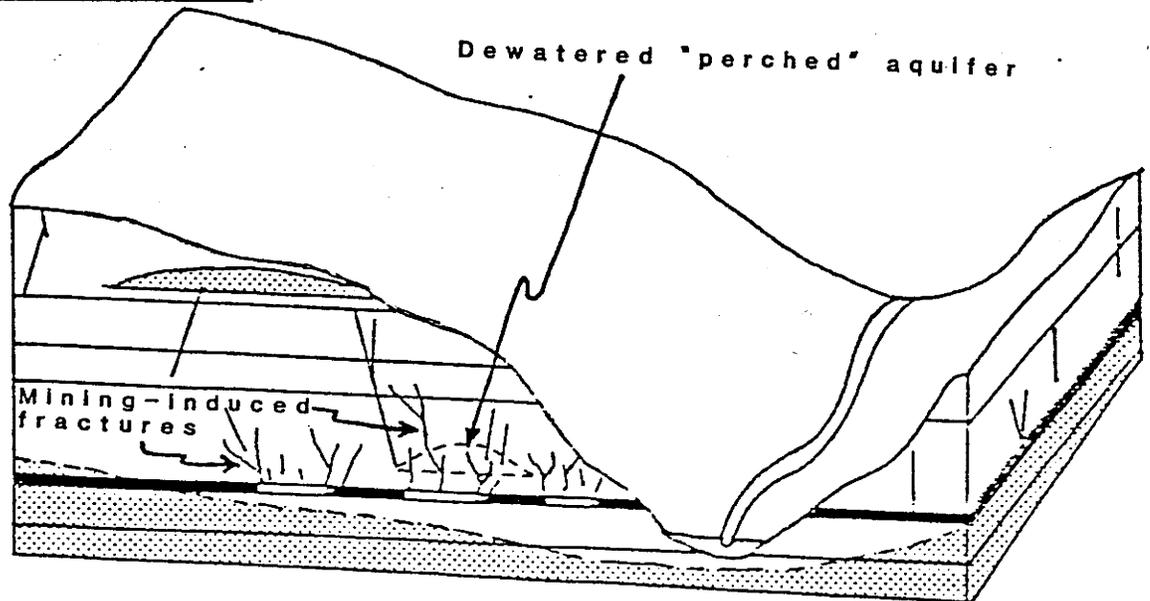
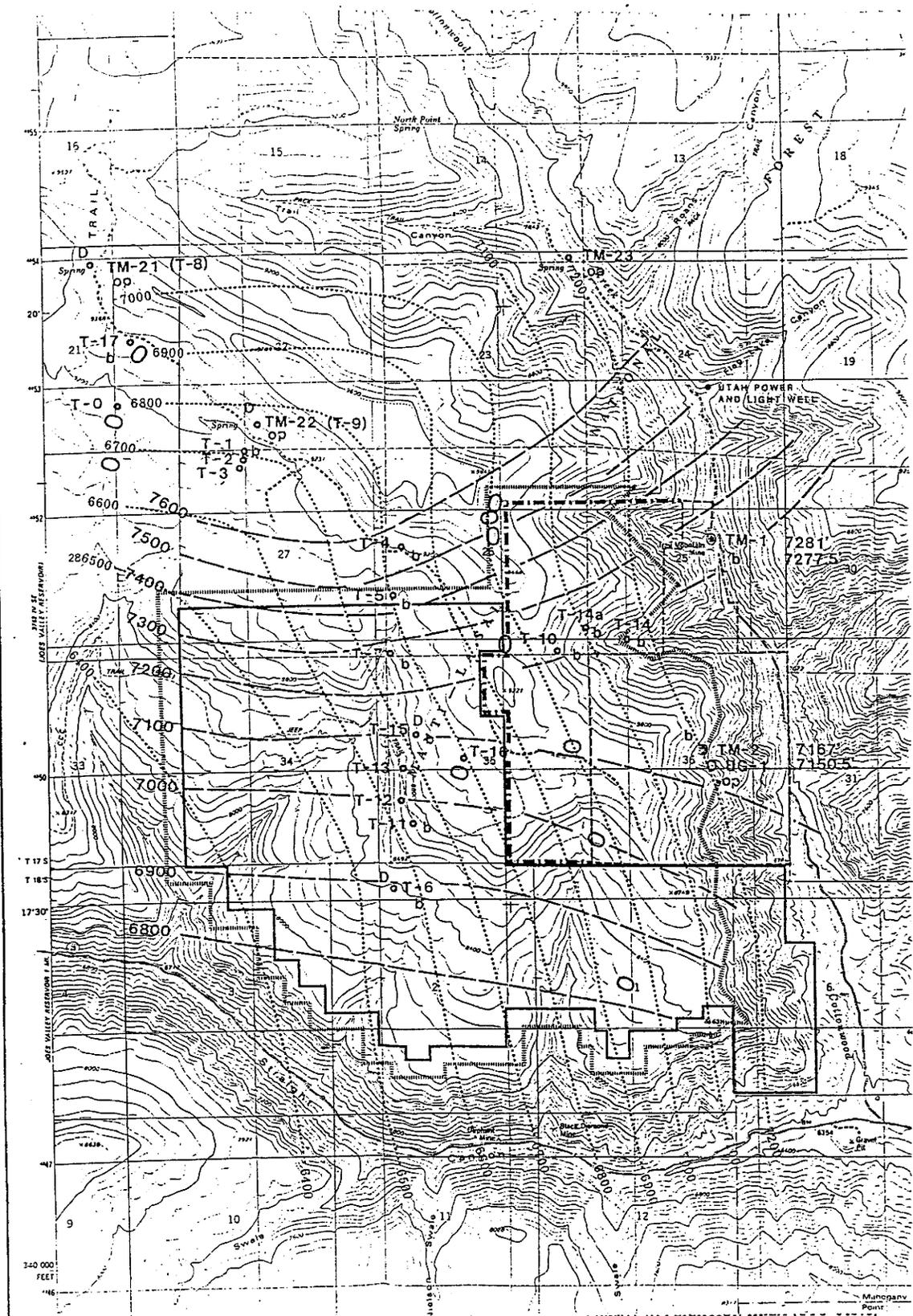


Figure 6. Conceptual Representation of Mining-induced Impacts to the Ground-Water Regime (Modified from Lines, 1985).



- SPRINGS - 10/85 & 9/86 SEEPS & SPRINGS SURVEY
- D ○ DEVELOPED SPRINGS (WITH STOCK WATERING TROUGH)
- SPRINGS THAT ARE CURRENTLY BEING MONITORED FOR BASELINE DATA (USING DOGM 1986 REVISED WATER QUALITY MONITORING GUIDELINES) SEE APPENDIX 7-3
- SPRINGS THAT ARE CURRENTLY BEING MONITORED FOR OPERATIONAL PHASE DATA (USING DOGM 1986 REVISED WATER QUALITY MONITORING GUIDELINES) SEE APPENDIX 7-3
- MONITORING WELL
● ELEVATION OF THE BASE OF THE HIAWATHA SEAM (7277.5) ELEVATION OF THE POTENTIOMETRIC SURFACE OF THE STARPOINT-BLACKHAWK AQUIFER
- IN-MINE GROUNDWATER LOCATION
- POND - RUNOFF FED
- POND - SPRING FED
- LOCATIONS TM-21, TM-22, TM-23, UG-1 ARE OPERATIONAL PHASE MONITORING LOCATIONS (TRACT 1)
- LOCATIONS T-0 THROUGH T-37 ARE 1985-86 SPRINGS WITH SEEPAGE NUMBERS
- TRACT 1 PERMIT AREA
- TRACT 2 PERMIT AREA
- CONTOURS ON POTENTIOMETRIC SURFACE OF THE BLACKHAWK-STARPOINT AQUIFER AT THE LEVEL OF THE HIAWATHA COAL BED (MODIFIED, USING NEW DATA, AFTER LINES, 1985)
- STRUCTURE CONTOUR ON THE BASE OF THE HIAWATHA COAL SEAM (TOP OF THE STARPOINT)
- PLAN VIEW OF THE PROJECTED MAXIMUM AREA OF SUBSIDENCE AT THE SURFACE, PROJECTED CONFORMS WITH THE ANGLE-OF-DRAW VALUES FOUND IN CHAPTER 12 OF THE TRACT 2 MRP

FIGURE 7. POTENTIOMETRIC SURFACE CONTOUR MAP OF THE BLACKHAWK-STARPOINT AQUIFER AND SPRING MONITORING LOCATIONS

significant amount of interburden between aquifers, hydraulic connection occurs between aquifers. Most of the exchange of water probably occurs along fractures in perching beds where there is unsaturated flow downward (Lines, 1985). This leakage is a significant source of recharge to the Blackhawk-Star Point aquifer.

Hydraulic and lithologic data presented by Lines (1985) demonstrated large variations in porosity and hydraulic conductivity for the Blackhawk-Star Point aquifer. The Blackhawk Formation consists of interfingering lenses of fine grained sandstone, siltstone, and shale, while the Star Point Sandstone is medium-grained sandstone. Hence, the variation in the hydraulic properties of the aquifer.

Lines (1985) reported that snowmelt and rain are the main sources of recharge to the ground water system underlying Trail Mountain. Danielson (1981) reported that snowmelt was the major source of recharge to the Blackhawk-Star Point aquifer.

The Blackhawk-Star Point aquifer discharges along Cottonwood Creek Canyon. Spring flows account for 18 percent of the normal annual precipitation on the outcrop. Approximately half of the Cottonwood Creek base flow is derived from aquifer discharge from Trail Mountain, and the other half from East Mountain.

The head of Straight Canyon is a major discharge point for the Blackhawk-Star Point aquifer (Lines, 1985). Prior to the construction of Joes Valley Reservoir, several large springs emanated from the Blackhawk-Star Point aquifer in the dam site area. Streamflow measurements taken during periods of base flow along Straight Canyon detected no ground water discharge except that coming from the head of the canyon and at an abandoned mine in the canyon.

Danielson et al (1981) and Lines (1985) identify 26 springs on Trail Mountain. Of these, 82 percent (21) occur in the North Horn Formation and the remainder occur in the Blackhawk Formation and Star Point Sandstone. Water quality data indicate that springs associated with the North Horn Formation have slightly elevated calcium, magnesium, and sodium levels, whereas springs that issue from the regional aquifer have increased sulfate and TDS.

At present, mine inflow is estimated to be 72.62 gpm from roof bolts, wall weeps and channel sands in the current permit area. This water is produced from localized perched aquifers.

The operator currently monitors eleven (11) springs, six (6) ponds, one (1) well, two (2) underground sites, and three (3) surface water sites as part of the approved water monitoring plan. Of the eleven springs, nine issue from the Blackhawk Formation, one from the Price River, and one from the Castlegate Sandstone. The mine discharge and in-mine water sources issue from the Blackhawk-Star Point aquifer. One well is completed in the Star Point Sandstone. The six ponds are found in the North Horn formation.

SURFACE WATER

The Trail Mountain #9 Mine is located immediately adjacent to Cottonwood Creek, one of the major tributaries of the San Rafael River. Cottonwood Creek has had an annual flow near Orangeville of 70,700 acre-feet during the period of record that extends intermittently from 1909 through the present (U.S. Geological Survey, 1984). Approximately 50 to 70 percent of streamflow in the mountain streams of the region occurs during May through July (Waddell et al., 1981). Streamflow during this late spring/early summer period is the result of snowmelt runoff.

The quality of water in Cottonwood Creek and other similar streams in the area varies significantly with distance downstream. Waddell et al (1981) found that concentrations of dissolved solids varied from 125 to 375 milligrams per liter in major streams in the region in reaches above major diversions to 1,600 to 4,025 milligrams per liter in reaches below major irrigation diversions and population centers. The major ions at the upper sites were found to be calcium, magnesium, and bicarbonate, whereas sodium and sulfate became more dominant at the lower sites. They attributed these changes to: (1) diversion of water containing low dissolved solids concentrations; (2) subsequent irrigation and return drainage from moderate to highly saline soils; (3) ground water seepage; and (4) inflow of sewage and pollutants from population centers.

Average annual sediment yields within the Cottonwood Creek drainage basin range from approximately 0.1 acre-feet per square mile in the headwaters area to about 3.0 acre-feet per square mile near the confluence with the San Rafael River (Waddell et al., 1981).

The Trail Mountain #9 Mine area is drained entirely by ephemeral and intermittent watersheds. These watersheds are steep (with average slopes often exceeding 50 percent). Channels in the mine plan area are not generally deeply incised.

Surface water quality data collected from Cottonwood Creek by Beaver Creek Coal Company indicate that the dominant ions in Cottonwood Creek near the mine are calcium, magnesium, and bicarbonate. Total dissolved solids concentrations in the stream vary from about 250 to 470 milligrams per liter in the mine area, with the lower concentrations normally occurring during September through January. Total dissolved solid concentrations were plotted for a period of five years (Figure 8). Data were derived at three stations on Cottonwood Creek, SW-1, SW-2, and SW-3 (Figure 5).

Total dissolved solid concentrations (TDS) show consistent variation during base flow periods. During the runoff months (Mar-Jun), TDS concentrations at the three stations diverge to extreme values (Figure 8).

Total suspended solids concentrations in Cottonwood Creek tend to vary inversely with the flow rate, as expected. Concentrations have varied during the period of record from less than 1 milligram per liter to greater than 1,000 milligrams per liter.

Additional discussions concerning the surface water regime of the Cottonwood Creek drainage basin are contained in the Cottonwood CIA.

VI. POTENTIAL HYDROLOGIC IMPACTS

GROUND WATER

Dewatering and subsidence related to mining have the greatest potential for impact ground water resources in the CIA.

Dewatering. Mine inflow is currently estimated to be 72.62 gpm. Most of the inflow is utilized underground for dust suppression. Beaver Creek Coal Company diverts water from Cottonwood Creek occasionally to meet mining equipment requirements.

Mine inflows are expected to increase as mining progresses downdip to the west. The regional aquifer fully saturates the coal seam (Figure 6) in the permit area and future development may result in additional inflow of 70 to 165 gpm for a total inflow of 130 to 220 gpm. A mining-induced cone of depression which could develop and extend, from the center of the mine, 2 miles to the north and south and 5 miles to the east and west. The drawdown of the potentiometric surface would be most detrimental to the north, south, and west, where the bedrock is saturated. Exploration of the new lease tract has not indicated any major underground aquifers or cause to believe large quantities of water will be intercepted.

Upon termination of mining operations, the workings will begin to flood. Total recovery of the intercepted recharge to Cottonwood Creek will begin when the head elevation in the abandoned workings exceeds the water level in the stream adjacent to the Tract 1 permit area. Lines (1985) indicated that most (80 percent) of the mine inflow water would come from storage in the aquifer, whereas 20 percent would be water intercepted from aquifer discharge. Mine inflows would gradually decrease and aquifer discharge would increase as the head in the mine equilibrates. Mine inflows over the equilibrium time would average 0.5 cfs; of this amount Lines estimated that aquifer discharge would be reduced by 0.1 cfs. This would result in an impact of 72 acre-feet of depleted contribution to Cottonwood Creek.

Subsidence. Subsidence impacts are 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, readjust or realignment in the conduit system will inevitably produce changes in increased flow along fractures that have "opened" and diverting flow along

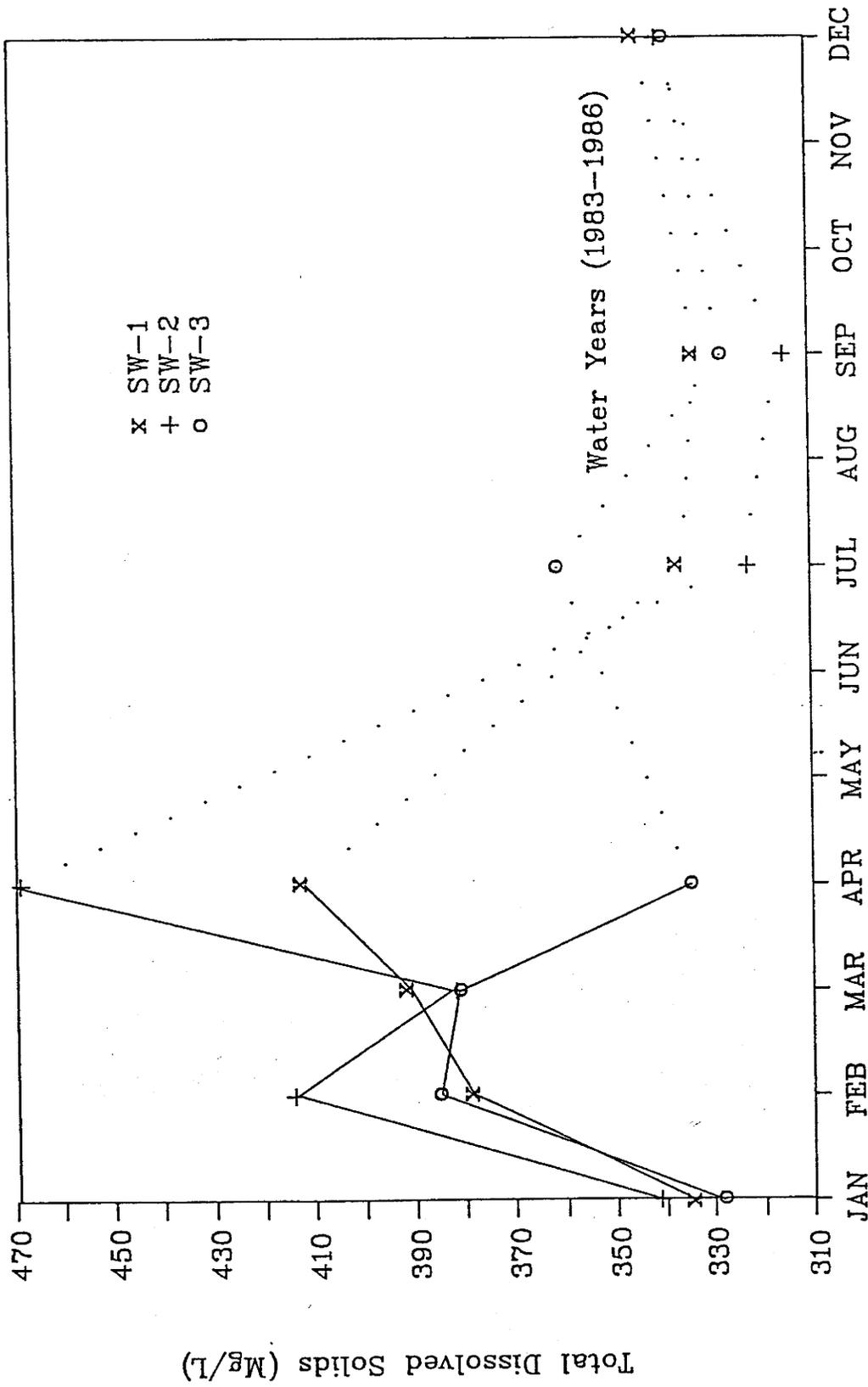


Figure 8. Monthly Mean Values of Total Dissolved Solids from Monitor Stations on Cottonwood Creek. Water Years 1982-1986.

new fractures or permeable lithologies. Subsurface flow diversions may cause the depletion of water in certain localized or "perched" aquifers, whereas increased flow rates along fractures would reduce ground water resistance time and potentially improve water quality.

Subsidence associated with Trail Mountain #9 Mine development is projected to encompass limited vertical movement and be largely confined to the approved permit areas. Accordingly, the ground water regime within the CIA is considered to be at low risk to mining-induced subsidence impacts.

SURFACE WATER

Cottonwood Creek. No new surface facilities (i.e., extended surface disturbance) are planned for the Trail Mountain #9 Mine. Improvements to the surface facilities (paved access road, curb and gutter to sediment pond) should negate impacts to the surface water.

Water is infrequently discharged from the Trail Mountain #9 Mine. Water has been discharged from the mine during periods of low mining activities. The UPDES permit for mine water discharge ensures that the effluent meets the applicable standards.

Future development on Trail Mountain would occur along Cottonwood Creek. Straight Canyon is a Forest Service Withdrawal Area which precludes mining from occurring in Straight Canyon. Beaver Creek Coal Company holds the only federal lease on Trail Mountain requiring diligence. Leasing of federal coal could conceivably occur north of the Trail Mountain #9 Mine, impact from future operations would be dewatering of the aquifer system and minimal surface disturbances. The permitting process will require implementation of sediment control measures and impacts to surface water should be minimized.

VII. SUMMARY

The operational design implemented at the Trail Mountain #9 Mine is herein determined to be consistent with preventing damage to the hydrologic balance outside the mine plan area.

REFERENCES

Danielson, T.W., M.D. ReMillard, and R.H. Fuller, 1981. Hydrology of the Coal-Resource Areas in the Upper Drainage of Huntington and Cottonwood Creeks, Central Utah. U.S. Geological Survey Water-Resources Investigations Open-File Report 81-539.

Danielson, T.W., and Sylla, D.A., 1983. Hydrology of Coal Resource Areas in the Southern Wasatch Plateau, Central Utah: U.S. Geological Survey Water-Resources Investigations Report 82-4009.

Davis, F.D., and Doelling, H.H., 1977. Coal Drilling at Trail Mountain, North Horn Mountain, and Johns Peak Areas, Wasatch Plateau, Utah: Utah Geological and Mineral Survey, Bulletin 112.

Doelling, H.H., 1972. Central Utah Coal Fields: Sevier, Sanpete, Wasatch Plateau, Book Cliffs and Emery: Utah Geological and Mineral Survey, Monograph Sec. No. 3.

Lines, G.C., 1985. The Ground Water System and Possible Effects of Underground Coal Mining in the Trail Mountain Area, Central Utah. U.S. Geological Survey Water Supply Paper 2259.

Simons, Li & Associates, Inc., 1984. Cumulative Hydrologic Impact Assessment Cottonwood Creek Basin, Emery County, Utah.

Waddell, K.M., P.K. Contrati, C.T. Sumsion, and J.R. Butler, 1981. Hydrologic Reconnaissance of the Wasatch Plateau-Book Cliffs Coal-Fields Area, Utah. U.S. Geological Survey Water-Supply Paper 2068.

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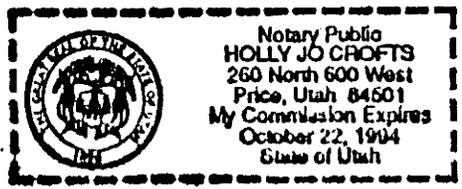
AFFIDAVIT OF PUBLICATION

STATE OF UTAH)
ss.
County of Carbon,)

I, Dan Stockburger, on oath, say that I am the Publisher 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
..... 29thday of January, 19.....91.....
and that the last publication of such notice was in the issue of such
newspaper dated the
..... 19thday of February, 19.....91.....
.....
Subscribed and sworn to before me this
..... 19thday of February, 19.....91.....
.....
My Commission expires October 22, 1994
residing at Price, Utah
Publication fee, \$ 124.80

Dan Stockburger
.....
Notary Public.

Holly Jo Crofts
.....
Notary Public.



PUBLIC NOTICE FOR LEASE PERMIT APPLICATION

TRAIL MOUNTAIN NO. 9 MINE
BEAVER CREEK COAL COMPANY
P.O. BOX 1378
PRICE, UTAH 84501

BEAVER CREEK COAL COMPANY, P.O. Box 1378, 1305 South Carbon Avenue, Price, Utah 84501, a wholly owned subsidiary of Atlantic Richfield Company, has filed with the Utah Division of Oil, Gas and Mining, an application for modification of its Mining and Reclamation Plan Permit to include the new Federal Lease No. U-64375 for its Trail Mountain No. 9 Mine.

This plan has now been determined completely by the Division. The Trail Mountain No. 9 Mine is located in Cottonwood Canyon, approximately 45 miles south of Price, Utah. The new lease area is described as follows:

T. 17 S., R. 6 E., SLM, Section 26: S $\frac{1}{2}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$; Section 27: S $\frac{1}{2}$ S $\frac{1}{2}$; Section 34: all; Section 35: lots 3 and 4, W $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$, W $\frac{1}{2}$ W $\frac{1}{2}$ SE $\frac{1}{4}$.

T. 18 S., R. 6 E., SLM, Section 1: lots 1 thru 8, S $\frac{1}{2}$ N $\frac{1}{4}$, E $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$; Section 2: lots 1 thru 8, S $\frac{1}{2}$ N $\frac{1}{4}$, N $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$; N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, N $\frac{1}{2}$ S $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$; Section 3: lots 1, 2, and 8, NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$.

T. 18 S., R. 7E., SLM, Section 6: lots 4 thru 7, W $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, W $\frac{1}{2}$ E $\frac{1}{2}$ SW $\frac{1}{4}$, containing 2,630.81 acres more or less.

The permit area is located on the Mahogany Point, Utah, U.S. Geological survey 7.5 minute quadrangle map. Federal Coal Leases are U-49332, U-64375 and U-98296, and State of Utah lease is ML-22603.

The Trail Mountain No. 9 Mine has been in operation under present design since 1976, and is operated under permit ACT/015/009, issued 2/21/90.

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 Emery County Courthouse, Castle Dale, Utah 84513.

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 and Mining, 355 West North Temple #3 Triad Center Suite 350, Salt Lake City, Utah 84180-1203.

Published in the Sun Advocate January 29, February 5, 12 and 19, 1991.

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)
ss.
County of Emery,)

I, Dan Stockburger, on oath, say that I am the Publisher of the

The Emery County Progress, a weekly newspaper of general cir-
culation, published at Castle Dale, 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.....consecutive issues, and that the first

publication was on the

29th day of January, 19 91

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

19th day of February, 19 91

[Signature]

Subscribed and sworn to before me this

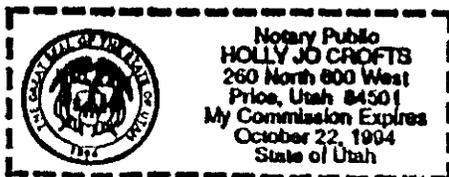
19th day of February, 19 91

[Signature]
Notary Public.

My Commission expires October 22, 1994

Residing at Price, Utah

Publication fee, \$ 124.80



PUBLIC NOTICE FOR LEASE PERMIT APPLICA-
TION
TRAIL MOUNTAIN NO. 9 MINE
BEAVER CREEK COAL COMPANY
P.O. BOX 1378
PRICE, UTAH 84501

BEAVER CREEK COAL COMPANY, P.O. Box 1378, 1305
South Carbon Avenue, Price, Utah 84501, a wholly owned
subsidiary of Atlantic Richfield Company, has filed with the
Utah Division of Oil, Gas and Mining, an application for mod-
ification of its Mining and Reclamation Plan Permit to
include the new Federal Lease No. U-64375 for its Trail
Mountain No. 9 Mine.

This plan has now been determined complete by the Divi-
sion. The Trail Mountain No. 9 Mine is located in Cottonwood
Canyon, approximately 45 miles south of Price, Utah. The
new lease area is described as follows:

T. 17 S., R. 6 E., SLM, Section 26: S 1/2 SW 1/4, W 1/2
SW 1/4 SE 1/4; Section 27: S 1/2 S 1/2; Section 34: all; Section 35:
lots 3 and 4, W 1/2 SW 1/4 NE 1/4, S 1/2 NW 1/4, SW 1/4,
W 1/2 W 1/2 SE 1/4.

T. 18 S., R. 6 E., SLM, Section 1: lots 1 thru 8, S 1/2 NW 1/4,
E 1/2 NE 1/4 SW 1/4, E 1/2 NW 1/4 NE 1/4 SW 1/4,
N 1/2 NW 1/4 NE 1/4 SE 1/4, N 1/2 NW 1/4 SE 1/4; Section 2: lots 1 thru
8, S 1/2 N 1/4, N 1/2 NE 1/4 SW 1/4, N 1/2 SW 1/4 NE 1/4 SW 1/4,
SE 1/4 NE 1/4 SW 1/4, NW 1/4 NE 1/4 SE 1/4; N 1/2 SW 1/4 NE 1/4 SE 1/4,
N 1/2 NW 1/4 SE 1/4, N 1/2 S 1/4 NW 1/4 SE 1/4; Section 3: lots 1, 2, and
8, NE 1/4 SE 1/4 NE 1/4.

T. 18 S., R. 7 E., SLM, Section 6: lots 4 thru 7,
W 1/2 SE 1/4 NW 1/4, W 1/2 E 1/4 SW 1/4,
containing 2,630.81 acres more or less.

The permit area is locted on the Mahogany Point, Utah,
U.S. Geological survey 7.5 minute quadrangle map.
Federal Coal Leases are U-49332, U-64375 and U-08296,
and State of Utah lease is ML-22603.

The Trail Mountain No. 9 Mine has been in operation
under present design since 1976, and is operated under per-
mit ACT/015/009, issued 2/21/90.

The application was filed, and this notice is being pub-
lished to comply with the Surface Mining Control and Recla-
mation Act of 1977 and State and Federal regulations prom-
ulgated pursuant to said act.

The application is available for public inspection at the
Emery County Courthouse, Castle Dale, Utah 84513.

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
and Mining, 355 West North Temple #3 Triad Center Suite
350, Salt Lake City, Utah 84180-1203.

Published in the Emery County Progress January 29,
February 5, 12 and 19, 1991.

United States
Department of
Agriculture

Forest
Service

Manti-La Sal
National Forest

599 West Price River Dr.
Price, Utah 84501

Reply to: 2820

Date: April 17, 1991

Lowell Braxton
State of Utah Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Federal Lease Tract Addition, Beaver Creek Coal Company, Trail Mountain #9
Mine, ACT/015/009, Folder #2, Emery County, Utah

Dear Lowell:

We have reviewed Beaver Creek Coal Company's revisions to the Permit Application, the Draft Technical Analysis (TA) and the Draft Cumulative Hydrologic Impact Assessment. All of our concerns have been adequately addressed with the exception of the following two items:

1. Section 7.1.5 Effects of Mining on the Groundwater Hydrologic Balance
Coal drilling within the new tract indicates that the operator should not encounter large volumes of water in the Starpoint/Blackhawk aquifer. However, another drill hole which lies just west of the tract boundary encountered significant water. Somewhere between TMX-6 and the other hole location to the west, there is potential for mining to encounter significant water. If large amounts of water are encountered and discharged into Cottonwood Creek, impacts could occur.
2. Section 12.4.3 Subsidence Effects and Control

The operator has committed to protect escarpments and perennial drainages. The operator states that buffer zones will be based on a 15 degree angle-of-draw (measured from vertical). No information is presented in the Permit Application Package or approved Resource Recovery and Protection Plan to substantiate that the expected angle-of-draw in the permit area is 15 degrees.

Forest Service consent to approval of the permit is conditional upon the following requirements related to the items discussed above:

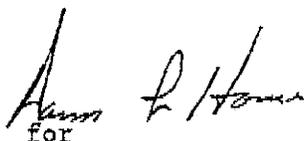
1. Before extending entries to the west beyond the location of hole TMX-6, the operator must drill horizontal holes to determine if significant water could be encountered in the Starpoint/Blackhawk aquifer. If significant water is encountered in the horizontal holes, the operator must stop the advance and notify the regulatory authority.

2. Before mining in the vicinity of perennial stream and escarpment buffer zones, the operator must provide data sufficient to justify use of the 15 degree angle-of-draw (measured from vertical). If the technical data shows that an angle-of-draw greater than 15 degrees is expected, the buffer zone must be modified to be consistent with the expected angle-of-draw.

The Forest Service hereby consents to approval of the mining permit and Permit Application Package/Mining and Reclamation Plan subject to the conditions specified above.

Please contact the Forest Supervisor's office in Price, Utah if you have any questions in regard to Forest Service consent and the subject conditions.

Sincerely,



for
GEORGE A. MORRIS
Forest Supervisor

cc:
Richard Holbrook/Floyd McMullen
Gene Nodine
Dan Guy



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

APR 9 1991

Norman H. Bangert
Governor

Dee C. Hansen
Executive Director

Dianne R. Nielson, Ph.D.
Division Director

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

April 5, 1991

RECEIVED

APR 17 1991

DIVISION OF
OIL GAS & MINING

Mr. Clark Johnson, Field Supervisor
U.S. Fish and Wildlife Services
2060 Administration Building
1745 West 1700 South
Salt Lake City, Utah 84104-5110

Dear Mr. Johnson:

Re: Lease Permit Application, Beaver Creek Coal Company, Trail Mountain #9 Mine, ACT/015/009, Folder #2, Emery County, Utah

We are currently reviewing the Trail Mountain #9 Mine Lease Permit Application. No new surface disturbance is associated with the addition. The permit application states:

"The U.S. Forest Service has determined that there are no listed Threatened, Endangered, or Sensitive plant species in the Lease Area."

Buteo and Golden Eagles nests are located in areas adjacent to the lease tract. These nests area shown on Figure 10-4 of the application.

If you concur with the Forest Service statement and that no listed Threatened, Endangered, or Sensitive wildlife species are in the Lease Area, please sign, date, and return this letter. If you do not concur, please send the Division a current list of endangered, threatened, or sensitive plant or animal species which could potentially be in the permit area.

Thank you for your assistance.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

Yes, we concur with this letter: _____

Signature

Title; U.S. Fish & Wildlife

Date

4/11/91



State of Utah

Division of State History

(Utah State Historical Society)

Department of Community and Economic Development

Norman H. Bangertter
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
801-533-5755
FAX: 801-364-6436

FAX 801-364-6436

April 12, 1991

RECEIVED

APR 17 1991

DIVISION OF
OIL GAS & MINING

Pamela Grubaugh-Littig
Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Federal Lease Permit Addition, Beaver Creek Coal Company, Trail Mountain
#9 Mine, ACT/015/009, Folder #2, Emery County, Utah

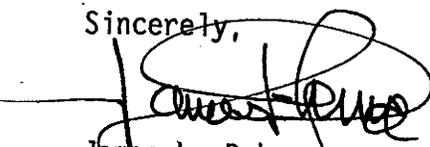
In Reply Please Refer to Case No. K862

Dear Ms. Grubaugh-Littig:

The Utah State Historic Preservation Office received the above referenced report on April 11, 1991. The report states that no cultural resources were located during the survey of this project area. We, therefore, concur with your recommendation that no historic properties will be impacted by the project.

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. If you have questions or need additional assistance, please contact me at (801) 533-7039.

Sincerely,


James L. Dykman
Regulation Assistance Coordinator

JLD:K862 OSM/NP/NE



State of Utah

Division of State History
(Utah State Historical Society)
Department of Community and Economic Development

Norman H. Bangertter
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
801-533-5755

RECEIVED

APR 17 1991

DIVISION OF
OIL GAS & MINING

February 22, 1990

Mr. George A. Morris
Forest Supervisor
U.S. Forest Service
Manti-LaSal National Forest
599 West Price River Drive
Price, UT 84501

RE: Trail Mountain Mine, Emery County - Beaver Creek Coal Company - 2820

In Reply Please Refer to Case No. K862

Dear Mr. Morris:

The Utah State Historic Preservation Office received the above referenced report on February 16, 1990. After consideration of the information about the mine plan, our office would concur with the determination of the BLM of no effect if the new surface development is planned.

This information is provided on request to assist the Forest Service with its Section 106 responsibilities as specified in 36 CFR 800. If you have questions or need additional assistance, please contact me at (801) 533-7039.

Sincerely,

James L. Dykman
Regulation Assistance Coordinator

JLD:K862/8395V FS/NE



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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

IN REPLY REFER TO:

File ACT/015/009 #2

Copy PAM

3482
U-082996
U-64375
(U-065c)

APR 12 1991

RECEIVED

APR 15 1991

DIVISION OF
OIL GAS & MINING

Ms. Pamela Grubaugh-Littig
Division of Oil, Gas and Mining
355 West North Temple Street
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Ms. Grubaugh-Littig:

On August 13, 1990, the Bureau of Land Management (BLM) received a copy of the permit application package (PAP) from your office entitled "Federal Lease Tract Addition, Beaver Creek Coal Company, Trail Mountain No. 9 Mine, ACT/015/009". This PAP requires our response in two areas. Since a portion of the lands applied for are located on BLM surface, a response as to the completeness of post mining land uses and protection of non-mineral resources is required. In a letter to your office dated October 28, 1990, we stated that the PAP is complete in regard to these items. The other area requiring our review is the resource recovery and protection plan (R2P2). Our review is discussed below.

Beaver Creek Coal Company (BCCC) plans to add Federal lease U-64375 to their permit area at the Trail Mountain No. 9 Mine. The mine plan calls for extending the current mine workings south and west into the new lease. All access to this lease will be from existing mine works and no new surface facilities will be constructed. The R2P2 details the planned underground mine workings and extraction (room and pillar) methods for this new lease as required by the mineral leasing laws.

Although complete pillar extraction is contemplated, previous experience at the mine under similar circumstances has not met with success. These circumstances involve mining at depths of around 2000 feet and a massive sandstone strata above the immediate roof that is not conducive to caving. For this reason, the BLM expects to approve several changes until the optimal recovery is obtained.

Lease terms specify protection of cliffs from mine-induced subsidence failure. In reviewing the plan, one planned room and pillar panel falls under the area of influence of potential escarpment failure due to subsidence caused by mining activities. To avoid potential escarpment failure, the last panel on the eastern boundary of T18S, R6E, section 1, will be limited to first mining only in order to leave pillars of sufficient size to prevent caving of the strata (see attached map). With this addition, the plan is adequate and technically complete.

We have determined that the R2P2 is in compliance with the Mineral Leasing Act of 1920, as amended, the regulatory provisions of 43 CFR 3480, Federal lease terms and conditions, and the requirement for achievement of maximum economic recovery of Federal coal. Therefore, we recommend approval of the R2P2 for the new lease.

If you have any questions, please contact Stephen Falk or Gary Johnson in our Price Coal Office at (801) 637-4584.

Sincerely yours,



for Assistant District Manager
Mineral Resources

Enclosure:
Projected Mine Map

cc: SD, Utah (U-921), w/enclosure
DM, Moab (U-065), w/enclosure
Beaver Creek Coal Company, w/enclosure
Manti-LaSal National Forest, Price, w/enclosure

United States
Department of
Agriculture

Forest
Service

Manti-LaSal
National Forest

599 West Price River Dr.
Price, Utah 84501

Reply to: 2820

Date: October 9, 1990

Pamela Grubaugh-Littig
State of Utah Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RECEIVED
OCT 11 1990
DIVISION OF
OIL, GAS & MINING

Dear Pam:

Attached is a copy of the Environmental Assessment (EA) prepared by the Forest Service for leasing of the Trail Mountain Tract. The EA was prepared in cooperation with the Bureau of Land Management and Office of Surface Mining.

This EA can be a tiering and reference document for preparation of the Environmental Analysis/Technical Analysis for adding Federal Coal Lease U-64375 to the permit area for the Trail Mountain #9 Mine.

If you have any questions, please contact us at the Forest Supervisor's Office in Price, Utah.

Sincerely,


for
GEORGE A. MORRIS
Forest Supervisor

Enclosure

**ENVIRONMENTAL ASSESSMENT
FOR
BEAVER CREEK COAL COMPANY
COAL LEASE APPLICATION UTU-64375
TRAIL MOUNTAIN TRACT**

**USDA
FOREST SERVICE
MANTI-LASAL NATIONAL FOREST**

**USDI
BUREAU OF LAND MANAGEMENT
MOAB DISTRICT**

April 1990

Responsible Officials:

**J. S. Tixier, Regional Forester
USDA, Forest Service
Intermountain Region
Federal Building
324 25th Street
Ogden, Utah 84401**

**James M. Parker, State Director
USDI, Bureau of Land Management
Utah State Office
324 South State, Suite 301
Salt Lake City, Utah 84111-2303**

For Further Information Contact:

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USDA, Forest Service
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**Gene Nodine, District Manager
USDI, Bureau of Land Management
Moab District
P.O. Box 970
Moab, Utah 85432**

Cooperating Agency:

**USDI, Office of Surface Mining
Reclamation and Enforcement
Brooks Tower, 2nd Floor
1020 15th Street
Denver, Colorado 80202**



TABLE OF CONTENTS

Page No.

TITLE PAGE

TABLE OF CONTENTS

I.	INTRODUCTION	1
	A. Purpose and Need for Action	1
	Map 1 Location Map, Trail Mountain Tract	2
	Map 2 Detail Map, Trial Mountain Tract	3
	B. Authorizing Actions	4
	C. History, Background, and Potential Mining Scenarios	4
	D. Public Issues, Management Issues, and Opportunities	5
	1. Public Issues	5
	2. Management Issues	6
	3. Opportunities	6
	E. Negative Declaration	7
II.	DESCRIPTION OF ALTERNATIVES	7
	A. Alternative 1 - No Action	7
	B. Alternative 2 - Offer the Tract for Leasing as Proposed	7
	1. Description	7
	2. Management Requirements, Constraints, and Mitigations	7
	C. Alternative 3 - Offer a Smaller Tract for Leasing	7
	1. Description	7
	2. Management Requirements, Constraints, and Mitigations	8
	D. Comparison of the Alternatives	8
III.	DESCRIPTION OF THE AFFECTED ENVIRONMENT	9
	A. General Setting	9
	B. Topography and Geology	9
	C. Surface Hydrology	10
	D. Ground Water Hydrology	11
	E. Subsidence	13
	F. Vegetation and Range	13
	Map 3 Trail Mountain Cattle and Horse Allotment	14
	G. Visual Resources	15
	H. Lands and Special Uses	15
	I. Socioeconomics	15
	J. Wildlife	17
	K. Cultural Resources	18
	L. Transportation System	18

IV.	EFFECTS OF IMPLEMENTATION	18
A.	Alternative 1 - No Action	18
B.	Alternative 2 - Offer the Tract for Leasing as Proposed	19
	1. Short-term and Residual Impacts	19
	a. Topography, Geology, and Subsidence	19
	b. Surface Hydrology	20
	c. Ground Water Hydrology	21
	d. Vegetation and Range	21
	e. Visual Resources	21
	f. Lands and Special Uses	22
	g. Socioeconomics	22
	h. Wildlife	23
	i. Cultural Resources	23
	j. Transportation System	24
	2. Short-term Use vs. Long-Term Productivity	24
	3. Irretrievable and Irreversible Commitment of Resources	25
	4. Cumulative Impacts	25
C.	Alternative 3 - Offer a Smaller Tract for Leasing	26
V.	PERSONNEL AND PUBLIC INVOLVEMENT	27
A.	Interdisciplinary Team and Consultants	27
B.	Public Contacts	27
C.	Intensity of Public Interest	27
VI.	REFERENCES	28
VII.	APPENDICES	
A.	Coal Tract Delineation Report	
B.	Role of Office of Surface Mining Reclamation and Enforcement in the Regulation of Coal Mining	
C.	Special Lease Stipulations	
D.	Public Notices	
E.	Wildlife Inventory	
F.	Previous Archaeology Surveys	

I. INTRODUCTION

A. Purpose and Need for Action

On March 10, 1989, Beaver Creek Coal Company submitted Coal Lease Application UTU-64375 to the Bureau of Land Management, Utah State Office. The proposed lease tract, known as the Trail Mountain Tract, encompasses 3,010.81 acres of Federal coal lands in Emery County, Utah (Map 1). The Coal Tract Delineation Team Report, December, 1989 (Appendix A), recommended that the tract be reduced to 2,630.81 acres to maintain the competitive nature of remaining coal reserves in the area (Map 2). This recommendation was approved by the Uinta-Southwestern Utah Regional Coal Team in January, 1990. The surface of the involved lands are administered as follows:

USDA, Forest Service, Manti-LaSal National Forest - 2,425.86 acres (92%)
USDI, Bureau of Land Management, Moab District - 204.95 acres (8%)

The legal description of the tract is as follows (Map 2):

T. 17 S., R. 6 E., SIM.

Sec. 26: S1/2SW1/4, W1/2SW1/4SE1/4;

Sec. 27: S1/2S1/2;

Sec. 34: all;

Sec. 35: Lots 3 and 4, W1/2SW1/4NE1/4, S1/2NW1/4, SW1/4,
W1/2W1/2SE1/4.

