

MINING PLAN DECISION DOCUMENT

PacifiCorp

Deer Creek Mine

Federal Leases U-024317, U-06039, U-2180, and SL-051221

Emery County, Utah



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

Prepared August 1997

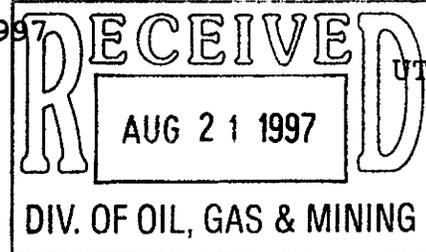


IN REPLY REFER TO:

United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

August 18, 1997



Mr. Blake Webster
PacifiCorp
201 South Main, Suite 2100
Salt Lake City, UT 84140-0021

Dear Mr. Webster:

On August 12, 1997, the Department of the Interior approved the mining plan action for Federal leases U-024317, U-06039, U-2180, and SL-051221 at PacifiCorp's Deer Creek (North Rilda lease) Mine.

I have enclosed a copy of the mining plan approval document for this mining plan action. Please read the terms and conditions of the mining plan approval document carefully. Mining and reclamation operations must be conducted in accordance with both the Utah state permit and the approved mining plan.

This approval allows you to mine approximately 20 million tons of leased Federal coal from 1,520 acres in Federal leases U-024317, U-06039, U-2180, and SL-051221.

If you have any questions, please contact me at (303) 844-1489.

Sincerely,

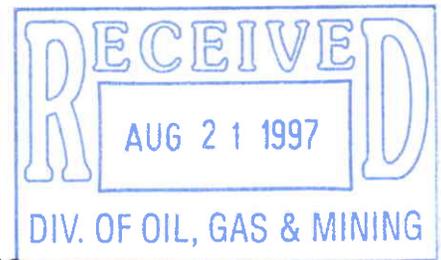
Ranvir Singh
Ranvir Singh, P.E.
Federal Lands Team
Program Support Division

Enclosure

cc:
BLM Moab District, Price River/San Rafael Resource Area
Utah Division of Oil, Gas and Mining

ACT 1015/018 # 3

At



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Deer Creek (North Rilda Lease) Mine

Federal Leases U-024317, U-06039, U-2180, and SL-051221

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United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

IN REPLY REFER TO:
MEMORANDUM

TO: Director AUG 5 1997

THROUGH: Deputy Director

FROM: *Rich Spindel*
Regional Director
Western Regional Coordinating Center

SUBJECT: Recommendation for Approval with Conditions of the PacifiCorp's Deer Creek (North Rilda Lease) Mine Mining Plan for Federal Leases U-024317, U-06039, U-2180, and SL-051221, Emery County, Utah

I. Action Required

Please sign the attached memorandum to the Assistant Secretary, Land and Minerals Management, if you agree with the recommendation described below. Then forward the attached decision document to the Assistant Secretary for his decision to sign the mining plan approval document. If you are not in agreement with the recommendation, please advise me of your concerns.

II. Recommendation

I recommend approval with conditions of the Deer Creek (North Rilda Lease) Mine mining plan for Federal leases U-024317, U-2180, and SL-051221, and the remaining portion of lease U-06039. This is a new mining plan for Federal leases U-024317, U-2180, and SL-051221, and a mining plan modification for Federal lease U-06039. This mining plan also supplements the Deer Creek mining plans for other Federal leases previously approved on October 11, 1985, January 6, 1993, July 16, 1993, July 29, 1994, July 29, 1994, and December 13, 1994.

My recommendation to approve the Deer Creek (North Rilda Lease) Mine is based on:

- (1) PacifiCorp'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 (BLM) with respect to the resource recovery and protection plan and other requirements of the Federal leases and the Mineral Leasing Act, and

(6) the findings and recommendations of the Utah Division of Oil, Gas and Mining (DOGGM) regarding the PAP and the Utah State program.

The Assistant Secretary's approval of this mining plan will authorize mining of approximately 20 million tons of Federal coal within the approved mining plan area covering approximately 1520 acres within Federal leases U-024317, U-06039, U-2180, and SL-051221, as shown on the map included with this decision document. The U.S.D.A. Forest Service identified, in its July 15, 1997 letter certain elements of PacifiCorp's proposal that require special conditions to comply with Federal laws. Those special conditions relating to the underground mining activities are incorporated into the mining plan approval document. The Forest Service conditions will mitigate the adverse environmental and health and safety effects of potential escarpment failures in the vicinity of Rilda Creek.

III. Background

The Deer Creek underground coal mine is located in Emery County, Utah, 8 miles west of Huntington. The mine has been in operation since 1969. About 93 acres have been affected by surface disturbance to date. The total permitted area of the Deer Creek Mine contains about approximately 18,706 acres, which includes approximately 16,841 acres of Federal lands. Mining is expected to continue for 35 years under Utah Permit No. ACT/015/018 and the approved mining plan.