T. 18 S., R. 6 E., SIM.

Sec. 1: Lots 1-8, S1/2N1/2, E1/2NE1/4SW1/4, E1/2NW1/4NE1/4SW1/4,
N1/2NW1/4NE1/4SE1/4, N1/2NW1/4SE1/4;

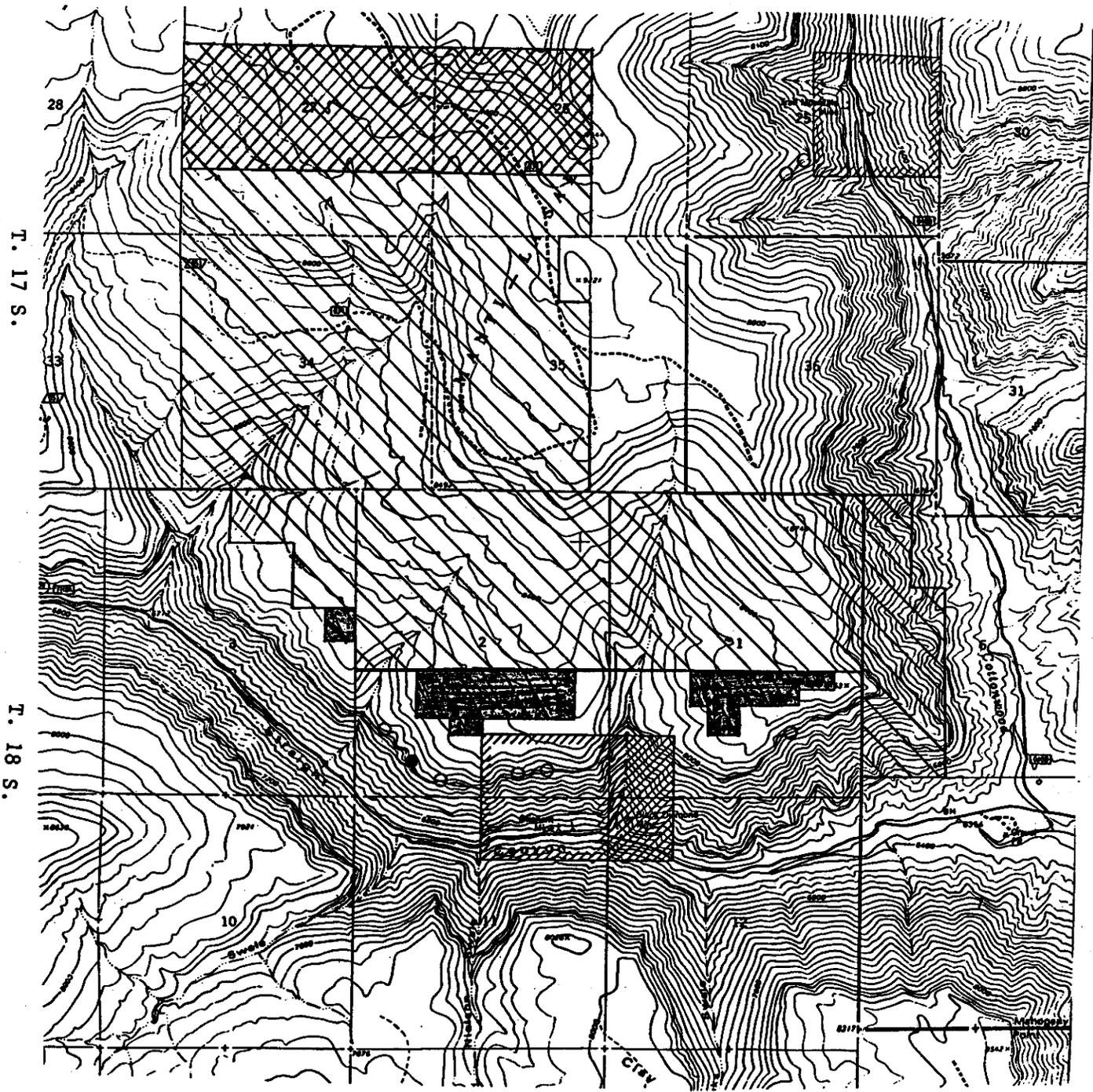
Sec. 2: Lots 1-8, S1/2N1/2, N1/2NE1/4SW1/4, N1/2SW1/4NE1/4SW1/4,
SE1/4NE1/4SW1/4, NW1/4NE1/4SE1/4, N1/2SW1/4NE1/4SE1/4,
N1/2NW1/4SE1/4, N1/2S1/2NW1/4SE1/4;

Sec. 3: Lots 1, 2, and 8, NE1/4SE1/4NE1/4.

T. 18 S., R. 7 E., SIM.

Sec. 6: Lots 4-7, W1/2SE1/4NW1/4, W1/2E1/2SW1/4.

The lands in Sec. 6, T. 18 S., R. 7 E., are administered by BLM. The remaining surface is administered by the Manti-LaSal National Forest. Since the proposed lease tract involves public lands administered by BLM and National Forest System lands, this environmental analysis was conducted jointly between the two agencies. The Manti-LaSal National Forest took the lead in preparation of the Environmental Assessment because the majority of the lands are administered by the Manti-LaSal National Forest. The Office of Surface Mining Reclamation and Enforcement (OSM) has responsibility for permitting mines which involve federal coal. Therefore, they have been identified as a cooperating agency. A more detailed description of the role of OSM in the regulation of coal mining activities is presented in Appendix B.



Private Land



Area deleted by the Tract Delineation Team



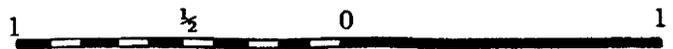
Lease Tract



Tract area outside of the area originally designated as suitable for leasing.



Black Diamond Mine Lease Area.



Scale (miles)



Active golden eagle nest.



Inactive golden eagle nest.



Map 2. Detail Map, Trail Mountain Tract.

B. Authorizing Actions

The coal lease application was submitted and will be processed and evaluated under the following authorities: Mineral Leasing Act of 1920 as amended, Federal Coal Leasing Amendments Act of 1976 (FCLAA), Federal Land Policy and Management Act of 1976 (FLPMA), Surface Mining Control and Reclamation Act of 1977 (SMCRA), Multiple-Use Sustained Yield Act of 1960, National Forest Management Act of 1976 (NFMA), National Environmental Policy Act of 1969 (NEPA), and Federal Regulations 43 CFR 3400.

The lease application will be processed under the procedures set forth under Federal Regulations 43 CFR 3425, Leasing on Application.

C. History, Background, and Potential Mining Scenarios

Beaver Creek Coal Company applied for a coal lease on 3,010.81 acres of unleased Federal coal lands adjacent to their Trail Mountain No. 9 mine. This tract is a portion of the area originally delineated in 1982 as the Trail Mountain tract during the second round coal leasing effort in the Uinta-Southwest Utah Coal Region. The Trail Mountain tract was delineated in response to expressions of interest from Natomas Coal Company and Royal Land Company. The tract was evaluated by the Forest Service in the Trail Mountain Proposed Coal Lease Tract Site Specific Analysis dated July 1, 1982. The Uinta-Southwestern Utah Coal Region Round Two Final Environmental Impact Statement, completed on October 7, 1983, evaluated 27 tracts in Utah and Colorado. The Trail Mountain tract was one of 22 tracts recommended for competitive leasing under the preferred alternative (Alternative Two, High Level). Due to a re-evaluation and major changes in the Federal coal management program in 1984, the Trail Mountain tract was not offered for leasing.

In January of 1988 the Uinta-Southwestern Utah Coal Region was decertified and as a result, new coal leasing within the Region is being conducted under the Lease on Application Process set forth in Federal Regulations 43 CFR 3425.

A tract delineation team consisting of personnel from BLM and the Manti-LaSal National Forest evaluated the tract configuration as submitted by Beaver Creek Coal Company. The team recommended that the northern portion of the area applied for be removed from consideration, reducing the tract to 2,630.81 acres. This would maintain the competitive nature of the coal resources to the west and north.

An initial analysis was conducted by the surface management agencies and it was determined that the tract was suitable for further consideration for coal leasing, subject to site-specific analysis, under the Manti-LaSal National Forest Land and Resource Management Plan dated November 5, 1986 and the Bureau of Land Management, San Rafael Resource Area Management Framework Plan dated October, 1979. It was also determined that there is information available to generally meet the Data Adequacy Standards for Federal Coal Leasing adopted by the Uinta-Southwestern Utah Regional Coal Team on June 16, 1988.

This information was presented to the Regional Coal Team on December 22, 1989, and the team decided to proceed with the lease on application process and conduct an environmental analysis. On January 16, 1990 the Bureau of Land Management requested that the Forest Service prepare a site-specific environmental analysis, in accordance with 43 CFR 3425.3, to evaluate effects of mining on other resource values and to identify any necessary lease stipulations.

The Coal Lease Unsuitability Criteria (Federal Regulations 43 CFR 3461) have been applied on a site-specific basis and no areas within the tract have been determined to be unsuitable for leasing.

New coal leases are issued competitively. If the tract is offered for lease and Beaver Creek Coal Company acquires the lease, it will be mined through their Trail Mountain Number 9 Mine facilities. This mine is on private land in Cottonwood Canyon, along the eastern edge of their leases. If another company acquires the lease and it is mined independently of the Beaver Creek mine, there is potential for access on BIM lands in Cottonwood Canyon along the outcrop on the southeast corner of the application area. The outcrop is high on the cliff face and the coal appears to be extensively burned, making independent access appear to not be economically feasible. If the northern portion of the original Trail Mountain Tract were leased, additional access might be provided through property controlled by Utah Power and Light Company or by constructing a new portal in Cottonwood Canyon about 1.5 miles northwest of the Trail Mountain Mine.

If the lease is issued, proposed mining operations would be evaluated for permitting in accordance with the Surface Mining Reclamation and Control Act of 1977 (SMCRA), Federal Regulation 30 CFR 700, the Utah Coal Regulatory Program, the appropriate land management plans, and the terms and conditions of the lease.

D. Public Issues, Management Issues, and Opportunities

The following is a discussion of the issues and opportunities identified by the Interdisciplinary Team through analysis of the application and public comments:

1. Public Issues

An issue was raised in 1982 during the Round Two Coal Leasing Effort that development of the evaluated tracts and the increased population associated with mining would adversely impact local communities. Considering the current depressed coal industry and associated mine layoffs in the local area, this issue is no longer of consequence.

A letter was received from the Utah Division of Wildlife Resources regarding potential impacts to wildlife from mining induced subsidence. These will be discussed under management issues.

2. Management Issues

- a. Subsidence could damage surface facilities, such as ponds, fences, watershed treatment areas, roads, trails, or survey markers.
- b. Subsidence could disrupt livestock or wildlife movement.
- c. Mining/subsidence could disrupt ground water or alter surface water flow.
- d. Mining/subsidence could affect water quality in Cottonwood Creek and Straight Canyon.
- e. Mining activities could disrupt livestock trailing.
- f. Increased coal hauling could increase the sediment added to the surface water.
- g. Potential loss of riparian areas or areas of high forage production, such as aspen, if ground water flow is disrupted.
- h. Visual quality would decrease, if a new portal is developed.
- i. Mining-induced escarpment failure. A line was established on the south end of Trail Mountain in the Manti-LaSal National Forest Land and Resource Management Plan (LRMP), south of which coal mining would not be allowed to prevent mining from Straight Canyon and to protect the escarpment from failure (Map 2). BLM asked the Forest Service to consider adding some of the area south of this line to the lease area to prevent leaving potentially minable coal. One hundred and forty acres south of the line have been proposed for addition to the lease area (Map 2). The area was evaluated in detail before it was proposed for leasing, and is located far enough back from the escarpment that the potential for failure is remote, but the possibility of failure should be evaluated.
- j. There would be detrimental socioeconomic effects, if the tract is not leased.

3. Opportunities

- a. Leasing and production of coal reserves in the tract would result in increased rent and royalties paid to the Federal Government and would supplement State and local government revenues.
- b. The coal reserves in the tract would be mined and made available for energy production and other industrial uses.
- c. If the tract is mined through the existing Trail Mountain Mine, the life of the mine would be extended approximately 10 to 15 years, at a mining rate of 800,000 to 1,200,000 tons per year, by providing additional coal reserves.

E. Negative Declaration

There are no prime farmlands, rangelands, timber lands, or alluvial valley floors within the proposed lease area. Leasing of the tract should not result in significant impacts to cultural or paleontological resources; threatened, endangered, or sensitive plant or animal species; or floodplains. Protection of these resources is provided under the lease stipulations and Federal and State laws and regulations.

II. DESCRIPTION OF ALTERNATIVES

A. Alternative 1 - No Action

Under this alternative, the coal lease application would be denied and the tract would not be offered for leasing.

B. Alternative 2 - Offer the Tract for Leasing as Proposed

1. Description

Under this alternative the tract would be offered for competitive leasing as recommended by the Coal Tract Delineation Team and approved by the Regional Coal Team. This tract is smaller than the tract listed in Beaver Creek Coal Company's Coal Lease Application. It also contains 140 acres south of the area defined as suitable for coal mining in the Manti-LaSal National Forest Land and Resource Management Plan (LRMP). This southern boundary was adopted to prevent future mining from Straight Canyon and to protect the escarpment from mining-induced failure.

2. Management Requirements, Constraints, and Mitigations

The required mitigations which are attached as Appendix C would be included in the lease as special stipulations in addition to standard BLM lease stipulations. They are consistent with the planning documents for the BLM and Forest Service and are necessary special measures for protection and mitigation of the affected resources. An amendment to the Manti-LaSal National Forest LRMP would be required to allow leasing of the 140 acres south of the area defined as suitable for mining.

C. Alternative 3 - Offer a Smaller Tract for Leasing

1. Description

Under this alternative the tract recommended by the Coal Tract Delineation Team would be offered for competitive leasing with the exception of the 140 acres south of the area defined as suitable for mining in the LRMP.

2. Management Requirements, Constraints, and Mitigations

The required mitigations which are attached as Appendix C would be included in the lease as special stipulations in addition to standard BLM lease stipulations. They are consistent with the planning documents for the BLM and Forest Service and are necessary special measures for protection and mitigation of the affected resources.

D. Comparison of the Alternatives

A detailed analysis of the environmental consequences or impacts, after mitigation, appears in Section IV, Effects of Implementation. The following table is intended to be a relative comparison of the anticipated level of impacts for each alternative.

<u>Issue</u>	<u>Alt. 1 No Action</u>	<u>Alt. 2 Lease as Proposed</u>	<u>Alt. 3 Lease Smaller Area</u>
a.Subsidence effects on surface facilities.	No effect.	Low	Low
b.Subsidence could disrupt livestock or wildlife movements.	No effect.	Negligible	Negligible
c.Subsidence could disrupt ground or surface water flow.	No effect.	Low	Low
d.Mining/subsidence could affect water quality in Straight Canyon.	No effect.	Moderate	Moderate
e.Mining activities could disrupt livestock trailing.	No effect.	Moderate, if new portal facilities are constructed.	Moderate, if new portal facilities are constructed.
f.Coal hauling effects on surface water.	No change.	Low	Low
g.Potential loss of riparian area due to ground water flow disruption.	No change.	Low	Low
h.Effects on visual qualities.	No change.	High, if new portal facilities are constructed.	High, if new portal facilities are constructed.

i. Potential for mining-induced escarpment failure.	No change.	Low	Negligible
j. Socioeconomic effects.	High (detrimental)	Moderate (beneficial)	Moderate (beneficial)

III. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The following is a description of the affected environment, which has been divided into individual resource elements for clarity. The management prescription for the area, as designated in the Manti-LaSal National Forest Land and Resources Management Plan (LRMP), is for Key Winter Range (KWR), General Big Game Winter Range (GWR), and Watershed Protection/Improvement (WPE). The management requirements for these areas are found on pages III-58 through III-63 and III-77 through III-79 of the LRMP.

A. General Setting

The lease application area is located in central Utah in the central portion of the Wasatch Plateau within the Wasatch Plateau Coal Field. The tract is adjacent to Beaver Creek Coal Company's Trail Mountain No. 9 Mine, located on the south end of Trail Mountain in Emery County, Utah. The Wasatch Plateau is a north-south trending high plateau bounded by the Castle Valley to the east and the Sanpete Valley to the west. The tract is located approximately 12 miles northwest of the town of Castle Dale, and 28 miles southwest of Price. The area is accessed by Utah State Highway 29, which connects with Utah State Highway 10 in Castle Dale. Highway 10 runs north-south through Castle Valley between Price and Interstate 70.

B. Topography and Geology

The Wasatch Plateau is considered to be a transition zone between the Basin and Range Physiographic Province to the west and the Colorado Plateau Physiographic Province to the east. The eastern flank of the plateau rises almost 3,000 feet above Castle Valley. The upper 1,500 to 2,000 feet of this rise is a near vertical erosional escarpment. This section of the central and eastern portions of the plateau dip gently to the west. The plateau top is dissected by east-west trending drainages and north-south trending fault zones, producing east-west and north-south trending ridges and canyons. The rock layers bend steeply downward along the western flank of the plateau in a monoclinial fold known as the Wasatch Monocline. The western plateau margin is not as steep or abrupt as the eastern margin.

The topography of the tract varies from the rolling plateau area to vertical cliffs along Cottonwood and Straight Canyons. Smaller canyons along the main canyons incise the plateau area. The elevation ranges from approximately 7,400 to 9,200 feet above sea level. The structure is fairly simple, with the strata dipping 3 to 5 degrees to the southwest. The Joes Valley Fault, a major north-south trending fault with maximum displacement of approximately 2,950 feet (Kitzmilller, 1982), forms the eastern margin of the Joes Valley Graben and is located just west of the tract. No other faults have been identified within the application area.

The stratigraphic units exposed in the lease area range from mid-Cretaceous to Paleocene in age. The units, from oldest to youngest, are the Masuk Member of the Mancos Shale Formation, Star Point Sandstone, Blackhawk Formation, Castlegate Sandstone, Price River Formation, and North Horn Formation.

The significant coal seams in the tract occur in the lower 250 feet of the Blackhawk Formation (Doelling, 1972). The lowermost, or Hiawatha, coal seam directly overlies the Starpoint Sandstone and is the seam mined in the Trail Mountain Mine. Coal thickness within the tract varies from approximately 5 to 15 feet. Drilling and outcrop data suggest the Hiawatha seam thins and splits to the south. All drill and outcrop data show no other coal seams with minable thickness.

The Hiawatha seam crops out along the southern and eastern margins of Trail Mountain in Straight Canyon and at the Trail Mountain Mine portal in Cottonwood Canyon. The overburden depth increases rapidly from the outcrops into the plateau, due to the steepness of the canyon escarpments, to over 2,000 feet under the higher portions of Trail Mountain.

The Hiawatha seam has an apparent rank of high-volatile B bituminous coal. The coal may have a sodium content of greater than 4% in the mineral ash and relatively low ash-fusion temperatures. Preliminary estimates indicate approximately 12.2 million tons of recoverable coal are in the tract.

C. Surface Hydrology

The mean annual precipitation of the Trail Mountain area varies from 14 inches per year at the lower elevations to more than 30 inches per year at the highest elevations. Over 70 percent of the precipitation occurs as snow from November through March.

The mean annual water yield is estimated to be 1.5 inches (Jeppsen, et. al., 1968).

Surface water from the northern and eastern portion of the tract is drained by Cottonwood Creek. The southern and western portions drain into Straight Canyon. Both streams are perennial where they drain the lease tract. Cottonwood Creek flows into the San Rafael River, a tributary to the Green River, which is a tributary to the Colorado River.

Cottonwood Creek has an annual flow near Orangeville of 77,200 acre feet (Danielson and Sylla, 1983). Approximately 60 percent of the streamflow occurs during May and June (Simons, Li and Assoc., 1984) as a result of snowmelt runoff. Summer rains generally produce little runoff volume but may produce damaging floods. Joes Valley Reservoir was constructed at the upper end of Straight Canyon for the purpose of collecting water for irrigation, municipal, and recreational uses.

The Utah Division of Health has designated the beneficial uses of "Cottonwood Creek and tributaries from Highway U-57 crossing to headwaters", including all streams receiving water from the proposed lease area, as 1C, 3A, and 4. Category 1C is protected for domestic purposes with prior treatment by standard complete treatment processes, 3A is protected for cold-water species of game fish and other cold-water aquatic life, and 4 is protected for agricultural uses including irrigation of crops and stock watering.

The water quality in Cottonwood Creek and Straight Canyon meets the beneficial use standards. Kelly (1988) calculated 16.5 acre feet of sediment are carried annually by Cottonwood Creek where it crosses Highway U-57. Approximately 3.3 acre feet of this sediment comes from Cottonwood Canyon.

Beaver Creek Coal Co. has been monitoring surface water quality in Cottonwood Creek near their Trail Mountain Mine. Dominant ions are calcium, magnesium, and bicarbonate. Total dissolved solids concentration varies from about 250 to 300 milligrams per liter, with lower concentrations usually occurring during periods of higher flow. Total suspended solids concentrations tend to vary directly with the flow rate, varying from less than 1 to greater than 1,000 milligrams per liter.

The surface water in the lease tract is used primarily for wildlife and livestock. Downstream Cottonwood Creek water is used for municipal water, irrigation, power generation, and fisheries.

Approximately 1,265 acres of watershed improvement work has been done on the south end of Trail Mountain, much of it on the proposed lease tract. The improvements consist of constructing contour furrows and reseeding to reduce soil erosion and sediment yield.

D. Ground Water Hydrology

Ground water occurs in all the geologic units present on Trail Mountain, but none of the units are saturated everywhere. Water is usually drained within a short lateral distance where the units are exposed in the canyons (Lines, 1985).

The coal-bearing Blackhawk Formation is a complex sequence of laterally discontinuous layers of sandstone, shale, and coal. The Star Point Sandstone and lower Blackhawk Formation are saturated except where they are drained naturally near outcrops. Many hydrologic reports refer to this

regional aquifer as the Star Point/Blackhawk Regional Aquifer. Ground water in the Star Point Sandstone is blocked from downward movement by the impermeable, saline Masuk Shale Member of the Mancos Shale. Some studies (Danielson, et al, 1981, and Danielson and Sylla, 1983) show that the regional aquifer is saturated except near the plateau escarpment, in deeply incised canyons where ground water can drain naturally, and in the Trail Mountain Mine where the lower Blackhawk Formation is dewatered. Ground water in the Blackhawk Formation above the regional aquifer occurs predominantly in fractured and faulted rock and to a lesser degree in sandstone lenses.

Beaver Creek Coal Company reports that water encountered in the lower Blackhawk Formation within the mine is usually in the form of leaks through roof bolt holes or tensional cracks parallel to the working face. All water encountered in the mine is usually used within the mine for dust suppression, fire protection, and machinery operation. In-mine water requirements are approximately 100 gallons per minute, which is greater than the quantity that is generally made within the mine. Water is taken from Cottonwood Creek to make up the difference. Occasionally a higher inflow occurs for a few days which exceeds the capacity of the in-mine sumps, requiring discharge through the settling pond and into Cottonwood Creek. Beaver Creek Coal Co. has a National Pollution Discharge Elimination System (NPDES) permit for the discharge. Under this permit the water is monitored and treated, if necessary, before discharged into Cottonwood Creek.

Ground water is also known to be contained locally within perched aquifers of the overlying Castlegate Sandstone and Price River Formations. The upper Blackhawk Formation is fine grained and tends to impede downward movement of ground water from the overlying Castlegate Sandstone.

All of the springs identified in the proposed lease tract are located in the North Horn Formation where perched aquifers intersect the surface. These springs indicate an irregular contact between beds of differing permeability which acts as a barrier to downward percolating water and causes horizontal movement to the surface or to a site where downward movement is again possible.

The Blackhawk-Star Point aquifer is probably recharged primarily by Joes Valley Reservoir (Lines, 1985). There is also some downward percolation of water from overlying aquifers. A minor amount of water may also flow through the aquifer from East Mountain. Some water may also enter or leave the ground water system by subsurface flow in the area of the Flat Canyon anticline near the north end of Trail Mountain. Discharge from the Blackhawk-Star Point aquifer is into springs, streams, and the Trail Mountain Mine.

Most recharge to the perched aquifers is due to infiltration from snowmelt and rain (Lines, 1985). The water percolates into the North Horn and Price River Formations, and also on a more limited scale enters the Flagstaff Limestone through fractures and solution openings. The gentle relief on the top of Trail Mountain slows runoff and allows a significant amount of

water to infiltrate the soils and percolate to deeper levels. Only a minor amount of recharge occurs on the steep cliff- and slope-forming outcrops of the lower geologic units.

Beaver Creek Coal Company is monitoring springs which lie within the existing permit area for the Trail Mountain #9 Mine. The ground water chemistry of the Cottonwood Creek basin is predominantly a calcium and magnesium bicarbonate system, resulting primarily from contact with the Flagstaff Limestone, a calcium and magnesium carbonate rock (Simons, Li and Associates, 1984). Samples collected by the USGS from over 140 springs in the Cottonwood and Huntington basins between 1977 and 1980 showed that all were within EPA drinking water standards.

E. Subsidence

Beaver Creek Coal Co. has been conducting subsidence monitoring since October, 1986, above mined areas in T. 17 S., R. 6 E., sections 35 and 36. Overburden varies from approximately 900 to 1,900 feet. The area has been both first and second mined. Maximum subsidence has been 1.34 feet, as of November, 1989, in an area with about 900 feet of overburden. Total subsidence is predicted to be a maximum of 2.68 feet. The amount of subsidence appears to decrease to the west, in the direction of thickening overburden. No surface cracks or other visual effects of subsidence have been identified.

F. Vegetation and Range

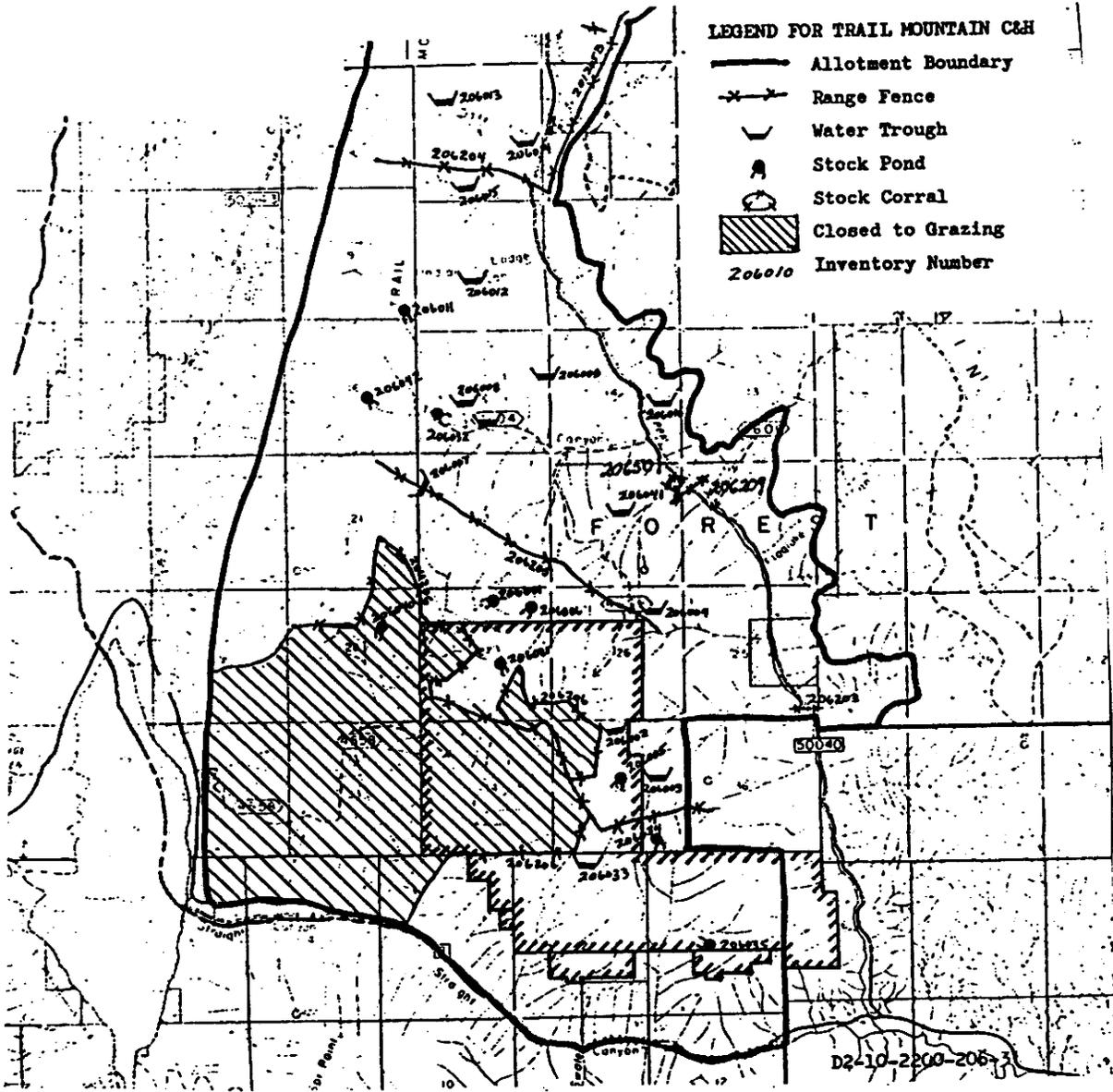
On the upper bench, above 9,000 feet, dominant plants communities are sagebrush and a grass seeding mingled among quaking aspen stands. Below 9,000 feet, to the southern edge of the lease area, mixed plant communities of grasslands (hardgrass), sagebrush (mountain big sagebrush/Sanberg bluegrass), mountain brush (birch leaf mahogany/serviceberry/curl leaf mahogany/mountain big sagebrush/Sanberg bluegrass), and pinyon-juniper (pinyon/juniper/hardgrass) stands dominate. Small riparian communities are present near springs and seeps and are considered to be very important due to their limited extent. The plant communities are considered to be in mid seral status. Recently completed contour furrowing and wildlife browse enhancement projects have created some early seral plant communities in small areas.

The lease area falls within the the South Trail Unit of the Trail Mountain Cattle and Horse Allotment. Twenty-three permittees from Orangeville and Castle Dale graze 906 cattle from approximately June 21 to September 20 under a rest rotation grazing system. Due to watershed and wildlife habitat improvement work, the southern part of this unit has been closed to grazing while new plants are becoming established. Big game forage use has also been reduced by special hunts.

Several ponds and some springs have been developed in the South Trail Unit to enhance availability of water which aids livestock distribution. Much

T. 17 S.

T. 18 S.



R. 6 E.

R. 7 E.



Lease Application Area



Scale (miles)



Map 3. Trail Mountain Cattle and Horse Allotment and Range Improvements

of section 35 and a portion of 27 were plowed and seeded in the early 1960's to improve range condition and increase available forage. This seeding provides the bulk of the livestock forage in this area (See Map 3).

Livestock trail to the allotment up Cottonwood Canyon to Trail Canyon, then up this trail to the top of Trail Mountain. Trailing has been coordinated, through formal agreement, with Beaver Creek Coal Company. In this agreement, coal hauling traffic is shut down upon request from the permittees for two days in the spring and fall for livestock trailing, however, trailing is usually scheduled around days that the trucks are not operating. In early June and again in early July, three bands of sheep, or approximately 3000 head, use the road below Cottonwood Canyon to trail up Straight Canyon to the Joes Valley area. To avoid conflicts with weekend recreation traffic, sheep trailing normally takes place during the week. Flag persons both in front of and behind the herds warn on-coming traffic.

G. Visual Resources

The Trail Mountain Mine, which lies on private land within the Forest boundary, is viewed in foreground from the Cottonwood Canyon Road. It does not meet the Visual Resource Management (VRM) classification established by the Forest or mitigate the visual impacts created by it's development. If the lease is acquired by a company other than Beaver Creek Coal Co., the most likely alternate portal site is along the outcrop on the southeast corner of the proposed lease tract. This is in an area with scenic quality of Class B (Common Variety Class) and a VRM classification of Level III (partial retention). The site can be viewed in middleground from State Highway 29 for a one-half mile distance and in foreground for two and one-half miles from the Cottonwood Canyon Road.

H. Lands and Special Uses

The entire surface is Federally owned and is administered by the USDA Forest Service and the USDI Bureau of Land Management. No special use permits are in effect for facilities or activities on the proposed lease tract. Special use and road use permits have been issued in the past for coal exploration activities. The Forest Service has issued livestock grazing permits for this area (see F. Vegetation and Range).

The area has been surveyed under the rectangular surveying system and contains section corner and quarter corner monuments, and possibly other survey monuments.

I. Socioeconomics

The area of influence for the Trail Mountain Mine and the adjacent tract under application would normally be confined to Emery County if it were not for the fact the applicant and possible successor to the tract, Beaver Creek Coal Co., is phasing out mines in Carbon County and shifting

contracted production to Trail Mountain. Under this likely scenario, and due to the relative close proximity of the two counties, it is likely that miners now working in the Gordon Creek area and living in the Price area would shift to work at the Trail Mountain Mine. This would in effect spread the socioeconomic impacts from the new lease and subsequent mine expansion to the two counties.

Carbon and Emery Counties had a combined population of 33,630 in 1980, according to the U.S. Bureau of Census. The 1988 population was 32,900, showing a decline of 730, or about 2%. Population peaked in 1982 at 37,700, so the 1988 population is 4,070 or 10.8% below the peak. Outmigration has continued from the area annually since 1982.

Nonagricultural employment in the area in 1988 included 10,673 jobs (7,227 in Carbon Co., 3,446 in Emery Co.). This is a significant decline of 4,229 jobs, or 28%, from the 1982 peak. Considering the 1988 data, the major industry employment categories are:

Government.....	2,785 (26%)
Mining.....	2,360 (22%)
Trade.....	1,976 (19%)
Services.....	1,564 (15%)
Transportation/public utilities.....	1,188 (11%)

The dominance of the mining industry, which is primarily coal mining, and employment in transportation/public utilities, which is primarily coal transportation, and employment at coal-fired electric power generation stations, is evident in 1987 data showing \$127,768,000 (54%) of the total of \$236,613,000 in payroll wages come from the mining and transportation/public utilities categories.

Utah Office of Planning and Budget population projections for the study area show a very modest population increase of 1,500, or 4.5%, by the year 2000.

A major factor influencing the study area is what has happened in the Utah coal mining industry employment. This includes all operating coal mines in Carbon and Emery Counties plus one in Sevier County (SUFCCO). Coal mine employment peaked in 1982 at 4,296. Within a one-year period, this type employment fell to 2,707, or a 37% reduction. Moderate decline has continued in recent years to the present projected 1989 coal mine employment of 2,604. It is significant that in the period from 1983 to 1989, coal mine production has increased from 11,829,000 tons to a projected 19,210,000 tons, which is a 62% increase. The productivity of Utah coal mines has increased significantly through cost control and other efficiency factors, including installation of longwall mining equipment, which reduces labor requirements.

J. Wildlife

Trail Mountain contains habitat for a variety of wildlife species common to sagebrush-grass, mountain brush, pinyon-juniper, ponderosa pine, and aspen, and spruce/fir communities (see Appendix E). Riparian areas are very limited but, as elsewhere in the West, are of high importance to wildlife.

No threatened or endangered wildlife species are known to inhabit the proposed coal lease track area. An unconfirmed, but probable, sighting of 2 peregrine falcons (Falco perigrinus) occurred in summer 1989 at the Joes Valley dam. Historically, a few eyries were documented in Carbon and Emery counties (Porter and White 1973). Bald eagles (Haliaeetus leucocephalus) use Joes Valley Reservoir in fall and early winter. No roosting sites have been found in the lease area but roosting sites in other parts of Utah occur primarily on the north slope of small, timbered canyons.

Key big game winter range occurs in the proposed lease tract area. Mule deer (Odocoileus hemionus) are found there throughout the year and elk (Cervus elaphus) migrate into the lease area in fall and leave again in spring. Moose, introduced onto the Ferron Ranger District in 1987 through 1989, have been seen on Trail Mountain. The deer population is part of deer herd unit 35. In 1988, winter mortality was light but fawn production was only fair (UDWR 1989). Elk have been increasing in the area and measures are being taken to halt the growth of the herd. Big game habitat improvements were conducted in 1987. Another 200 acres of serviceberry and pinyon-juniper woodlands will be treated in 1990. Because the winter range is limiting for the Trail Mountain elk and deer, it is important to maintain bench zones above cliffs and avoid impacts to normal movements. There are no migration routes off Trail Mountain that big game can use during heavy snow years.

Resident raptors in the area include the golden eagle (Aquila chrysaetos), northern harrier (Circus cyaneus), and red-tailed hawk (Buteo jamaicensis). Golden eagles nest along the escarpment of the proposed lease area. Other birds of prey that may be found in the area at least some part of the year include the goshawk (Accipiter gentilis), Cooper's hawk (Accipiter cooperii), American kestrel (Falco sparverius), prairie falcon (Falco mexicanus), great-horned owl (Bubo virginianus), and saw-whet owl (Aegolius acadicus).

Blue grouse (Dendragapus obscurus) are found in spruce/fir communities while ruffed grouse (Bonasa umbellus) occur most often in mixed aspen/conifer communities.

Straight Canyon contains cutthroat trout (Salmo clarki), brown trout (Salmo trutta), and rainbow trout (Salmo gairderi). Sediment has adversely affected trout habitat in the creek and increased erosion into the creek is a concern. Game fish in Joes Valley Reservoir are rainbow trout, albino rainbow trout, cutthroat trout, and splake (Salvelinus namaycush X Salvelinus fontinalis).

Reptiles and amphibians are poorly documented in the area. Snakes common to the area are probably the gopher snake (Pituophis melanoleucus) and garter snake (Thamnophis elegans).

K. Cultural Resources

Previous cultural resource surveys have inventoried approximately 630 acres, or 23 percent, of the lands within the lease tract (see Appendix F). With the exception of two isolated finds, no historic properties were located. No additional cultural resource surveying would be needed for leasing, but might be necessary for mine development activities.

L. Transportation System

The Cottonwood Canyon Road is paved from State Highway 29 to the Trail Mountain Mine portal, providing easy year-round access. If surface access to the lease area were required, Forest Development Road (FDR) 50040 (Cottonwood Canyon Road) and FDR 50034 (Trail Mountain Road) would be used. Cottonwood Canyon Road has a gravel surface from the Trail Mountain Mine to its intersection with FDR 50034. The Trail Mountain Road has a native surface.

Cottonwood Canyon Road is also used by Meridian Oil Co., Utah Power and Light Co., other Forest users, and the Forest Service. The Trail Mountain Road is be used by Beaver Creek Coal Co. and recreational users. Recreational use is concentrated during the deer and elk hunting seasons in September and October. The traffic on these roads is expected to remain near the average for past years.

Several road use permits are in effect for the above listed commercial uses of Cottonwood Canyon Road. A special use permit is also in effect for the gas pipeline right-of-way which generally parallels the Cottonwood Canyon Road from the Meridian Oil Co. well just above the Trail Mountain Mine to Flat Canyon.

State Route 29 lies south of the southern boundary of the proposed lease tract, and provides the only year-round, all-weather access to the Joes Valley Reservoir area. The route follows the bottom of Straight Canyon and is at the base of the steep slopes and escarpments which form the southern margin of Trail Mountain.

IV. EFFECTS OF IMPLEMENTATION

A. Alternative 1 - No Action

Under this alternative the tract would not be offered for lease, therefore, the tract would not be mined.

There would be no mining related environmental consequences to the tract area and surrounding vicinity, and there would be no economic benefit to the Federal, State, and local governments from coal lease fees and coal royalties. There would also be no boost to the local economies and to the present unemployment rates in the area. The existing mine would be shut-down after the coal in the existing leases is mined-out, and result in the loss of 45 jobs at the Trail Mountain Mine. The 45 miners from the Gordon Creek Mine would also be unemployed.

B. Alternative 2 - Offer the Tract for Leasing as Proposed

1. Short-term and Residual Impacts

a. Topography, Geology, and Subsidence

Underground mining would result in fracturing of the overburden and subsidence of the ground surface above and adjacent to the underground workings. The lateral extent of subsidence may be greater or less than the area of coal extraction depending on the amount of coal extracted, the mining configuration, and the depth and characteristics of the overburden. The area subsided is usually more extensive than the area mined. Subsidence monitoring on the Wasatch Plateau has shown that the area likely to experience subsidence can be determined by projecting a 22 degree angle-of-draw (from vertical) from the mined area upward to the surface. Maximum theoretical subsidence should not exceed approximately 7 feet (70% the thickness of the coal removed).

Actual measured subsidence over the past 3 years has been much less than the theoretical maximum amount, but subsidence may continue for many years. Most of the proposed lease tract has a greater amount of overburden than in the area of the subsidence monitoring, so only minor amounts of surface subsidence are expected. Subsidence of the approximate magnitude measured in the monitoring area (1.34 feet maximum as of November, 1989) could occur in the southeastern corner of the lease where overburden is thinner. No surface cracking or other visible effects of subsidence are expected on the proposed lease tract. The minor amount of subsidence should not affect surface structures.

Forest Service Special Lease Stipulation No. 9 (Appendix C), which requires that mining be conducted such that failures of the escarpment are not induced, would protect the steep canyon slope areas from mining-induced slope failures and instability. Only areas outside the 22 degree angle-of-draw from the Castlegate Sandstone outcrop are included in the tract, so escarpment failure should not be a problem.

If the lease were acquired by a company other than Beaver Creek Coal Company, the coal could be mined either through a portal constructed on BLM land (T. 18 S., R. 7 E., sec. 6) in Cottonwood

Canyon, from a portal approximately 1.5 miles northwest of the Trail Mountain Mine, or from UP&L leases. Additional connecting leases would be needed for the last two access alternatives. The coal outcrop at the potential portal site on BLM land is high on the cliff face where the coal appears to be extensively burned. This portal site would require an extensive rock slope and is probably not economically feasible.

b. Surface Hydrology

If the tract is mined through the existing Trail Mountain Mine, sediment input from the mine would remain constant but increased coal fines and dust would be added to Cottonwood Creek due to increased coal hauling required by higher production. If a new portal and associated facilities are constructed, increased sedimentation would be expected from runoff of the disturbed surfaces.

As mining progresses downdip to the west, water inflow is expected to increase from the current average of 57 gpm (gallons per minute) to 130 to 220 gpm. Lines (1985) predicted 20 percent of the inflow would be intercepted from aquifer discharge, which would result in a maximum impact of 72 acre-feet of depleted contribution to Cottonwood Creek during the period of mining. Some of the intercepted water would also have to be discharged into Cottonwood Creek. After mining is terminated, water inflows would decrease and aquifer discharge would increase over time as the hydrostatic head in the mine equilibrates (Utah Division of Oil, Gas, and Mining, 1990).

Total dissolved solids (TDS) concentration in Cottonwood Creek at the Forest boundary varies between approximately 50 and 450 ppm. Discharge of mine water into Cottonwood Creek will probably increase the TDS levels. Since the NPDES permit for mine water discharge ensures that the effluent meets the applicable standards, TDS levels in Cottonwood Creek should not exceed beneficial use standards.

There is a slight possibility that subsidence effects could disrupt aquifers, causing some springs to dry-up and new ones to form at other locations. Lines (1985) predicts subsidence could effect aquifers up to a few hundred feet above the mine, but should not disrupt the aquifers in the North Horn Formation which supply the springs on Trail Mountain.

The amount of coal dust added to Cottonwood Creek by coal hauling is unknown, so the additional effects from increased coal hauling can not be predicted. The Utah Division of Oil, Gas, and Mining found that even several inches of coal dust in a stream does not affect water quality unless the water becomes acidic, so coal dust is not expected to be a problem in Cottonwood Creek (Tom

Munson, Hydrologist, Utah Division of Oil, Gas, and Mining, personal communication, 1990).

The Office of Surface Mining Reclamation and Enforcement conducted a study to evaluate the potential effects of coal mining on the salinity of the Price, San Rafael, and Green Rivers (Lindskov, 1986). Based on a worst-case situation assuming maximum ground water discharge from all mines simultaneously, the amount of mining predicted in the Price and San Rafael River basins is not expected to cause a detectable change in the quality and quantity of streamflow in the Green River.

c. Ground Water Hydrology

Water produced in the mine is to be derived primarily from a decrease in storage in the Blackhawk-Star Point aquifer (Lines, 1985). Aquifers several hundred feet above the mine could be dewatered. Mine dewatering should not affect the higher perched aquifers, which supply the springs on Trail Mountain, due to their separation from the Blackhawk-Star Point aquifer by an unsaturated zone. However, dewatering is expected to temporarily reduce the flow of groundwater into Cottonwood Creek (see section b. Surface Hydrology, above).

G. Dennis Kelly (Hydrologist, Manti-LaSal National Forest, personal communication, 1990) states that significant ground water may be encountered as mining proceeds downdip and reaches the elevation of Joes Valley Reservoir.

Water quality is similar in all aquifers in Trail Mountain, so subsidence should not significantly change water quality in the ground water system. Water quality in the Blackhawk-Star Point aquifer could even increase slightly due to increased flow rates through the aquifer and decreased time the water is in contact with the rock (Lines, 1985).

d. Vegetation and Range

Underground coal mining could change the hydrologic system and cause a gradual change to vegetation communities. The agreement between Beaver Creek Coal and the livestock permittees should prevent disruption of livestock trailing from increased coal haul traffic. If a company other than Beaver Creek Coal acquires the lease tract, a new agreement with the livestock permittees would be needed.

e. Visual Resources

The VRM objectives of the escarpment area would be maintained as long as mining activities do not create slope failure. New portal facilities in the southeast corner of the lease would cluster mining activities in the lower reaches of Cottonwood

Creek, which would degrade visual quality along the Cottonwood Creek Road to Level IV for approximately 2.5 miles. VRM objectives can be met when viewed from State Highway 29.

f. Lands and Special Uses

Subsidence effects from coal mining could affect survey monuments and watershed improvements, however, the special stipulation require the lessee to repair any surface damage caused by subsidence.

g. Socioeconomics

The Trail Mountain Tract under application could be leased by the applicant and developed through extension of the existing mine, developed as an independent tract, or leased for holding of reserves until a larger tract can be explored and put up for lease. By far the most likely scenario for this parcel is lease by the applicant and increased production as the applicant phases out their Gordon Creek operation in the late 1990 and shifts production to their Trail Mountain facility.

The applicant indicates they employ 45 persons full-time at the Trail Mountain Mine and expect to mine 300,000 tons of coal per year. They also employ approximately 45 full-time employees at their Gordon Creek Mine where they produced over 500,000 tons in 1988. Combined production is 800,000 tons with 90 employees.

The applicant anticipates need to produce 1.2 million tons in the near future for long-term markets and spot sales. Given this quantity, the following impacts are projected:

(1) Gradual shift of 45 mining jobs from Carbon County to Emery County in the early 1990's. Most miners now living in Carbon County are expected to maintain current residence and drive the 45 to 50 miles to the mine. Some gradual shifting might take place in later years.

(2) To achieve an additional 400,000 tons of production, assuming continued room-and-pillar mining, an additional 30 mining jobs would develop over time. Given a gradual build-up, the jobs could go to unemployed workers in the study area, which has relatively high unemployment of 8.2% in Emery County and 7.4% in Carbon County.

The leasing and development of the tract would not have significant additional socioeconomic impact on the study area. There would be some new jobs created in Emery County and a shift of jobs from Carbon County. These would generally be taken care of through employment of the unemployed and underemployed in the area. Mining of the property would generate coal resources valued at 364 million dollars, 66 million dollars of direct and

indirect wages, and 28 million dollars of royalties that would be paid to the Federal government and shared equally with State and local governments.

h. Wildlife

Most impacts under this proposal would be due to subsidence of the ground surface. Flows of springs may be reduced or altered. Alternately, new springs or seeps may be created. Due to the limited extent of riparian areas, it is essential to conserve these areas. Wildlife habitat could be lost and/or altered according to changes in soil moisture. The Forest Plan management emphasis for Key Winter Range is "on providing winter forage and cover for big-game in areas that must be available and unencumbered for wildlife use each year during the critical winter period." Forest Service Special Lease Stipulation No. 17 appropriately requires the lessee to replace water lost which has been identified for protection and should conform with the direction set forth in the Forest Plan for Riparian Area Management.

Forest Service Special Lease Stipulation No. 9 protects the area from potential escarpment failure. Exceptions to this stipulation could impact golden eagle nest sites and potential for natural establishment of peregrine eyries. In addition, escarpment failure would increase sediment into Straight Canyon Creek. Utah Division of Wildlife Resources biologists have expressed concern for the fishery due to heavy erosion into Straight Canyon (W. Donaldson, Utah Div. of Wildlife Resources, Southeastern Region Fisheries Manager, 1989).

A major watershed treatment project has been completed on Trail Mountain and another is planned for the Swales area of North Horn Mountain. Escarpment failure could offset the benefits obtained from past and future watershed treatments.

Sediment may increase in Cottonwood Creek due to additional coal hauling. This is not expected to have an impact on wildlife habitat, and may be reduced by wetting of coal piles to reduce dust and/or installing automatic coal covers on trucks. Additional coal hauling would increase highway related mortality for deer, although not significantly.

i. Cultural Resources

No historic properties were located by previous surveys. The Joes Valley Alcove site (42EM1932), located approximately 2 miles west of the proposed lease tract, is listed in the National Register of Historic Places but should not be affected by this action. Both the Manti-LaSal National Forest and the BLM-San Rafael and Price River Resource Areas have consulted with the Utah State Historic Preservation Office (SHPO), who have

concluded that significant cultural resources would not be affected by the leasing action.

In addition, the agencies feel that lease stipulations and the Federal and State regulations for mining would adequately provide for protection of any such resources. Any areas subject to surface disturbance would be evaluated and approved through the surface management agency and the State Historic Preservation Office on a case-by-case basis before operations can be approved.

j. Transportation System

Surface activities on the lease tract required to support underground mining of the tract should be minimal, and would probably be limited to operations such as routine spring monitoring and occasional exploratory drilling projects. The lessee would be required to obtain a road use permit from the Forest Service for such operations and to do their appropriate share of road maintenance. Coal exploration drilling traffic would not be expected to exceed 10 vehicles per day, seasonally adjusted, during drilling programs.

If Beaver Creek Coal Co. acquires this lease, they intend to increase production to about 1,200,000 tons per year to compensate for the closing of their Gordon Creek Mine in late 1990. This would cause truck traffic on the Cottonwood Creek Road and State Highway 29 to be approximately double the current level. The portion of Highway 29 from Cottonwood Canyon to Joes Valley would not have any increase in traffic due to coal mining, but could be impacted if there is any escarpment failure.

2. Short-term Use vs. Long-term Productivity

If an independent mining operation is developed, involving new portal facilities, the short-term use of the area for coal production could result in long-term loss of vegetation productivity, soil, and visual resources. The disturbed area for portal facilities and access would be up to approximately 20 acres. The life of the mine is estimated to be 10 to 15 years. The duration of the loss of productivity would include the life of the mine plus an additional 5-10 years for completion of reclamation and revegetation.

Extraction of the estimated 12,200,000 tons of recoverable coal reserves would render the remaining unmined 22,600,000 tons of minable reserve base unrecoverable over the long-term considering present technology.

3. Irretrievable and Irreversible Commitment of Resources

If a new independent mine is developed, vegetation production, soil, and visual qualities of the disturbed area would be irretrievably lost for the life of the mine or until reclamation is successful.

The estimated 12,200,000 tons of coal mined would be irreversibly lost as a resource for future generations and the 22,600,000 tons of minable coal left in the ground would be rendered irreversibly unrecoverable considering present technology.

Any change in aquifers, ground water storage potential, or point of discharge due to subsidence and underground mining, and the resultant environmental impacts, would be irreversible.

4. Cumulative Impacts

Man's activities in the Trail Mountain area include livestock grazing, recreation, water resource development, timber harvesting, and mineral exploration and development. A number of roads associated with these activities are present in the area. The impacts discussed for the proposed action would be added to those impacts which already exist from these activities.

Livestock grazing since the late 1800's, combined with range and watershed improvement projects, have caused changes in vegetation type and plant diversity and density. Some decreases in soil productivity and watershed conditions have also occurred. Range and watershed improvements are resulting in some improvement of conditions.

The construction of roads to meet access needs, and off-road travel from recreation activities, have resulted in removal of some vegetation and increased erosion.

Mineral exploration on Trail Mountain has been primarily coal drilling with some geophysical exploration. All of the roads and drill pads associated with these activities have been successfully reclaimed. The only mineral production on Trail Mountain is coal mining, but there is an active gas field in Cottonwood Canyon and the northern portion of East Mountain.

The permit area for the Trail Mountain No. 9 Mine, operated by Beaver Creek Coal Co., is located adjacent to the proposed tract along the east boundary. The Trail Mountain Mine is the only active mine on Trail Mountain. Utah Power and Light Co. is actively mining on East Mountain across Cottonwood Creek to the east of Trail Mountain. The surface facilities of the Trail Mountain Mine have disturbed approximately 8.8 acres of private land. The permit area includes approximately 721 acres of leased National Forest System lands

administered by the Manti-LaSal National Forest, 640 acres of state lands, and 53.5 acres of private lands with private coal.

Subsidence occurs above any mining operation, but the amount of subsidence is dependent upon a number of geologic conditions and the mining methods used. Subsidence effects on the surface of the proposed lease tract are expected to be very minor, based on subsidence monitoring of an area above the existing Trail Mountain Mine workings. Only minimal damage to surface structures is expected, which the lessee would be required to repair.

Water is produced in the Trail Mountain Mine from the lower Blackhawk Formation. In-mine water requirements for dust suppression, fire protection, and machinery operation is approximately 100 gallons per minute, which exceeds the amount of water produced. The additional water is taken from Cottonwood Creek. No water is discharged from the mine.

Development of a new mine portal on the tract is not expected to cause a significant increase in runoff and sediment yield. The potential sites for portal facilities and access are on very steep, rocky terrain. The natural conditions for these areas involve low infiltration, high runoff, and high sediment yield, but implementation of required sediment control measures specified in the mine plan should also minimize sediment yield from disturbed areas.

These impacts are within the threshold levels identified in the Manti-LaSal National Forest Environmental Impact Statement and the Land and Resource Management Plan.

C. Alternative 3 - Offer a Smaller Tract for Leasing

The impacts to other resources under this alternative would be the same as under Alternative 2, except that approximately 650,000 tons of potentially recoverable coal would be unmined and lost to future production considering present technology.

There would be even less chance of escarpment failure than under Alternative 2, which is already low.

V. PERSONNEL AND PUBLIC INVOLVEMENT

A. Interdisciplinary Team and Consultants

The following are the Interdisciplinary (ID) Team members and consultants who participated in the environmental analysis:

<u>Specialist</u>	<u>Specialty</u>	<u>Role</u>
Dale Harber	Geology/Minerals	ID Team Leader
Ana Egnaw	Wildlife	ID Team Member
John Healy	Range	"
Jim Jensen	Visual Quality	"
Dennis Kelly	Hydrology	"
Steve Falk, Mining Engr.	BLM Representative	"
Carter Reed	Geology/Minerals	ID Team Consultant
Bill Dye	Recreation/Land Use	"
Bob Thompson	T&E, S Plants	"
Stan McDonald	Cultural Resources	"
Brent Barney	Roads/Public Safety	"
Floyd McMullen, Environ- mental Project Mgr.	OSM Representative	"
Max Nielson	Socioeconomics (BLM)	"

In addition to the ID team, the following agencies were contacted in regard to application of the Unsuitability Criteria and in compiling resource data:

U.S. Fish and Wildlife Service
 Utah Division of Wildlife Resources
 State of Utah Division of State History, Utah State Historical Society
 Beaver Creek Coal Company

B. Public Contacts

News releases which notified the general public that the Forest Service and Bureau of Land Management would be evaluating the coal lease application and requested public comment were published in the Sun Advocate and Emery County Progress newspapers.

Letters were sent to identified interested publics requesting comments. Appendix D contains a copy of the letter and a list of individuals and publics contacted.

C. Intensity of Public Interest

Public interest was identified to be low based on the number of responses received. Only three letters were received.

A letter from the Utah Division of Wildlife Resources, dated February 9, 1990, voiced concerns regarding effects to wildlife from mining induced subsidence. The Division specifically addressed the potential for

subsidence to cause escarpment failures and to cause changes in ground and surface water flow. Measures which could be required for mitigation of such effects were discussed.

Letters were also received from U.S. Senator Jake Garn and U.S. Representative Howard C. Nielson supporting leasing of the tract.

Utah Power and Light Company submitted comments during the tract delineation process, suggesting that the entire Trail Mountain Tract be leased to provide for more competitive leasing. They also asked that the lease be offered not earlier than 1991 to allow for additional recovery of coal markets and increase in the value of the tract.

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VII. APPENDICIES

- A. Coal Tract Delineation Team Report
- B. Role of the Office of Surface Mining Reclamation and Enforcement
in the Regulation of Coal Mining
- C. Special Lease Stipulations
- D. Public Notices
- E. Wildlife Inventory
- F. Previous Archaeology Surveys

Appendix A - Coal Tract Delineation Team Report

UINTA-SOUTHWESTERN UTAH COAL REGION
BUREAU OF LAND MANAGEMENT

TRACT DELINEATION REVIEW REPORT

Lease by Application UTU-64375, Beaver Creek Coal Company

Introduction

Beaver Creek Coal Company has applied for a coal lease on unleased Federal Coal Lands adjacent to their Trail Mt. No. 9 mine in Emery County, Utah (figure 1). The legal description of the lands applied for is as follows:

T. 17 S., R. 6 E., SLM
sec. 26, $W\frac{1}{2}SW\frac{1}{2}NE\frac{1}{2}$, $S\frac{1}{2}NW\frac{1}{2}$, $SW\frac{1}{2}$, $W\frac{1}{2}W\frac{1}{2}SE\frac{1}{2}$;
sec. 27, $S\frac{1}{2}N\frac{1}{2}$, $S\frac{1}{2}$;
sec. 34, all;
sec. 35, lots 3 and 4, $W\frac{1}{2}SW\frac{1}{2}NE\frac{1}{2}$, $S\frac{1}{2}NW\frac{1}{2}$, $SW\frac{1}{2}$, $W\frac{1}{2}W\frac{1}{2}SE\frac{1}{2}$.

T. 18 S., R. 6 E., SLM
sec. 1, lots 1 through 8, $S\frac{1}{2}N\frac{1}{2}$;
sec. 2, lots 1 through 8, $S\frac{1}{2}N\frac{1}{2}$;
sec. 3, lots 1, 2, and 8.

T. 18 S., R. 7 E., SLM
sec. 6, lots 4 through 7, $W\frac{1}{2}SE\frac{1}{2}NW\frac{1}{2}$, $W\frac{1}{2}E\frac{1}{2}SW\frac{1}{2}$.

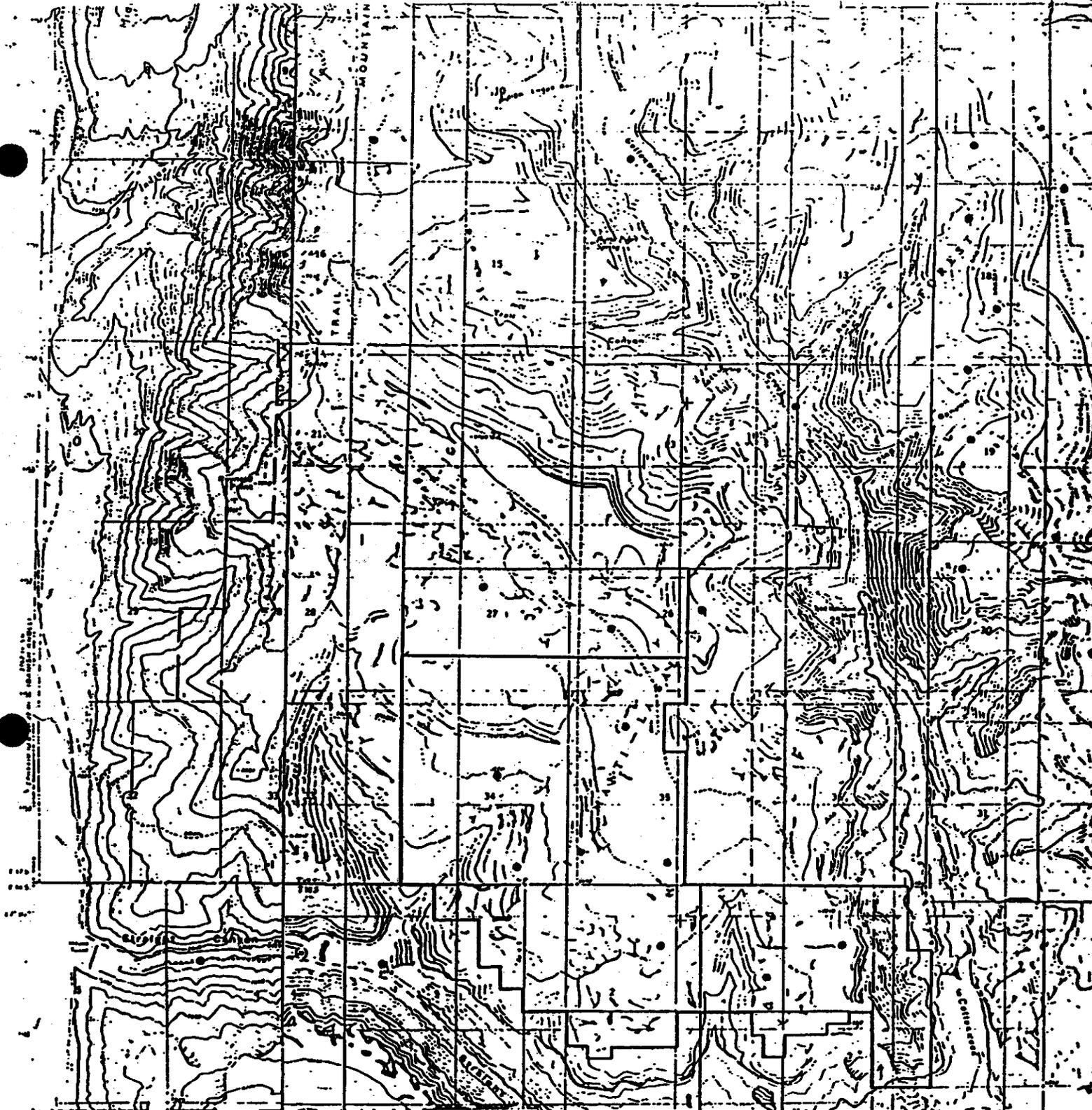
Containing 3,010.81 acres more or less.

The application area consists of Federal coal lands within the Wasatch Plateau Known Recoverable Coal Resource Area. The lands in sec. 6, T. 18 S., R. 7 E, (204.95 acres) are administered by BLM. The remaining surface is administered by the Manti-LaSal National Forest.

The purpose of this report is to review the geologic and coal resource information from the application area and recommend a tract configuration that meets the Federal coal leasing data adequacy standards and provides for logical and timely development of the coal reserves.

Geologic Setting

Coal beds of potential economic interest in the area occur in the lower 250 feet of the Upper Cretaceous Blackhawk Formation. The lowermost or Hiawatha coal bed occurs directly above the Starpoint Sandstone and appears to achieve minable thickness (> 5 feet) over the entire application area with thicknesses ranging from 5.3 feet in the south to over 15 feet to the northwest (figure 2). Drilling and outcrop data suggest that the Hiawatha bed thins and splits to the south.



U. S. Department of the Interior, Bureau of Land Management
 Utah State Office, Division of Mineral Resources

Prepared by J. F. Kohler Date 12/1/89 Scale 1:24,000

EXPLANATION FIGURE 1: Location Map

- Original Trail Mountain Tract
- Trail Mountain Lease Application UTU-84375
- Trail Mountain Tract Recommended by Tract Delineation
- Drill Hole Location
- △ Outcrop Measurement
- ~ Mawatha Bad Outcrop

SCALE 1:24,000

N

DETAIL MAPS INCLUDE PROPRIETARY DATA
AND HAVE BEEN REMOVED FROM THIS REPORT.

The structure of the application area is fairly simple with the strata generally dipping 3° to 5° to the southwest (figure 3). Joes Valley Fault, a major north-south trending fault with over 1,000 feet of displacement, occurs west of the area. No known faults have been identified within the application area.

Overburden on the Hiawatha bed ranges from 0 where it outcrops in Cottonwood and Straight Canyons to over 2,000 feet under Trail Mountain (figure 3).

Tract Configuration

Beaver Creek Coal Company has applied for part of the area originally delineated as the Trail Mountain tract for the second round tract delineation effort in the Uinta-Southwestern Utah coal region. The relationship between their application and the original Trail Mountain tract is shown on figure 1.

The Trail Mountain tract was originally delineated in 1982, in response to expressions of interest from Natomas Coal Company and Royal Land Company. This original tract was modified to exclude areas not considered by the Forest Service as suitable for leasing. The modified tract contained an estimate 87.3 million tons of in-place coal resources. However, most of the data used to develop this estimate were outside of the tract perimeter. In addressing the adequacy of the data used to delineate the original tract, Minerals Management Service concluded that "the presented geologic framework is based on a totally inadequate data distribution, consequently, bonus bids are likely to be based on rank ignorance concerning the actual configuration and quantity of the tract's coal resource" (Alvord, 1982). Since 1982, a number of drill holes have been completed on the lands included in Beaver Creek Coal Company's application, providing sufficient data to meet data adequacy standards established for the Uinta-Southwestern Utah coal region. Additional drilling will be necessary before the data adequacy standards can be met for the original tract.

Bureau of Land Management procedures for tract delineation provide that during tract delineation, efforts should be made to enhance competition for potential lease tracts. The factors for enhancing competition for the Trail Mountain tract are summarized as follows:

Expressions of Interest--The original Trail Mountain tract was delineated in response to expressions of interest submitted by two companies. However, at the present time, neither of these companies appears to have any interest in this area. When Beaver Creek Coal Company obtained an exploration license to drill the lands in their 1988 application, no companies elected to participate in the drilling, further indicating little current competitive interest. Utah Power and Light Company recently submitted a letter expressing their possible interest in the area covered by the original tract if leasing is deferred until 1991. In further discussions, Utah Power and Light Company indicated that they are interested primarily in the northern

portion of the lands included in the Beaver Creek Application in conjunction with additional reserves to the north adjacent to their leases. They also indicated their intent to submit an exploration license application to explore these lands.

Access--The most logical access to the Beaver Creek Application would be through the existing Trail Mountain mine. Independent access is technically possible on BLM lands in Cottonwood Canyon along the outcrop on the southeast corner of the application area. However, in this area the outcrop is high on the cliff face and the coal appears to be extensively burned. Therefore, independent access does not appear to be economically feasible. If the area was enlarged to include the northern part of the originally delineated tract, additional access might be provided through property controlled by Utah Power and Light Company.

Capture/Bypass--Tracts are to serve more than one potential operator (where feasible) and avoid further bypass situations. The lands in the Beaver Creek application would be essentially captive to the Trail Mountain Mine. In order to configure the tract to enable potential access from Utah Power and Light properties to the east, the application area would need to be expanded to the north to include lands not proposed by Beaver Creek Coal in their application. Expanding the application area to the north within the present data limits would result in the coal resources to the west and north becoming captive to the company that acquires the lease. This would decrease competition for the remaining lands in the original Trail Mountain tract.

Coal Data--Large amounts of reliable data that are available to all parties can enhance competition. Of the 11 holes drilled on the application area, information on the Hiawatha bed is only available to the public on one drill hole. Data from the other holes were obtained through exploration license drilling which is considered to be confidential. Based on the above analysis, it appears unlikely that a truly competitive tract can be delineated in the Trail Mountain area at this time.

In conclusion, it appears that inadequate publicly available data limit our ability to delineate a truly competitive tract for the Trail Mountain area. However, the Uinta-Southwestern Utah Regional Coal Team decertified the region to facilitate leasing by application to provide reserves needed to sustain existing operations. The tract delineation team has determined that Beaver Creek Coal Company has established a need for additional reserves to continue operating at their present level of production. Furthermore, some of the existing coal on their present leases has a high ash content and may not be minable. If additional clean coal is made available to enable blending of the high ash coal, a higher recovery rate could possibly be achieved. Due to recent competitive interest expressed by Utah Power and Light Company for reserves in the area, efforts should be made to limit the size of the present tract to enable as much coal as possible to be offered in a future competitive tract. Based on these findings, the tract delineation team recommends that the Beaver Creek Application be modified as outlined below.

To accommodate concerns expressed by Utah Power and Light Company, the northern part of the lands included in Beaver Creek's application should be dropped from the tract and be considered for a future competitive lease with lands to the north. The southern boundary of the application was established by the Forest Service through the Forest Plan for the Trail Mountain area to protect the escarpment and other values in Straight Canyon. Upon closer review, it appears that the withdrawal boundary could be modified to allow additional land to be leased and still provide adequate protection for the resource values identified in the Forest Plan. The tract delineation team recommends that the tract be delineated as follows:

T. 17 S., R. 6 E., SLM
sec. 26, S $\frac{1}{2}$ SW $\frac{1}{2}$, W $\frac{1}{2}$ SW $\frac{1}{2}$ SE $\frac{1}{2}$;
sec. 27 S $\frac{1}{2}$ S $\frac{1}{2}$;
sec. 34, all;
sec. 35, lots 3 and 4, W $\frac{1}{2}$ SW $\frac{1}{2}$ NE $\frac{1}{2}$, S $\frac{1}{2}$ NW $\frac{1}{2}$, SW $\frac{1}{2}$, W $\frac{1}{2}$ W $\frac{1}{2}$ SE $\frac{1}{2}$.

T. 18 S., R. 6 E., SLM
sec. 1, lots 1 thru 8, S $\frac{1}{2}$ N $\frac{1}{2}$, E $\frac{1}{2}$ NE $\frac{1}{2}$ SW $\frac{1}{2}$, E $\frac{1}{2}$ NW $\frac{1}{2}$ NE $\frac{1}{2}$ SW $\frac{1}{2}$, N $\frac{1}{2}$ NW $\frac{1}{2}$ NE $\frac{1}{2}$ SE $\frac{1}{2}$,
N $\frac{1}{2}$ NW $\frac{1}{2}$ SE $\frac{1}{2}$;
sec. 2, lots 1 thru 8, S $\frac{1}{2}$ N $\frac{1}{2}$, N $\frac{1}{2}$ NE $\frac{1}{2}$ SW $\frac{1}{2}$, N $\frac{1}{2}$ SW $\frac{1}{2}$ NE $\frac{1}{2}$ SW $\frac{1}{2}$, SE $\frac{1}{2}$ NE $\frac{1}{2}$ SW $\frac{1}{2}$,
NW $\frac{1}{2}$ NE $\frac{1}{2}$ SE $\frac{1}{2}$, N $\frac{1}{2}$ SW $\frac{1}{2}$ NE $\frac{1}{2}$ SE $\frac{1}{2}$, N $\frac{1}{2}$ NW $\frac{1}{2}$ SE $\frac{1}{2}$, N $\frac{1}{2}$ S $\frac{1}{2}$ NW $\frac{1}{2}$ SE $\frac{1}{2}$;
sec. 3, lots 1, 2, and 8, NE $\frac{1}{2}$ SE $\frac{1}{2}$ NE $\frac{1}{2}$;

T. 18 S., R. 7 E., SLM
sec. 6, lots 4 thru 7, W $\frac{1}{2}$ SE $\frac{1}{2}$ NW $\frac{1}{2}$, W $\frac{1}{2}$ E $\frac{1}{2}$ SW $\frac{1}{2}$.

containing 2,630.81 acres more or less.

Coal Resources/Reserves

The revised tract as recommended by the tract delineation team comprises approximately 2,630.81 acres. Within this tract, the Hiawatha bed contains an estimated 50.9 million tons of coal resources ranging from 5 to over 15 feet thick.

The minable reserve base was determined from the in-place resource using the following assumptions:

1. Minimum mine height is 5 feet, maximum mine height is 10 feet.
2. Top coal left for unstable roof averages 1 foot.
3. Bottom coal left for bad floor averages 0.75 feet.
4. High ash area as identified by Beaver Creek Coal Company is considered unminable.
5. A 500 foot barrier was left adjacent to the outcrop to account for burned or oxidized coal.

Given these assumptions, the tract contains a minable coal reserve base of 33.8 million tons.

The recoverable coal was determined from the minable reserve base using the mine plan proposed by Beaver Creek Coal Company and assuming 75% pillar recovery in areas with 0-1500 feet of overburden and 65% pillar recovery in areas where the overburden exceeds 1500 feet. The tract contains an estimated 13.2 million tons of recoverable coal. It should be noted that these reserve estimates are preliminary and could be revised in the geology and engineering report for the tract economic evaluation.

The preliminary reserve estimates are summarized as follows:

Table I
Coal Resources/Reserves UTU-64375

<u>Area</u>	<u>Bed</u>	<u>Coal Acres</u>	<u>Average Thickness</u>	<u>In-place* Coal(tons)</u>	<u>Minable Coal(tons)</u>	<u>Recoverable Coal(tons)</u>
Tract as delineated	Hiawatha	2,560.0	11.0	50,700,000	33,800,000	13,200,000

*Includes coal beds >5 feet thick with an assumed unit weight of 1,800 ton/acre-ft.

Coal Quality

In the tract delineation report for the original Trail Mountain tract, the coal quality is summarized from in-mine samples and drill holes on an as-received basis as follows:

Table II
Trail Mountain Area, Hiawatha Coal Bed Quality

<u>No. of Samples</u>	<u>Moisture (%)</u>	<u>Ash (%)</u>	<u>Volatile Matter (%)</u>	<u>Fixed Carbon (%)</u>	<u>Sulfur (%)</u>	<u>Heating Value (Btu/lb)</u>
11	4.58	8.13	40.14	47.15	0.55	12,575

This coal has an apparent rank of high-volatile B bituminous coal.

There are indications that coal from this area could have sodium >4 percent in the mineral ash and relatively low ash-fusion temperatures. Whether these factors cause boiler fouling or present marketing problems needs to be investigated further. There are also some high-ash areas due to rock partings and/or sandstone spars in the coal.

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Appendix B - Role of Office of Surface Mining Reclamation and Enforcement in the Regulation of Coal Mining

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations. In January 1981, pursuant to Section 503 of SMCRA, the Utah Division of Oil, Gas, and Mining (DOG M) developed, and the Secretary of the Interior approved, a permanent program authorizing Utah DOGM to regulate surface coal mining operations and surface effects of underground mining on non-Federal lands within the State of Utah. In March 1987, pursuant to Section 523 (c) of SMCRA, Utah DOGM entered into a cooperative agreement with the Secretary of the Interior authorizing Utah DOGM to regulate surface coal mining operations and surface effects of underground mining on Federal lands within the State.

Pursuant to the cooperative agreement, Federal coal lease holders in Utah must submit permit application packages (PAP's) to OSM and Utah DOGM for proposed mining and reclamation operations on Federal lands in the State. Utah DOGM reviews the PAP to ensure that the permit application complies with the permitting requirements and that the coal mining operation will meet the performance standards of the approved permanent program. If it does comply, Utah DOGM issues the applicant a permit to conduct coal mining operations. OSM, the Bureau of Land Management (BLM), the Forest Service (FS), and other Federal agencies review the PAP to ensure that it complies with the terms of the coal lease, the Mineral Leasing Act of 1920, the National Environmental Policy Act of 1969, and other Federal laws and their attendant regulations. OSM recommends approval, approval with conditions, or disapproval of the mining plan to the Assistant Secretary--Land and Minerals Management. Before the mining plan can be approved, BLM and the surface-managing agency (in this case FS) must concur with this recommendation.

Utah DOGM enforces the performance standards and permit requirements during the mine's operation and has primary authority in environmental emergencies. OSM retains oversight responsibility for this enforcement. BLM and FS have authority in those emergency situations where Utah DOGM or OSM inspectors cannot act before significant environmental harm or damage occurs.

Appendix C - Special Stipulations

1. The Regulatory Authority shall mean the State Regulatory Authority pursuant to a cooperative agreement approved under 30 CFR Part 745 or in the absence of a cooperative agreement, Office of Surface Mining. The Authorized Officer shall mean the State Director, Bureau of Land Management. The Authorized Officer of the Surface Management Agency shall mean the Forest Supervisor, Forest Service. Surface Management Agency for private surface is the Bureau of Land Management. For adjoining private lands with Federal minerals and which primarily involve National Forest Service issues, the Forest Service will have the lead for environmental analysis and, when necessary, documentation in an environmental assessment or environmental impact statement.

2. The Authorized Officers, of the Bureau of Land Management, Office of Surface Mining (Regulator Authority), and the Surface Management Agency (Forest Service) respectively, shall coordinate, as practical, regulation of mining operations and associated activities on the lease area.

3. In accordance with Sec. 523(b) of the "Surface Mining Control and Reclamation Act of 1977," surface mining and reclamation operations conducted on this lease are to conform with the requirements of this Act and are subject to compliance with Office of Surface Mining Regulations, or as applicable, a Utah program equivalent approved under cooperative agreement in accordance with Sec. 523(c). The United States Government does not warrant that the entire tract will be susceptible to mining.

4. Federal Regulations 43 CFR 3400 pertaining to Coal Management make provisions for the Surface Management Agency, the surface of which is under the jurisdiction of any Federal agency other than the Department of Interior, to consent to leasing and to prescribe conditions to insure the use and protection of the lands. All or part of this lease contain lands the surface of which are managed by the United States Department of Agriculture, Forest Service, Manti-LaSal National Forest.

The following stipulations pertain to the Lessee responsibility for mining operations on the lease area and on adjacent areas as may be specifically designated on National Forest System lands.

Forest Service Stipulation #1.

Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the Lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the Lessee prior to disturbance shall immediately bring them to the attention of

the appropriate authority. Paleontological remains of significant scientific interest do not include leaves, ferns or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation #2.

If there is reason to believe that threatened or endangered (T&E) species of plants or animals, or migratory bird species of high Federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation #3.

The Lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data is adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.

Forest Service Stipulation #4.

Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.

Forest Service Stipulation #5.

The limited area available for mine facilities at the coal outcrop, steep topography, adverse winter weather, and physical limitations on the size and design of the access road, are factors which will determine the ultimate size of the surface area utilized for the mine. A site specific environmental analysis will be prepared for each new mine site development and for major improvements to existing developments to examine alternatives and mitigate conflicts.

Forest Service Stipulation #6.

Consideration will be given to site selection to reduce adverse visual impacts. Where alternative sites are available, and each alternative is technically feasible, the alternative involving the least damage to the scenery and other resources shall be selected. Permanent structures and facilities will be designed, and screening techniques employed to reduce visual impacts and, where

possible, achieve a final landscape compatible with the natural surroundings. The creation of unusual, objectionable, or unnatural landforms and vegetative landscape features will be avoided.

Forest Service Stipulation #7.

The Lessee shall be required to establish a monitoring system to locate, measure and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.

Forest Service Stipulation #8.

The Lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities. On Forest Development Roads (FDR), Lessees may perform their share of road maintenance by a commensurate share agreement if a significant degree of traffic is generated that is not related to their activities.

Forest Service Stipulation #9.

Except at specifically approved locations, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The Lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

Forest Service Stipulation #10.

In order to avoid surface disturbance on steep canyon slopes and to preclude the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specific approved locations.

Forest Service Stipulation #11.

If removal of timber is required for clearing of construction sites, etc., such timber shall be removed in accordance with the regulations of the surface management agency.

Forest Service Stipulation #12.

The coal contained within, and authorized for mining under this lease shall be extracted only by underground mining methods.

Forest Service Stipulation #13.

Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.

Forest Service Stipulation #14.

In order to protect big game wintering areas, elk calving and deer fawning areas, sagegrouse strutting areas, and other critical wildlife habitat and/or activities, specific surface uses outside the mine development area may be curtailed during specified periods of the year.

Forest Service Stipulation #15.

Support facilities, structures, equipment, and similar developments will be removed from the lease area within two years after the final termination of use of such facilities. This provision shall apply unless the requirement of Section 10 of the lease form is applicable. Disturbed areas and those areas previously occupied by such facilities will be stabilized and rehabilitated, drainages re-established, and the areas returned to a pre-mining land use.

Forest Service Stipulation #16.

The Lessee, at the conclusion of the mining operation, or at other times as surface disturbance related to mining may occur, will replace all damaged, disturbed or displaced corner monuments (section corners, 1/4 corners, etc.) their accessories and appendages (witness trees, bearing trees, etc.) or restore them to their original condition and location, or at other locations that meet the requirements of the rectangular surveying system. This work shall be conducted at the expense of the Lessee, by a professional land surveyor registered in the State of Utah, and to the standards and guidelines found in the Manual of Surveying Instructions, United States Department of the Interior.

Forest Service Stipulation #17.

The Lessees, at their expense, will be responsible to replace any surface water identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses.

Appendix D - Public Notices

The Sun Advocate, Price, Utah
 January 25, 1990
 Manti-LaSal N. F. Price, Utah

BLM will evaluate lease application

The Bureau of Land Management and the Forest Service will be evaluating an application by Beaver Creek Coal Co. to lease federal lands in Emery County for coal development. The proposed coal lease tract lies just west of and adjacent to Beaver Creek's existing Trail Mountain Mine No. 9.

The application will be processed under the lease on

application procedure adopted by the Uinta-Southwestern Utah Coal Region. The proposed tract encompasses 2,630 acres of federal coal lands. The surface of the involved lands are under management by the Bureau of Land Management, Moab District and the USDA Forest Service, Manti-LaSal National Forest.

These lands have been determined to be suitable for further consideration for coal leasing under existing Bureau of Land Management and Forest Service Land Use Plans. The Bureau of Land Management and the Forest Service will jointly evaluate the tract for leasing. For further information contact the BLM Moab District Office in Moab, or the Manti-LaSal National Forest, Ferron Ranger District in Ferron.

Public comments will be accepted at the Manti-LaSal National Forest, Ferron Ranger District, P.O. Box 310, Ferron, Utah, until Feb. 12, 1990.

FOREST SERVICE MANTI-LASAL NATIONAL FOREST FERRON, UTAH RECEIVED		
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Federal groups evaluate lease

The Bureau of Land Management and the Forest Service will be evaluating an application by Beaver Creek Coal Company to lease federal lands in Emery County for coal development. The proposed coal lease tract lies just west of and adjacent to Beaver Creek's existing Trail Mountain Mine No. 9.

The application will be processed under the lease of application procedure adopted by the Uinta-Southwestern Utah Coal Region. The proposed tract encompasses 2,630.81 acres of federal coal lands. The surface of the involved lands is under management by the Bureau of

Land Management, Moab District, and the USDA Forest Service, Manti-LaSal National Forest.

These lands have been determined to be suitable for further consideration for coal leasing under existing Bureau of Land Management and the Forest Service Land Use Plans. The Bureau of Land Management and Forest Service will jointly evaluate the tract for leasing. For further information contact the BLM Moab District Office in Moab, Utah, or the Manti-LaSal National Forest, Ferron Ranger District in Ferron.

Public comments will be accepted at the Manti-LaSal National Forest, Ferron Ranger District, P.O. Box 310, Ferron, until Feb. 12, 1990.

United States
Department of
Agriculture

Forest
Service

Manti-LaSal National Forest
Ferron Ranger District

P.O. Box 310
Ferron, Utah 84523

Reply to: 2820

Date: January 22, 1990

(See Mailing List)

The Bureau of Land Management and the Forest Service will be evaluating an application by Beaver Creek Coal Co. to lease Federal lands in Emery County for coal development. The proposed lease tract lies adjacent to the western boundary of Beaver Creek Coal Company's existing Trail Mountain Mine Permit Area, as shown on the enclosed map. Beaver Creek Coal Company's application states that they intend to mine the proposed lease using existing portal facilities associated with their Trail Mountain Mine.

This application will be processed under the Lease on Application procedure adopted by the Uinta-Southwestern Utah Coal Region. The proposed tract encompasses 2,630.81 acres of Federal coal lands. The surface of the lease area is under Federal management including lands administered by the Bureau of Land Management, Moab District, and the USDA Forest Service, Manti-LaSal National Forest.

The subject lands have been determined to be suitable for further consideration for coal leasing under existing Bureau of Land Management and Forest Service Land Use Plans. The Bureau of Land Management and Forest Service will jointly evaluate the tract on a site-specific basis for leasing in accordance with the requirements of Federal Regulations 43 CFR 3400 and the National Environmental Policy Act of 1969 (NEPA). If offered for lease, the tract will be leased on a competitive basis.

Further information can be obtained at the Bureau of Land Management, Moab District Office in Moab, Utah, or the Manti-LaSal National Forest, Ferron Ranger District, in Ferron, Utah.

Public comments will be accepted at the Manti-LaSal National Forest, Ferron Ranger District, P.O. Box 310, Ferron, Utah, 84523, until February 12, 1990.

Sincerely,

JOHN NIEBERGALL
District Ranger

The following is the mailing list for the scoping letter:

City of Orangeville
Sportsman's Lodge
City of Castle Dale
Emery County Commission
Emery County Economic Development
Southeastern Utah Association of Local Governments
Utah Associated Municipal Water Systems
Joes Valley Marina
Senator Orrin Hatch Office
East Carbon Wildlife Federation
Emery Water Conservancy District
Utah Department of Natural Resources
Utah Wilderness Association
Utah Division of Wildlife Resources
The Nature Conservancy
Bureau of Reclamation
Mr. Carl Bott, Trail Mountain Herd Manager
Utah Mining Association
Carbon-Emery Woolgrowers Association

Appendix E - Wildlife List

Additional wildlife species, both resident and migrant, that may be found on Trail Mountain include:

Mammal species, that may be found in the general area include Merriam's shrew (Sorex merriami), montaine shrew (Sorex monticolus), fringed myotis (Myotis thysanodes), long-eared myotis (Myotis evotis), big brown bat (Eptesicus fuscus), Townsend's big-eared bat (Plecotus townsendii), white-tailed jackrabbit (Lepus townsendii), snowshoe hare (Lepus americanus), black-tailed jackrabbit (Lepus californicus), mountain cottontail (Sylvilagus nuttallii), rock squirrel (Spermophilus variegatus), Uinta ground squirrel (Spermophilus amatus), yellow-bellied marmot (Marmota flaviventris), least chipmunk (Tamias minimus), Uinta chipmunk (Tamias umbrinus), northern pocket gopher (Thomomys talpoides), deer mouse (Peromyscus maniculatus), long-tailed vole (Microtus longicaudus), porcupine (Erethizon dorsatum), coyote (Canis latrans), ermine (Mustela erminea), long-tailed weasel (Mustela frenata), badger (Taxidea taxus), mountain lion (Felis concolor), bobcat (Felis rufus), and black bear (Ursus americanus).

Some bird species expected in the vegetative communities on Trail Mountain during at least some part of the year include:

Aspen-conifer stands: red-breasted nuthatch (Sitta canadensis), golden-crowned kinglet (Regulus satrapa), western tanager (Piranga ludoviciana), olive-sided flycatcher (Contopus borealis), and downy woodpecker (Picoides pubescens).

Ponderosa pine stands: violet-green swallow (Tachycineta thalassina), western wood pewee (Contopus sordidulus), pygmy nuthatch (Sitta pygmaea), western bluebird (Sialia mexicana), and black-capped chickadee (Parus atricapillus).

Pinyon-juniper woodlands: poor-will (Phalaenoptilus nuttallii), plain titmouse (Parus inornatus), ash-throated flycatcher (Myiarchus cinerascens), gray flycatcher (Empidonax wrightii), and pinyon jay (Gymnorhinus cyanocephala).

Mountain brushlands: dusky flycatcher (Empidonax oberholseri), common bushtit (Psaltriparus minimus), Townsend's solitaire (Myadestes townsendi), rufous-sided towhee (Pipilo erythrophthalmus), Virginia's warbler (Vermivora virginiae), and scrub jay (Aphelocoma coerulescens).

Sagebrush-grasslands: western meadowlark (Sturnella neglecta), vesper sparrow (Poocetes gramineus), and Brewer's sparrow (Spizella breweri).

The black-billed magpie (Pica pica), common raven (Corvus corax), and American robin (Turdus migratorius) occur throughout the proposed lease area.

Cliff swallows (Hirundo pyrrhonota) commonly nest on the escarpments.

The above was excerpted from Dalton, et al. (1977). A complete list of wildlife species for the region was completed by the Utah Division of Wildlife Resources (Dalton, et al., 1977).

Appendix F - Previous Archaeology Surveys

The following Cultural Resource Surveys have been conducted in the area of the proposed lease tract:

Broadbear, Bill

1985 Cultural Resource Survey of the Battleground Watershed Improvement Project. Manti-LaSal National Forest Cultural Resource Report No. ML-85-412.

1986 Cultural Resource Survey of the Battleground Watershed Improvement Project. Manti-LaSal National Forest Cultural Resource Report No. ML-86-425.

Gallegos, Alan J.

1983 Cultural Resource Survey for the Treatment of Browse on South Trail Mountain. Manti-LaSal National Forest Cultural Resource Report No. ML-83-397.

Harber, Dale

1989 Cultural Resource Inventory of the Trail Mountain Roller Chopping Project. Manti-LaSal National Forest Cultural Resource Report No. ML-90-519.

Hauck, F.R.

1988 Cultural Resource Evaluation of Nine Exploratory Well Locations and Access Routes in the Trail Mountain Locality of Emery County, Utah. Manti-LaSal National Forest Cultural Resource Report No. ML-88-471.

Weed, Carol S. and Jeffrey H. Altschul

1980 The Central Coal II Project: A Class II Inventory of Selected Portions of Carbon, Emery, and Sevier Counties, Utah. New World Research, Inc., Louisiana. Manti-LaSal National Forest Cultural Resource Report No. ML-80-222.



United States Department of the Interior

OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202



May 20, 1991

Mr. Dan Guy
Beaver Creek Coal Company
P.O. Box 1378
Price, Utah 84501

Dear Mr. Guy:

The Assistant Secretary, Land and Minerals Management, Department of the Interior, approved on May 14, 1991, the Trail Mountain #9 mine mining plan for Federal lease U-64375. The mining plan approval authorized mining of about 13,200,000 tons of Federal coal in 2,631 acres of Federal lease U-64375. Approval of this mining plan supplements the Trail Mountain #9 mine mining plan for Federal leases U-082996 and U-49332 approved on December 14, 1984 and modified on May 5, 1987.

Mining operations must be conducted in accordance with both the Utah State permit and the approved mining plan. I have enclosed a copy of the mining plan approval document. Please read the terms and conditions of the mining plan approval document carefully. If you have any questions, please contact Bob Coleman or me at (303) 844-2400.

Sincerely,

Ranvir Singh
Ranvir Singh, Chief
Federal Lands Branch

Enclosure

cc: BLM Moab District Office
Utah Division of Oil, Gas, and Mining ✓
OSM Albuquerque Field Office

RECEIVED

MAY 23 1991

DIVISION OF
OIL GAS & MINING

MINING PLAN DECISION DOCUMENT

Beaver Creek Coal Company

Trail Mountain #9 Mine

Emery County, Utah



U.S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement

Federal Lease U-64375

Prepared April 1991

CONTENTS

Trail Mountain #9 Mine
Federal Lease U-64375
Mining Plan Decision Document

1. Memorandums
 - a. Memorandum from the Director to the Assistant Secretary, Land and Minerals Management.
 - b. Memorandum from the Assistant Director, Western Support Center, through the Deputy Director, to the Director
2. Location Maps.
3. Chronology.
4. National Environmental Policy Act Compliance Documents.
5. Letters of Concurrence and Consultation:
 - a. Bureau of Land Management
 - b. U.S. Fish and Wildlife Service.
 - c. State Historic Preservation Office.
 - d. U.S.D.A. Forest Service.
6. Mining Plan Approval Document.
7. Division of Oil, Gas, and Mining's Decision Package



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

WASHINGTON, D.C. 20240



MAY 7 1991

Memorandum

To: Assistant Secretary, Land and Minerals
Management

From: *for* Director *Jennifer A. Sallenberg, Acting*

Subject: Recommendation for Approval of the Beaver
Creek Coal Company's Trail Mountain #9 Mine
Mining Plan for Federal Lease U-64375, Emery
County, Utah

I recommend approval with conditions of the Beaver Creek Coal Company's Trail Mountain #9 mine mining plan for Federal lease U-64375 pursuant to the Mineral Leasing Act of 1920, as amended. This mining plan supplements the Trail Mountain #9 mining plan for Federal leases U-082996 and U-49332 approved on December 14, 1984 and modified on May 5, 1987. My recommendation to approve the Trail Mountain #9 mine mining plan is based on: (1) Beaver Creek Coal Company's complete permit application package (PAP), (2) compliance with the National Environmental Policy Act of 1969, (3) documentation assuring compliance with applicable requirements of other Federal laws, regulations, and executive orders, (4) comments and recommendations or concurrence of other Federal agencies, and the public, (5) the findings and recommendations of the Bureau of Land Management with respect to the resource recovery and protection plan and other requirements of the Federal lease and the Mineral Leasing Act, and (6) review of the PAP by the Utah Division of Oil, Gas, and Mining as required by the Utah State program and cooperative agreement.