The original mining plan for the Deer Creek Mine was approved under the Federal lands program on October 11, 1985. PacifiCorp submitted in February 1990, a permit revision application for the 2372-acre Rilda Lease Extension (1732 acres in Federal leases U-7653, U-06039, U-47977, SL-050862 and 640 acres in a State lease). Concerns about subsidence effects on water resources and escarpments in Rilda Canyon resulted in an extended review of the application. In 1993, PacifiCorp encountered unforeseen adverse mining conditions and needed to extend mining operations (the 3rd North Main) into two of the Rilda Lease Extension Federal leases to determine if the proposed mining plan for the Rilda Lease Extension area was feasible. To allow this "exploration" mining, the 120-acre mining plan for Federal leases U-47977 and SL-050862 was approved on January 6, 1993 in conjunction with Utah DOGM's approval of

an incidental boundary change IBC-1.

Adverse mining conditions continued to be encountered resulting in two more incidental boundary changes. The mining plan for Federal leases U-47977 and SL-050862 was modified on July 16, 1993 and July 29, 1994 in conjunction with incidental boundary changes IBC-2 (160 acres) and IBC-3 (40 acres). The mining plan for Federal lease U-06039 (20 acres) was approved on July 29, 1994 in conjunction with Utah DOGM's approval of incidental boundary change IBC-3. With this mining plan action for the remainder of the Rilda Lease Extension, the approved mining plan area for the Deer Creek Mine will contain a total of approximately 16,841 acres.

The underground mining operations utilize longwall mining methods. The Blind Canyon and Hiawatha coal seams are mined at an average production rate of about 3 million tons per year. No additional surface disturbance except that related to mining-induced subsidence will result from this action.

IV. Review Process

The DOGM reviewed the PAP under the Utah State program, the Federal lands program (30 CFR Chapter VII, Subchapter D), and the Utah cooperative agreement (30 CFR S 944.30).

Pursuant to the Utah State program and the cooperative agreement, Utah DOGM approved the PAP and issued the permit on July 16, 1997.

The Office of Surface Mining Reclamation and Enforcement (OSM) has consulted with other Federal agencies for compliance with the requirements of applicable Federal laws. Their comments and/or 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 July 16, 1997.

The U.S. Fish and Wildlife Service provided its consultation under Section 7 of the Endangered Species Act with a "no comments" response in a letter dated March 11, 1997.

The State Historic Preservation Officer (SHPO) determined in letters dated July 8, 1997, that no historic properties will be impacted by the project.

During the review of the PAP, the Forest Service identified concerns about the proposed subsidence of escarpments in Rilda Canyon. The Forest Service and BLM conducted an

extensive analysis of the subsidence effects on the Rilda Canyon escarpments (discussed in the environmental assessment). The U.S.D.A. Forest Service, Manti-La Sal National Forest, conditionally concurred with the proposed mining plan action in letters dated July 3 and 15, 1997. In its letter dated July 15, 1997, the Forest Service required three conditions for its concurrence. PacifiCorp has committed, in the PAP, to comply with these conditions. These conditions have been included in the mining plan approval document.

The permit area is located on Federal lands within the boundaries of the Manti-La Sal National Forest National Forest. However, compliance with the three conditions required by the U.S.D.A. Forest Service, the surface operations and impacts of the Deer Creek 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 National Forest.

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

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 attached to the Finding of No Significant Impact (FONSI) included with the decision document.

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 May 13, 1997. No public comments on the PAP were received after the public notice was published.

Utah DOGM determined that a bond in the amount of \$2,500,000.00 is adequate for the Utah Permit No. ACT/015/018 associated with this mining plan action. The bond is payable to the State and the United States.

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.

OSM's administrative record of this mining plan action consists of the following:

- . the PAP submitted by PacifiCorp and updated through July 15, 1997,
- . DOGM's State decision and findings provided to OSM under the cooperative agreement,
- . the environmental assessment prepared in August 1994 for the coal lease application,
- . the FONSI of the proposed action and alternatives prepared by OSM,
- . other documents prepared by DOGM, and
- . correspondence developed during the review of the PAP.

Attachments



United States Department of the Interior

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

Washington, D.C. 20240

AUG - 8 1997

MEMORANDUM

To: Assistant Secretary, Land and Minerals Management

From: Acting Director *Nancy Marie Glanville*
Office of Surface Mining Reclamation and Enforcement

Subject: Recommendation for Approval of the PacifiCorp's Deer Creek (North Rilda Lease) Mine Mining Plan for Federal Leases U-024317, U-06039, U-2180, and SL-051221, Emery County, Utah

You may approve a mining plan for Federal leases under 30 U.S.C. §§ 207(c) and 1273(c). Please sign the attached mining plan approval document if you agree with the following.