The Secretary may approve a mining plan for Federal leases under 30 U.S.C. 207(c) and 1273(c). Pursuant to 30 CFR Chapter VII, Subchapter D, I find that the proposed mining plan will be in compliance with all applicable laws and regulations. The decision document for the proposed mining plan action is attached.

Attachment



United States Department of the Interior

OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202



MEMORANDUM

TO: Director

THROUGH: Deputy Director
Operations and Technical Services

FROM: Acting Assistant Director
Western Support Center

SUBJECT: Recommendation for Approval with Conditions of the
Beaver Creek Coal Company's Trail Mountain #9 Mine
Mining Plan for Federal Lease U-64375, Emery County,
Utah

I. Recommendation

I recommend approval with conditions of the Trail Mountain #9 mine mining plan for Federal lease U-64375. This is a new mining plan for an underground mine being permitted under the Federal lands program and the approved Utah State program and cooperative agreement. My recommendation is based on the complete permit application package (PAP) submitted by Beaver Creek Coal Company (BCCC); an Environmental Assessment of the proposed mining plan and alternatives prepared by the Office of Surface Mining Reclamation and Enforcement (OSM); the Decision Package prepared by the Utah Division of Oil, Gas, and Mining (DOGM); comments and concurrences of other Federal agencies; and other documents in the administrative record.

Approval of this mining plan will authorize mining of about 13,200,000 tons of Federal coal within 2,631 acres of Federal lease U-64375, as shown on the map included with this decision document. The U.S.D.A. Forest Service has required two special conditions of approval:

1. Before extending entries to the west beyond the location of hole TMX-6, the operator must drill horizontal holes to determine if significant water could be encountered in the Starpoint/Blackhawk aquifer. If significant water is encountered in the horizontal holes, the operator must stop the advance and notify the Regulatory Authority.

2. Before mining in the vicinity of perennial stream and escarpment buffer zones, the operator must provide data sufficient to justify use of the 15 degree angle-of-draw (measured from the vertical). If the technical data show that an angle-of-draw greater than 15 degrees is expected, the buffer zone must be modified to be consistent with the expected angle-of-draw.

The Bureau of Land Management has required one special condition of approval to avoid potential escarpment failure:

3. Mining operations in the last panel on the eastern boundary of Section 1, T18S, R6E will be limited to first mining only in order to leave pillars of sufficient size to prevent caving of the overlying strata.

These special conditions are incorporated into the proposed mining plan approval document.

Utah Division of Oil, Gas, and Mining (DOGM) reviewed the permit revision application under the Utah State program, the Federal lands program (30 CFR Chapter VII, Subchapter D), and the Utah cooperative agreement (30 CFR 944.30). Pursuant to the Utah State program and the cooperative agreement, Utah DOGM has made the findings for permit revision approval and is prepared to approve the permit revision application after approval of the mining plan.

OSM has consulted with other Federal agencies for compliance with the requirements of applicable Federal laws, and their comments and concurrences are included in the decision document. The resource recovery and protection plan was reviewed by the Bureau of Land Management (BLM) for compliance with the Mineral Leasing Act of 1920, as amended, and 43 CFR Part 3480, and BLM recommended approval of the mining plan in a letter dated April 12, 1991. The U.S. Fish and Wildlife Service provided its final consultation comments under Section 7 of the Endangered Species Act in a letter dated April 11, 1991. The State Historic Preservation Officer concurred with OSM's assessment and recommendations for protection of cultural resources in a letter dated April 12, 1991. The U.S.D.A. Forest Service, as Federal land management agency, concurred with the proposed mining plan action in a letter dated April 17, 1991.

I have determined that the proposed area of mining plan approval is not unsuitable for mining in accordance with section 522(b) of SMCRA.

The permit revision area is located on Federal lands within the boundaries of the Manti-La Sal National Forest.

However, based on OSM's analysis and on the concurrence of the USDA Forest Service, the surface operations and impacts of the Trail Mountain #9 mine are incident to an underground coal mine and will not be incompatible with significant recreational, timber, economic, or other values of the Manti-La Sal National Forest.

OSM has determined that approval of this mining plan will not have a significant impact on the quality of the human environment. The impacts of approval of this mining plan and alternatives are described in the Environmental Assessment included with the decision document.

The mining plan approval document included in the decision document is in conformance with the Mineral Leasing Act of 1920, as amended, and applicable Federal regulations. I recommend that you advise the Assistant Secretary, Land and Minerals Management, under 30 CFR Part 746, that the BCCC's Trail Mountain #9 mine mining plan for Federal lease U-64375 is ready for approval.

II. Background

The Trail Mountain #9 underground coal mine is located in Emery County, Utah, 20 miles northwest of Castle Dale, Utah. The mine has been in operation since 1946. About 8.8 acres have been affected by surface disturbance to date. The total permitted area of the Trail Mountain #9 mine will contain about 4,045 acres. Mining is expected to continue for 15 years under Utah permit ACT/015/009 and the approved mining plan.

The original mining plan for the Trail Mountain #9 mine was approved under the Federal lands program on December 14, 1984 for Federal lease U-082996. Since that approval there has been one mining plan modification for the Trail Mountain #9 mine approved on May 5, 1987. Approval of this modification will increase the number of acres in the approved mining plan to 4,045 acres, including the previously-approved mining plan area for Federal leases U-082996 and U-49332.

The underground mining operations utilize room and pillar mining methods. The Hiawatha coal seam will be mined at an average production rate of about 1,200,000 tons per year. No additional surface disturbance will result from this action.

A chronology of events related to the processing of the PAP is included with the decision document. The information in the PAP, as well as other information identified in the decision document, has been reviewed by Utah DOGM staff in coordination with the OSM Project Leader.

During the review of the PAP, no major issues were identified.

The public was notified of the availability of the PAP for review by publication of newspaper notices for four consecutive weeks, with a last publication date of February 19, 1991. No public comments on the PAP were received after the public notice was published.

Utah DOGM determined that a bond in the amount of \$463,711 is adequate for the State permit number ACT/015/009 associated with this mining plan action. The bond is payable to the State and OSM.

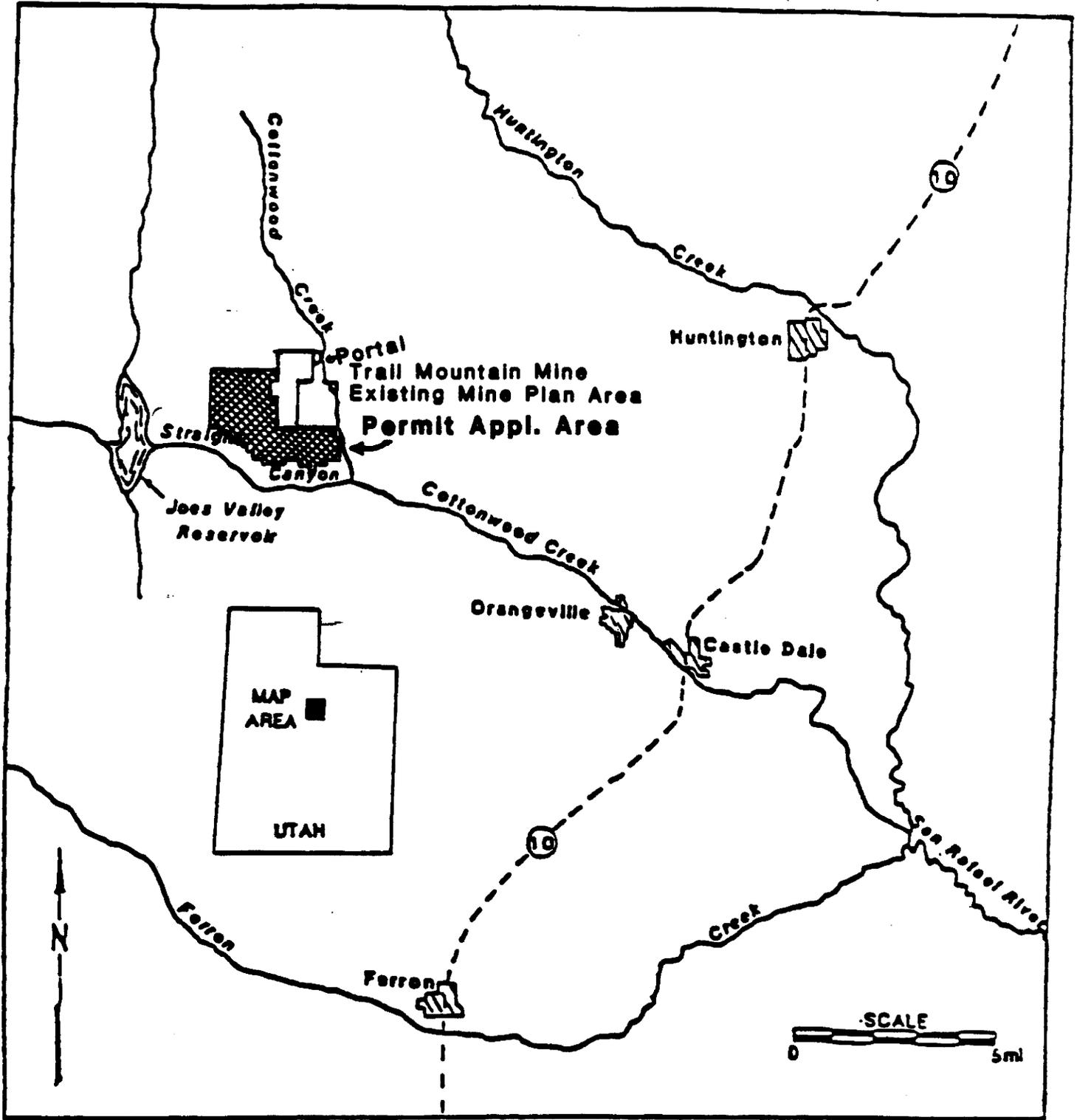
The PAP submitted by BCCC and updated through April 15, 1991, Utah DOGM's Decision Package provided to OSM under the cooperative agreement, the Environmental Assessment of the proposed action and alternatives prepared by OSM, other documents prepared by Utah DOGM, and correspondence developed during the review of the PAP are part of OSM's administrative record.


Russell F. Price

Date

Attachments

LOCATION MAP
BEAVER CREEK COAL COMPANY, TRAIL MOUNTAIN NO. 9 MINE (UT-0017)



Location of the Trail Mountain Mine plan Area.

CHRONOLOGY

Trail Mountain #9 Mine
Federal Lease U-64375
Mining Plan Decision Document

DATE	EVENT
July 5, 1990	Beaver Creek Coal Company (BCCC) submitted the permit application package (PAP) under the approved Utah State Program to the Utah Division of Oil, Gas, and Mining (DOG M) for a permit revision for the Trail Mountain #9 mine.
August 13, 1990	The Office of Surface Mining Reclamation and Enforcement (OSM) received the PAP.
February 19, 1991	BCCC published in The Sun Advocate the fourth consecutive weekly notice that its complete PAP was filed with Utah DOGM.
April 5, 1991	Utah DOGM determined that the PAP was administratively complete for public review and comment.
April 11, 1991	OSM received final consultation comments on the mining plan modification from the U.S. Fish and Wildlife Service.
April 12, 1991	OSM received final concurrence with the approval of the mining plan modification from the Bureau of Land Management.
April 12, 1991	OSM received final comments on the mining plan modification from the State Historic Preservation Office.
April 15, 1991	OSM received Utah DOGM's final Decision Package.
April 17, 1991	OSM received final concurrence with the approval of the mining plan modification from the U.S.D.A. Forest Service, the Federal land management agency.
April 1991	OSM's Western Support Center recommended that the mining plan be approved.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
FINDING OF NO SIGNIFICANT IMPACT FOR
Trail Mountain #9 Mine, Federal Lease U-64375
Mining Plan Decision Document

A. Introduction

Beaver Creek Coal Company submitted a permit application package (PAP) for a permit revision for the Trail Mountain #9 mine to the Utah Division of Oil, Gas, and Mining (DOGGM) under the Utah State program (30 CFR Part 944). The PAP proposes extending underground mining operations into Federal lease U-64375. The proposed mining plan would cause no new surface disturbance excluding mining-induced subsidence in the mining plan area. Under the Mineral Leasing Act of 1920, the Assistant Secretary, Land and Minerals Management must approve, approve with conditions, or disapprove the mining plan for Federal lease U-64375. Pursuant to 30 CFR Part 746, the Office of Surface Mining Reclamation and Enforcement (OSM) is recommending approval of this mining plan with conditions.

B. Statement of Environmental Significance of the Proposed Action

The undersigned person has determined that the approval with conditions of the mining plan would not have a significant impact on the quality of the human environment under section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4332(2)(C), and therefore, an environmental impact statement is not required.

This finding of no significant impact is based on the attached April 1990 environmental assessment (EA) jointly prepared by the U.S.D.A. Forest Service, the Bureau of Land Management, and OSM for the decision on the initial coal lease application and mining plan approval for this lease. The changes in activities and impacts that would occur at the mine as a result of approval of the mining plan with conditions are described and analyzed in Utah DOGM's April 15, 1991 Decision Package, including the technical analysis, for its decision on the associated permit revision for adding the lease to the permit area. OSM independently evaluated Utah DOGM's Decision Package including the technical analysis and determined that the environmental impacts of the proposed action continue to be adequately and accurately described in the April 1990 Environmental Assessment. OSM takes full responsibility for the accuracy, scope, and content of the environmental impact analysis in Utah DOGM's Decision Package.



Chief, Federal Programs Division
Western Support Center

4/29/91
Date

**ENVIRONMENTAL ASSESSMENT
FOR
BEAVER CREEK COAL COMPANY
COAL LEASE APPLICATION UTU-64375
TRAIL MOUNTAIN TRACT**

**USDA
FOREST SERVICE
MANTI-LASAL NATIONAL FOREST**

**USDI
BUREAU OF LAND MANAGEMENT
MOAB DISTRICT**

April 1990

Responsible Officials:

J. S. Tixier, Regional Forester
USDA, Forest Service
Intermountain Region
Federal Building
324 25th Street
Ogden, Utah 84401

James M. Parker, State Director
USDI, Bureau of Land Management
Utah State Office
324 South State, Suite 301
Salt Lake City, Utah 84111-2303

For Further Information Contact:

George A. Morris, Forest Supervisor
USDA, Forest Service
Manti-LaSal National Forest
599 West Price River Drive
Price, Utah 84501

Gene Nodine, District Manager
USDI, Bureau of Land Management
Moab District
P.O. Box 970
Moab, Utah 85432

Cooperating Agency:

USDI, Office of Surface Mining
Reclamation and Enforcement
Brooks Tower, 2nd Floor
1020 15th Street
Denver, Colorado 80202



TABLE OF CONTENTS

Page No.

TITLE PAGE

TABLE OF CONTENTS

I.	INTRODUCTION	1
	A. Purpose and Need for Action	1
	Map 1 Location Map, Trail Mountain Tract	2
	Map 2 Detail Map, Trial Mountain Tract	3
	B. Authorizing Actions	4
	C. History, Background, and Potential Mining Scenarios	4
	D. Public Issues, Management Issues, and Opportunities	5
	1. Public Issues	5
	2. Management Issues	6
	3. Opportunities	6
	E. Negative Declaration	7
II.	DESCRIPTION OF ALTERNATIVES	7
	A. Alternative 1 - No Action	7
	B. Alternative 2 - Offer the Tract for Leasing as Proposed	7
	1. Description	7
	2. Management Requirements, Constraints, and Mitigations	7
	C. Alternative 3 - Offer a Smaller Tract for Leasing	7
	1. Description	7
	2. Management Requirements, Constraints, and Mitigations	8
	D. Comparison of the Alternatives	8
III.	DESCRIPTION OF THE AFFECTED ENVIRONMENT	9
	A. General Setting	9
	B. Topography and Geology	9
	C. Surface Hydrology	10
	D. Ground Water Hydrology	11
	E. Subsidence	13
	F. Vegetation and Range	13
	Map 3 Trail Mountain Cattle and Horse Allotment	14
	G. Visual Resources	15
	H. Lands and Special Uses	15
	I. Socioeconomics	15
	J. Wildlife	17
	K. Cultural Resources	18
	L. Transportation System	18

IV.	EFFECTS OF IMPLEMENTATION	18
A.	Alternative 1 - No Action	18
B.	Alternative 2 - Offer the Tract for Leasing as Proposed	19
	1. Short-term and Residual Impacts	19
	a. Topography, Geology, and Subsidence	19
	b. Surface Hydrology	20
	c. Ground Water Hydrology	21
	d. Vegetation and Range	21
	e. Visual Resources	21
	f. Lands and Special Uses	22
	g. Socioeconomics	22
	h. Wildlife	23
	i. Cultural Resources	23
	j. Transportation System	24
	2. Short-term Use vs. Long-Term Productivity	24
	3. Irretrievable and Irreversible Commitment of Resources	25
	4. Cumulative Impacts	25
C.	Alternative 3 - Offer a Smaller Tract for Leasing	26
V.	PERSONNEL AND PUBLIC INVOLVEMENT	27
A.	Interdisciplinary Team and Consultants	27
B.	Public Contacts	27
C.	Intensity of Public Interest	27
VI.	REFERENCES	28
VII.	APPENDICES	
A.	Coal Tract Delineation Report	
B.	Role of Office of Surface Mining Reclamation and Enforcement in the Regulation of Coal Mining	
C.	Special Lease Stipulations	
D.	Public Notices	
E.	Wildlife Inventory	
F.	Previous Archaeology Surveys	

I. INTRODUCTION

A. Purpose and Need for Action

On March 10, 1989, Beaver Creek Coal Company submitted Coal Lease Application UTU-64375 to the Bureau of Land Management, Utah State Office. The proposed lease tract, known as the Trail Mountain Tract, encompasses 3,010.81 acres of Federal coal lands in Emery County, Utah (Map 1). The Coal Tract Delineation Team Report, December, 1989 (Appendix A), recommended that the tract be reduced to 2,630.81 acres to maintain the competitive nature of remaining coal reserves in the area (Map 2). This recommendation was approved by the Uinta-Southwestern Utah Regional Coal Team in January, 1990. The surface of the involved lands are administered as follows:

USDA, Forest Service, Manti-LaSal National Forest - 2,425.86 acres (92%)
USDI, Bureau of Land Management, Moab District - 204.95 acres (8%)

The legal description of the tract is as follows (Map 2):

T. 17 S., R. 6 E., SLM.

Sec. 26: S1/2SW1/4, W1/2SW1/4SE1/4;

Sec. 27: S1/2S1/2;

Sec. 34: all;

Sec. 35: Lots 3 and 4, W1/2SW1/4NE1/4, S1/2NW1/4, SW1/4,
W1/2W1/2SE1/4.

T. 18 S., R. 6 E., SLM.

Sec. 1: Lots 1-8, S1/2N1/2, E1/2NE1/4SW1/4, E1/2NW1/4NE1/4SW1/4,
N1/2NW1/4NE1/4SE1/4, N1/2NW1/4SE1/4;

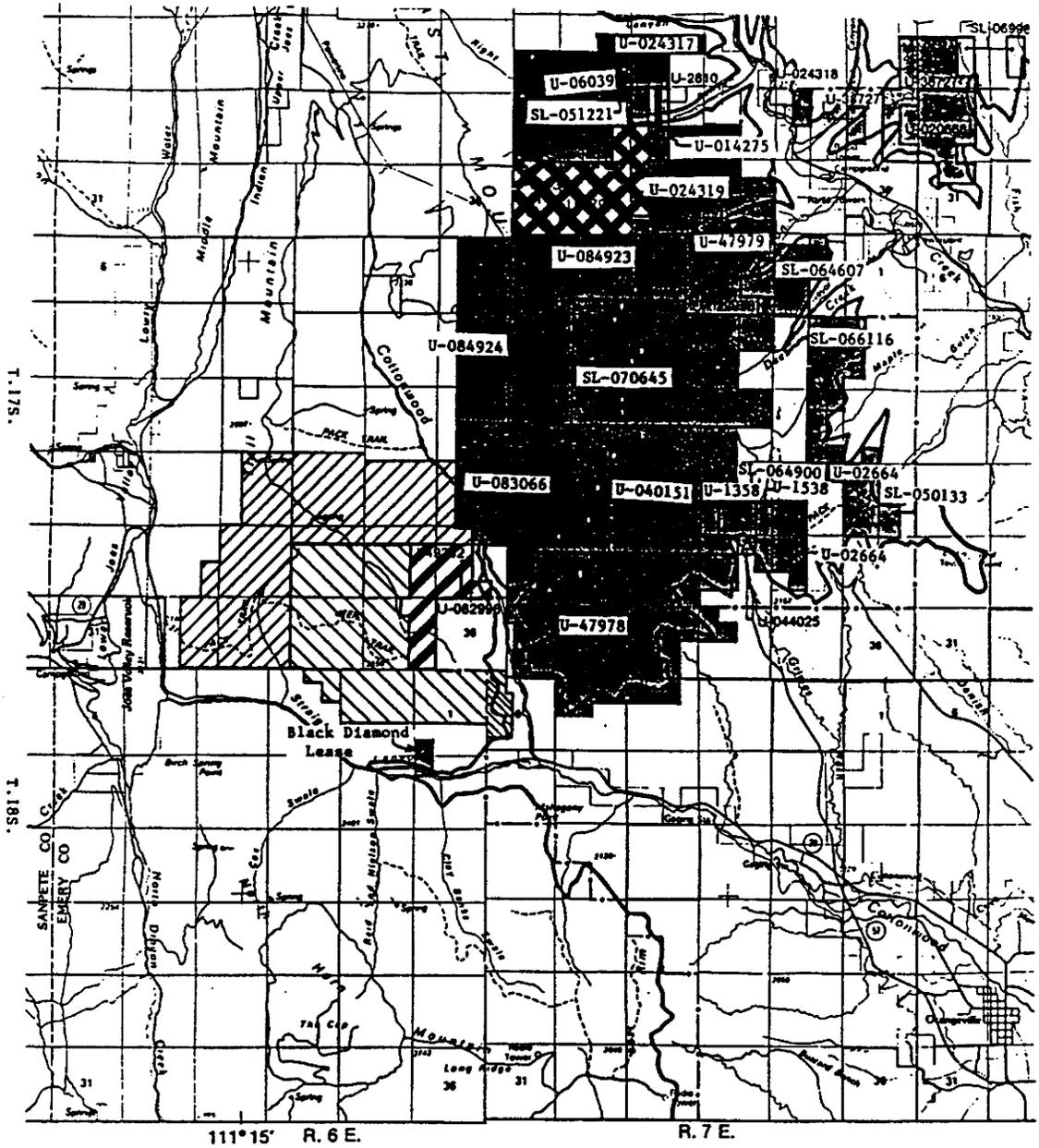
Sec. 2: Lots 1-8, S1/2N1/2, N1/2NE1/4SW1/4, N1/2SW1/4NE1/4SW1/4,
SE1/4NE1/4SW1/4, NW1/4NE1/4SE1/4, N1/2SW1/4NE1/4SE1/4,
N1/2NW1/4SE1/4, N1/2S1/2NW1/4SE1/4;

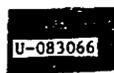
Sec. 3: Lots 1, 2, and 8, NE1/4SE1/4NE1/4.

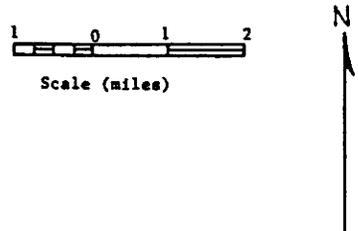
T. 18 S., R. 7 E., SLM.

Sec. 6: Lots 4-7, W1/2SE1/4NW1/4, W1/2E1/2SW1/4.

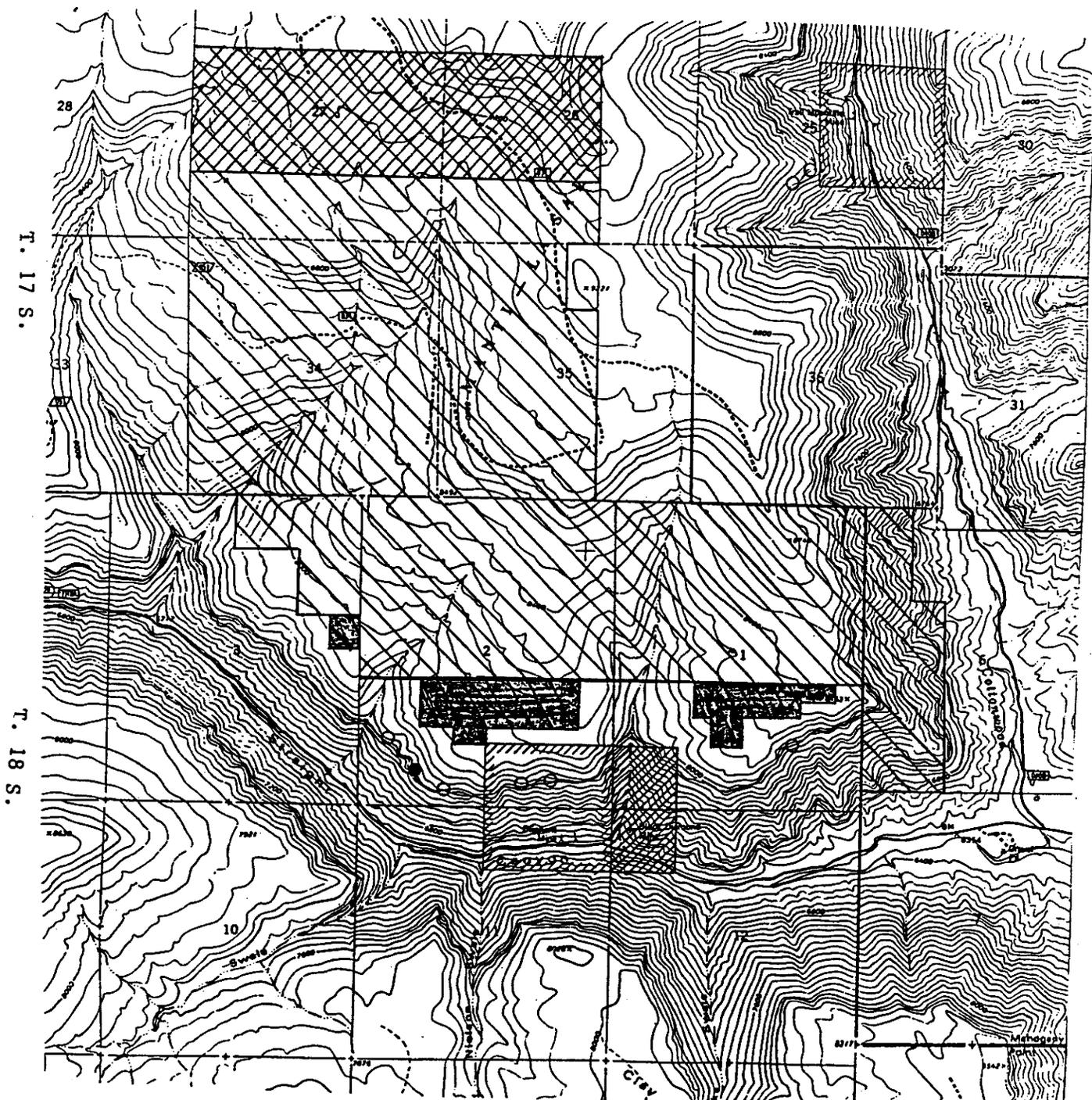
The lands in Sec. 6, T. 18 S., R. 7 E., are administered by BLM. The remaining surface is administered by the Manti-LaSal National Forest. Since the proposed lease tract involves public lands administered by BLM and National Forest System lands, this environmental analysis was conducted jointly between the two agencies. The Manti-LaSal National Forest took the lead in preparation of the Environmental Assessment because the majority of the lands are administered by the Manti-LaSal National Forest. The Office of Surface Mining Reclamation and Enforcement (OSM) has responsibility for permitting mines which involve federal coal. Therefore, they have been identified as a cooperating agency. A more detailed description of the role of OSM in the regulation of coal mining activities is presented in Appendix B.

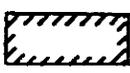


-  Existing Holdings, Beaver Creek Coal
-  Lease Application Area on National Forest System Lands
-  Lease Application Area Administered by BLM
-  Original Trail Mtn. Tract outside of Lease Application Area
-  Coal Outcrop
-  Utah Power & Light Co. Leases
U-083066

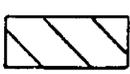


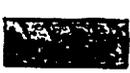
Map 1. Location Map, Trail Mountain Tract UTU-64375

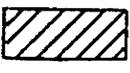


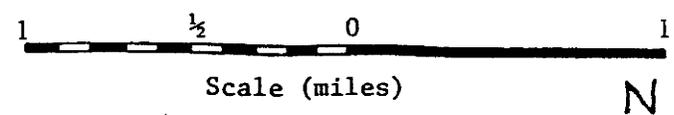
 Private Land

 Area deleted by the Tract Delineation Team

 Lease Tract

 Tract area outside of the area originally designated as suitable for leasing.

 Black Diamond Mine Lease Area.



● Active golden eagle nest.

○ Inactive golden eagle nest.



Map 2. Detail Map, Trail Mountain Tract.

B. Authorizing Actions

The coal lease application was submitted and will be processed and evaluated under the following authorities: Mineral Leasing Act of 1920 as amended, Federal Coal Leasing Amendments Act of 1976 (FCLAA), Federal Land Policy and Management Act of 1976 (FLPMA), Surface Mining Control and Reclamation Act of 1977 (SMCRA), Multiple-Use Sustained Yield Act of 1960, National Forest Management Act of 1976 (NFMA), National Environmental Policy Act of 1969 (NEPA), and Federal Regulations 43 CFR 3400.

The lease application will be processed under the procedures set forth under Federal Regulations 43 CFR 3425, Leasing on Application.

C. History, Background, and Potential Mining Scenarios

Beaver Creek Coal Company applied for a coal lease on 3,010.81 acres of unleased Federal coal lands adjacent to their Trail Mountain No. 9 mine. This tract is a portion of the area originally delineated in 1982 as the Trail Mountain tract during the second round coal leasing effort in the Uinta-Southwest Utah Coal Region. The Trail Mountain tract was delineated in response to expressions of interest from Natomas Coal Company and Royal Land Company. The tract was evaluated by the Forest Service in the Trail Mountain Proposed Coal Lease Tract Site Specific Analysis dated July 1, 1982. The Uinta-Southwestern Utah Coal Region Round Two Final Environmental Impact Statement, completed on October 7, 1983, evaluated 27 tracts in Utah and Colorado. The Trail Mountain tract was one of 22 tracts recommended for competitive leasing under the preferred alternative (Alternative Two, High Level). Due to a re-evaluation and major changes in the Federal coal management program in 1984, the Trail Mountain tract was not offered for leasing.

In January of 1988 the Uinta-Southwestern Utah Coal Region was decertified and as a result, new coal leasing within the Region is being conducted under the Lease on Application Process set forth in Federal Regulations 43 CFR 3425.

A tract delineation team consisting of personnel from BLM and the Manti-LaSal National Forest evaluated the tract configuration as submitted by Beaver Creek Coal Company. The team recommended that the northern portion of the area applied for be removed from consideration, reducing the tract to 2,630.81 acres. This would maintain the competitive nature of the coal resources to the west and north.

An initial analysis was conducted by the surface management agencies and it was determined that the tract was suitable for further consideration for coal leasing, subject to site-specific analysis, under the Manti-LaSal National Forest Land and Resource Management Plan dated November 5, 1986 and the Bureau of Land Management, San Rafael Resource Area Management Framework Plan dated October, 1979. It was also determined that there is information available to generally meet the Data Adequacy Standards for Federal Coal Leasing adopted by the Uinta-Southwestern Utah Regional Coal Team on June 16, 1988.

This information was presented to the Regional Coal Team on December 22, 1989, and the team decided to proceed with the lease on application process and conduct an environmental analysis. On January 16, 1990 the Bureau of Land Management requested that the Forest Service prepare a site-specific environmental analysis, in accordance with 43 CFR 3425.3, to evaluate effects of mining on other resource values and to identify any necessary lease stipulations.

The Coal Lease Unsuitability Criteria (Federal Regulations 43 CFR 3461) have been applied on a site-specific basis and no areas within the tract have been determined to be unsuitable for leasing.

New coal leases are issued competitively. If the tract is offered for lease and Beaver Creek Coal Company acquires the lease, it will be mined through their Trail Mountain Number 9 Mine facilities. This mine is on private land in Cottonwood Canyon, along the eastern edge of their leases. If another company acquires the lease and it is mined independently of the Beaver Creek mine, there is potential for access on BLM lands in Cottonwood Canyon along the outcrop on the southeast corner of the application area. The outcrop is high on the cliff face and the coal appears to be extensively burned, making independent access appear to not be economically feasible. If the northern portion of the original Trail Mountain Tract were leased, additional access might be provided through property controlled by Utah Power and Light Company or by constructing a new portal in Cottonwood Canyon about 1.5 miles northwest of the Trail Mountain Mine.

If the lease is issued, proposed mining operations would be evaluated for permitting in accordance with the Surface Mining Reclamation and Control Act of 1977 (SMCRA), Federal Regulation 30 CFR 700, the Utah Coal Regulatory Program, the appropriate land management plans, and the terms and conditions of the lease.

D. Public Issues, Management Issues, and Opportunities

The following is a discussion of the issues and opportunities identified by the Interdisciplinary Team through analysis of the application and public comments:

1. Public Issues

An issue was raised in 1982 during the Round Two Coal Leasing Effort that development of the evaluated tracts and the increased population associated with mining would adversely impact local communities. Considering the current depressed coal industry and associated mine layoffs in the local area, this issue is no longer of consequence.

A letter was received from the Utah Division of Wildlife Resources regarding potential impacts to wildlife from mining induced subsidence. These will be discussed under management issues.

2. Management Issues

- a. Subsidence could damage surface facilities, such as ponds, fences, watershed treatment areas, roads, trails, or survey markers.
- b. Subsidence could disrupt livestock or wildlife movement.
- c. Mining/subsidence could disrupt ground water or alter surface water flow.
- d. Mining/subsidence could affect water quality in Cottonwood Creek and Straight Canyon.
- e. Mining activities could disrupt livestock trailing.
- f. Increased coal hauling could increase the sediment added to the surface water.
- g. Potential loss of riparian areas or areas of high forage production, such as aspen, if ground water flow is disrupted.
- h. Visual quality would decrease, if a new portal is developed.
- i. Mining-induced escarpment failure. A line was established on the south end of Trail Mountain in the Manti-LaSal National Forest Land and Resource Management Plan (LRMP), south of which coal mining would not be allowed to prevent mining from Straight Canyon and to protect the escarpment from failure (Map 2). BLM asked the Forest Service to consider adding some of the area south of this line to the lease area to prevent leaving potentially minable coal. One hundred and forty acres south of the line have been proposed for addition to the lease area (Map 2). The area was evaluated in detail before it was proposed for leasing, and is located far enough back from the escarpment that the potential for failure is remote, but the possibility of failure should be evaluated.
- j. There would be detrimental socioeconomic effects, if the tract is not leased.

3. Opportunities

- a. Leasing and production of coal reserves in the tract would result in increased rent and royalties paid to the Federal Government and would supplement State and local government revenues.
- b. The coal reserves in the tract would be mined and made available for energy production and other industrial uses.
- c. If the tract is mined through the existing Trail Mountain Mine, the life of the mine would be extended approximately 10 to 15 years, at a mining rate of 800,000 to 1,200,000 tons per year, by providing additional coal reserves.

E. Negative Declaration

There are no prime farmlands, rangelands, timber lands, or alluvial valley floors within the proposed lease area. Leasing of the tract should not result in significant impacts to cultural or paleontological resources; threatened, endangered, or sensitive plant or animal species; or floodplains. Protection of these resources is provided under the lease stipulations and Federal and State laws and regulations.

II. DESCRIPTION OF ALTERNATIVES

A. Alternative 1 - No Action

Under this alternative, the coal lease application would be denied and the tract would not be offered for leasing.

B. Alternative 2 - Offer the Tract for Leasing as Proposed

1. Description

Under this alternative the tract would be offered for competitive leasing as recommended by the Coal Tract Delineation Team and approved by the Regional Coal Team. This tract is smaller than the tract listed in Beaver Creek Coal Company's Coal Lease Application. It also contains 140 acres south of the area defined as suitable for coal mining in the Manti-LaSal National Forest Land and Resource Management Plan (LRMP). This southern boundary was adopted to prevent future mining from Straight Canyon and to protect the escarpment from mining-induced failure.

2. Management Requirements, Constraints, and Mitigations

The required mitigations which are attached as Appendix C would be included in the lease as special stipulations in addition to standard BLM lease stipulations. They are consistent with the planning documents for the BLM and Forest Service and are necessary special measures for protection and mitigation of the affected resources. An amendment to the Manti-LaSal National Forest LRMP would be required to allow leasing of the 140 acres south of the area defined as suitable for mining.

C. Alternative 3 - Offer a Smaller Tract for Leasing

1. Description

Under this alternative the tract recommended by the Coal Tract Delineation Team would be offered for competitive leasing with the exception of the 140 acres south of the area defined as suitable for mining in the LRMP.

2. Management Requirements, Constraints, and Mitigations

The required mitigations which are attached as Appendix C would be included in the lease as special stipulations in addition to standard BLM lease stipulations. They are consistent with the planning documents for the BLM and Forest Service and are necessary special measures for protection and mitigation of the affected resources.

D. Comparison of the Alternatives

A detailed analysis of the environmental consequences or impacts, after mitigation, appears in Section IV, Effects of Implementation. The following table is intended to be a relative comparison of the anticipated level of impacts for each alternative.

<u>Issue</u>	<u>Alt. 1 No Action</u>	<u>Alt. 2 Lease as Proposed</u>	<u>Alt. 3 Lease Smaller Area</u>
a. Subsidence effects on surface facilities.	No effect.	Low	Low
b. Subsidence could disrupt livestock or wildlife movements.	No effect.	Negligible	Negligible
c. Subsidence could disrupt ground or surface water flow.	No effect.	Low	Low
d. Mining/subsidence could affect water quality in Straight Canyon.	No effect.	Moderate	Moderate
e. Mining activities could disrupt livestock trailing.	No effect.	Moderate, if new portal facilities are constructed.	Moderate, if new portal facilities are constructed.
f. Coal hauling effects on surface water.	No change.	Low	Low
g. Potential loss of riparian area due to ground water flow disruption.	No change.	Low	Low
h. Effects on visual qualities.	No change.	High, if new portal facilities are constructed.	High, if new portal facilities are constructed.

i. Potential for mining-induced escarpment failure.	No change.	Low	Negligible
j. Socioeconomic effects.	High (detrimental)	Moderate (beneficial)	Moderate (beneficial)

III. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The following is a description of the affected environment, which has been divided into individual resource elements for clarity. The management prescription for the area, as designated in the Manti-LaSal National Forest Land and Resources Management Plan (LRMP), is for Key Winter Range (KWR), General Big Game Winter Range (GWR), and Watershed Protection/Improvement (WPE). The management requirements for these areas are found on pages III-58 through III-63 and III-77 through III-79 of the LRMP.

A. General Setting

The lease application area is located in central Utah in the central portion of the Wasatch Plateau within the Wasatch Plateau Coal Field. The tract is adjacent to Beaver Creek Coal Company's Trail Mountain No. 9 Mine, located on the south end of Trail Mountain in Emery County, Utah. The Wasatch Plateau is a north-south trending high plateau bounded by the Castle Valley to the east and the Sanpete Valley to the west. The tract is located approximately 12 miles northwest of the town of Castle Dale, and 28 miles southwest of Price. The area is accessed by Utah State Highway 29, which connects with Utah State Highway 10 in Castle Dale. Highway 10 runs north-south through Castle Valley between Price and Interstate 70.

B. Topography and Geology

The Wasatch Plateau is considered to be a transition zone between the Basin and Range Physiographic Province to the west and the Colorado Plateau Physiographic Province to the east. The eastern flank of the plateau rises almost 3,000 feet above Castle Valley. The upper 1,500 to 2,000 feet of this rise is a near vertical erosional escarpment. This section of the central and eastern portions of the plateau dip gently to the west. The plateau top is dissected by east-west trending drainages and north-south trending fault zones, producing east-west and north-south trending ridges and canyons. The rock layers bend steeply downward along the western flank of the plateau in a monoclinial fold known as the Wasatch Monocline. The western plateau margin is not as steep or abrupt as the eastern margin.

The topography of the tract varies from the rolling plateau area to vertical cliffs along Cottonwood and Straight Canyons. Smaller canyons along the main canyons incise the plateau area. The elevation ranges from approximately 7,400 to 9,200 feet above sea level. The structure is fairly simple, with the strata dipping 3 to 5 degrees to the southwest. The Joes Valley Fault, a major north-south trending fault with maximum displacement of approximately 2,950 feet (Kitzmilller, 1982), forms the eastern margin of the Joes Valley Graben and is located just west of the tract. No other faults have been identified within the application area.

The stratigraphic units exposed in the lease area range from mid-Cretaceous to Paleocene in age. The units, from oldest to youngest, are the Masuk Member of the Mancos Shale Formation, Star Point Sandstone, Blackhawk Formation, Castlegate Sandstone, Price River Formation, and North Horn Formation.

The significant coal seams in the tract occur in the lower 250 feet of the Blackhawk Formation (Doelling, 1972). The lowermost, or Hiawatha, coal seam directly overlies the Starpoint Sandstone and is the seam mined in the Trail Mountain Mine. Coal thickness within the tract varies from approximately 5 to 15 feet. Drilling and outcrop data suggest the Hiawatha seam thins and splits to the south. All drill and outcrop data show no other coal seams with minable thickness.

The Hiawatha seam crops out along the southern and eastern margins of Trail Mountain in Straight Canyon and at the Trail Mountain Mine portal in Cottonwood Canyon. The overburden depth increases rapidly from the outcrops into the plateau, due to the steepness of the canyon escarpments, to over 2,000 feet under the higher portions of Trail Mountain.

The Hiawatha seam has an apparent rank of high-volatile B bituminous coal. The coal may have a sodium content of greater than 4% in the mineral ash and relatively low ash-fusion temperatures. Preliminary estimates indicate approximately 12.2 million tons of recoverable coal are in the tract.

C. Surface Hydrology

The mean annual precipitation of the Trail Mountain area varies from 14 inches per year at the lower elevations to more than 30 inches per year at the highest elevations. Over 70 percent of the precipitation occurs as snow from November through March.

The mean annual water yield is estimated to be 1.5 inches (Jeppsen, et. al., 1968).

Surface water from the northern and eastern portion of the tract is drained by Cottonwood Creek. The southern and western portions drain into Straight Canyon. Both streams are perennial where they drain the lease tract. Cottonwood Creek flows into the San Rafael River, a tributary to the Green River, which is a tributary to the Colorado River.

Cottonwood Creek has an annual flow near Orangeville of 77,200 acre feet (Danielson and Sylla, 1983). Approximately 60 percent of the streamflow occurs during May and June (Simons, Li and Assoc., 1984) as a result of snowmelt runoff. Summer rains generally produce little runoff volume but may produce damaging floods. Joes Valley Reservoir was constructed at the upper end of Straight Canyon for the purpose of collecting water for irrigation, municipal, and recreational uses.

The Utah Division of Health has designated the beneficial uses of "Cottonwood Creek and tributaries from Highway U-57 crossing to headwaters", including all streams receiving water from the proposed lease area, as 1C, 3A, and 4. Category 1C is protected for domestic purposes with prior treatment by standard complete treatment processes, 3A is protected for cold-water species of game fish and other cold-water aquatic life, and 4 is protected for agricultural uses including irrigation of crops and stock watering.

The water quality in Cottonwood Creek and Straight Canyon meets the beneficial use standards. Kelly (1988) calculated 16.5 acre feet of sediment are carried annually by Cottonwood Creek where it crosses Highway U-57. Approximately 3.3 acre feet of this sediment comes from Cottonwood Canyon.

Beaver Creek Coal Co. has been monitoring surface water quality in Cottonwood Creek near their Trail Mountain Mine. Dominant ions are calcium, magnesium, and bicarbonate. Total dissolved solids concentration varies from about 250 to 300 milligrams per liter, with lower concentrations usually occurring during periods of higher flow. Total suspended solids concentrations tend to vary directly with the flow rate, varying from less than 1 to greater than 1,000 milligrams per liter.

The surface water in the lease tract is used primarily for wildlife and livestock. Downstream Cottonwood Creek water is used for municipal water, irrigation, power generation, and fisheries.

Approximately 1,265 acres of watershed improvement work has been done on the south end of Trail Mountain, much of it on the proposed lease tract. The improvements consist of constructing contour furrows and reseeded to reduce soil erosion and sediment yield.

D. Ground Water Hydrology

Ground water occurs in all the geologic units present on Trail Mountain, but none of the units are saturated everywhere. Water is usually drained within a short lateral distance where the units are exposed in the canyons (Lines, 1985).

The coal-bearing Blackhawk Formation is a complex sequence of laterally discontinuous layers of sandstone, shale, and coal. The Star Point Sandstone and lower Blackhawk Formation are saturated except where they are drained naturally near outcrops. Many hydrologic reports refer to this

regional aquifer as the Star Point/Blackhawk Regional Aquifer. Ground water in the Star Point Sandstone is blocked from downward movement by the impermeable, saline Masuk Shale Member of the Mancos Shale. Some studies (Danielson, et al, 1981, and Danielson and Sylla, 1983) show that the regional aquifer is saturated except near the plateau escarpment, in deeply incised canyons where ground water can drain naturally, and in the Trail Mountain Mine where the lower Blackhawk Formation is dewatered. Ground water in the Blackhawk Formation above the regional aquifer occurs predominantly in fractured and faulted rock and to a lesser degree in sandstone lenses.

Beaver Creek Coal Company reports that water encountered in the lower Blackhawk Formation within the mine is usually in the form of leaks through roof bolt holes or tensional cracks parallel to the working face. All water encountered in the mine is usually used within the mine for dust suppression, fire protection, and machinery operation. In-mine water requirements are approximately 100 gallons per minute, which is greater than the quantity that is generally made within the mine. Water is taken from Cottonwood Creek to make up the difference. Occasionally a higher inflow occurs for a few days which exceeds the capacity of the in-mine sumps, requiring discharge through the settling pond and into Cottonwood Creek. Beaver Creek Coal Co. has a National Pollution Discharge Elimination System (NPDES) permit for the discharge. Under this permit the water is monitored and treated, if necessary, before discharged into Cottonwood Creek.

Ground water is also known to be contained locally within perched aquifers of the overlying Castlegate Sandstone and Price River Formations. The upper Blackhawk Formation is fine grained and tends to impede downward movement of ground water from the overlying Castlegate Sandstone.

All of the springs identified in the proposed lease tract are located in the North Horn Formation where perched aquifers intersect the surface. These springs indicate an irregular contact between beds of differing permeability which acts as a barrier to downward percolating water and causes horizontal movement to the surface or to a site where downward movement is again possible.

The Blackhawk-Star Point aquifer is probably recharged primarily by Joes Valley Reservoir (Lines, 1985). There is also some downward percolation of water from overlying aquifers. A minor amount of water may also flow through the aquifer from East Mountain. Some water may also enter or leave the ground water system by subsurface flow in the area of the Flat Canyon anticline near the north end of Trail Mountain. Discharge from the Blackhawk-Star Point aquifer is into springs, streams, and the Trail Mountain Mine.

Most recharge to the perched aquifers is due to infiltration from snowmelt and rain (Lines, 1985). The water percolates into the North Horn and Price River Formations, and also on a more limited scale enters the Flagstaff Limestone through fractures and solution openings. The gentle relief on the top of Trail Mountain slows runoff and allows a significant amount of

water to infiltrate the soils and percolate to deeper levels. Only a minor amount of recharge occurs on the steep cliff- and slope-forming outcrops of the lower geologic units.

Beaver Creek Coal Company is monitoring springs which lie within the existing permit area for the Trail Mountain #9 Mine. The ground water chemistry of the Cottonwood Creek basin is predominantly a calcium and magnesium bicarbonate system, resulting primarily from contact with the Flagstaff Limestone, a calcium and magnesium carbonate rock (Simons, Li and Associates, 1984). Samples collected by the USGS from over 140 springs in the Cottonwood and Huntington basins between 1977 and 1980 showed that all were within EPA drinking water standards.

E. Subsidence

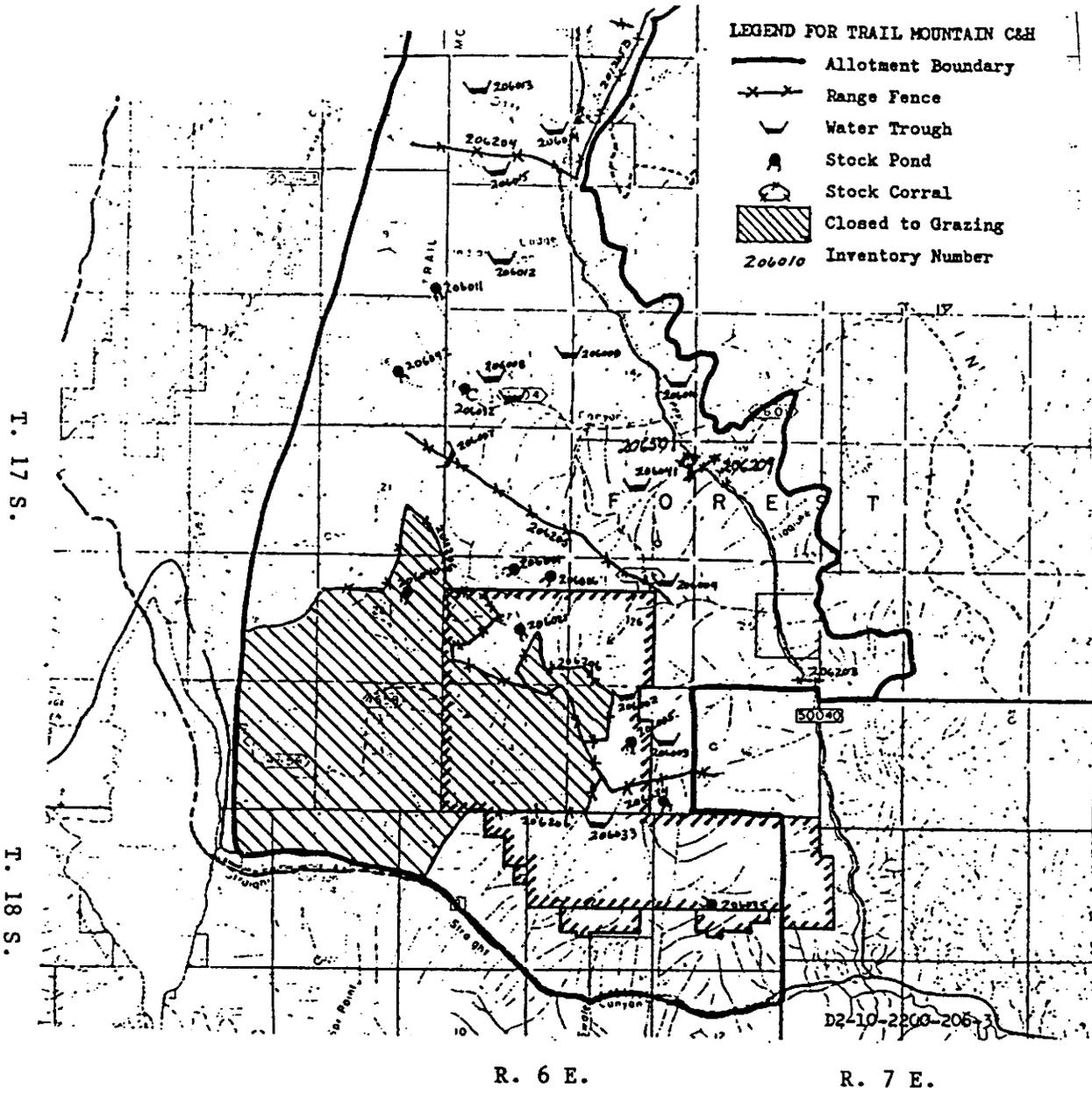
Beaver Creek Coal Co. has been conducting subsidence monitoring since October, 1986, above mined areas in T. 17 S., R. 6 E., sections 35 and 36. Overburden varies from approximately 900 to 1,900 feet. The area has been both first and second mined. Maximum subsidence has been 1.34 feet, as of November, 1989, in an area with about 900 feet of overburden. Total subsidence is predicted to be a maximum of 2.68 feet. The amount of subsidence appears to decrease to the west, in the direction of thickening overburden. No surface cracks or other visual effects of subsidence have been identified.

F. Vegetation and Range

On the upper bench, above 9,000 feet, dominant plants communities are sagebrush and a grass seeding mingled among quaking aspen stands. Below 9,000 feet, to the southern edge of the lease area, mixed plant communities of grasslands (hardgrass), sagebrush (mountain big sagebrush/Sanberg bluegrass), mountain brush (birch leaf mahogany/serviceberry/curl leaf mahogany/mountain big sagebrush/Sanberg bluegrass), and pinyon-juniper (pinyon/juniper/hardgrass) stands dominate. Small riparian communities are present near springs and seeps and are considered to be very important due to their limited extent. The plant communities are considered to be in mid seral status. Recently completed contour furrowing and wildlife browse enhancement projects have created some early seral plant communities in small areas.

The lease area falls within the the South Trail Unit of the Trail Mountain Cattle and Horse Allotment. Twenty-three permittees from Orangeville and Castle Dale graze 906 cattle from approximately June 21 to September 20 under a rest rotation grazing system. Due to watershed and wildlife habitat improvement work, the southern part of this unit has been closed to grazing while new plants are becoming established. Big game forage use has also been reduced by special hunts.

Several ponds and some springs have been developed in the South Trail Unit to enhance availability of water which aids livestock distribution. Much



Lease Application Area



Scale (miles)



Map 3. Trail Mountain Cattle and Horse Allotment and Range Improvements

of section 35 and a portion of 27 were plowed and seeded in the early 1960's to improve range condition and increase available forage. This seeding provides the bulk of the livestock forage in this area (See Map 3).

Livestock trail to the allotment up Cottonwood Canyon to Trail Canyon, then up this trail to the top of Trail Mountain. Trailing has been coordinated, through formal agreement, with Beaver Creek Coal Company. In this agreement, coal hauling traffic is shut down upon request from the permittees for two days in the spring and fall for livestock trailing, however, trailing is usually scheduled around days that the trucks are not operating. In early June and again in early July, three bands of sheep, or approximately 3000 head, use the road below Cottonwood Canyon to trail up Straight Canyon to the Joes Valley area. To avoid conflicts with weekend recreation traffic, sheep trailing normally takes place during the week. Flag persons both in front of and behind the herds warn on-coming traffic.

G. Visual Resources

The Trail Mountain Mine, which lies on private land within the Forest boundary, is viewed in foreground from the Cottonwood Canyon Road. It does not meet the Visual Resource Management (VRM) classification established by the Forest or mitigate the visual impacts created by it's development. If the lease is acquired by a company other than Beaver Creek Coal Co., the most likely alternate portal site is along the outcrop on the southeast corner of the proposed lease tract. This is in an area with scenic quality of Class B (Common Variety Class) and a VRM classification of Level III (partial retention). The site can be viewed in middleground from State Highway 29 for a one-half mile distance and in foreground for two and one-half miles from the Cottonwood Canyon Road.

H. Lands and Special Uses

The entire surface is Federally owned and is administered by the USDA Forest Service and the USDI Bureau of Land Management. No special use permits are in effect for facilities or activities on the proposed lease tract. Special use and road use permits have been issued in the past for coal exploration activities. The Forest Service has issued livestock grazing permits for this area (see F. Vegetation and Range).

The area has been surveyed under the rectangular surveying system and contains section corner and quarter corner monuments, and possibly other survey monuments.

I. Socioeconomics

The area of influence for the Trail Mountain Mine and the adjacent tract under application would normally be confined to Emery County if it were not for the fact the applicant and possible successor to the tract, Beaver Creek Coal Co., is phasing out mines in Carbon County and shifting

contracted production to Trail Mountain. Under this likely scenario, and due to the relative close proximity of the two counties, it is likely that miners now working in the Gordon Creek area and living in the Price area would shift to work at the Trail Mountain Mine. This would in effect spread the socioeconomic impacts from the new lease and subsequent mine expansion to the two counties.

Carbon and Emery Counties had a combined population of 33,630 in 1980, according to the U.S. Bureau of Census. The 1988 population was 32,900, showing a decline of 730, or about 2%. Population peaked in 1982 at 37,700, so the 1988 population is 4,070 or 10.8% below the peak. Outmigration has continued from the area annually since 1982.

Nonagricultural employment in the area in 1988 included 10,673 jobs (7,227 in Carbon Co., 3,446 in Emery Co.). This is a significant decline of 4,229 jobs, or 28%, from the 1982 peak. Considering the 1988 data, the major industry employment categories are:

Government.....	2,785 (26%)
Mining.....	2,360 (22%)
Trade.....	1,976 (19%)
Services.....	1,564 (15%)
Transportation/public utilities.....	1,188 (11%)

The dominance of the mining industry, which is primarily coal mining, and employment in transportation/public utilities, which is primarily coal transportation, and employment at coal-fired electric power generation stations, is evident in 1987 data showing \$127,768,000 (54%) of the total of \$236,613,000 in payroll wages come from the mining and transportation/public utilities categories.

Utah Office of Planning and Budget population projections for the study area show a very modest population increase of 1,500, or 4.5%, by the year 2000.

A major factor influencing the study area is what has happened in the Utah coal mining industry employment. This includes all operating coal mines in Carbon and Emery Counties plus one in Sevier County (SUFOO). Coal mine employment peaked in 1982 at 4,296. Within a one-year period, this type employment fell to 2,707, or a 37% reduction. Moderate decline has continued in recent years to the present projected 1989 coal mine employment of 2,604. It is significant that in the period from 1983 to 1989, coal mine production has increased from 11,829,000 tons to a projected 19,210,000 tons, which is a 62% increase. The productivity of Utah coal mines has increased significantly through cost control and other efficiency factors, including installation of longwall mining equipment, which reduces labor requirements.

J. Wildlife

Trail Mountain contains habitat for a variety of wildlife species common to sagebrush-grass, mountain brush, pinyon-juniper, ponderosa pine, and aspen, and spruce/fir communities (see Appendix E). Riparian areas are very limited but, as elsewhere in the West, are of high importance to wildlife.

No threatened or endangered wildlife species are known to inhabit the proposed coal lease tract area. An unconfirmed, but probable, sighting of 2 peregrine falcons (Falco perigrinus) occurred in summer 1989 at the Joes Valley dam. Historically, a few eyries were documented in Carbon and Emery counties (Porter and White 1973). Bald eagles (Haliaeetus leucocephalus) use Joes Valley Reservoir in fall and early winter. No roosting sites have been found in the lease area but roosting sites in other parts of Utah occur primarily on the north slope of small, timbered canyons.

Key big game winter range occurs in the proposed lease tract area. Mule deer (Odocoileus hemionus) are found there throughout the year and elk (Cervus elaphus) migrate into the lease area in fall and leave again in spring. Moose, introduced onto the Ferron Ranger District in 1987 through 1989, have been seen on Trail Mountain. The deer population is part of deer herd unit 35. In 1988, winter mortality was light but fawn production was only fair (UDWR 1989). Elk have been increasing in the area and measures are being taken to halt the growth of the herd. Big game habitat improvements were conducted in 1987. Another 200 acres of serviceberry and pinyon-juniper woodlands will be treated in 1990. Because the winter range is limiting for the Trail Mountain elk and deer, it is important to maintain bench zones above cliffs and avoid impacts to normal movements. There are no migration routes off Trail Mountain that big game can use during heavy snow years.

Resident raptors in the area include the golden eagle (Aquila chrysaetos), northern harrier (Circus cyaneus), and red-tailed hawk (Buteo jamaicensis). Golden eagles nest along the escarpment of the proposed lease area. Other birds of prey that may be found in the area at least some part of the year include the goshawk (Accipiter gentilis), Cooper's hawk (Accipiter cooperii), American kestrel (Falco sparverius), prairie falcon (Falco mexicanus), great-horned owl (Bubo virginianus), and saw-whet owl (Aegolius acadicus).

Blue grouse (Dendragapus obscurus) are found in spruce/fir communities while ruffed grouse (Bonasa umbellus) occur most often in mixed aspen/conifer communities.

Straight Canyon contains cutthroat trout (Salmo clarki), brown trout (Salmo trutta), and rainbow trout (Salmo gairdneri). Sediment has adversely affected trout habitat in the creek and increased erosion into the creek is a concern. Game fish in Joes Valley Reservoir are rainbow trout, albino rainbow trout, cutthroat trout, and splake (Salvelinus namaycush X Salvelinus fontinalis).

Reptiles and amphibians are poorly documented in the area. Snakes common to the area are probably the gopher snake (Pituophis melanoleucus) and garter snake (Thamnophis elegans).

K. Cultural Resources

Previous cultural resource surveys have inventoried approximately 630 acres, or 23 percent, of the lands within the lease tract (see Appendix F). With the exception of two isolated finds, no historic properties were located. No additional cultural resource surveying would be needed for leasing, but might be necessary for mine development activities.

L. Transportation System

The Cottonwood Canyon Road is paved from State Highway 29 to the Trail Mountain Mine portal, providing easy year-round access. If surface access to the lease area were required, Forest Development Road (FDR) 50040 (Cottonwood Canyon Road) and FDR 50034 (Trail Mountain Road) would be used. Cottonwood Canyon Road has a gravel surface from the Trail Mountain Mine to its intersection with FDR 50034. The Trail Mountain Road has a native surface.

Cottonwood Canyon Road is also used by Meridian Oil Co., Utah Power and Light Co., other Forest users, and the Forest Service. The Trail Mountain Road is be used by Beaver Creek Coal Co. and recreational users. Recreational use is concentrated during the deer and elk hunting seasons in September and October. The traffic on these roads is expected to remain near the average for past years.

Several road use permits are in effect for the above listed commercial uses of Cottonwood Canyon Road. A special use permit is also in effect for the gas pipeline right-of-way which generally parallels the Cottonwood Canyon Road from the Meridian Oil Co. well just above the Trail Mountain Mine to Flat Canyon.

State Route 29 lies south of the southern boundary of the proposed lease tract, and provides the only year-round, all-weather access to the Joes Valley Reservoir area. The route follows the bottom of Straight Canyon and is at the base of the steep slopes and escarpments which form the southern margin of Trail Mountain.

IV. EFFECTS OF IMPLEMENTATION

A. Alternative 1 - No Action

Under this alternative the tract would not be offered for lease, therefore, the tract would not be mined.

There would be no mining related environmental consequences to the tract area and surrounding vicinity, and there would be no economic benefit to the Federal, State, and local governments from coal lease fees and coal royalties. There would also be no boost to the local economies and to the present unemployment rates in the area. The existing mine would be shut-down after the coal in the existing leases is mined-out, and result in the loss of 45 jobs at the Trail Mountain Mine. The 45 miners from the Gordon Creek Mine would also be unemployed.

B. Alternative 2 - Offer the Tract for Leasing as Proposed

1. Short-term and Residual Impacts

a. Topography, Geology, and Subsidence

Underground mining would result in fracturing of the overburden and subsidence of the ground surface above and adjacent to the underground workings. The lateral extent of subsidence may be greater or less than the area of coal extraction depending on the amount of coal extracted, the mining configuration, and the depth and characteristics of the overburden. The area subsided is usually more extensive than the area mined. Subsidence monitoring on the Wasatch Plateau has shown that the area likely to experience subsidence can be determined by projecting a 22 degree angle-of-draw (from vertical) from the mined area upward to the surface. Maximum theoretical subsidence should not exceed approximately 7 feet (70% the thickness of the coal removed).

Actual measured subsidence over the past 3 years has been much less than the theoretical maximum amount, but subsidence may continue for many years. Most of the proposed lease tract has a greater amount of overburden than in the area of the subsidence monitoring, so only minor amounts of surface subsidence are expected. Subsidence of the approximate magnitude measured in the monitoring area (1.34 feet maximum as of November, 1989) could occur in the southeastern corner of the lease where overburden is thinner. No surface cracking or other visible effects of subsidence are expected on the proposed lease tract. The minor amount of subsidence should not affect surface structures.

Forest Service Special Lease Stipulation No. 9 (Appendix C), which requires that mining be conducted such that failures of the escarpment are not induced, would protect the steep canyon slope areas from mining-induced slope failures and instability. Only areas outside the 22 degree angle-of-draw from the Castlegate Sandstone outcrop are included in the tract, so escarpment failure should not be a problem.

If the lease were acquired by a company other than Beaver Creek Coal Company, the coal could be mined either through a portal constructed on BLM land (T. 18 S., R. 7 E., sec. 6) in Cottonwood

Canyon, from a portal approximately 1.5 miles northwest of the Trail Mountain Mine, or from UP&L leases. Additional connecting leases would be needed for the last two access alternatives. The coal outcrop at the potential portal site on BLM land is high on the cliff face where the coal appears to be extensively burned. This portal site would require an extensive rock slope and is probably not economically feasible.

b. Surface Hydrology

If the tract is mined through the existing Trail Mountain Mine, sediment input from the mine would remain constant but increased coal fines and dust would be added to Cottonwood Creek due to increased coal hauling required by higher production. If a new portal and associated facilities are constructed, increased sedimentation would be expected from runoff of the disturbed surfaces.

As mining progresses downdip to the west, water inflow is expected to increase from the current average of 57 gpm (gallons per minute) to 130 to 220 gpm. Lines (1985) predicted 20 percent of the inflow would be intercepted from aquifer discharge, which would result in a maximum impact of 72 acre-feet of depleted contribution to Cottonwood Creek during the period of mining. Some of the intercepted water would also have to be discharged into Cottonwood Creek. After mining is terminated, water inflows would decrease and aquifer discharge would increase over time as the hydrostatic head in the mine equilibrates (Utah Division of Oil, Gas, and Mining, 1990).

Total dissolved solids (TDS) concentration in Cottonwood Creek at the Forest boundary varies between approximately 50 and 450 ppm. Discharge of mine water into Cottonwood Creek will probably increase the TDS levels. Since the NPDES permit for mine water discharge ensures that the effluent meets the applicable standards, TDS levels in Cottonwood Creek should not exceed beneficial use standards.

There is a slight possibility that subsidence effects could disrupt aquifers, causing some springs to dry-up and new ones to form at other locations. Lines (1985) predicts subsidence could effect aquifers up to a few hundred feet above the mine, but should not disrupt the aquifers in the North Horn Formation which supply the springs on Trail Mountain.

The amount of coal dust added to Cottonwood Creek by coal hauling is unknown, so the additional effects from increased coal hauling can not be predicted. The Utah Division of Oil, Gas, and Mining found that even several inches of coal dust in a stream does not affect water quality unless the water becomes acidic, so coal dust is not expected to be a problem in Cottonwood Creek (Tom

Munson, Hydrologist, Utah Division of Oil, Gas, and Mining, personal communication, 1990).

The Office of Surface Mining Reclamation and Enforcement conducted a study to evaluate the potential effects of coal mining on the salinity of the Price, San Rafael, and Green Rivers (Lindskov, 1986). Based on a worst-case situation assuming maximum ground water discharge from all mines simultaneously, the amount of mining predicted in the Price and San Rafael River basins is not expected to cause a detectable change in the quality and quantity of streamflow in the Green River.

c. Ground Water Hydrology

Water produced in the mine is be derived primarily from a decrease in storage in the Blackhawk-Star Point aquifer (Lines, 1985). Aquifers several hundred feet above the mine could be dewatered. Mine dewatering should not affect the higher perched aquifers, which supply the springs on Trail Mountain, due to their separation from the Blackhawk-Star Point aquifer by an unsaturated zone. However, dewatering is expected to temporarily reduce the flow of groundwater into Cottonwood Creek (see section b. Surface Hydrology, above).

G. Dennis Kelly (Hydrologist, Manti-LaSal National Forest, personal communication, 1990) states that significant ground water may be encountered as mining proceeds downdip and reaches the elevation of Joes Valley Reservoir.

Water quality is similar in all aquifers in Trail Mountain, so subsidence should not significantly change water quality in the ground water system. Water quality in the Blackhawk-Star Point aquifer could even increase slightly due to increased flow rates through the aquifer and decreased time the water is in contact with the rock (Lines, 1985).

d. Vegetation and Range

Underground coal mining could change the hydrologic system and cause a gradual change to vegetation communities. The agreement between Beaver Creek Coal and the livestock permittees should prevent disruption of livestock trailing from increased coal haul traffic. If a company other than Beaver Creek Coal acquires the lease tract, a new agreement with the livestock permittees would be needed.

e. Visual Resources

The VRM objectives of the escarpment area would be maintained as long as mining activities do not create slope failure. New portal facilities in the southeast corner of the lease would cluster mining activities in the lower reaches of Cottonwood

Creek, which would degrade visual quality along the Cottonwood Creek Road to Level IV for approximately 2.5 miles. VRM objectives can be met when viewed from State Highway 29.

f. Lands and Special Uses

Subsidence effects from coal mining could affect survey monuments and watershed improvements, however, the special stipulation require the lessee to repair any surface damage caused by subsidence.

g. Socioeconomics

The Trail Mountain Tract under application could be leased by the applicant and developed through extension of the existing mine, developed as an independent tract, or leased for holding of reserves until a larger tract can be explored and put up for lease. By far the most likely scenario for this parcel is lease by the applicant and increased production as the applicant phases out their Gordon Creek operation in the late 1990 and shifts production to their Trail Mountain facility.

The applicant indicates they employ 45 persons full-time at the Trail Mountain Mine and expect to mine 300,000 tons of coal per year. They also employ approximately 45 full-time employees at their Gordon Creek Mine where they produced over 500,000 tons in 1988. Combined production is 800,000 tons with 90 employees.

The applicant anticipates need to produce 1.2 million tons in the near future for long-term markets and spot sales. Given this quantity, the following impacts are projected:

(1) Gradual shift of 45 mining jobs from Carbon County to Emery County in the early 1990's. Most miners now living in Carbon County are expected to maintain current residence and drive the 45 to 50 miles to the mine. Some gradual shifting might take place in later years.

(2) To achieve an additional 400,000 tons of production, assuming continued room-and-pillar mining, an additional 30 mining jobs would develop over time. Given a gradual build-up, the jobs could go to unemployed workers in the study area, which has relatively high unemployment of 8.2% in Emery County and 7.4% in Carbon County.

The leasing and development of the tract would not have significant additional socioeconomic impact on the study area. There would be some new jobs created in Emery County and a shift of jobs from Carbon County. These would generally be taken care of through employment of the unemployed and underemployed in the area. Mining of the property would generate coal resources valued at 364 million dollars, 66 million dollars of direct and

indirect wages, and 28 million dollars of royalties that would be paid to the Federal government and shared equally with State and local governments.

h. Wildlife

Most impacts under this proposal would be due to subsidence of the ground surface. Flows of springs may be reduced or altered. Alternately, new springs or seeps may be created. Due to the limited extent of riparian areas, it is essential to conserve these areas. Wildlife habitat could be lost and/or altered according to changes in soil moisture. The Forest Plan management emphasis for Key Winter Range is "on providing winter forage and cover for big-game in areas that must be available and unencumbered for wildlife use each year during the critical winter period." Forest Service Special Lease Stipulation No. 17 appropriately requires the lessee to replace water lost which has been identified for protection and should conform with the direction set forth in the Forest Plan for Riparian Area Management.

Forest Service Special Lease Stipulation No. 9 protects the area from potential escarpment failure. Exceptions to this stipulation could impact golden eagle nest sites and potential for natural establishment of peregrine eyries. In addition, escarpment failure would increase sediment into Straight Canyon Creek. Utah Division of Wildlife Resources biologists have expressed concern for the fishery due to heavy erosion into Straight Canyon (W. Donaldson, Utah Div. of Wildlife Resources, Southeastern Region Fisheries Manager, 1989).

A major watershed treatment project has been completed on Trail Mountain and another is planned for the Swales area of North Horn Mountain. Escarpment failure could offset the benefits obtained from past and future watershed treatments.

Sediment may increase in Cottonwood Creek due to additional coal hauling. This is not expected to have an impact on wildlife habitat, and may be reduced by wetting of coal piles to reduce dust and/or installing automatic coal covers on trucks. Additional coal hauling would increase highway related mortality for deer, although not significantly.

i. Cultural Resources

No historic properties were located by previous surveys. The Joes Valley Alcove site (42EM1932), located approximately 2 miles west of the proposed lease tract, is listed in the National Register of Historic Places but should not be affected by this action. Both the Manti-LaSal National Forest and the BLM-San Rafael and Price River Resource Areas have consulted with the Utah State Historic Preservation Office (SHPO), who have

concurred that significant cultural resources would not be affected by the leasing action.

In addition, the agencies feel that lease stipulations and the Federal and State regulations for mining would adequately provide for protection of any such resources. Any areas subject to surface disturbance would be evaluated and approved through the surface management agency and the State Historic Preservation Office on a case-by-case basis before operations can be approved.

j. Transportation System

Surface activities on the lease tract required to support underground mining of the tract should be minimal, and would probably be limited to operations such as routine spring monitoring and occasional exploratory drilling projects. The lessee would be required to obtain a road use permit from the Forest Service for such operations and to do their appropriate share of road maintenance. Coal exploration drilling traffic would not be expected to exceed 10 vehicles per day, seasonally adjusted, during drilling programs.

If Beaver Creek Coal Co. acquires this lease, they intend to increase production to about 1,200,000 tons per year to compensate for the closing of their Gordon Creek Mine in late 1990. This would cause truck traffic on the Cottonwood Creek Road and State Highway 29 to be approximately double the current level. The portion of Highway 29 from Cottonwood Canyon to Joes Valley would not have any increase in traffic due to coal mining, but could be impacted if there is any escarpment failure.

2. Short-term Use vs. Long-term Productivity

If an independent mining operation is developed, involving new portal facilities, the short-term use of the area for coal production could result in long-term loss of vegetation productivity, soil, and visual resources. The disturbed area for portal facilities and access would be up to approximately 20 acres. The life of the mine is estimated to be 10 to 15 years. The duration of the loss of productivity would include the life of the mine plus an additional 5-10 years for completion of reclamation and revegetation.

Extraction of the estimated 12,200,000 tons of recoverable coal reserves would render the remaining unmined 22,600,000 tons of minable reserve base unrecoverable over the long-term considering present technology.

3. Irretrievable and Irreversible Commitment of Resources

If a new independent mine is developed, vegetation production, soil, and visual qualities of the disturbed area would be irretrievably lost for the life of the mine or until reclamation is successful.

The estimated 12,200,000 tons of coal mined would be irreversibly lost as a resource for future generations and the 22,600,000 tons of minable coal left in the ground would be rendered irreversibly unrecoverable considering present technology.

Any change in aquifers, ground water storage potential, or point of discharge due to subsidence and underground mining, and the resultant environmental impacts, would be irreversible.

4. Cumulative Impacts

Man's activities in the Trail Mountain area include livestock grazing, recreation, water resource development, timber harvesting, and mineral exploration and development. A number of roads associated with these activities are present in the area. The impacts discussed for the proposed action would be added to those impacts which already exist from these activities.

Livestock grazing since the late 1800's, combined with range and watershed improvement projects, have caused changes in vegetation type and plant diversity and density. Some decreases in soil productivity and watershed conditions have also occurred. Range and watershed improvements are resulting in some improvement of conditions.

The construction of roads to meet access needs, and off-road travel from recreation activities, have resulted in removal of some vegetation and increased erosion.

Mineral exploration on Trail Mountain has been primarily coal drilling with some geophysical exploration. All of the roads and drill pads associated with these activities have been successfully reclaimed. The only mineral production on Trail Mountain is coal mining, but there is an active gas field in Cottonwood Canyon and the northern portion of East Mountain.

The permit area for the Trail Mountain No. 9 Mine, operated by Beaver Creek Coal Co., is located adjacent to the proposed tract along the east boundary. The Trail Mountain Mine is the only active mine on Trail Mountain. Utah Power and Light Co. is actively mining on East Mountain across Cottonwood Creek to the east of Trail Mountain. The surface facilities of the Trail Mountain Mine have disturbed approximately 8.8 acres of private land. The permit area includes approximately 721 acres of leased National Forest System lands

administered by the Manti-LaSal National Forest, 640 acres of state lands, and 53.5 acres of private lands with private coal.

Subsidence occurs above any mining operation, but the amount of subsidence is dependent upon a number of geologic conditions and the mining methods used. Subsidence effects on the surface of the proposed lease tract are expected to be very minor, based on subsidence monitoring of an area above the existing Trail Mountain Mine workings. Only minimal damage to surface structures is expected, which the lessee would be required to repair.

Water is produced in the Trail Mountain Mine from the lower Blackhawk Formation. In-mine water requirements for dust suppression, fire protection, and machinery operation is approximately 100 gallons per minute, which exceeds the amount of water produced. The additional water is taken from Cottonwood Creek. No water is discharged from the mine.

Development of a new mine portal on the tract is not expected to cause a significant increase in runoff and sediment yield. The potential sites for portal facilities and access are on very steep, rocky terrain. The natural conditions for these areas involve low infiltration, high runoff, and high sediment yield, but implementation of required sediment control measures specified in the mine plan should also minimize sediment yield from disturbed areas.

These impacts are within the threshold levels identified in the Manti-LaSal National Forest Environmental Impact Statement and the Land and Resource Management Plan.

C. Alternative 3 - Offer a Smaller Tract for Leasing

The impacts to other resources under this alternative would be the same as under Alternative 2, except that approximately 650,000 tons of potentially recoverable coal would be unmined and lost to future production considering present technology.

There would be even less chance of escarpment failure than under Alternative 2, which is already low.

V. PERSONNEL AND PUBLIC INVOLVEMENT

A. Interdisciplinary Team and Consultants

The following are the Interdisciplinary (ID) Team members and consultants who participated in the environmental analysis:

<u>Specialist</u>	<u>Specialty</u>	<u>Role</u>
Dale Harber	Geology/Minerals	ID Team Leader
Ana Egnaw	Wildlife	ID Team Member
John Healy	Range	"
Jim Jensen	Visual Quality	"
Dennis Kelly	Hydrology	"
Steve Falk, Mining Engr.	BLM Representative	"
Carter Reed	Geology/Minerals	ID Team Consultant
Bill Dye	Recreation/Land Use	"
Bob Thompson	T&E, S Plants	"
Stan McDonald	Cultural Resources	"
Brent Barney	Roads/Public Safety	"
Floyd McMullen, Environmental Project Mgr.	OSM Representative	"
Max Nielson	Socioeconomics (BLM)	"

In addition to the ID team, the following agencies were contacted in regard to application of the Unsuitability Criteria and in compiling resource data:

U.S. Fish and Wildlife Service
 Utah Division of Wildlife Resources
 State of Utah Division of State History, Utah State Historical Society
 Beaver Creek Coal Company

B. Public Contacts

News releases which notified the general public that the Forest Service and Bureau of Land Management would be evaluating the coal lease application and requested public comment were published in the Sun Advocate and Emery County Progress newspapers.

Letters were sent to identified interested publics requesting comments. Appendix D contains a copy of the letter and a list of individuals and publics contacted.

C. Intensity of Public Interest

Public interest was identified to be low based on the number of responses received. Only three letters were received.

A letter from the Utah Division of Wildlife Resources, dated February 9, 1990, voiced concerns regarding effects to wildlife from mining induced subsidence. The Division specifically addressed the potential for

subsidence to cause escarpment failures and to cause changes in ground and surface water flow. Measures which could be required for mitigation of such effects were discussed.

Letters were also received from U.S. Senator Jake Garn and U.S. Representative Howard C. Nielson supporting leasing of the tract.

Utah Power and Light Company submitted comments during the tract delineation process, suggesting that the entire Trail Mountain Tract be leased to provide for more competitive leasing. They also asked that the lease be offered not earlier than 1991 to allow for additional recovery of coal markets and increase in the value of the tract.

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VII. APPENDICIES

- A. Coal Tract Delineation Team Report
- B. Role of the Office of Surface Mining Reclamation and Enforcement in the Regulation of Coal Mining
- C. Special Lease Stipulations
- D. Public Notices
- E. Wildlife Inventory
- F. Previous Archaeology Surveys

Appendix A - Coal Tract Delineation Team Report

UINTA-SOUTHWESTERN UTAH COAL REGION
BUREAU OF LAND MANAGEMENT

TRACT DELINEATION REVIEW REPORT

Lease by Application UTU-64375, Beaver Creek Coal Company

Introduction

Beaver Creek Coal Company has applied for a coal lease on unleased Federal Coal Lands adjacent to their Trail Mt. No. 9 mine in Emery County, Utah (figure 1). The legal description of the lands applied for is as follows:

T. 17 S., R. 6 E., SLM
sec. 26, $W\frac{1}{2}SW\frac{1}{2}NE\frac{1}{2}$, $S\frac{1}{2}NW\frac{1}{2}$, $SW\frac{1}{2}$, $W\frac{1}{2}W\frac{1}{2}SE\frac{1}{2}$;
sec. 27, $S\frac{1}{2}N\frac{1}{2}$, $S\frac{1}{2}$;
sec. 34, all;
sec. 35, lots 3 and 4, $W\frac{1}{2}SW\frac{1}{2}NE\frac{1}{2}$, $S\frac{1}{2}NW\frac{1}{2}$, $SW\frac{1}{2}$, $W\frac{1}{2}W\frac{1}{2}SE\frac{1}{2}$.

T. 18 S., R. 6 E., SLM
sec. 1, lots 1 through 8, $S\frac{1}{2}N\frac{1}{2}$;
sec. 2, lots 1 through 8, $S\frac{1}{2}N\frac{1}{2}$;
sec. 3, lots 1, 2, and 8.

T. 18 S., R. 7 E., SLM
sec. 6, lots 4 through 7, $W\frac{1}{2}SE\frac{1}{2}NW\frac{1}{2}$, $W\frac{1}{2}E\frac{1}{2}SW\frac{1}{2}$.

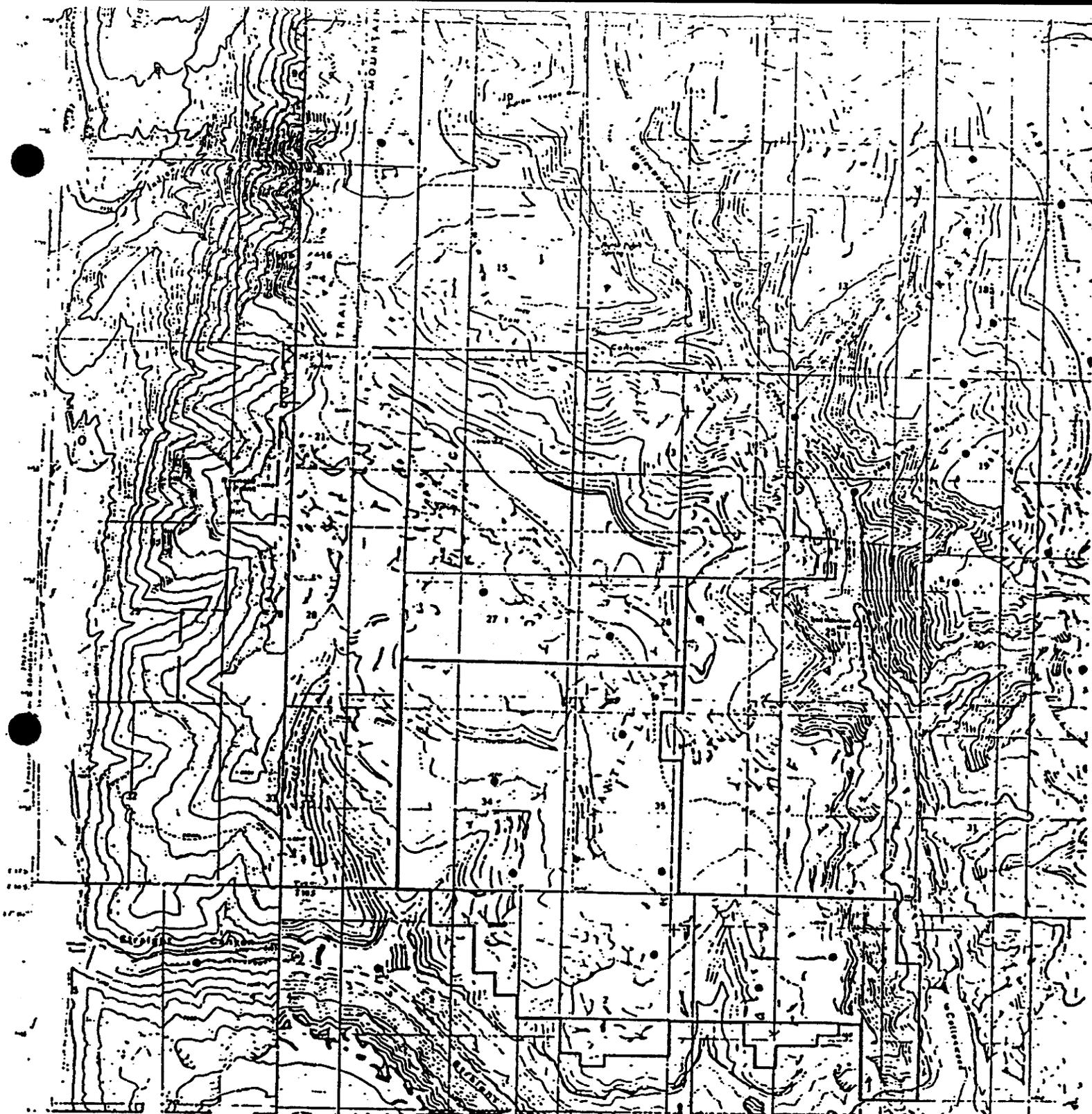
Containing 3,010.81 acres more or less.

The application area consists of Federal coal lands within the Wasatch Plateau Known Recoverable Coal Resource Area. The lands in sec. 6, T. 18 S., R. 7 E., (204.95 acres) are administered by BLM. The remaining surface is administered by the Manti-LaSal National Forest.

The purpose of this report is to review the geologic and coal resource information from the application area and recommend a tract configuration that meets the Federal coal leasing data adequacy standards and provides for logical and timely development of the coal reserves.

Geologic Setting

Coal beds of potential economic interest in the area occur in the lower 250 feet of the Upper Cretaceous Blackhawk Formation. The lowermost or Hiawatha coal bed occurs directly above the Starpoint Sandstone and appears to achieve minable thickness (> 5 feet) over the entire application area with thicknesses ranging from 5.3 feet in the south to over 15 feet to the northwest (figure 2). Drilling and outcrop data suggest that the Hiawatha bed thins and splits to the south.



U. S. Department of the Interior, Bureau of Land Management
 Utah State Office, Division of Mineral Resources

Prepared by J. F. Kohler	Date 12/1/89	Scale 1:24,000
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EXPLANATION FIGURE 1: Location Map

- Original Trail Mountain Tract
- Trail Mountain Lease Application UTU-84375
- Trail Mountain Tract Recommended by Tract Delineation
- Drill Hole Location
- ▲ Outcrop Measurement
- Manganese Bed Outcrop

SCALE 1:24000



DETAIL MAPS INCLUDE PROPRIETARY DATA
AND HAVE BEEN REMOVED FROM THIS REPORT.

The structure of the application area is fairly simple with the strata generally dipping 3° to 5° to the southwest (figure 3). Joes Valley Fault, a major north-south trending fault with over 1,000 feet of displacement, occurs west of the area. No known faults have been identified within the application area.

Overburden on the Hiawatha bed ranges from 0 where it outcrops in Cottonwood and Straight Canyons to over 2,000 feet under Trail Mountain (figure 3).

Tract Configuration

Beaver Creek Coal Company has applied for part of the area originally delineated as the Trail Mountain tract for the second round tract delineation effort in the Uinta-Southwestern Utah coal region. The relationship between their application and the original Trail Mountain tract is shown on figure 1.

The Trail Mountain tract was originally delineated in 1982, in response to expressions of interest from Natomas Coal Company and Royal Land Company. This original tract was modified to exclude areas not considered by the Forest Service as suitable for leasing. The modified tract contained an estimate 87.3 million tons of in-place coal resources. However, most of the data used to develop this estimate were outside of the tract perimeter. In addressing the adequacy of the data used to delineate the original tract, Minerals Management Service concluded that "the presented geologic framework is based on a totally inadequate data distribution, consequently, bonus bids are likely to be based on rank ignorance concerning the actual configuration and quantity of the tract's coal resource" (Alvord, 1982). Since 1982, a number of drill holes have been completed on the lands included in Beaver Creek Coal Company's application, providing sufficient data to meet data adequacy standards established for the Uinta-Southwestern Utah coal region. Additional drilling will be necessary before the data adequacy standards can be met for the original tract.

Bureau of Land Management procedures for tract delineation provide that during tract delineation, efforts should be made to enhance competition for potential lease tracts. The factors for enhancing competition for the Trail Mountain tract are summarized as follows:

Expressions of Interest--The original Trail Mountain tract was delineated in response to expressions of interest submitted by two companies. However, at the present time, neither of these companies appears to have any interest in this area. When Beaver Creek Coal Company obtained an exploration license to drill the lands in their 1988 application, no companies elected to participate in the drilling, further indicating little current competitive interest. Utah Power and Light Company recently submitted a letter expressing their possible interest in the area covered by the original tract if leasing is deferred until 1991. In further discussions, Utah Power and Light Company indicated that they are interested primarily in the northern

portion of the lands included in the Beaver Creek Application in conjunction with additional reserves to the north adjacent to their leases. They also indicated their intent to submit an exploration license application to explore these lands.