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. Therefore, I recommend approval with conditions of the PacifiCorp's Deer Creek (North Rilda Lease) Mine mining plan for Federal leases U-024317, U-06039, U-2180, and SL-051221 pursuant to the Mineral Leasing Act of 1920, as amended. This is a new mining plan for Federal leases U-024317, U-2180, and SL-051221, and a mining plan modification for Federal lease U-06039. This mining plan also supplements the Deer Creek mining plans for other Federal leases previously approved on October 11, 1985, January 6, 1993, July 16, 1993, July 29, 1994, July 29, 1994, and December 13, 1994.

My recommendation to approve the Deer Creek (North Rilda Lease) Mine mining plan is based on:

- (1) PacifiCorp'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,

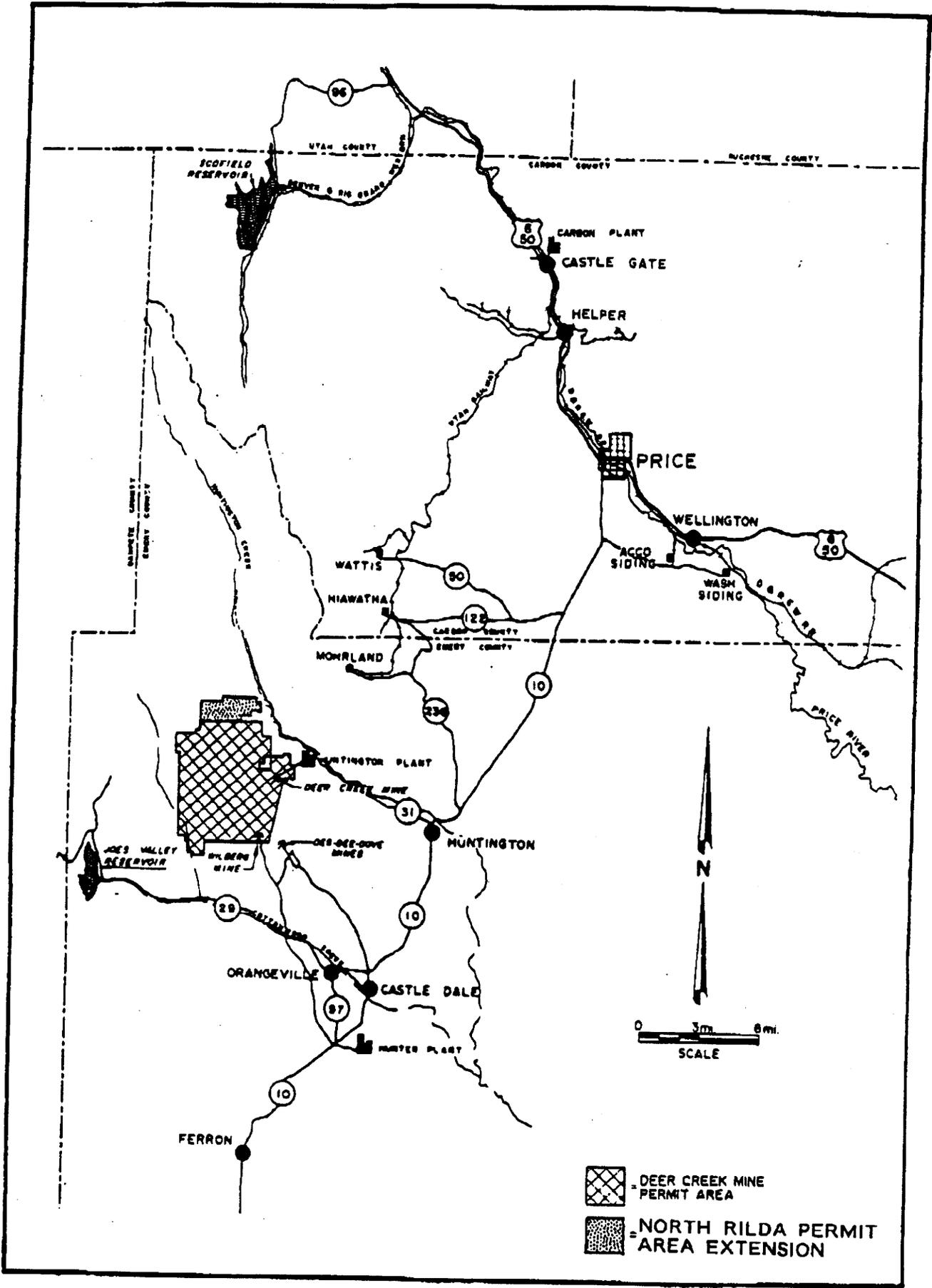
(5)the findings and recommendations of the Bureau of Land Management with respect to the resource recovery and protection plan and other requirements of the Federal leases and the Mineral Leasing Act, and

(6)the findings and recommendations of the Utah Division of Oil, Gas and Mining with respect to the PAP and the Utah State program.

The decision document for the proposed mining plan action is attached.

Attachment