Access--The most logical access to the Beaver Creek Application would be through the existing Trail Mountain mine. Independent access is technically possible on BLM lands in Cottonwood Canyon along the outcrop on the southeast corner of the application area. However, in this area the outcrop is high on the cliff face and the coal appears to be extensively burned. Therefore, independent access does not appear to be economically feasible. If the area was enlarged to include the northern part of the originally delineated tract, additional access might be provided through property controlled by Utah Power and Light Company.

Capture/Bypass--Tracts are to serve more than one potential operator (where feasible) and avoid further bypass situations. The lands in the Beaver Creek application would be essentially captive to the Trail Mountain Mine. In order to configure the tract to enable potential access from Utah Power and Light properties to the east, the application area would need to be expanded to the north to include lands not proposed by Beaver Creek Coal in their application. Expanding the application area to the north within the present data limits would result in the coal resources to the west and north becoming captive to the company that acquires the lease. This would decrease competition for the remaining lands in the original Trail Mountain tract.

Coal Data--Large amounts of reliable data that are available to all parties can enhance competition. Of the 11 holes drilled on the application area, information on the Hiawatha bed is only available to the public on one drill hole. Data from the other holes were obtained through exploration license drilling which is considered to be confidential. Based on the above analysis, it appears unlikely that a truly competitive tract can be delineated in the Trail Mountain area at this time.

In conclusion, it appears that inadequate publicly available data limit our ability to delineate a truly competitive tract for the Trail Mountain area. However, the Uinta-Southwestern Utah Regional Coal Team decertified the region to facilitate leasing by application to provide reserves needed to sustain existing operations. The tract delineation team has determined that Beaver Creek Coal Company has established a need for additional reserves to continue operating at their present level of production. Furthermore, some of the existing coal on their present leases has a high ash content and may not be minable. If additional clean coal is made available to enable blending of the high ash coal, a higher recovery rate could possibly be achieved. Due to recent competitive interest expressed by Utah Power and Light Company for reserves in the area, efforts should be made to limit the size of the present tract to enable as much coal as possible to be offered in a future competitive tract. Based on these findings, the tract delineation team recommends that the Beaver Creek Application be modified as outlined below.

To accommodate concerns expressed by Utah Power and Light Company, the northern part of the lands included in Beaver Creek's application should be dropped from the tract and be considered for a future competitive lease with lands to the north. The southern boundary of the application was established by the Forest Service through the Forest Plan for the Trail Mountain area to protect the escarpment and other values in Straight Canyon. Upon closer review, it appears that the withdrawal boundary could be modified to allow additional land to be leased and still provide adequate protection for the resource values identified in the Forest Plan. The tract delineation team recommends that the tract be delineated as follows:

- T. 17 S., R. 6 E., SLM
sec. 26, S $\frac{1}{2}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{2}$;
sec. 27 S $\frac{1}{2}$ S $\frac{1}{2}$;
sec. 34, all;
sec. 35, lots 3 and 4, W $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$, W $\frac{1}{2}$ W $\frac{1}{2}$ SE $\frac{1}{2}$.
- T. 18 S., R. 6 E., SLM
sec. 1, lots 1 thru 8, S $\frac{1}{2}$ N $\frac{1}{2}$, E $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{2}$,
N $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{2}$;
sec. 2, lots 1 thru 8, S $\frac{1}{2}$ N $\frac{1}{2}$, N $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$,
NW $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{2}$, N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{2}$, N $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{2}$, N $\frac{1}{2}$ S $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{2}$;
sec. 3, lots 1, 2, and 8, NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$;
- T. 18 S., R. 7 E., SLM
sec. 6, lots 4 thru 7, W $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, W $\frac{1}{2}$ E $\frac{1}{4}$ SW $\frac{1}{4}$.

containing 2,630.81 acres more or less.

Coal Resources/Reserves

The revised tract as recommended by the tract delineation team comprises approximately 2,630.81 acres. Within this tract, the Hiawatha bed contains an estimated 50.9 million tons of coal resources ranging from 5 to over 15 feet thick.

The minable reserve base was determined from the in-place resource using the following assumptions:

1. Minimum mine height is 5 feet, maximum mine height is 10 feet.
2. Top coal left for unstable roof averages 1 foot.
3. Bottom coal left for bad floor averages 0.75 feet.
4. High ash area as identified by Beaver Creek Coal Company is considered unminable.
5. A 500 foot barrier was left adjacent to the outcrop to account for burned or oxidized coal.

Given these assumptions, the tract contains a minable coal reserve base of 33.8 million tons.

The recoverable coal was determined from the minable reserve base using the mine plan proposed by Beaver Creek Coal Company and assuming 75% pillar recovery in areas with 0-1500 feet of overburden and 65% pillar recovery in areas where the overburden exceeds 1500 feet. The tract contains an estimated 13.2 million tons of recoverable coal. It should be noted that these reserve estimates are preliminary and could be revised in the geology and engineering report for the tract economic evaluation.

The preliminary reserve estimates are summarized as follows:

Table I
Coal Resources/Reserves UTU-64375

<u>Area</u>	<u>Bed</u>	<u>Coal Acres</u>	<u>Average Thickness</u>	<u>In-place* Coal(tons)</u>	<u>Mirable Coal(tons)</u>	<u>Recoverable Coal(tons)</u>
Tract as delineated	Hiawatha	2,560.0	11.0	50,700,000	33,800,000	13,200,000

*Includes coal beds >5 feet thick with an assumed unit weight of 1,800 ton/acre-ft.

Coal Quality

In the tract delineation report for the original Trail Mountain tract, the coal quality is summarized from in-mine samples and drill holes on an as-received basis as follows:

Table II
Trail Mountain Area, Hiawatha Coal Bed Quality

<u>No. of Samples</u>	<u>Moisture (%)</u>	<u>Ash (%)</u>	<u>Volatile Matter (%)</u>	<u>Fixed Carbon (%)</u>	<u>Sulfur (%)</u>	<u>Heating Value (Btu/lb)</u>
11	4.58	8.13	40.14	47.15	0.55	12,575

This coal has an apparent rank of high-volatile B bituminous coal.

There are indications that coal from this area could have sodium >4 percent in the mineral ash and relatively low ash-fusion temperatures. Whether these factors cause boiler fouling or present marketing problems needs to be investigated further. There are also some high-ash areas due to rock partings and/or sandstone spars in the coal.

References

- Alvord, D.C., 1982, Trail Mountain Tract Summary Report, Emery County, Utah; Minerals Management Service Memorandum to Tract Delineation Team.
- Davis, F.D. and Doelling, H.H., 1977, Coal Drilling at Trail Mountain, North Horn Mountain, and John's Peak Areas, Wasatch Plateau, Utah; Utah Geological and Mineral Survey Bulletin 112.
- Doelling, H.H., 1972, Central Utah Coal Fields--Sevier-Sanpete, Wasatch Plateau, Book Cliffs, and Emery; Utah Geological and Mineral Survey Monograph Series No. 3.
- Fleck, K.S., 1989; Amended Application for Federal Coal Lease, Beaver Creek Coal Company.
- Smith, A.D., 1981, Coal Drilling, North Horn Mountain, East Mountain Areas, Wasatch Plateau, Utah; Utah Geological and Mineral Survey Special Studies 54.
- Spieker, E.M., 1931, The Wasatch Plateau Coal Field, Utah; U.S. Geological Survey Bulletin 819.

Appendix B - Role of Office of Surface Mining Reclamation and Enforcement
in the Regulation of Coal Mining

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations. In January 1981, pursuant to Section 503 of SMCRA, the Utah Division of Oil, Gas, and Mining (DOGM) developed, and the Secretary of the Interior approved, a permanent program authorizing Utah DOGM to regulate surface coal mining operations and surface effects of underground mining on non-Federal lands within the State of Utah. In March 1987, pursuant to Section 523 (c) of SMCRA, Utah DOGM entered into a cooperative agreement with the Secretary of the Interior authorizing Utah DOGM to regulate surface coal mining operations and surface effects of underground mining on Federal lands within the State.

Pursuant to the cooperative agreement, Federal coal lease holders in Utah must submit permit application packages (PAP's) to OSM and Utah DOGM for proposed mining and reclamation operations on Federal lands in the State. Utah DOGM reviews the PAP to ensure that the permit application complies with the permitting requirements and that the coal mining operation will meet the performance standards of the approved permanent program. If it does comply, Utah DOGM issues the applicant a permit to conduct coal mining operations. OSM, the Bureau of Land Management (BLM), the Forest Service (FS), and other Federal agencies review the PAP to ensure that it complies with the terms of the coal lease, the Mineral Leasing Act of 1920, the National Environmental Policy Act of 1969, and other Federal laws and their attendant regulations. OSM recommends approval, approval with conditions, or disapproval of the mining plan to the Assistant Secretary--Land and Minerals Management. Before the mining plan can be approved, BLM and the surface-managing agency (in this case FS) must concur with this recommendation.

Utah DOGM enforces the performance standards and permit requirements during the mine's operation and has primary authority in environmental emergencies. OSM retains oversight responsibility for this enforcement. BLM and FS have authority in those emergency situations where Utah DOGM or OSM inspectors cannot act before significant environmental harm or damage occurs.

Appendix C - Special Stipulations

1. The Regulatory Authority shall mean the State Regulatory Authority pursuant to a cooperative agreement approved under 30 CFR Part 745 or in the absence of a cooperative agreement, Office of Surface Mining. The Authorized Officer shall mean the State Director, Bureau of Land Management. The Authorized Officer of the Surface Management Agency shall mean the Forest Supervisor, Forest Service. Surface Management Agency for private surface is the Bureau of Land Management. For adjoining private lands with Federal minerals and which primarily involve National Forest Service issues, the Forest Service will have the lead for environmental analysis and, when necessary, documentation in an environmental assessment or environmental impact statement.

2. The Authorized Officers, of the Bureau of Land Management, Office of Surface Mining (Regulator Authority), and the Surface Management Agency (Forest Service) respectively, shall coordinate, as practical, regulation of mining operations and associated activities on the lease area.

3. In accordance with Sec. 523(b) of the "Surface Mining Control and Reclamation Act of 1977," surface mining and reclamation operations conducted on this lease are to conform with the requirements of this Act and are subject to compliance with Office of Surface Mining Regulations, or as applicable, a Utah program equivalent approved under cooperative agreement in accordance with Sec. 523(c). The United States Government does not warrant that the entire tract will be susceptible to mining.

4. Federal Regulations 43 CFR 3400 pertaining to Coal Management make provisions for the Surface Management Agency, the surface of which is under the jurisdiction of any Federal agency other than the Department of Interior, to consent to leasing and to prescribe conditions to insure the use and protection of the lands. All or part of this lease contain lands the surface of which are managed by the United States Department of Agriculture, Forest Service, Manti-LaSal National Forest.

The following stipulations pertain to the Lessee responsibility for mining operations on the lease area and on adjacent areas as may be specifically designated on National Forest System lands.

Forest Service Stipulation #1.

Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the Lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the Lessee prior to disturbance shall immediately bring them to the attention of

the appropriate authority. Paleontological remains of significant scientific interest do not include leaves, ferns or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation #2.

If there is reason to believe that threatened or endangered (T&E) species of plants or animals, or migratory bird species of high Federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports and carrying out mitigating measures shall be borne by the Lessee.

Forest Service Stipulation #3.

The Lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data is adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.

Forest Service Stipulation #4.

Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.

Forest Service Stipulation #5.

The limited area available for mine facilities at the coal outcrop, steep topography, adverse winter weather, and physical limitations on the size and design of the access road, are factors which will determine the ultimate size of the surface area utilized for the mine. A site specific environmental analysis will be prepared for each new mine site development and for major improvements to existing developments to examine alternatives and mitigate conflicts.

Forest Service Stipulation #6.

Consideration will be given to site selection to reduce adverse visual impacts. Where alternative sites are available, and each alternative is technically feasible, the alternative involving the least damage to the scenery and other resources shall be selected. Permanent structures and facilities will be designed, and screening techniques employed to reduce visual impacts and, where

possible, achieve a final landscape compatible with the natural surroundings. The creation of unusual, objectionable, or unnatural landforms and vegetative landscape features will be avoided.

Forest Service Stipulation #7.

The Lessee shall be required to establish a monitoring system to locate, measure and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data.

Forest Service Stipulation #8.

The Lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal handling and storage facilities. On Forest Development Roads (FDR), Lessees may perform their share of road maintenance by a commensurate share agreement if a significant degree of traffic is generated that is not related to their activities.

Forest Service Stipulation #9.

Except at specifically approved locations, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The Lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

Forest Service Stipulation #10.

In order to avoid surface disturbance on steep canyon slopes and to preclude the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specific approved locations.

Forest Service Stipulation #11.

If removal of timber is required for clearing of construction sites, etc., such timber shall be removed in accordance with the regulations of the surface management agency.

Forest Service Stipulation #12.

The coal contained within, and authorized for mining under this lease shall be extracted only by underground mining methods.

Forest Service Stipulation #13.

Existing Forest Service owned or permitted surface improvements will need to be protected, restored, or replaced to provide for the continuance of current land uses.

Forest Service Stipulation #14.

In order to protect big game wintering areas, elk calving and deer fawning areas, sagegrouse strutting areas, and other critical wildlife habitat and/or activities, specific surface uses outside the mine development area may be curtailed during specified periods of the year.

Forest Service Stipulation #15.

Support facilities, structures, equipment, and similar developments will be removed from the lease area within two years after the final termination of use of such facilities. This provision shall apply unless the requirement of Section 10 of the lease form is applicable. Disturbed areas and those areas previously occupied by such facilities will be stabilized and rehabilitated, drainages re-established, and the areas returned to a pre-mining land use.

Forest Service Stipulation #16.

The Lessee, at the conclusion of the mining operation, or at other times as surface disturbance related to mining may occur, will replace all damaged, disturbed or displaced corner monuments (section corners, 1/4 corners, etc.) their accessories and appendages (witness trees, bearing trees, etc.) or restore them to their original condition and location, or at other locations that meet the requirements of the rectangular surveying system. This work shall be conducted at the expense of the Lessee, by a professional land surveyor registered in the State of Utah, and to the standards and guidelines found in the Manual of Surveying Instructions, United States Department of the Interior.

Forest Service Stipulation #17.

The Lessees, at their expense, will be responsible to replace any surface water identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses.

Appendix D - Public Notices

BLM will evaluate lease application

The Bureau of Land Management and the Forest Service will be evaluating an application by Beaver Creek Coal Co. to lease federal lands in Emery County for coal development. The proposed coal lease tract lies just west of and adjacent to Beaver Creek's existing Trail Mountain Mine No. 9.

The application will be processed under the lease on

application procedure adopted by the Uinta-Southwestern Utah Coal Region. The proposed tract encompasses 2,630 acres of federal coal lands. The surface of the involved lands are under management by the Bureau of Land Management, Moab District and the USDA Forest Service, Manti-LaSal National Forest.

These lands have been determined to be suitable for further consideration for coal leasing under existing Bureau of Land Management and Forest Service Land Use Plans. The Bureau of Land Management and the Forest Service will jointly evaluate the tract for leasing. For further information contact the BLM Moab District Office in Moab, or the Manti-LaSal National Forest, Ferron Ranger District in Ferron.

Public comments will be accepted at the Manti-LaSal National Forest, Ferron Ranger District, P.O. Box 310, Ferron, Utah, until Feb. 12, 1990.

FOREST SERVICE MANTI-LASAL NATIONAL FOREST FERRON, UTAH RECEIVED		
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Federal groups evaluate lease

The Bureau of Land Management and the Forest Service will be evaluating an application by Beaver Creek Coal Company to lease federal lands in Emery County for coal development. The proposed coal lease tract lies just west of and adjacent to Beaver Creek's existing Trail Mountain Mine No. 9.

The application will be processed under the lease of application procedure adopted by the Uinta-Southwestern Utah Coal Region. The proposed tract encompasses 2,630.81 acres of federal coal lands. The surface of the involved lands is under management by the Bureau of Land Management, Moab District, and the USDA Forest Service, Manti-LaSal National Forest.

These lands have been determined to be suitable for further consideration for coal leasing under existing Bureau of Land Management and the Forest Service Land Use Plans. The Bureau of Land Management and Forest Service will jointly evaluate the tract for leasing. For further information contact the BLM Moab District Office in Moab, Utah, or the Manti-LaSal National Forest, Ferron Ranger District in Ferron.

Public comments will be accepted at the Manti-LaSal National Forest, Ferron Ranger District, P.O. Box 310, Ferron, until Feb. 12, 1990.

United States
Department of
Agriculture

Forest
Service

Manti-LaSal National Forest
Ferron Ranger District

P.O. Box 310
Ferron, Utah 84523

Reply to: 2820

Date: January 22, 1990

(See Mailing List)

The Bureau of Land Management and the Forest Service will be evaluating an application by Beaver Creek Coal Co. to lease Federal lands in Emery County for coal development. The proposed lease tract lies adjacent to the western boundary of Beaver Creek Coal Company's existing Trail Mountain Mine Permit Area, as shown on the enclosed map. Beaver Creek Coal Company's application states that they intend to mine the proposed lease using existing portal facilities associated with their Trail Mountain Mine.

This application will be processed under the Lease on Application procedure adopted by the Uinta-Southwestern Utah Coal Region. The proposed tract encompasses 2,630.81 acres of Federal coal lands. The surface of the lease area is under Federal management including lands administered by the Bureau of Land Management, Moab District, and the USDA Forest Service, Manti-LaSal National Forest.

The subject lands have been determined to be suitable for further consideration for coal leasing under existing Bureau of Land Management and Forest Service Land Use Plans. The Bureau of Land Management and Forest Service will jointly evaluate the tract on a site-specific basis for leasing in accordance with the requirements of Federal Regulations 43 CFR 3400 and the National Environmental Policy Act of 1969 (NEPA). If offered for lease, the tract will be leased on a competitive basis.

Further information can be obtained at the Bureau of Land Management, Moab District Office in Moab, Utah, or the Manti-LaSal National Forest, Ferron Ranger District, in Ferron, Utah.

Public comments will be accepted at the Manti-LaSal National Forest, Ferron Ranger District, P.O. Box 310, Ferron, Utah, 84523, until February 12, 1990.

Sincerely,

JOHN NIEBERGALL
District Ranger

The following is the mailing list for the scoping letter:

City of Orangeville
Sportsman's Lodge
City of Castle Dale
Emery County Commission
Emery County Economic Development
Southeastern Utah Association of Local Governments
Utah Associated Municipal Water Systems
Joes Valley Marina
Senator Orrin Hatch Office
East Carbon Wildlife Federation
Emery Water Conservancy District
Utah Department of Natural Resources
Utah Wilderness Association
Utah Division of Wildlife Resources
The Nature Conservancy
Bureau of Reclamation
Mr. Carl Bott, Trail Mountain Herd Manager
Utah Mining Association
Carbon-Emery Woolgrowers Association

Appendix E - Wildlife List

Additional wildlife species, both resident and migrant, that may be found on Trail Mountain include:

Mammal species, that may be found in the general area include Merriam's shrew (Sorex merriami), montaine shrew (Sorex monticolus), fringed myotis (Myotis thysanodes), long-eared myotis (Myotis evotis), big brown bat (Eptesicus fuscus), Townsend's big-eared bat (Plecotus townsendii), white-tailed jackrabbit (Lepus townsendii), snowshoe hare (Lepus americanus), black-tailed jackrabbit (Lepus californicus), mountain cottontail (Sylvilagus nuttallii), rock squirrel (Spermophilus variegatus), Uinta ground squirrel (Spermophilus armatus), yellow-bellied marmot (Marmota flaviventris), least chipmunk (Tamias minimus), Uinta chipmunk (Tamias umbrinus), northern pocket gopher (Thomomys talpoides), deer mouse (Peromyscus maniculatus), long-tailed vole (Microtus longicaudus), porcupine (Erethizon dorsatum), coyote (Canis latrans), ermine (Mustela erminea), long-tailed weasel (Mustela frenata), badger (Taxidea taxus), mountain lion (Felis concolor), bobcat (Felis rufus), and black bear (Ursus americanus).

Some bird species expected in the vegetative communities on Trail Mountain during at least some part of the year include:

Aspen-conifer stands: red-breasted nuthatch (Sitta canadensis), golden-crowned kinglet (Regulus satrapa), western tanager (Piranga ludoviciana), olive-sided flycatcher (Contopus borealis), and downy woodpecker (Picoides pubescens).

Ponderosa pine stands: violet-green swallow (Tachycineta thalassina), western wood pewee (Contopus sordidulus), pygmy nuthatch (Sitta pygmaea), western bluebird (Sialia mexicana), and black-capped chickadee (Parus atricapillus).

Pinyon-juniper woodlands: poor-will (Phalaenoptilus nuttallii), plain titmouse (Parus inornatus), ash-throated flycatcher (Myiarchus cinerascens), gray flycatcher (Empidonax wrightii), and pinyon jay (Gymnorhinus cyanocephala).

Mountain brushlands: dusky flycatcher (Empidonax oberholseri), common bushtit (Psaltriparus minimus), Townsend's solitaire (Myadestes townsendi), rufous-sided towhee (Pipilo erythrophthalmus), Virginia's warbler (Vermivora virginiae), and scrub jay (Aphelocoma coerulescens).

Sagebrush-grasslands: western meadowlark (Sturnella neglecta), vesper sparrow (Poocetes gramineus), and Brewer's sparrow (Spizella breweri).

The black-billed magpie (Pica pica), common raven (Corvus corax), and American robin (Turdus migratorius) occur throughout the proposed lease area.

Cliff swallows (Hirundo pyrrhonota) commonly nest on the escarpments.

The above was excerpted from Dalton, et al. (1977). A complete list of wildlife species for the region was completed by the Utah Division of Wildlife Resources (Dalton, et al., 1977).

Appendix F - Previous Archaeology Surveys

The following Cultural Resource Surveys have been conducted in the area of the proposed lease tract:

Broadbear, Bill

1985 Cultural Resource Survey of the Battleground Watershed Improvement Project. Manti-LaSal National Forest Cultural Resource Report No. ML-85-412.

1986 Cultural Resource Survey of the Battleground Watershed Improvement Project. Manti-LaSal National Forest Cultural Resource Report No. ML-86-425.

Gallegos, Alan J.

1983 Cultural Resource Survey for the Treatment of Browse on South Trail Mountain. Manti-LaSal National Forest Cultural Resource Report No. ML-83-397.

Harber, Dale

1989 Cultural Resource Inventory of the Trail Mountain Roller Chopping Project. Manti-LaSal National Forest Cultural Resource Report No. ML-90-519.

Hauck, F.R.

1988 Cultural Resource Evaluation of Nine Exploratory Well Locations and Access Routes in the Trail Mountain Locality of Emery County, Utah. Manti-LaSal National Forest Cultural Resource Report No. ML-88-471.

Weed, Carol S. and Jeffrey H. Altschul

1980 The Central Coal II Project: A Class II Inventory of Selected Portions of Carbon, Emery, and Sevier Counties, Utah. New World Research, Inc., Louisiana. Manti-LaSal National Forest Cultural Resource Report No. ML-80-222.

United States
Department of
Agriculture

Forest
Service

Manti-La Sal
National Forest

599 West Price River Dr.
Price, Utah 84501

Reply to: 2820

Date: April 17, 1991

Lowell Braxton
State of Utah Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Federal Lease Tract Addition, Beaver Creek Coal Company, Trail Mountain #9
Mine, ACT/015/009, Folder #2, Emery County, Utah

Dear Lowell:

We have reviewed Beaver Creek Coal Company's revisions to the Permit Application, the Draft Technical Analysis (TA) and the Draft Cumulative Hydrologic Impact Assessment. All of our concerns have been adequately addressed with the exception of the following two items:

1. Section 7.1.5 Effects of Mining on the Groundwater Hydrologic Balance

Coal drilling within the new tract indicates that the operator should not encounter large volumes of water in the Starpoint/Blackhawk aquifer. However, another drill hole which lies just west of the tract boundary encountered significant water. Somewhere between TMX-6 and the other hole location to the west, there is potential for mining to encounter significant water. If large amounts of water are encountered and discharged into Cottonwood Creek, impacts could occur.

2. Section 12.4.3 Subsidence Effects and Control

The operator has committed to protect escarpments and perennial drainages. The operator states that buffer zones will be based on a 15 degree angle-of-draw (measured from vertical). No information is presented in the Permit Application Package or approved Resource Recovery and Protection Plan to substantiate that the expected angle-of-draw in the permit area is 15 degrees.

Forest Service consent to approval of the permit is conditional upon the following requirements related to the items discussed above:

1. Before extending entries to the west beyond the location of hole TMX-6, the operator must drill horizontal holes to determine if significant water could be encountered in the Starpoint/Blackhawk aquifer. If significant water is encountered in the horizontal holes, the operator must stop the advance and notify the regulatory authority.

2. Before mining in the vicinity of perennial stream and escarpment buffer zones, the operator must provide data sufficient to justify use of the 15 degree angle-of-draw (measured from vertical). If the technical data shows that an angle-of-draw greater than 15 degrees is expected, the buffer zone must be modified to be consistent with the expected angle-of-draw.

The Forest Service hereby consents to approval of the mining permit and Permit Application Package/Mining and Reclamation Plan subject to the conditions specified above.

Please contact the Forest Supervisor's office in Price, Utah if you have any questions in regard to Forest Service consent and the subject conditions.

Sincerely,

/s/ Aaron L. Howe

for
GEORGE A. MORRIS
Forest Supervisor

cc:
Richard Holbrook/Floyd McMullen
Gene Nodine
Dan Guy



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

APR 9 1991

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

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

April 5, 1991

RECEIVED

APR 17 1991

DIVISION OF
 OIL GAS & MINING

Mr. Clark Johnson, Field Supervisor
 U.S. Fish and Wildlife Services
 2060 Administration Building
 1745 West 1700 South
 Salt Lake City, Utah 84104-5110

Dear Mr. Johnson:

Re: Lease Permit Application, Beaver Creek Coal Company, Trail Mountain #9 Mine, ACT/015/009, Folder #2, Emery County, Utah

We are currently reviewing the Trail Mountain #9 Mine Lease Permit Application. No new surface disturbance is associated with the addition. The permit application states:

"The U.S. Forest Service has determined that there are no listed Threatened, Endangered, or Sensitive plant species in the Lease Area."

Buteo and Golden Eagles nests are located in areas adjacent to the lease tract. These nests area shown on Figure 10-4 of the application.

If you concur with the Forest Service statement and that no listed Threatened, Endangered, or Sensitive wildlife species are in the Lease Area, please sign, date, and return this letter. If you do not concur, please send the Division a current list of endangered, threatened, or sensitive plant or animal species which could potentially be in the permit area.

Thank you for your assistance.

Sincerely,

Pamela Grubaugh-Littig
 Pamela Grubaugh-Littig
 Permit Supervisor

Yes, we concur with this letter:

Signature

Title; U.S. Fish & Wildlife

Date

Clark Johnson

 4/11/91

File ACT/015/009 #2
Copy PAM



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

3482
U-082996
U-64375
(U-065c)

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

IN REPLY REFER TO:

APR 12 1991

RECEIVED

APR 15 1991

APR 17 1991

DIVISION OF
OIL GAS & MINING

Ms. Pamela Grubaugh-Littig
Division of Oil, Gas and Mining
355 West North Temple Street
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Dear Ms. Grubaugh-Littig:

On August 13, 1990, the Bureau of Land Management (BLM) received a copy of the permit application package (PAP) from your office entitled "Federal Lease Tract Addition, Beaver Creek Coal Company, Trail Mountain No. 9 Mine, ACT/015/009". This PAP requires our response in two areas. Since a portion of the lands applied for are located on BLM surface, a response as to the completeness of post mining land uses and protection of non-mineral resources is required. In a letter to your office dated October 28, 1990, we stated that the PAP is complete in regard to these items. The other area requiring our review is the resource recovery and protection plan (R2P2). Our review is discussed below.

Beaver Creek Coal Company (BCCC) plans to add Federal lease U-64375 to their permit area at the Trail Mountain No. 9 Mine. The mine plan calls for extending the current mine workings south and west into the new lease. All access to this lease will be from existing mine works and no new surface facilities will be constructed. The R2P2 details the planned underground mine workings and extraction (room and pillar) methods for this new lease as required by the mineral leasing laws.

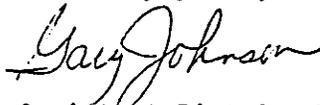
Although complete pillar extraction is contemplated, previous experience at the mine under similar circumstances has not met with success. These circumstances involve mining at depths of around 2000 feet and a massive sandstone strata above the immediate roof that is not conducive to caving. For this reason, the BLM expects to approve several changes until the optimal recovery is obtained.

Lease terms specify protection of cliffs from mine-induced subsidence failure. In reviewing the plan, one planned room and pillar panel falls under the area of influence of potential escarpment failure due to subsidence caused by mining activities. To avoid potential escarpment failure, the last panel on the eastern boundary of T18S, R6E, section 1, will be limited to first mining only in order to leave pillars of sufficient size to prevent caving of the strata (see attached map). With this addition, the plan is adequate and technically complete.

We have determined that the R2P2 is in compliance with the Mineral Leasing Act of 1920, as amended, the regulatory provisions of 43 CFR 3480, Federal lease terms and conditions, and the requirement for achievement of maximum economic recovery of Federal coal. Therefore, we recommend approval of the R2P2 for the new lease.

If you have any questions, please contact Stephen Falk or Gary Johnson in our Price Coal Office at (801) 637-4584.

Sincerely yours,



for Assistant District Manager
Mineral Resources

Enclosure:
Projected Mine Map

cc: SD, Utah (U-921), w/enclosure
DM, Moab (U-065), w/enclosure
Beaver Creek Coal Company, w/enclosure
Manti-LaSal National Forest, Price, w/enclosure



State of Utah

Division of State History

(Utah State Historical Society)

Department of Community and Economic Development

Norman H. Bangertor

Governor

Max J. Evans

Director

300 Rio Grande

Salt Lake City, Utah 84101-1182

801-533-5755

FAX: 801-364-6436

FAX 801-364-6436

April 12, 1991

RECEIVED

APR 17 1991

DIVISION OF
OIL GAS & MINING

Pamela Grubaugh-Littig
Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Federal Lease Permit Addition, Beaver Creek Coal Company, Trail Mountain
#9 Mine, ACT/015/009, Folder #2, Emery County, Utah

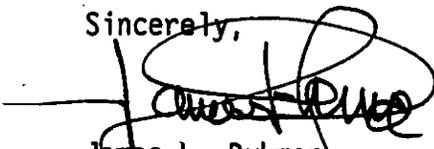
In Reply Please Refer to Case No. K862

Dear Ms. Grubaugh-Littig:

The Utah State Historic Preservation Office received the above referenced report on April 11, 1991. The report states that no cultural resources were located during the survey of this project area. We, therefore, concur with your recommendation that no historic properties will be impacted by the project.

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. If you have questions or need additional assistance, please contact me at (801) 533-7039.

Sincerely,


James L. Dykman
Regulation Assistance Coordinator

JLD:K862 OSM/NP/NE



Norman H. Bangertor
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

RECEIVED

APR 17 1991

DIVISION OF
OIL GAS & MINING

February 22, 1990

Mr. George A. Morris
Forest Supervisor
U.S. Forest Service
Manti-LaSal National Forest
599 West Price River Drive
Price, UT 84501

RE: Trail Mountain Mine, Emery County - Beaver Creek Coal Company - 2820

In Reply Please Refer to Case No. K862

Dear Mr. Morris:

The Utah State Historic Preservation Office received the above referenced report on February 16, 1990. After consideration of the information about the mine plan, our office would concur with the determination of the BLM of no effect if the new surface development is planned.

This information is provided on request to assist the Forest Service with its Section 106 responsibilities as specified in 36 CFR 800. If you have questions or need additional assistance, please contact me at (801) 533-7039.

Sincerely,

James L. Dykman
Regulation Assistance Coordinator

JLD:K862/8395V FS/NE

UNITED STATES

DEPARTMENT OF THE INTERIOR

This mining plan approval document is issued by the United States of America to:

Beaver Creek Coal Company
P.O. Box 1378
Price, Utah 84501

for the Trail Mountain #9 mine mining plan for Federal lease U-64375 subject to the following conditions. Beaver Creek Coal Company is hereinafter referred to as the operator.

1. Statutes and Regulations.--This mining plan approval is issued pursuant to Federal lease U-64375; the Mineral Leasing Act of 1920, as amended (30 U.S.C. 181 et seq.); and in the case of acquired lands, the Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. 351 et seq.). This mining plan approval is subject to all applicable regulations of the Secretary of the Interior which are now or hereafter in force; and all such regulations are made a part hereof. The operator shall comply with the provisions of the Water Pollution Control Act (33 U.S.C. 1151 et seq.), the Clean Air Act (42 U.S.C. 7401 et seq.), and other applicable Federal laws.
2. This document approves the Trail Mountain #9 mine mining plan for Federal lease U-64375, and authorizes coal development or mining operations on the Federal lease within the area of mining plan approval. This authorization is not valid beyond

T. 17 S., R. 6 E., SLM

Sec. 26: S1/2SW1/4, W1/2SW1/4SE1/4;
Sec. 27: S1/2S1/2;
Sec. 34: All;
Sec. 35: Lots 3 & 4, W1/2SW1/4NE1/4, S1/2NW1/4, SW1/4, W1/2W1/2SE1/4;

T. 18 S., R. 6 E., SLM

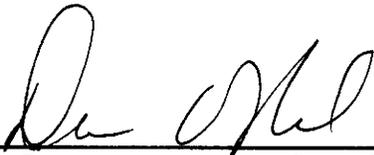
Sec. 1: Lots 1 through 8, S1/2N1/2, E1/2NE1/4SW1/4, E1/2NW1/4NE1/4SW1/4, N1/2NW1/4NE1/4SE1/4, N1/2NW1/4SE1/4;
Sec. 2: Lots 1 through 8, S1/2N1/2, N1/2NE1/4SW1/4, N1/2SW1/4NE1/4SW1/4, SE1/4NE1/4SW1/4, NW1/4NE1/4SE1/4, N1/2SW1/4NE1/4SE1/4, N1/2NW1/4SE1/4, N1/2S1/2NW1/4SE1/4;
Sec. 3: Lots 1, 2, & 8, NE1/4SE1/4NE1/4;

T. 18 S., R. 6 E., SLM

Sec. 6: Lots 4 through 7, W1/2SE1/4NW1/4, W1/2E1/2SW1/4;

as shown on the map appended hereto as Attachment A.

3. The operator shall conduct coal development and mining operations only as described in the complete permit application package, and approved by the Utah Division of Oil, Gas, and Mining, except as otherwise directed in the conditions added to this mining plan approval.
4. The operator shall comply with the terms and conditions of the lease, this mining plan approval, the special conditions appended hereto as Attachment B, and the requirements of the Utah Permit number ACT/015/009 issued under the Utah State program, approved pursuant to the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.).
5. This mining plan approval shall be binding on any person conducting coal development or mining operations under the approved mining plan and shall remain in effect until superseded, cancelled, or withdrawn.
6. If during mining operations unidentified prehistoric or historic resources are discovered, the operator shall ensure that the resources are not disturbed and shall notify Utah Division of Oil, Gas, and Mining and OSM. The operator shall take such actions as are required by Utah Division of Oil, Gas, and Mining in coordination with OSM.



Assistant Secretary, Land and Minerals Management

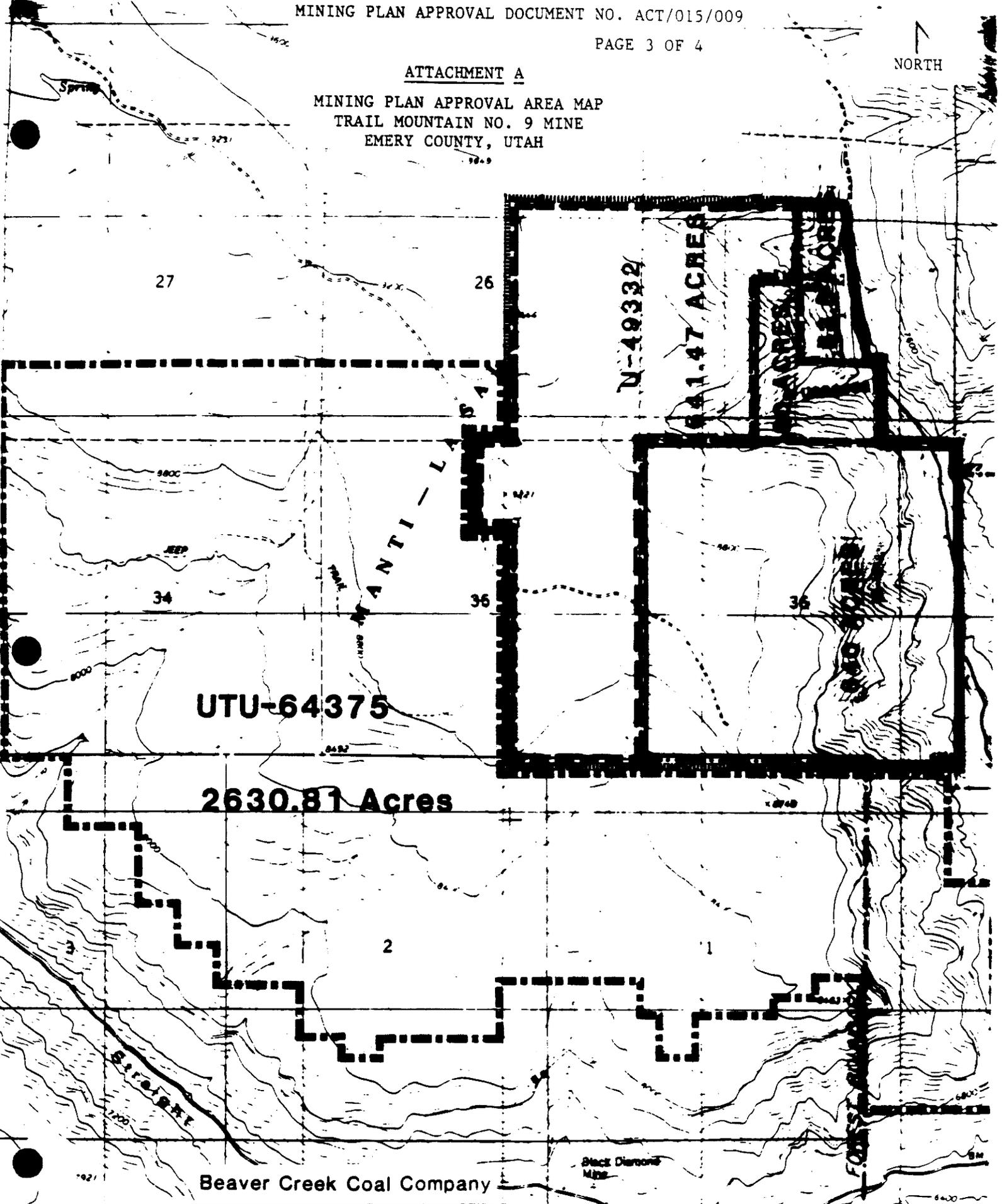
5-14-91

Date

NORTH

ATTACHMENT A

MINING PLAN APPROVAL AREA MAP
TRAIL MOUNTAIN NO. 9 MINE
EMERY COUNTY, UTAH



Beaver Creek Coal Company

Trail Mountain No. 9 Mine
PERMIT APPLICATION AREA
FEDERAL LEASE: U-64375
EXISTING PERMIT AREA BOUNDARY

MAHOGANY POINT, UTAH
SW/4 HIAWATHA 15' QUADRANGLE

ATTACHMENT B

Special Conditions

1. Before extending entries to the west beyond the location of hole TMX-6, the operator must drill horizontal holes to determine if significant water could be encountered in the Starpoint/Blackhawk aquifer. If significant water is encountered in the horizontal holes, the operator must stop the advance and notify the Regulatory Authority.
2. Before mining in the vicinity of perennial stream and escarpment buffer zones, the operator must provide data sufficient to justify use of the 15 degree angle-of-draw (measured from the vertical). If the technical data show that an angle-of-draw greater than 15 degrees is expected, the buffer zone must be modified to be consistent with the expected angle-of-draw.
3. The operator shall limit mining operations in the last panel on the eastern boundary of Section 1, T18S, R6E to first mining only in order to leave pillars of sufficient size to prevent caving of the overlying strata.

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

Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract

Emery County, Utah
ACT/015/009
April 15, 1991

CONTENTS

- * Administrative Overview
- * Location Map
- * Permitting Chronology
- * Mine Plan Information Form
- * Findings
- * State Permit
- * Technical Analysis
- * Cumulative Hydrologic Impact Assessment (CHIA)
- * Affidavit of Publication
- * Reclamation and Bonding Agreement
- * Concurrence Letters

APR 17 1991

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ADMINISTRATIVE OVERVIEW

**Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract
ACT/015/009**

**Emery County, Utah
April 15, 1991**

Background

The Trail Mountain #9 Mine is located in Emery County, Utah, 12 miles northwest of Orangeville, Utah, and has been operating since 1946. The mine was originally permitted by OSMRE in December 1984 under the Federal Lands Program and by Utah DOGM in February 1985 under the approved Utah State Program. An approval was authorized in April 1987 to increase the entire permit area to approximately 1,415 acres. The mining permit was transferred to Beaver Creek Coal Company (BCCC) on November 23, 1987, and successively renewed on February 21, 1990.

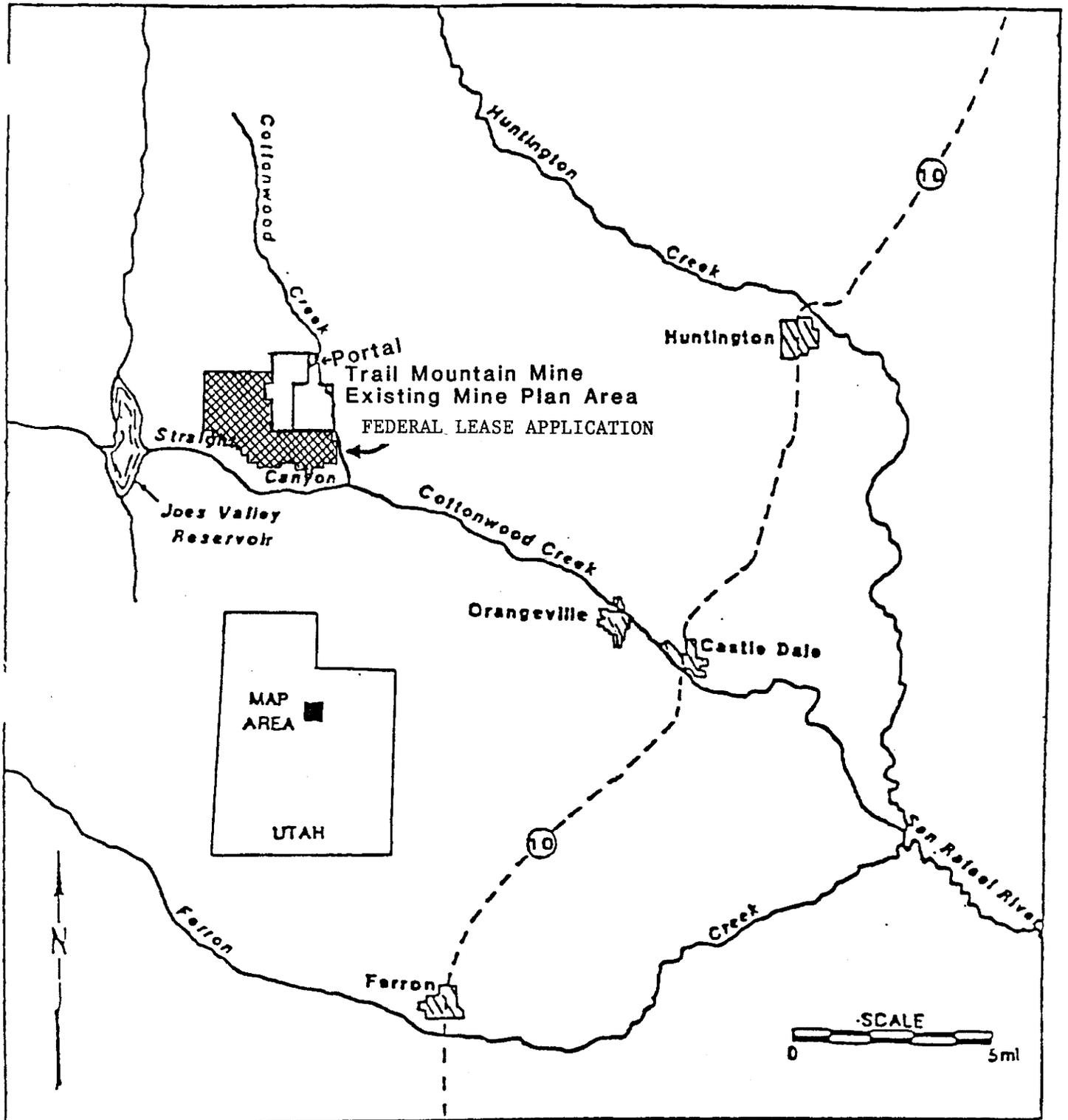
BCCC submitted an application to mine coal in Federal Coal Lease UTU-64375, which encompasses 2630.81 acres. This lease is contiguous to, and will be accessed through, the existing Trail Mountain #9 Mine. This lease adds 13,200,000 tons of recoverable coal to the mine.

The applicant published notice for the Federal Lease Tract Addition for four consecutive weeks, ending on February 19, 1991. No comments were received.

Recommendations for Approval

Approval of the mining permit for the Federal Lease Tract Addition is recommended based upon the review of the Permit Application Package.

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Location of the Trail Mountain Mine Plan Area.

**CHRONOLOGY
Beaver Creek Coal Company
Trail Mountain #9 Mine
ACT/015/009**

**Federal Lease Tract
Emery County, Utah
April 15, 1991**

July 5, 1990	Beaver Creek Coal Company (BCCC) submits the Federal Lease Tract Addition to the Division.
August 10, 1990	Division submits a copy of the PAP to state and federal agencies.
September 13, 1990	Division sends Initial Completeness Review (ICR) to BCCC.
November 20, 1990	BCCC submits ICR responses to the Division.
December 21, 1990	Division issues Second Completeness Review.
January 10, 1991	BCCC submits completeness Responses to the Division.
January 24, 1991	BCCC initiates public notice for four consecutive weeks.
February 28, 1991	Division issues Technical Deficiency Document to BCCC.
March 12, 1991	BCCC responds to Technical Deficiencies.
April 5, 1991	BCCC submits additional materials addressing technical deficiencies.
April 15, 1991	Division submits the final Technical Analysis and supporting documentation to OSM. OSM approves Permit Application Package. Division issues State Permit.

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MINE PLAN INFORMATION

Mine Name Trail Mountain #9 Mine State ID: ACT/015/009
Federal Lease Tract Addition

Operator Beaver Creek Coal Company County: Emery

Controlled By Beaver Creek Coal Company

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

Telephone: (801) 637-5050

New/Existing _____ Mining Method Room and Pillar

Federal Lease Nos. UTU-64375

State Mineral Lease No. _____

Legal Descriptions (See Attachment A)

<u>Surface Resources</u> <u>(acres)</u>	<u>Existing</u> <u>Permit Area</u>	<u>Proposed</u> <u>Permit Area</u>	<u>Total Life</u> <u>of Mine Area</u>
Federal	<u>721.47</u>	<u>2630.81</u>	<u>3352.28</u>
State	<u>640.00</u>	<u> </u>	<u>640.00</u>
Private	<u>53.50</u>	<u> </u>	<u>53.50</u>
Other	<u> </u>	<u> </u>	<u> </u>
TOTAL	<u>1414.97</u>	<u>2630.81</u>	<u>4045.78</u>

Coal Ownership (Acres)

Federal	<u>721.47</u>	<u>2630.81</u>	<u>3352.28</u>
State	<u>640.00</u>	<u> </u>	<u>640.00</u>
Private	<u>53.50</u>	<u> </u>	<u>53.50</u>
Other	<u> </u>	<u> </u>	<u> </u>
TOTAL	<u>1414.97</u>	<u>2630.81</u>	<u>4045.78</u>

<u>Coal Resource Data</u>	<u>Total in Place</u> <u>Reserves</u>	<u>Total Recoverable</u> <u>Reserves</u>
Federal (UTU-64375)	<u>48,800,000 Tons</u>	<u>13,200,000 Tons</u>
State	<u> </u>	<u> </u>
Private	<u> </u>	<u> </u>
Other	<u> </u>	<u> </u>
TOTAL	<u>48,800,000 Tons</u>	<u>13,200,000 Tons</u>

April 15, 1991

Page 2
 Mine Plan Information
 Trail Mountain #9 Mine
 Beaver Creek Coal Company
 April 15, 1991

**Recoverable
 Reserve Data**

	<u>Name</u>	<u>Thickness</u>	<u>Depth</u>
Seam	<u>Hiawatha</u>	<u>8' - 8.5'</u>	<u>750' to 2250'</u>
Seam	<u> </u>	<u> </u>	<u> </u>
Seam	<u> </u>	<u> </u>	<u> </u>
Seam	<u> </u>	<u> </u>	<u> </u>
Seam	<u> </u>	<u> </u>	<u> </u>

Mine Life 15 years
 Average Annual Production 1.2 Million Tons Percent Recovery 55%
 Date Projected Annual Rate Reached 1991
 Date Production Begins Operating Date Production Ends 2006
 Reserves Recoverable by: (1) Surface Mining 0
 (2) Underground Mining Room & Pillar
 Reserves Lost Through Management Decision
 Coal Market Contracts

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**TRAIL MOUNTAIN #9 MINE
FEDERAL LEASE TRACT
LEGAL DESCRIPTION
ACT/015/009**

**Beaver Creek Coal Company
Emery County, Utah
April 15, 1991**

The legal Description of Federal Lease Tract UTU-64375 is:

Township 17 South, Range 6 East, SLM

- Section 26: S1/2 SW1/4, W1/2 SW1/4 SE1/4;
- Section 27: S1/2 S1/2;
- Section 34: All;
- Section 35: Lots 3 and 4, W1/2 SW1/4 NE1/4, S1/2 NW1/4, SW1/4, W1/2 W1/2 SE1/4.

Township 18 South, Range 6 East, SLM

- Section 1: Lots 1-8, S1/2 N1/2, E1/2 NE1/4 SW1/4, E1/2 NW1/4 NE1/4 SW1/4, N1/2 NW1/4 NE1/4 SE1/4, N1/2 NW1/4 SE1/4;
- Section 2: Lots 1-8, S1/2 N1/2, N1/2 NE1/4 SW1/4, N1/2 SW1/4 NE1/4 SW1/4, SE1/4 NE1/4 SW1/4, NW1/4 NE1/4 SE1/4, N1/2 SW1/4 NE1/4 SE1/4, N1/2 NW1/4 SE1/4, N1/2 S1/2 NW1/4 SE1/4;
- Section 3: Lots 1, 2, and 8, NE1/4 SE1/4 NE1/4.

Township 18 South, Range 7 East, SLM

- Section 6: Lots 4-7, W1/2 SE1/4 NW1/4, W1/2 E1/2 SW1/4

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FEDERAL

FINDINGS

**Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract Addition
ACT/015/009**

**Emery County, Utah
April 15, 1991**

APR 17 1991

1. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (R614-300-120).
2. The permit application is 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 (R614-300-133.100).
3. The proposed permit area is:
 - (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 (R614-300-133.220); and
 - (e) not within 300 feet of any occupied dwelling (R614-300-133.220).
4. The assessment of the probable cumulative impacts of all anticipated coal mining and reclamation operations on the hydrologic balance has made an assessment of the probable cumulative impacts of all anticipated coal mining and reclamation operations on the hydrologic balance in the cumulative impact area and has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area has been made by the Division. The permit application has been designed to prevent damage to the hydrologic balance in the proposed permit area (R614-300-133.400 and UCA 40-10-11{2}{c}).
5. The operation would not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats as determined under the Endangered Species Act of 1973 (16 U.S.C. 1531 et.seq.) (R614-300-133.500).

6. The Division's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) and (R614-300-133.600).

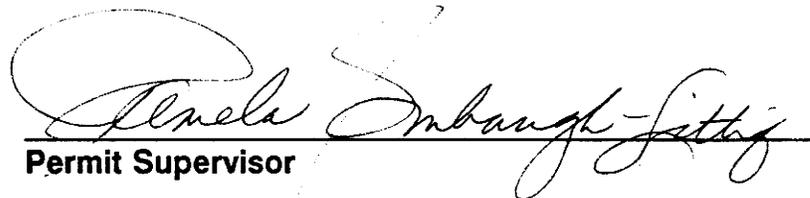
7. The applicant has demonstrated that reclamation as required by the State Program can be accomplished according to information given in the permit application.

8. The applicant has demonstrated that any existing structure will comply with the applicable performance standards of R614-301 and R614-302. (R614-300-133.720)

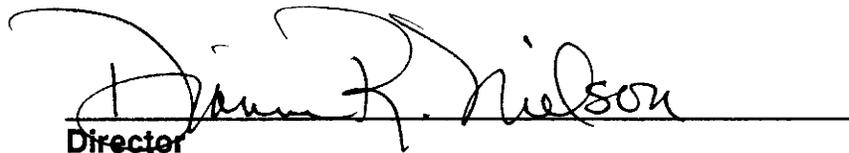
9. The applicant has paid all reclamation fees from previous and existing coal mining and reclamation operations as required by 30 CFR Part 870. A 510{c} report has been run on the Applicant Violator System (AVS), which shows that: prior violations of applicable laws and regulations have been corrected; 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 wilful 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 [R614-300-132 (OSMRE Relatedness Report dated April 15, 1991)].

10. The applicant has satisfied the applicable requirements of R614-302.

11. The applicant has filed a reclamation performance bond in the amount of \$463,711 and payable to the Division and the Office of Surface Mining, Reclamation and Enforcement (OSM).


Pamela Embaugh-Fitzh
Permit Supervisor


Samuel P. Bruster
Associate Director, Mining


James R. Nielson
Director

FEDERAL

Permit Number ACT/015/009

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/015/009, is issued for the state of Utah by the Utah Division of Oil, Gas and Mining (Division) to:

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

for the Trail Mountain #9 Mine. A Surety Bond is filed with the Division in the amount of \$463,711, payable to the State of Utah, Division of Oil, Gas and Mining and the Office of Surface Mining Reclamation and Enforcement (OSM). The Division 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 A) within the permit area at the Trail Mountain #9 Mine, situated in the state of Utah, Emery County, and located:

The legal Description of Federal Lease Tract UTU-64375 is:

Township 17 South, Range 6 East, SLM

Section 26: S1/2 SW1/4, W1/2 SW1/4 SE1/4;

Section 27: S1/2 S1/2;

Section 34: All;

Section 35: Lots 3 and 4, W1/2 SW1/4 NE1/4, S1/2 NW1/4, SW1/4, W1/2 W1/2 SE1/4.

Township 18 South, Range 6 East, SLM

Section 1: Lots 1-8, S1/2 N1/2, E1/2 NE1/4 SW1/4, E1/2 NW1/4 NE1/4 SW1/4, N1/2 NW1/4 NE1/4 SE1/4, N1/2 NW1/4 SE1/4;

Section 2: Lots 1-8, S1/2 N1/2, N1/2 NE1/4 SW1/4, N1/2 SW1/4 NE1/4 SW1/4, SE1/4 NE1/4 SW1/4, NW1/4 NE1/4 SE1/4, N1/2 SW1/4 NE1/4 SE1/4, N1/2 NW1/4 SE1/4, N1/2 S1/2 NW1/4 SE1/4;

Section 3: Lots 1, 2, and 8, NE1/4 SE1/4 NE1/4.

Township 18 South, Range 7 East, SLM

Section 6: Lots 4-7, W1/2 SE1/4 NW1/4, W1/2 E1/2 SW1/4

This legal description is for the permit area (as shown on Attachment A) of the Trail Mountain #9 Mine. 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 COMPLIANCE** - The permittee will comply with the terms and conditions of the permit, all applicable performance standards and requirements of the State Program.
- Sec. 4 PERMIT TERM** - This permit becomes effective on April 15, 1991, and expires on February 20, 1995.
- Sec. 5 ASSIGNMENT OF PERMIT RIGHTS** - The permit rights may not be transferred, assigned or sold without the approval of the Director, Division. 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 R614-303-300.
- Sec. 6 RIGHT OF ENTRY** - The permittee shall allow the authorized representative of the Division, including but not limited to inspectors, and representatives of the Office of Surface Mining Reclamation and Enforcement (OSM), 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, R614-400-220, 30 CFR 842.13 and R614-400-110;
 - (b) be accompanied by private persons for the purpose of conducting an inspection in accordance with R614-400-100 and R614-400-200 when the inspection is in response to an alleged violation reported to the Division by the private person.
- Sec. 7 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 approved plan and approved for the term of the permit and which are subject to the performance bond.

- Sec. 8 ENVIRONMENTAL IMPACTS** - The permittee shall take all possible steps to minimize any adverse impact to the environment or public health and safety resulting from noncompliance with any term or condition of the permit, including, but not limited to:
- (a) Any accelerated or additional monitoring necessary 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. 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 the Division 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 EXISTING STRUCTURES** - As applicable, the permittee will comply with R614-301 and R614-302 for compliance, modification, or abandonment of existing structures.
- Sec. 11 RECLAMATION FEE PAYMENTS** - The operator shall pay all reclamation fees required by 30 CFR Part 870 for coal produced under the permit, for sale, transfer or use.
- Sec. 12 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. 13 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. 14 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. 15 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 the Division. The Division, after coordination with OSM, shall inform the permittee of necessary actions required. The permittee shall implement the mitigation measures required by Division within the time frame specified by Division.

Sec. 16 APPEALS - The permittee shall have the right to appeal as provided for under R614-300-200.

Sec. 17 SPECIAL CONDITIONS - There is a special condition associated with this permitting action, as described in Attachment B.

The above conditions (Secs. 1-17) 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 the Division and the permittee at any time to adjust to changed conditions or to correct an oversight. The Division may amend these conditions at any time without the consent of the permittee in order to make them consistent with any federal or state statutes and any regulations.

THE STATE OF UTAH

By: _____

Date: _____

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

**Authorized Representative of
the Permittee**

Date: _____

ATTACHMENT B

Special Condition, R614-301-731.200 Water Monitoring

The applicant must monitor quality and quantity of the Star Point aquifer at a point where the flow in the aquifer leaves the permit area. The most likely place to develop this monitoring site is in the area near DH-5 (Figure 6-4). The applicant will be required to develop a well to monitor aquifer parameters, seasonal fluctuation, mining influence and hydrologic tests. The applicant will be required to construct the monitoring well within 90 days of permit approval. This information is requested in accordance with the requirements for water monitoring regulations R614-301-731.200 through R614-301-731.215.

TECHNICAL ANALYSIS

Beaver Creek Coal Company
Trail Mountain #9 Mine
Federal Lease Tract
UTU-64375
ACT/015/009

APR 17 1991

Emery County, Utah
April 15, 1991

R614-301-100 GENERAL CONTENTS (SW)

112. Identification of Interests

Beaver Creek Coal Company is a Delaware corporation. The name and address of the applicant and operator is listed on page 2-1. The names and addresses of the officers, directors and principle shareholders are listed on pages 2-3 and 2-4. The applicant's corporation also operates West Elk Coal Company in Colorado and Thunder Basin Coal Company in Wyoming. Surface and coal ownership are identified on page 2-1. Surface and coal owners are the United States of America, State of Utah and Beaver Creek Coal Company. Ownership contiguous to the permit area is identified on page 2-5. The MSHA identification number is 42-01211. The applicant has no current interest in lands adjacent to the proposed permit area.

113. Violation Information

Neither the applicant nor any affiliate or persons under common control with the applicant has had a state or federal permit revoked. Nor has a performance bond or security been forfeited. A list of all violations in the past three years received by the applicant or under common control with the applicant is found in Appendix 2-2.

114. Right-of-Entry Information

The applicants right to enter and begin coal operations are found on page 2-8 through 2-10. The applicant lists the document, date of execution, and identifies the specific land to which the document pertains. A private mineral estate has not been separated from a private surface estate in this lease application.

115. Status of Unsuitability Claims

The proposed permit area is not within an area designated or under study as unsuitable for coal mining and reclamation operations (page 2-10). Additionally, there are no occupied dwellings within five miles of the permit area.

116. Permit Term

The lease permit will be renewed with the Trail Mountain #9 five-year permit renewal on February 21, 1995.

117. Insurance and Proof of Publication

Proof of publication is found in appendix 2-7. The newspaper advertisement was published January 29, 1991, through February 19, 1991, in the Sun Advocate and Emery County Progress. Insurance Certificate is found in the Trail Mountain #9 Mine permit in appendix 2-7.

140. Maps and Plans

All maps are of an acceptable scale and format. There is no mining related activity in the proposed permit area prior to August 3, 1977.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-100.

R614-301-200 SOILS (HS)

221. Prime Farmland Investigation

An investigation was conducted by the U.S.D.A./Soil Conservation Service to determine if prime farmland exists within the Federal Lease Tract. Ferris P. Allgood, State Soil Scientist, determined that no prime or important farmlands exist (Appendix 8-1{L}).

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-200.

R614-301-300 BIOLOGY (SW)

320. Environmental Resources

No surface disturbance is associated with the proposed lease tract addition, therefore, reference areas and productivity requirements are not applicable.

A detailed description of fish and wildlife resources is found in Chapter 10 of the Trail Mountain #9 Mine permit. The proposed lease area is critical value deer and elk winter range. The fishery in Straight Canyon, from the junction of Cottonwood Creek up to Joes Valley Reservoir, is classified as a crucial-critical use area. Six Buteo nests and one golden eagles nest is identified in Straight Canyon adjacent to the proposed lease tract (Figure 10-4). The US Forest Service has determined that there are no listed threatened, endangered, or sensitive plants in the lease area (page 9-1). A concurrence letter was sent to the US Fish and Wildlife Service by the Division on April 5, 1991. The proposed lease area vegetative plant communities are delineated on Figure 9-1.

330. Operation Plan

Possible subsidence should be the only potential surface impact related to the lease tract addition. The permit identifies possible surface cracks, diminished spring flow, and escarpment failure. The applicant has committed to mitigate any damage caused by subsidence (page 12-4). The lease boundary along Straight Canyon has been set back from the escarpment in order to reduce the risk of escarpment failure (12-4b) and damage to raptor nests. Subsidence will be monitored as described in Chapter 12.

340. Reclamation Plan

This section does not apply.

350. Performance Standards

This section does not apply.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-300.

R614-301-400 LAND USE AND AIR QUALITY (SW)

411. Environmental Description

The lease tract is on US Forest Service land. Land use is a horse allotment and Deer Herd unit 35 (Figure 4-3). The US Forest Service manages the area for mining, grazing, recreation, wildlife habitat, and timber harvesting (pages 3-5 and 4-4). Cultural evaluations of historical, archeological and paleontological resources is based

on record and archival examination and surveys of the lease exploration drilling areas (Appendix 5-1{L}). No significant cultural or historic resources within the proposed lease tract are shown in Figure 5-1 (page 3-6). The State Historic Preservation Officer has given clearance for the lease area (personal communication with David Schirer, Utah State History, April 9, 1991).

412. Reclamation Plan

Since no surface disturbance is anticipated, the premining land use is the same as the postmining land use.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-400.

R614-301-500 ENGINEERING (JK)

510. Introduction

The applicant proposes to extend the present mining operation into Federal Lease, UTU-64375. This lease area contains approximately 2,631 acres and lies adjacent to the present mining area on its western and southern borders.

The proposed extension of operations is described in a volume which is separate from the Trail Mountain #9 permit. However, the extension will use the existing Trail Mountain #9 surface facilities and mine portals and will create no additional surface disturbance (see Chapter 1).

512. Certification

All maps which require certification under this and other relevant sections have been certified by a qualified, registered, professional engineer. The certified maps are: Plates 6-4 (Geologic Map--Hiawatha Seam), 6-7 (Hiawatha Seam--Overburden Thickness Map), 7-2 (Location of Seeps and Springs), 7-9 (Water Monitoring Locations), and 7-9A (Underground Water Monitoring Locations). Those maps which are included in the Lease Permit Application but require no certification are 3-10 (Permit Area Map), 4-2 (Surface Ownership Map), 4-3 (Land Use Map), 5-1 (Cultural Resources Survey), and 12--6 (Subsidence Monitoring Plan).

Since the Federal Lease involves no further surface disturbance, there are no plans or engineering designs that require certification.

513. Compliance with MSHA Regulations and MSHA Approval

This section is not applicable. Any and all provisions for sedimentation ponds, refuse piles, closure of entryways, and extinguishing of coal mine waste fires are found in the Trail Mountain #9 permit.

514. Inspections

This section is not applicable. Any and all provisions for the inspection of refuse piles or impoundments are found in the Trail Mountain #9 permit.

515. Reporting and Emergency Procedures

Any time a slide occurs which may have a potential adverse effect on public property, health, safety, or the environment, the applicant will notify the Division by the fastest available means and comply with remedial measures required by the Division (page 3-14).

All provisions for notification and remediation in the case of an impoundment hazard, as well as for temporary cessation of operations, are found in the Trail Mountain #9 permit.

520. Operation Plan

521.110 Previously Mined Areas

Besides the applicant's own operation, there are only two small abandoned mining operations in the vicinity of the Federal Lease: the Oliphant Mine and the Black Diamond Mine. These are located in Straight Canyon, to the south of the Federal Lease Tract. Both are shown on Map 4-2 (Surface Ownership Map).

521.120 Existing Surface and Subsurface Facilities

All existing surface and subsurface facilities and other manmade features are shown in Figure 3-1 (Surface Facilities) in the Trail Mountain #9 permit.

521.130 Landowners and Right of Entry and Public Interest Maps

All boundaries of lands and names of present owners of record of those lands, both surface and subsurface, are shown in Figures 3-10 (Permit Area Map) and 4-2 (Surface Ownership Map). The boundaries of land within the permit area upon which

the applicant has the legal right to enter and carry out coal mining and reclamation operations are shown in Figure 3-1 (Surface Facilities) of the Trail Mountain #9 permit.

521.140 Mine Maps and Permit Area Maps

The boundaries of all areas proposed to be affected over the total life of the operation are shown in Figure 3-10 (Permit Area Map). Underground workings and areas where methods for subsidence prevention or controlled subsidence will be employed are shown in Figure 12--6 (Subsidence Monument Plan).

521.150 Land Surface Configuration Maps

This part is not applicable as no new surface disturbance will be created as a result of the Federal Lease Tract.

521.160 Maps and Cross Sections of the Proposed Features for the Proposed Permit Area

The features, facilities, buildings, etc. mentioned in this part are shown on the Surface Facilities Maps of the Trail Mountain #9 permit.

521.170 Transportation Facilities Maps

Transportation facilities are shown on the Surface Facilities Maps of the Trail Mountain #9 permit.

521.200 Signs and Markers Specifications

This part is not applicable as no new surface disturbance will be created as a result of the Federal Lease Tract.

522. Coal Recovery

The applicant estimates that there are 48,800,000 tons of coal in place in the Federal Lease Tract and 13,200,000 tons are recoverable (page 3-3, Table 3-1). The applicant maintains that this rather low rate of recovery is justified because of the necessity of leaving 12 to 18 inches of top coal to prevent air slacking of the roof. Nevertheless, the applicant has a Resource Recovery and Protection Plan approved by the Bureau of Land Management to attain maximum economic recovery of the coal resource (page 3-4).

523. Mining Method

The method of mining in the Federal Lease Tract will be the same as that employed presently in the Trail Mountain #9 Mine: room-and-pillar mining with continuous mining machinery. Panels will be driven to the property boundaries and pillar extraction will then be carried out as roof and other conditions dictate. Sixty-foot barrier pillars will be left between panels. The applicant expects to increase annual production from the present level of 450,000 tons to a maximum of 1,200,000 tons (pages 3-1 to 3-2).

524. Blasting and Explosives

This section is not applicable. There will be no surface blasting in connection with the Federal Lease Tract.

525. Subsidence (JK/DD)

The applicant has conducted a survey of the surface area above the proposed lease. Timber, wildlife, grazing areas and water seeps are the renewable resources which occur in this area. There are no oil and gas wells, pipelines, utility structures, power transmission lines, or other buildings in the area (see pages 12-2 to 12-3).

The renewable resources in the area are not likely to be adversely affected by subsidence. The seeps that are present are surficial in nature. They are fed by precipitation and are dry most of the summer. In the event that roads, trails, or land surfaces are damaged appreciably by subsidence, the applicant will repair them and restore them to presubsidence usefulness (see page 2-3).

The applicant is committed to using practices which will control and minimize subsidence. Room-and-pillar methods with pillar extraction will be used in the mine. 100-foot barrier pillars will be left between development panels and the main entry pillars will have dimensions of 80 feet by 80 feet. In order to prevent subsidence-induced spalling of rock escarpments, the applicant will mine only to that distance from escarpments which is dictated by the projected 15° angle of draw (see pages 12-1 to 12-4a).

The applicant plans to extend the subsidence monitoring system presently used at the Trail Mountain #9 Mine to include the proposed lease addition. As at the existing Trail Mountain #9 Mine, subsidence will be monitored by conventional surveying of monuments. There will be 52 new monuments, which will be designated "9-1-S" through "9-52-S". Monuments will be placed over the center and ends of each panel except for monuments 9-45-S through 9-52-S, which will be placed over

escarpments and elsewhere outside of the mining area. All monuments will be surveyed and a subsidence reconnaissance survey conducted once a year. All of the information from the combined survey will be submitted to the Division in the Annual Report (see pages 12-5 to 12-5a and Figure 12-6).

Six months prior to mining, the applicant will send to all surface owners who may be affected by subsidence a mining schedule which will detail the area in which mining is to take place and the planned date of that mining activity. Appendix, 12-1(L) contains copies of the letters of notification (see page 12-4b and Appendix 12-1{L}).

The applicant intends to protect perennial streams (page 7-18a) by identifying which drainages are perennial and restricting mining activities to first-mining (development only). The area of mining restriction will be determined by projecting the angle-of-draw from a point 50 feet on each side of the stream down to the coal seam.

526. Mine Facilities

This section is not applicable. The locations and other details of all surface facilities are contained in the Trail Mountain #9 permit.

527. Transportation Facilities

This section is not applicable. Details of all road and conveyors are contained in the Trail Mountain #9 permit.

528. Handling and Disposal of Coal, Overburden, Excess Spoil, and Coal Mine Waste

This section is not applicable. What little spoil and coal mine waste produced in the proposed lease tract addition will be handled as described in the Trail Mountain #9 permit.

529. Management of Mine Openings

This section is not applicable. There will be no additional mine openings as a result of the proposed lease tract addition.

530. Operational Design Criteria and Plans

532. Sediment Control

This section is not applicable. Sediment control measures are described in the Trail Mountain #9 permit.

533. Impoundments

This section is not applicable. Designs, specifications, maintenance and inspection procedures, and other details of impoundments are contained in the Trail Mountain #9 permit.

534. Roads

This section is not applicable. Road designs and other details are contained in the Trail Mountain #9 permit.

535. Spoil

This section is not applicable. Spoil produced in the proposed lease tract addition will be handled as described in the existing Trail Mountain #9 MRP.

536. Coal Mine Waste

This section is not applicable. Coal mine waste produced by the proposed lease tract addition will be disposed of as described in the Trail Mountain #9 permit.

537. Regraded Slopes

This section is not applicable. Regrading of slopes and fills is described in the Trail Mountain #9 permit.

540. Reclamation Plan

542. Narratives, Maps and Plans

This section is not applicable. Maps and plans having to do with all phases of reclamation, including reclamation costs, are contained in the Trail Mountain #9 permit.

550. Reclamation Design Criteria and Plans

551. Casing and Sealing of Underground Openings

This section is not applicable. During reclamation, underground openings, of which there will be none additional as a result of the proposed lease tract addition, will be sealed and backfilled as described in the Trail Mountain #9 permit.

552. Permanent Features

This section is not applicable. Any features which are to remain after final reclamation are described in the Trail Mountain #9 permit.

553. Backfilling and Grading

This section is not applicable. All plans, maps and specifications for backfilling and grading are described in the Trail Mountain #9 permit.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-500.

R614-301-600 GEOLOGY (DD)

The geology for the mine permit and adjacent area is discussed in Section 6 of the Lease Application Package. The applicant has presented a geologic description of the permit and adjacent area. A geologic map, Figure 6-4 identifies that mining will take place in the Hiawatha coal seam. The attitude of the coal seam is indicated to strike northwest and dip from 3 to 4.5 degrees to the southwest. An overburden isopach map (Figure 6-7) identifies a thickness over the mine plan area to be over 1000 feet. This lease area was established with the overburden thickness in mind. The proposed mining is designed to take place inside the limits of the escarpment to help ensure against escarpment failure, slumping and rockfalls. About one-third of Section 6 along Cottonwood Canyon, which is administered by the BLM, allows mining under lower cover (overburden), beyond the escarpment. However, mining is restricted to a maximum of fifty percent recovery. This is in conformance with the previous mining practices for earlier Trail Mountain leases.

The applicant has collected coal, roof and floor quality data. The results indicate very low pyritic sulfur and high neutralizing potentials. Monitoring will continue at intervals not to exceed 2000 feet intervals.

In a conference held with Ken Fleck on April 4, 1991 information and data was presented identifying coal resources, thickness, quality and minability. The information was reviewed separate from the mine plan because the operator had requested confidentiality and non-disclosure in accordance with Title 40-10-10 , Utah Code Annotated and R614-300-124.300 of the Utah Coal Mining and Reclamation Regulations. Ken presented a structure contour map of the Hiawatha coal seam, cross-section B-B', coal isopach map of the Hiawatha coal seam, the coal quality and geology study and analysis workbook, a geologic conditions map (Figure 5.4), minable reserves estimates and geophysical studies for ground water conditions.

The applicant has accumulated data from 10 explorations drill holes, as well as drilling data that is public domain from monitoring wells developed by U.S. Geological Survey for a hydrologic study (Lines, 1985). Surveys of the property from the surface and adjacent mines indicate that there is no large scale faulting and fracturing over the lease area. The axis of the Straight Canyon Syncline runs diagonally from northeast to southwest along the northwest corner of the lease area. A geophysical study by the applicant indicates that no structural displacement occurs that presents an anomalous ground water zone or adversely affects mining operations.

COMPLIANCE:

The applicant is in compliance with all sections of R614-301-600.

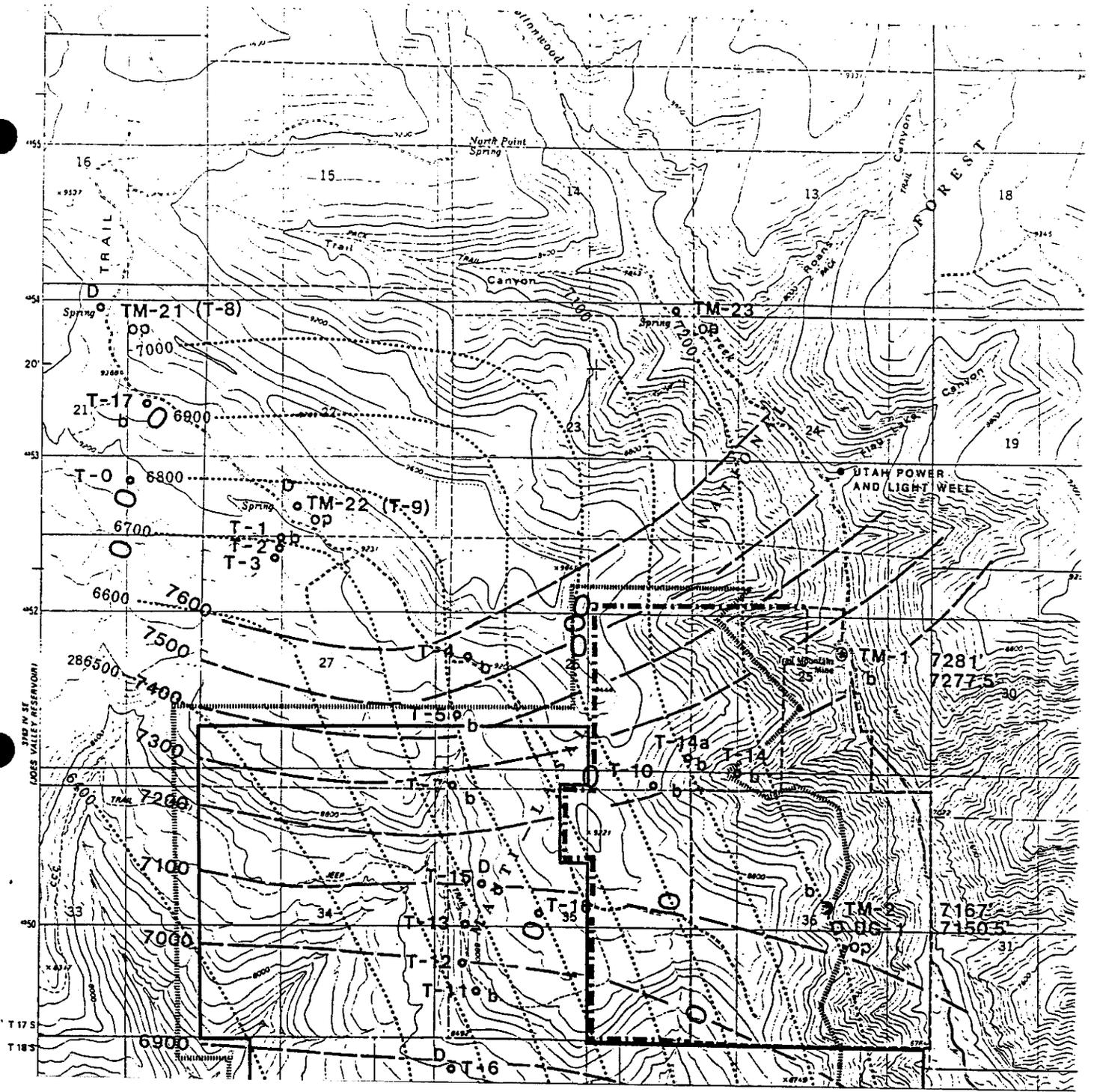
R614-301-700 HYDROLOGY (TM/DD)

722. Cross-Sections and Maps

722.100 Location and Content of Surface Water. The applicant has provided sufficient drillhole information to document that significant subsurface water was not encountered, therefore, this requirement is waived. See data presented in Appendix 7-15(L).

722.200 The locations of surface water bodies such as streams, lakes, ponds and springs within the permit area and adjacent area are shown on Figure 7-9.

722.300 The locations of monitoring stations used to gather baseline data on water quality and quantity is shown in Figure 7-9. The water monitoring program is discussed in Appendix 7-1(L).



722.400 One monitoring well, TM-1 located near the portal is monitored quarterly and shown on Figure 7-9. This well is used strictly for water monitoring (see page 7-9).

724. Baseline Information

724.100 Ground Water Information

The location and ownership for the permit area and adjacent areas of existing wells, springs, and other ground water sources is shown on Figure 7-9. The seasonal quality and quantity is collected on selected springs, wells, and surface water sources according to the schedule identified in Appendix 7-1(L).

The applicant has submitted information to describe the ground water regime to the extent as could be evaluated from the hydrologic studies that have been conducted adjacent to the area and from information and data collected by the applicant (i.e., occurrence and geologic framework).

Through an extensive drilling program no extensive ground water aquifers were shown to exist and therefore the ground water that does exist is most probably isolated and perched in nature and would be potentially impacted by mining. Since no regional aquifers appear to exist based on drilling data found in Appendix 7-15(L), no data on approximate rates of discharge or usage and depth to the water in the coal seam, and each water bearing stratum above and potentially impacted stratum below the coal seam was requested from the applicant. This assessment was based on the data submitted to date.

Spring inventories were conducted during the spring seasons of 1981 and 1985. Most springs were located in the North Horn Formation which is interbedded with sands, siltstones and mudstones. The applicant attributes the majority of springs in the area to perched aquifers that exist several hundred feet above the coal seam, and anticipates that mining will not have an influence or effect on their flow. The applicant has committed to conducting another spring study during the summer of 1991.

Information describing the ground water in the Blackhawk Formation and Star Point Sandstone Formations was derived from Lines (1985) hydrologic report. Hydraulic conductivity of the sandstones and shales, and the rapid change in facies in the Blackhawk severely restrict the flow of ground water through the formation.

The applicant identifies a potentiometric surface in the Star Point Sandstone (page 7-6). Figure 7-2 illustrates the potentiometric surface of the Blackhawk-Star Point aquifer at the level of the Hiawatha Coal Seam, which ranges from the 6400 feet

elevation at the southwest part of the lease area to 7200 feet elevation along the escarpment of the Cottonwood Creek.

724.200 Surface Water Information

The baseline water quality and quantity information is sufficient to demonstrate seasonal variation and water usage which is found in Chapter 7 of the Trail Mountain #9 Mine permit.

No wells are known to exist within or adjacent to the new lease. Water is produced in mine development from roof leaks, roof bolt holes and tension cracks. The current mine workings in Cottonwood Canyon are producing about 75 gallons per minute in the form of discharge. It is expected that expansion of the mine workings will increase mine water production proportionately. The applicant has committed to monitoring significant mine inflows.

725. Baseline Cumulative Impact Area Information

The necessary baseline hydrologic and geologic information has been submitted to assess the probable cumulative hydrologic impacts of the mining operations on surface and ground water.

Data from the applicant's drilling program has been submitted, as well as baseline data on existing surface and ground water monitoring points as shown on Figure 7-9 and in Appendix 7-15(L).

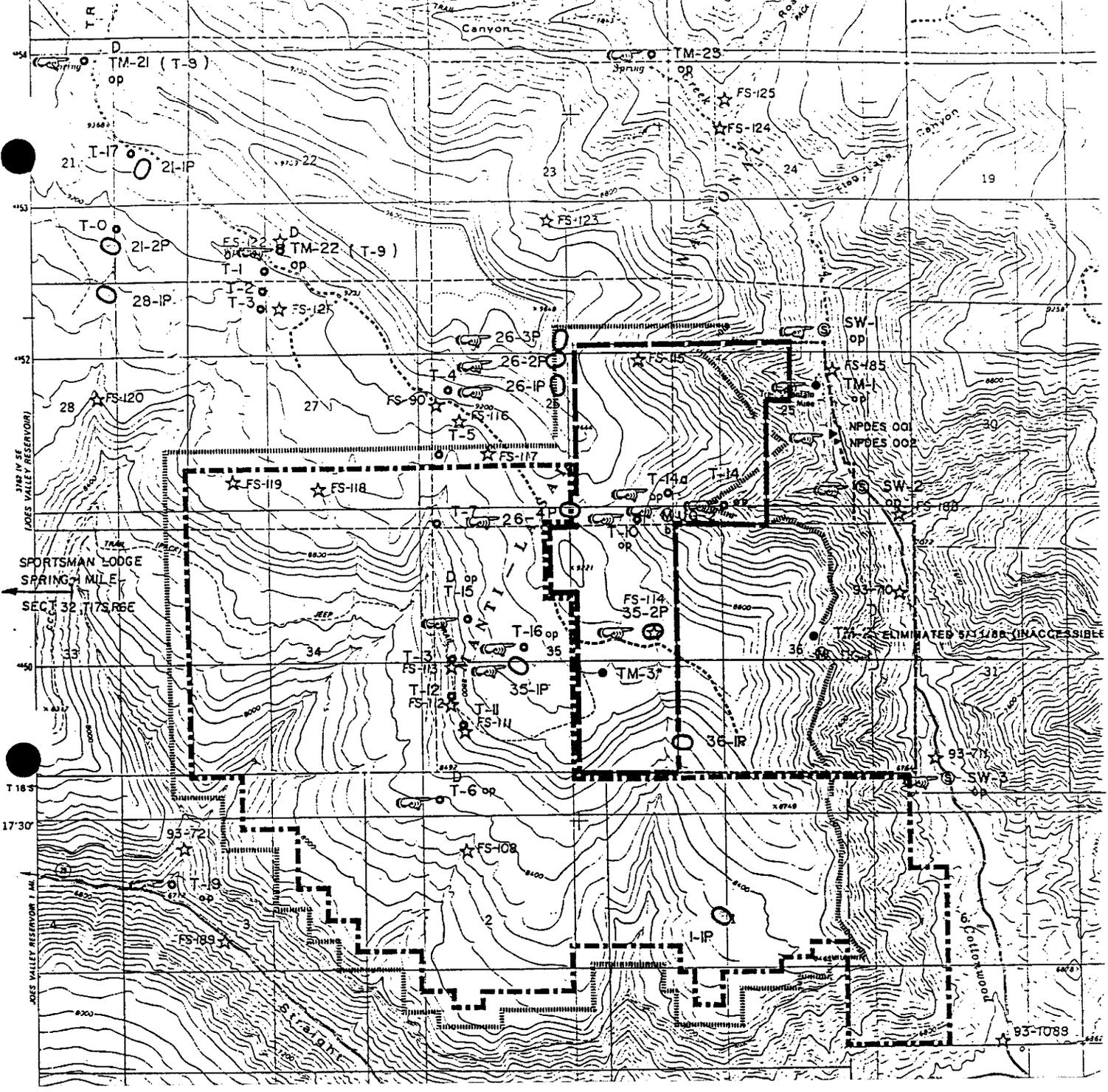
727. Alternative Water Source Information

The available source of water, if needed, would come from 20 shares of Cottonwood Creek Water owned by the applicant, Beaver Creek Coal Company. Beaver Creek Coal Company also owns 800 shares of the Huntington-Cleveland Water Rights (page 7-15).

A commitment for the repair or replacement of water rights affected by mining is found on pages 7-14 and 7-15.

728. Probable Hydrologic Consequences (PHC) Determination

The determination of the PHC is found in Section 7.1.5 of the PHC. There has been no indication of increased ground water occurrence from recent drilling in the Federal Lease Tract. There have been no documented impacts from mining on surface water resources. Adequate mitigation plans have been presented in the event



large amounts of ground water are encountered or surface water resources are impacted from subsidence. Current projections of 72.62 gallons per minute of water being produced within the mine is based on estimates of the amount of water discharged during 1990 as documented on page 7-11e of the PAP. The overall occurrence of ground water being encountered within the mine falls in line with the theory that inflows are localized and not of a regional, large aquifer.

731.200 Water Monitoring

731.210 Ground Water Monitoring

The permit application contains a monitoring plan for ground water in Appendix 7-1(L). A commitment has been made to monitoring any water sources not previously identified at the completion of the 1991 water survey. This commitment is found on page 7-13 of the PAP.

However, the applicant needs to submit information to completely identify impacts to deep ground water sources, effects of mining on the Star Point aquifer. Information presented by the applicant indicates that the Star Point aquifer will be contacted during the mining process. A positive hydrostatic head will likely be contacted as the working extend west. Monitoring of the Star Point aquifer should take place to detect any changes in water quality and to identify the any impacts. Monitoring information is needed to identify the cumulative hydrologic impacts for the Star Point aquifer as ground water moves from the mine to locations off site. Therefore, special condition R614-301-731.200 must be addressed for the applicant to be in compliance.

731.220 Surface Water Monitoring

The surface water monitoring plan is presented in Appendix 7-1(L). This plan is in compliance with Division guidelines regarding parameters and frequency of monitoring. Any new surface water sources identified in 1991 water survey will be added to the monitoring plan.

Special Condition, R614-301-731.200 Water Monitoring

The applicant must monitor quality and quantity of the Star Point aquifer at a point where the flow in the aquifer leaves the permit area. The most likely place to develop this monitoring site is in the area near DH-5 (Figure 6-4). The applicant will be required to develop a well to monitor aquifer parameters, seasonal fluctuation, mining influence and hydrologic tests. The applicant will be required to construct the monitoring well within 90 days of permit approval. This information is requested in

accordance with the requirements for water monitoring regulations R614-301-731.200 through R614-301-731.215.

731.300 Acid- and Toxic-Forming Materials (HS)

The permittee has committed to regularly sample roof and floor material to determine its acid- and toxic-forming potential. Analysis will include taking samples at intervals not to exceed 2000' along the main entries and in at least one panel entry. Samples will be bagged and analyzed in accordance with the Division Guidelines for the Management of Topsoil and Overburden, Table 6 (page 6-12).

Previous analysis of roof, floor and midseam material may be located in Tables 6-2, 6-3 and in Appendix 6-2. Results indicate (2nd Left-Floor) an acid-forming potential of -81.7 Tons CaCO_3 /1000 Tons Material. This is unacceptable when compared with Division criteria for acid forming potential (i.e., -5 Tons CaCO_3 /1000 Tons Material, Division Guidelines for the Management of Topsoil and Overburden, Table 2). Underground waste rock material will be backstowed in the mine or trucked to the Castle Valley Spur Loadout Facility (Refer to C.V. Spur PAP). Backstowed material emanating from areas having acid- and/or toxic-forming roof and floor material, will be sampled further to determine its acid- and/or toxic-forming potentials.

The acid-forming floor material (Hiawatha Bed) will be closely monitored in the future. Continued roof and floor analysis and in mine water monitoring must proceed to determine the extent and impact of this material on the ground water resource.

COMPLIANCE:

The applicant is in compliance with sections of R614-301-700, except R614-301-731.200 through R614-301-731.215 (Special Condition).

jbe
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CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Beaver Creek Coal Company
Trail Mountain #9 Mine
ACT/015/009

(Federal Lease Tract)
Emery County, Utah
April 15, 1991

APR 17 1991

I. INTRODUCTION

The purpose of this report is to provide a Cumulative Hydrologic Impact Assessment (CHIA) for the Trail Mountain #9 Mine located in Emery County, Utah. The 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 (UCA 40-10-1 et seq.) and the attendant State Program rules.

Beaver Creek Coal Company's Trail Mountain #9 Mine is located along the eastern margin of the Wasatch Plateau Coal Field, approximately 12 miles west of Orangeville, 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 the higher elevations to less than 10 inches at lower elevations. The area encompassed by the Wasatch Plateau may be classified as semi-arid to sub-humid.

GEOLOGY

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

VEGETATION

Vegetation varies from the sagebrush/grass community type at lower elevations to the Douglas fir/aspen community at higher elevations. Other vegetative communities include mountain brush, pinyon-juniper, pinyon-juniper/sagebrush and riparian. These communities are primarily used for wildlife habitat and livestock grazing.

HYDROLOGY

Cottonwood Creek which flows past the Trail Mountain #9 Mine is a perennial tributary to the San Rafael River. The Cottonwood Creek drainage basin encompasses about 205 square miles of mountainous country in the Wasatch Plateau. About 90 percent of the area is higher than 8,000 feet. The average channel gradient along Cottonwood Creek is about 300 feet per mile. The lower reaches of the tributaries to Cottonwood Creek typically have surface relief between the stream channel and tops of adjacent canyon walls of 2,000 feet or more.

II. CUMULATIVE IMPACT AREA (CIA)

Figure 2 delineates the CIA for current and projected Trail Mountain #9 Mine operations. The CIA includes Cottonwood Creek, two intermittent and several ephemeral drainages. The CIA encompasses approximately 14,507 acres.

III. SCOPE OF MINING

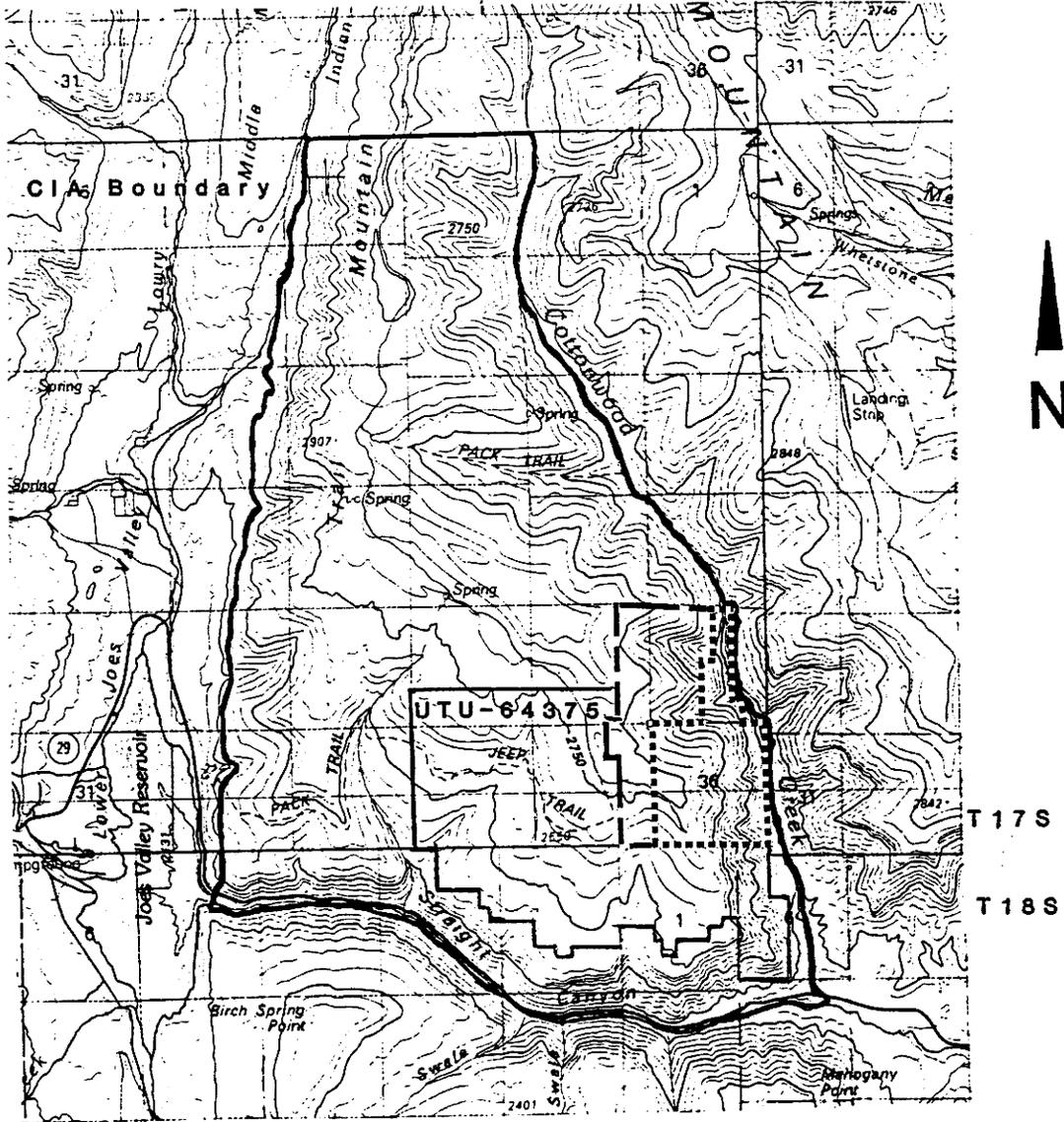
Mining on Trail Mountain was initiated around 1898 at the Oliphant Mine and Black Diamond Mine. These mines have been shut down since the late 1940's. Portals were sealed by the Utah Abandoned Mine Reclamation Program in 1983. Both mines are located in Straight Canyon; no further mining is anticipated in this area due to U.S. Forest Service designation of Straight Canyon as a protected area.

Mining at or near the Trail Mountain Mine began in 1898 (Doelling, 1972). Large scale operations started in 1909. Mining continued up to 1967 when the mine was shut down for 10 years (Cottonwood CHIA). The mine was reopened and is currently owned by Beaver Creek Coal Company.

The Trail Mountain #9 Mine permit area encompasses 4045.78 acres of which the Federal Lease addition is 2630.81 acres. The surface disturbance associated with this mine is approximately 8 acres.

Mining will take place in the Hiawatha coal seam. It is the only coal seam within the permit area of economic interest. The Coal Seam ranges from 7' to 13' thick. Production will be from room and pillar methods using continuous mining equipment.

R 6 E R 7 E



SCALE 1:100 000
 1 CENTIMETER ON THE MAP REPRESENTS 1 KILOMETER ON THE GROUND
 CONTOUR INTERVAL 50 METERS
 SUPPLEMENTARY CONTOUR INTERVAL 25 METERS

- FEDERAL LEASE UTU-64375 ———
- TRACT 1 PERMIT AREA (dotted line)
- TRACT 2 PERMIT AREA - - - (dashed line)

FIGURE 2. CUMULATIVE IMPACT AREA (C.I.A.)

Double pass or pillar extraction may be used on retreat to maximize coal recovery. Subsidence control monuments will be established to detect the effects of mining induced subsidence. A map identifying subsidence monitoring locations is seen in Figure 12-6 of the Permit Application Package (PAP).

IV. STUDY AREA

Lithostratigraphic units outcropping within the study area include, from oldest to youngest, the Mancos Shale, Blackhawk Formation, Castlegate Sandstone, Price River Formation, North Horn Formation, Flagstaff Limestone and Quaternary deposits. Lithologic descriptions and unit thicknesses are given in Figure 3.

Rocks in the study area strike northwest and dip from two to four degrees to the southwest. The Joe's Valley Fault occurs along the western boundary of the CIA, where an estimated 2,300 feet of vertical displacement has juxtaposed North Horn Formation (west) against Blackhawk Formation (east). The Straight Canyon Syncline axis trends and plunges southwest across the central portion of the CIA, immediately north and west of the Tract 1 and Tract 2 permit areas (Figure 4).

TOPOGRAPHY AND PRECIPITATION

Topography ranges from less than 6,800 feet to over 9,000 feet in the southern and northern portions of the CIA, respectively.

The CIA is characterized by a southerly drainage system of perennial, intermittent and ephemeral streams (Figure 5). The North Fork of Cottonwood Creek is perennial and has headwaters above 9,000 feet. Straight Canyon maintains perennial flow due to Joes Valley Reservoir.

Average annual precipitation ranges from 14 inches to 30 inches in the CIA. The Wasatch Plateau may be classified as semi-arid to sub-humid.

Slopes in the permit and adjacent areas are dominated by the pinyon-juniper vegetative community with the conifer types present on north and west facing slopes at higher elevations. Grassland types are interspersed on knolls and benches of upper slopes and ridgetops. Canyon bottoms are covered by sagebrush vegetation types with riparian vegetation occurring as a narrow band along the streams.

V. HYDROLOGIC RESOURCES

GROUND WATER

The groundwater regime within the CIA is dependent upon climactic and geologic parameters that establish systems of recharge, movement and discharge.

System	Series	Geologic unit	Thickness (feet)	Lithology and water-bearing characteristics
Quaternary	Holocene and Pleistocene	Unconsolidated deposits undifferentiated	0-100	Unconsolidated deposits; clay, silt, sand, gravel, and boulders; yields water to springs that may cease to flow in late summer.
Tertiary	Eocene and Paleocene	Flagstaff Limestone	10-300	Light-gray, dense, cherty, lacustrine limestone with some interbedded thin gray and green-gray shale; light-red or pink calcareous siltstone at base in some places; yields water to many springs. (See table 9.)
	Paleocene	North Horn Formation	800±	Variiegated shale and mudstone with interbeds of tan-to-gray sandstone; all of fluvial and lacustrine origin; yields water to springs. (See table 9.)
Cretaceous	Upper Cretaceous	Price River Formation	600-700	Gray-to-brown, fine-to-coarse, and conglomeratic fluvial sandstone with thin beds of gray shale; yields water to springs locally.
		Castlegate Sandstone	150-250	Tan-to-brown fluvial sandstone and conglomerate; forms cliffs in most exposures; yields water to springs locally.
		Blackhawk Formation	600-700	Tan-to-gray discontinuous sandstone and gray carbonaceous shales with coal beds; all of marginal marine and paludal origin; locally scour-and-fill deposits of fluvial sandstone within less permeable sediments; yields water to springs and coal mines, mainly where fractured or jointed.
		Star Point Sandstone	350-450	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.
		Masuk Member of the Mancos Shale	600-800	Dark-gray marine shale with thin, discontinuous layers of gray limestone and sandstone; yields water to springs locally.

Figure 3. Stratigraphy of the Trail Mountain Area (From Danielson and Sylla, 1983).

Snowmelt at higher elevations provides most of the ground water recharge, particularly where permeable lithologies or faults/fractures 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.

Ground water is present in all lithostratigraphic units that occur within and adjacent conditions (Figure 6) that often form a system of perched aquifers and associated springs and/or seeps. The U.S. Geological Survey (USGS) has identified and formally designated the Blackhawk-Star Point aquifer as the only regional ground water resource in the study area (Danielson, et al 1981 and Lines, 1984).

A total of 16 boreholes have been drilled within the CIA (Figure 3). Two boreholes (TM-1 and TM-2) were completed for the purpose of evaluating ground water resources. The fourteen (14) remaining boreholes were drilled to the west of the permit area by the U.S. Geological Survey for the purposes of assessing coal (Davis and Doelling, 1977) and ground water (Lines, 1985) resources.

TM-1 (Figure 7) penetrated the Star Point-Blackhawk aquifer as well as the Mancos Shale below the Star Point-Blackhawk aquifer. Figure 7 incorporates water-level data from TM-1, TM-2 and Lines (1985) to derive a potentiometric surface contour map for the Blackhawk-Star Point aquifer. The slope, from 7,700 to 7,100 feet, indicates a north to south direction of regional ground water flow. The hydraulically flat gradient in the permit area (Figure 7) suggests that the aquifer is being drained by Cottonwood Creek.

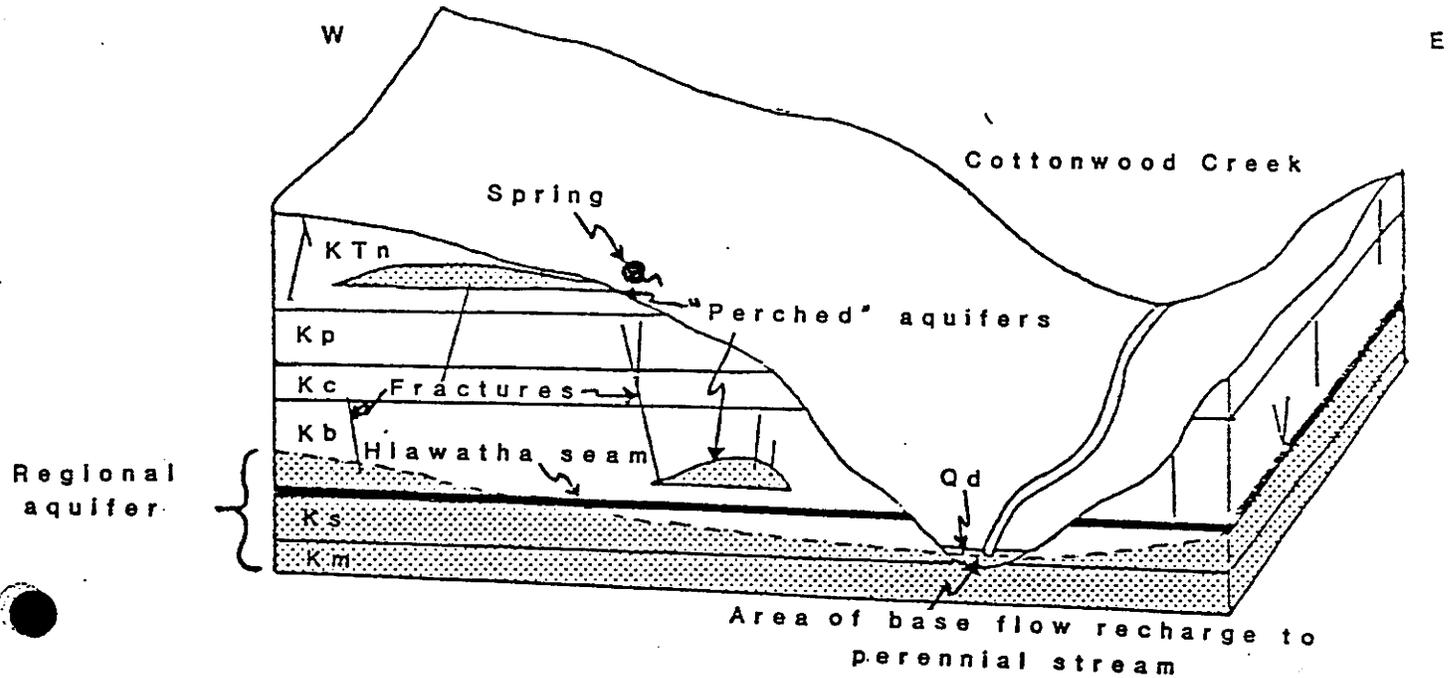
Lines (1985) conducted a testing on the regional aquifer and the results were simulated in a finite difference three-dimensional computer model. Several responses of the ground water resource to mine dewatering activities were generated. Lines concluded that mine inflows could be several hundred gallons per minute (gpm). In the Trail Mountain #9 Mine Probable Hydrologic Consequence (PHC), using acceptable methodologies, the applicant stated that mine inflows would range between 70 and 165 gpm. The resulting cone of depression would extend 2 miles to the north and south of the mine, and 5 miles to the east and west of the mine. The majority of mine inflow would be from aquifer storage (Lines, 1985). Several "perched" aquifer systems, or zones, are present in the CIA, most prevalently in the North Horn Formation. Approximately 80 percent of the identified springs in the CIA issue from the North Horn Formation. Water moves vertically through the permeable sandstone lenses of the North Horn Formation until intersecting less permeable shale lenses, whereupon water will begin to move in the horizontal direction and may discharge to the surface as a spring.

"Perched" aquifer zones and the Blackhawk-Star Point aquifer are separated by 1,000 to 1,700 feet of interburden. Lines (1985) noted that although there was a

Lithologic Key

- Qd-Quaternary deposits
- KTn-North Horn Formation
- Kp-Price River Formation
- Kc-Castlegate Sandstone
- Kb-Blackhawk Formation
- Ks-Star Point Sandstone
- Km-Mancos Shale

A. Before Mining.



B. After Mining.

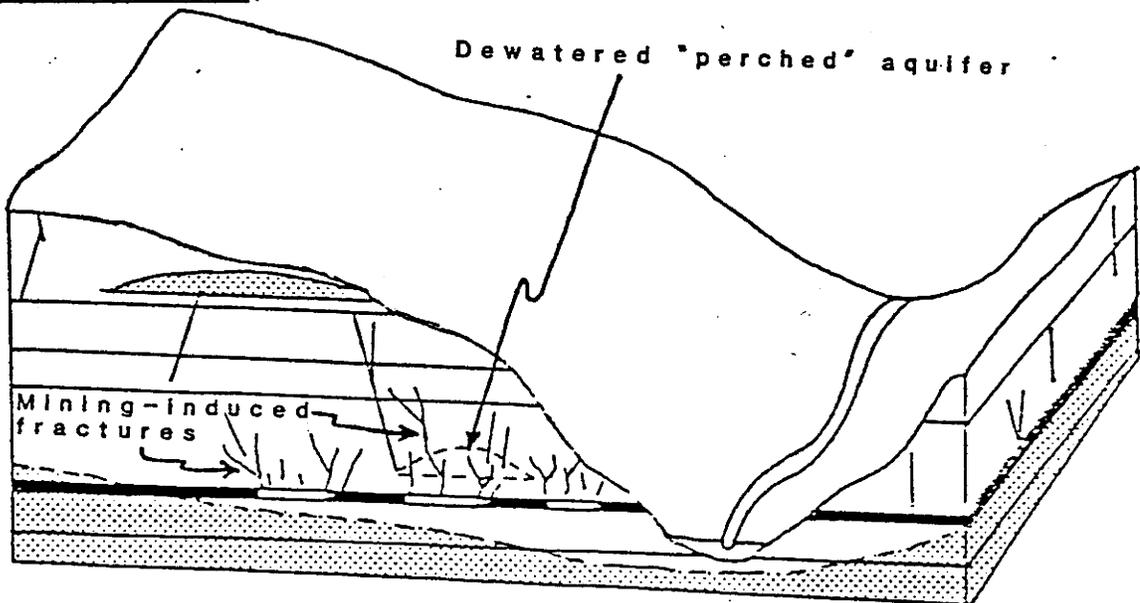


Figure 6. Conceptual Representation of Mining-induced Impacts to the Ground-Water Regime (Modified from Lines, 1985).

significant amount of interburden between aquifers, hydraulic connection occurs between aquifers. Most of the exchange of water probably occurs along fractures in perching beds where there is unsaturated flow downward (Lines, 1985). This leakage is a significant source of recharge to the Blackhawk-Star Point aquifer.

Hydraulic and lithologic data presented by Lines (1985) demonstrated large variations in porosity and hydraulic conductivity for the Blackhawk-Star Point aquifer. The Blackhawk Formation consists of interfingering lenses of fine grained sandstone, siltstone, and shale, while the Star Point Sandstone is medium-grained sandstone. Hence, the variation in the hydraulic properties of the aquifer.

Lines (1985) reported that snowmelt and rain are the main sources of recharge to the ground water system underlying Trail Mountain. Danielson (1981) reported that snowmelt was the major source of recharge to the Blackhawk-Star Point aquifer.

The Blackhawk-Star Point aquifer discharges along Cottonwood Creek Canyon. Spring flows account for 18 percent of the normal annual precipitation on the outcrop. Approximately half of the Cottonwood Creek base flow is derived from aquifer discharge from Trail Mountain, and the other half from East Mountain.

The head of Straight Canyon is a major discharge point for the Blackhawk-Star Point aquifer (Lines, 1985). Prior to the construction of Joes Valley Reservoir, several large springs emanated from the Blackhawk-Star Point aquifer in the dam site area. Streamflow measurements taken during periods of base flow along Straight Canyon detected no ground water discharge except that coming from the head of the canyon and at an abandoned mine in the canyon.

Danielson et al (1981) and Lines (1985) identify 26 springs on Trail Mountain. Of these, 82 percent (21) occur in the North Horn Formation and the remainder occur in the Blackhawk Formation and Star Point Sandstone. Water quality data indicate that springs associated with the North Horn Formation have slightly elevated calcium, magnesium, and sodium levels, whereas springs that issue from the regional aquifer have increased sulfate and TDS.

At present, mine inflow is estimated to be 72.62 gpm from roof bolts, wall weeps and channel sands in the current permit area. This water is produced from localized perched aquifers.

The operator currently monitors eleven (11) springs, six (6) ponds, one (1) well, two (2) underground sites, and three (3) surface water sites as part of the approved water monitoring plan. Of the eleven springs, nine issue from the Blackhawk Formation, one from the Price River, and one from the Castlegate Sandstone. The mine discharge and in-mine water sources issue from the Blackhawk-Star Point aquifer. One well is completed in the Star Point Sandstone. The six ponds are found in the North Horn formation.

SURFACE WATER

The Trail Mountain #9 Mine is located immediately adjacent to Cottonwood Creek, one of the major tributaries of the San Rafael River. Cottonwood Creek has had an annual flow near Orangeville of 70,700 acre-feet during the period of record that extends intermittently from 1909 through the present (U.S. Geological Survey, 1984). Approximately 50 to 70 percent of streamflow in the mountain streams of the region occurs during May through July (Waddell et al., 1981). Streamflow during this late spring/early summer period is the result of snowmelt runoff.

The quality of water in Cottonwood Creek and other similar streams in the area varies significantly with distance downstream. Waddell et al (1981) found that concentrations of dissolved solids varied from 125 to 375 milligrams per liter in major streams in the region in reaches above major diversions to 1,600 to 4,025 milligrams per liter in reaches below major irrigation diversions and population centers. The major ions at the upper sites were found to be calcium, magnesium, and bicarbonate, whereas sodium and sulfate became more dominant at the lower sites. They attributed these changes to: (1) diversion of water containing low dissolved solids concentrations; (2) subsequent irrigation and return drainage from moderate to highly saline soils; (3) ground water seepage; and (4) inflow of sewage and pollutants from population centers.

Average annual sediment yields within the Cottonwood Creek drainage basin range from approximately 0.1 acre-feet per square mile in the headwaters area to about 3.0 acre-feet per square mile near the confluence with the San Rafael River (Waddell et al., 1981).

The Trail Mountain #9 Mine area is drained entirely by ephemeral and intermittent watersheds. These watersheds are steep (with average slopes often exceeding 50 percent). Channels in the mine plan area are not generally deeply incised.

Surface water quality data collected from Cottonwood Creek by Beaver Creek Coal Company indicate that the dominant ions in Cottonwood Creek near the mine are calcium, magnesium, and bicarbonate. Total dissolved solids concentrations in the stream vary from about 250 to 470 milligrams per liter in the mine area, with the lower concentrations normally occurring during September through January. Total dissolved solid concentrations were plotted for a period of five years (Figure 8). Data were derived at three stations on Cottonwood Creek, SW-1, SW-2, and SW-3 (Figure 5).

Total dissolved solid concentrations (TDS) show consistent variation during base flow periods. During the runoff months (Mar-Jun), TDS concentrations at the three stations diverge to extreme values (Figure 8).

Total suspended solids concentrations in Cottonwood Creek tend to vary inversely with the flow rate, as expected. Concentrations have varied during the period of record from less than 1 milligram per liter to greater than 1,000 milligrams per liter.

Additional discussions concerning the surface water regime of the Cottonwood Creek drainage basin are contained in the Cottonwood CIA.

VI. POTENTIAL HYDROLOGIC IMPACTS

GROUND WATER

Dewatering and subsidence related to mining have the greatest potential for impact ground water resources in the CIA.

Dewatering. Mine inflow is currently estimated to be 72.62 gpm. Most of the inflow is utilized underground for dust suppression. Beaver Creek Coal Company diverts water from Cottonwood Creek occasionally to meet mining equipment requirements.

Mine inflows are expected to increase as mining progresses downdip to the west. The regional aquifer fully saturates the coal seam (Figure 6) in the permit area and future development may result in additional inflow of 70 to 165 gpm for a total inflow of 130 to 220 gpm. A mining-induced cone of depression which could develop and extend, from the center of the mine, 2 miles to the north and south and 5 miles to the east and west. The drawdown of the potentiometric surface would be most detrimental to the north, south, and west, where the bedrock is saturated. Exploration of the new lease tract has not indicated any major underground aquifers or cause to believe large quantities of water will be intercepted.

Upon termination of mining operations, the workings will begin to flood. Total recovery of the intercepted recharge to Cottonwood Creek will begin when the head elevation in the abandoned workings exceeds the water level in the stream adjacent to the Tract 1 permit area. Lines (1985) indicated that most (80 percent) of the mine inflow water would come from storage in the aquifer, whereas 20 percent would be water intercepted from aquifer discharge. Mine inflows would gradually decrease and aquifer discharge would increase as the head in the mine equilibrates. Mine inflows over the equilibrium time would average 0.5 cfs; of this amount Lines estimated that aquifer discharge would be reduced by 0.1 cfs. This would result in an impact of 72 acre-feet of depleted contribution to Cottonwood Creek.

Subsidence. Subsidence impacts are 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, readjust or realignment in the conduit system will inevitably produce changes in increased flow along fractures that have "opened" and diverting flow along

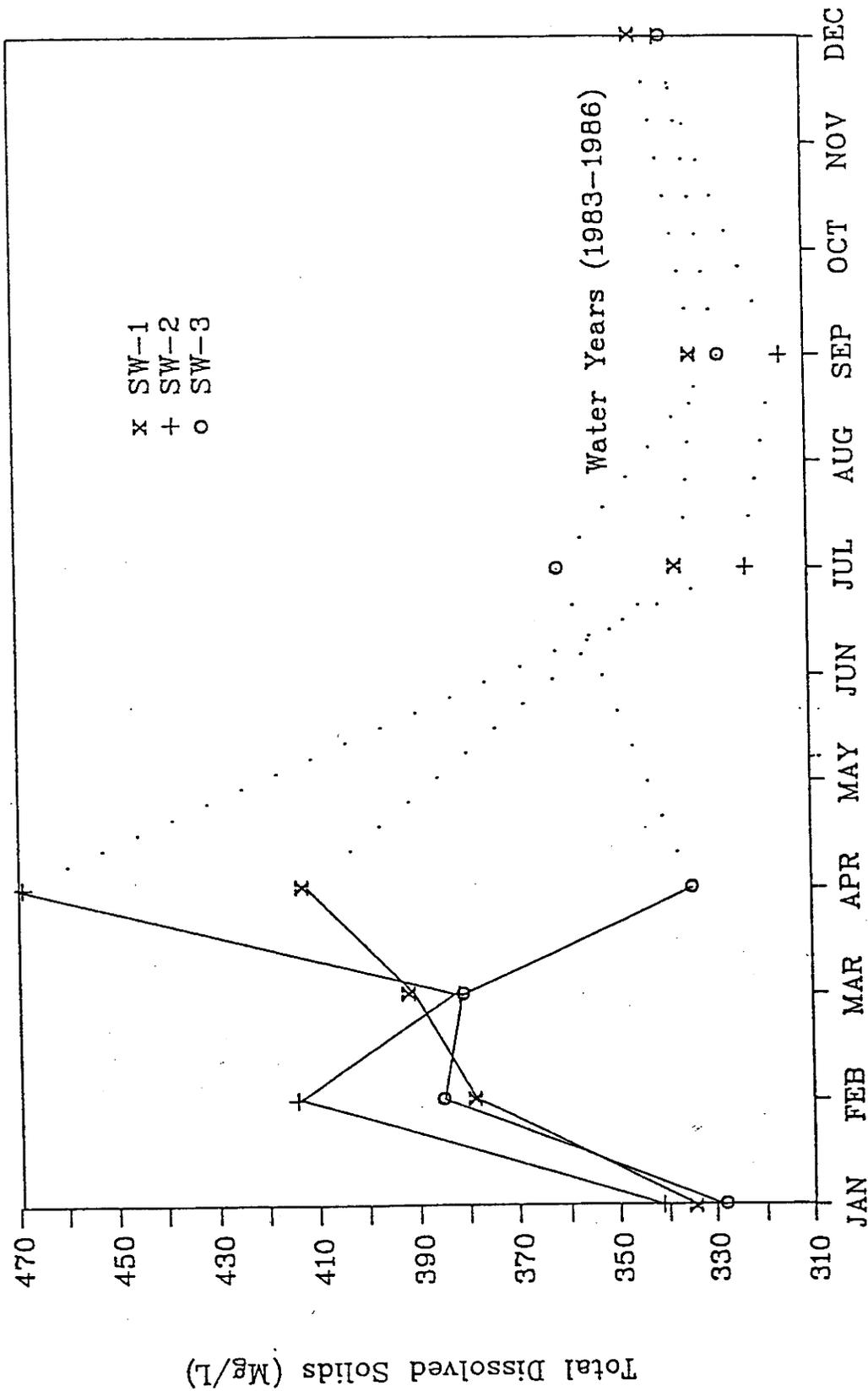


Figure 8. Monthly Mean Values of Total Dissolved Solids from Monitor Stations on Cottonwood Creek. Water Years 1982-1986.

new fractures or permeable lithologies. Subsurface flow diversions may cause the depletion of water in certain localized or "perched" aquifers, whereas increased flow rates along fractures would reduce ground water resistance time and potentially improve water quality.

Subsidence associated with Trail Mountain #9 Mine development is projected to encompass limited vertical movement and be largely confined to the approved permit areas. Accordingly, the ground water regime within the CIA is considered to be at low risk to mining-induced subsidence impacts.

SURFACE WATER

Cottonwood Creek. No new surface facilities (i.e., extended surface disturbance) are planned for the Trail Mountain #9 Mine. Improvements to the surface facilities (paved access road, curb and gutter to sediment pond) should negate impacts to the surface water.

Water is infrequently discharged from the Trail Mountain #9 Mine. Water has been discharged from the mine during periods of low mining activities. The UPDES permit for mine water discharge ensures that the effluent meets the applicable standards.

Future development on Trail Mountain would occur along Cottonwood Creek. Straight Canyon is a Forest Service Withdrawal Area which precludes mining from occurring in Straight Canyon. Beaver Creek Coal Company holds the only federal lease on Trail Mountain requiring diligence. Leasing of federal coal could conceivably occur north of the Trail Mountain #9 Mine, impact from future operations would be dewatering of the aquifer system and minimal surface disturbances. The permitting process will require implementation of sediment control measures and impacts to surface water should be minimized.

VII. SUMMARY

The operational design implemented at the Trail Mountain #9 Mine is herein determined to be consistent with preventing damage to the hydrologic balance outside the mine plan area.

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Waddell, K.M., P.K. Contrati, C.T. Sumsion, and J.R. Butler, 1981. Hydrologic Reconnaissance of the Wasatch Plateau-Book Cliffs Coal-Fields Area, Utah. U.S. Geological Survey Water-Supply Paper 2068.

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FFIDAVIT OF PUBLICATION

STATE OF UTAH)

ss.

County of Carbon,)

APR 17 1991

I, Dan Stockburger, on oath, say that I am the Publisher of 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 on Four (4) consecutive issues, and that the first publication was on the 29th day of January, 1991.

and that the last publication of such notice was in the issue of such newspaper dated the 19th day of February, 1991.

Subscribed and sworn to before me this 19th day of February, 1991.

Holly Jo Crofts
Notary Public.

Commission expires October 22, 1994

Residing at Price, Utah

Publication fee, \$ 124.80

PUBLIC NOTICE FOR LEASE PERMIT APPLICATION

TRAIL MOUNTAIN NO. 9 MINE
BEAVER CREEK COAL COMPANY
P.O. BOX 1378
PRICE, UTAH 84501

BEAVER CREEK COAL COMPANY, P.O. Box 1378, 1305 South Carbon Avenue, Price, Utah 84501, a wholly owned subsidiary of Atlantic Richfield Company, has filed with the Utah Division of Oil, Gas and Mining, an application for modification of its Mining and Reclamation Plan Permit to include the new Federal Lease No. U-64375 for its Trail Mountain No. 9 Mine.

This plan has now been determined completely by the Division. The Trail Mountain No. 9 Mine is located in Cottonwood Canyon, approximately 45 miles south of Price, Utah. The new lease area is described as follows:

T. 17 S., R. 6 E., SLM, Section 26: S/4 SW/4, W/4 SW/4 SE/4; Section 27: S/4 S/4; Section 34: all; Section 35: lots 3 and 4, W/4 SW/4 NE/4, S/4 NW/4, SW/4, W/4 W/4 SE/4.

T. 18 S., R. 6 E., SLM, Section 1: lots 1 thru 8, S/4 N/4, E/4 NE/4 SW/4, E/4 NW/4 NE/4 SW/4, N/4 NW/4 NE/4 SE/4, N/4 NW/4 SE/4; Section 2: lots 1 thru 8, S/4 N/4, N/4 NE/4 SW/4, N/4 SW/4 NE/4 SW/4, SE/4 NE/4 SW/4, NW/4 NE/4 SE/4; N/4 SW/4 NE/4 SE/4, N/4 NW/4 SE/4, N/4 S/4 NW/4 SE/4; Section 3: lots 1, 2, and 8, NE/4 SE/4 NE/4.

T. 18 S., R. 7 E., SLM, Section 6: lots 4 thru 7, W/4 SE/4 NW/4, W/4 E/4 SW/4. containing 2,630.81 acres more or less.

The permit area is located on the Mahogany Point, Utah, U.S. Geological survey 7.5 minute quadrangle map.

Federal Coal Leases are U-49332, U-64375 and U-08296, and State of Utah lease is ML-22603.

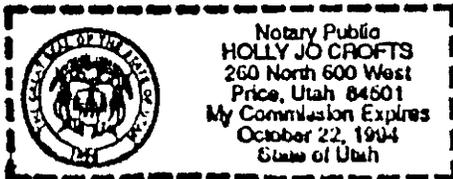
The Trail Mountain No. 9 Mine has been in operation under present design since 1976, and is operated under permit ACT/015/009, issued 2/21/90.

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 Emery County Courthouse, Castle Dale, Utah 84513.

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 and Mining, 355 West North Temple #3 Triad Center Suite 350, Salt Lake City, Utah 84180-1203.

Published in the Sun Advocate January 29, February 5, 12 and 19, 1991.



AFFIDAVIT OF PUBLICATION

APR 17 1991

STATE OF UTAH)
ss.
County of Emery,)

I, Dan Stockburger, on oath, say that I am the Publisher of the
The Emery County Progress, a weekly newspaper of general cir-
ulation, published at Castle Dale, State and County aforesaid,
nd that a certain notice, a true copy of which is hereto attached,
was published in the full issue of such newspaper
or.....consecutive issues, and that the first
ublication was on the

29th day of January, 19 91

last publication of such notice was in the issue of such
ewspaper dated the

19th day of February, 19 91

[Signature]

Subscribed and sworn to before me this

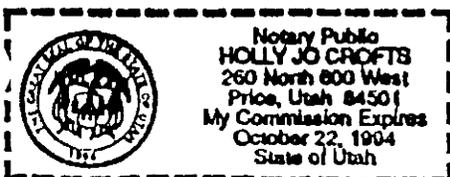
19th day of February, 19 91

[Signature]
Notary Public.

Commission expires October 22, 1994

Residing at Price, Utah

Publication fee, \$ 124.80



PUBLIC NOTICE FOR LEASE PERMIT APPLICATION
TRAIL MOUNTAIN NO. 9 MINE
BEAVER CREEK COAL COMPANY
P.O. BOX 1378
PRICE, UTAH 84501

BEAVER CREEK COAL COMPANY, P.O. Box 1378, 1305
South Carbon Avenue, Price, Utah 84501, a wholly owned
subsidiary of Atlantic Richfield Company, has filed with the
Utah Division of Oil, Gas and Mining, an application for mod-
ification of its Mining and Reclamation Plan Permit to
include the new Federal Lease No. U-64375 for its Trail
Mountain No. 9 Mine.

This plan has now been determined complete by the Divi-
sion. The Trail Mountain No. 9 Mine is located in Cottonwood
Canyon, approximately 45 miles south of Price, Utah. The
new lease area is described as follows:

T. 17 S., R. 6 E., SLM, Section 26: S 1/2 SW 1/4, W 1/2
SW 1/4 SE 1/4; Section 27: S 1/2 S 1/4; Section 34: all; Section 35:
lots 3 and 4, W 1/2 SW 1/4 NE 1/4, S 1/2 NW 1/4, SW 1/4,
W 1/2 W 1/4 SE 1/4.

T. 18 S., R. 6 E., SLM, Section 1: lots 1 thru 8, S 1/2 N 1/4,
E 1/2 NE 1/4 SW 1/4, E 1/2 NW 1/4 NE 1/4 SW 1/4,
N 1/2 NW 1/4 NE 1/4 SE 1/4, N 1/2 NW 1/4 SE 1/4; Section 2: lots 1 thru
8, S 1/2 N 1/4, N 1/2 NE 1/4 SW 1/4, N 1/2 SW 1/4 NE 1/4 SW 1/4,
SE 1/4 NE 1/4 SW 1/4, NW 1/4 NE 1/4 SE 1/4; N 1/2 SW 1/4 NE 1/4 SE 1/4,
N 1/2 NW 1/4 SE 1/4, N 1/2 S 1/4 NW 1/4 SE 1/4; Section 3: lots 1, 2, and
8, NE 1/4 SE 1/4 NE 1/4.

T. 18 S., R. 7 E., SLM, Section 6: lots 4 thru 7,
W 1/2 SE 1/4 NW 1/4, W 1/2 E 1/4 SW 1/4.
containing 2,630.81 acres more or less.

The permit area is located on the Mahogany Point, Utah,
U.S. Geological survey 7.5 minute quadrangle map.

Federal Coal Leases are U-49332, U-64375 and U-08296,
and State of Utah lease is ML-22603.

The Trail Mountain No. 9 Mine has been in operation
under present design since 1976, and is operated under per-
mit ACT/015/009, issued 2/21/90.

The application was filed, and this notice is being pub-
lished to comply with the Surface Mining Control and Recla-
mation Act of 1977 and State and Federal regulations prom-
ulgated pursuant to said act.

The application is available for public inspection at the
Emery County Courthouse, Castle Dale, Utah 84513.

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
and Mining, 355 West North Temple #3 Triad Center Suite
350, Salt Lake City, Utah 84180-1203.

Published in the Emery County Progress January 29,
February 5, 12 and 19, 1991.

Revised August 1988
RECLAMATION AGREEMENT

Permit Number ACT/015/009
Date Permit Issued _____
Effective Date of Agreement _____

RECEIVED
FEB 12 1990

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

DIVISION OF
OIL, GAS & MINING

APR 17 1991

COAL RECLAMATION AGREEMENT
--oo00oo--

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

"PERMIT" (Mine Permit No.) ACT/015/009 (County) Emery

"MINE" (Name of Mine) Trail Mountain No. 9 Mine

"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
A.J. Gaudielle, Operations Manager

"BOND TYPE" (Form of Bond) Surety
"BOND" (Bond Amount-Dollars) \$463,711
(Year-Dollars) 1989

INSTITUTION United Pacific Insurance Company
POLICY OR ACCOUNT NUMBER U-630513

"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"	_____	_____	_____

RECLAMATION AGREEMENT

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

WHEREAS, on February 27, _____, 19 90, the Division approved the Permit Application Package, hereinafter "PAP", submitted by Beaver Creek Coal Company _____, 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.

RECLAMATION AGREEMENT

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.

RECLAMATION AGREEMENT

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.

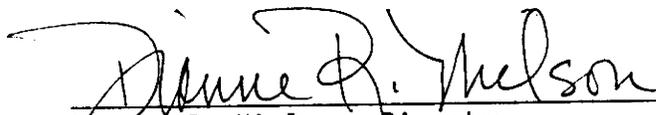
RECLAMATION AGREEMENT

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 21st day of February, 19 90

STATE OF UTAH:

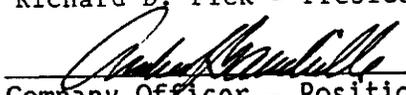


Dianne R. Nielson, Director
Division of Oil, Gas and Mining

OPERATOR:



Company Officer - Position
Richard D. Pick - President



Company Officer - Position
Andy J. Gaudielle - Operations Manager

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

Exhibit "A" - SURFACE DISTURBANCE
August 1988

Permit Number ACT/015/009
Effective Date _____

SURFACE DISTURBANCE
--oo00oo--

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 8.8 acres (more or less)

Legal Description of SURFACE DISTURBANCE:

8.8 acres in the SW $\frac{1}{4}$ NE $\frac{1}{4}$, Section 25,
Township 17 South, Range 6 East, S.L.B. & M.

EXHIBIT "B"
SURETY BOND
(FEDERAL COAL)

SURETY BOND NO. U-632958
PREMIUM: \$2,203.00
LOCATION: BEAVER CREEK COAL COMPANY
TRAIL MOUNTAIN #9 MINE
ACT/015/009, FOLDER #4
EMERY COUNTY, UTAH

August 1988
Exhibit "B" - BONDING AGREEMENT
SURETY BOND

Permit Number ACT/015/009
Expiration Date Continuous until
Cancelled by the
Div. of Oil, Gas
and Mining.

(FEDERAL COAL)
SURETY BOND
--oo00oo--

THIS SURETY BOND entered into and by and between the undersigned OPERATOR, and SURETY COMPANY, 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 Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE) in the penal sum of (\$ 463,711.00) (Surety Bond Amount) for the timely performance of reclamation responsibilities of the surface disturbance described in Exhibit "A" of this Reclamation Agreement.

This SURETY BOND shall remain in effect until all applicable rules and the OPERATOR's reclamation obligation have been met and released by the Division of Oil, Gas and Mining.

Terms for release or adjustment of this BOND are as written and agreed to by the DIVISION and the OPERATOR in the RECLAMATION AGREEMENT incorporated by reference herein, to which this SURETY AGREEMENT has been attached as Exhibit "B".

August 1988
Exhibit "B" - BONDING AGREEMENT
SURETY BOND

So agreed this 5TH day of MARCH, 19 90.

FOR THE OPERATOR:

BEAVER CREEK COAL COMPANY

By: [Signature]
Operator (Company)
Andy J. Guadielle - Operations Manager

By: [Signature]
Company Officer - Position
Richard D. Pick - President

FOR THE SURETY COMPANY:

UNITED PACIFIC INSURANCE COMPANY

Surety (Company)

By: [Signature]
Company Officer - Position
KENNETH R. ROBSON, ATTORNEY-IN-FACT

ACCEPTED BY THE STATE OF UTAH:

[Signature]
Director - Division of Oil, Gas and Mining

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.

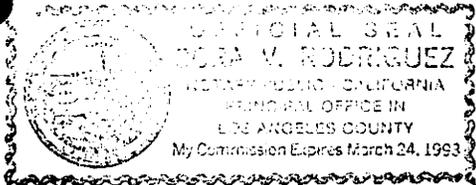
**CALIFORNIA
ACKNOWLEDGEMENT BY SURETY**

STATE OF CALIFORNIA
COUNTY OF LOS ANGELES } ss.

On this 5TH day of MARCH in the year 19 90, before me CORA V. RODRIGUEZ personally

appeared KENNETH R. ROBSON,
personally known to me (or proved to me on the basis of satisfactory evidence) to be the person who executed the within

strument as attorney-in-fact of UNITED PACIFIC INSURANCE COMPANY
acknowledged to me that the corporation executed it.



[Signature]
Notary Public

UNITED PACIFIC INSURANCE COMPANY

HEAD OFFICE, FEDERAL WAY, WASHINGTON

POWER OF ATTORNEY

ALL 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

KENNETH R. ROBSON of LOS ANGELES, CALIFORNIA -----

his true and lawful Attorney-in-Fact, to make, execute, seal and deliver for and on his 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 certify the same in accordance with the provisions of the By Laws of the Company or any article or section thereof.

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, 1978, at which a quorum was present, and said Resolution has not been amended or altered.

"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 11th day of August 19 87



UNITED PACIFIC INSURANCE COMPANY

Lawrence W. Carlstrom
Vice President

STATE OF Washington
COUNTY OF King } m.

On this 11th day of August 19 87 personally appeared Lawrence W. Carlstrom

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.

My Commission Expires:

May 15 19 90



Pamela Young
Notary Public in and for State of Washington
Residing at Tacoma

John E. Vance

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 5TH day of MARCH 19 90



Assistant Secretary *John E. Vance*
John E. Vance

EXHIBIT "C"
LIABILITY INSURANCE

Revised November, 1987.

CERTIFICATE OF LIABILITY INSURANCE

Issued to:
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
--oo00oo--

THIS IS TO CERTIFY THAT:

Insurance Company of North America

(Name of Insurance Company)

1600 Arch Street, Philadelphia, PA 19101

(Home Office Address of Insurance Company)

HAS ISSUED TO:

BEAVER CREEK COAL CO.

(Name of Permit Applicant)

TRAIL MOUNTAIN No.9 MINE

(Mine Name)

ACT/015/009

(Permit Number)

CERTIFICATE OF INSURANCE:

HDO GO 969065-7

(Policy Number)

1-1-88

(Effective Date)

UNDER THE FOLLOWING TERMS AND CONDITIONS:

As Per UMC/SMC Part 800.60 Terms and Conditions for Liability Insurance;

- A. The Division shall require the applicant to submit as part of its permit application a certificate issued by an insurance company authorized to do business in the state of Utah certifying that the applicant has a public liability insurance policy in force for the surface coal mining and reclamation operations for which the permit is sought. Such policy shall provide for personal injury and property damage protection in an amount adequate to compensate any persons injured or property damaged as a result of the surface coal mining and reclamation operations, including the use of explosives and who are entitled to compensation under the applicable provisions of state law. Minimum insurance coverage for bodily injury and property damage shall be \$300,000 for each occurrence and \$500,000 aggregate.
- B. The policy shall be maintained in full force during the life of the permit or any renewal thereof, including the liability period necessary to complete all reclamation operations under this chapter.

AFFIDAVITS OF QUALIFICATION

(pp. 12-13 are insurance forms)

August 1988

AFFIDAVIT OF QUALIFICATION
OPERATOR
--oo0oo--

I, Richard D. Pick, being first duly sworn under oath, deposes and says that he/she is the (officer or agent) President of Beaver Creek Coal Company; 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.

(Signed) *Richard D. Pick*
Name - Position

Subscribed and sworn to before me this 8th day of February, 1990.

Quinn Higgins
Notary Public

My Commission Expires:
4/1/93, 19 .

Attest:
STATE OF *Utah*)
COUNTY OF *Carbon*) ss: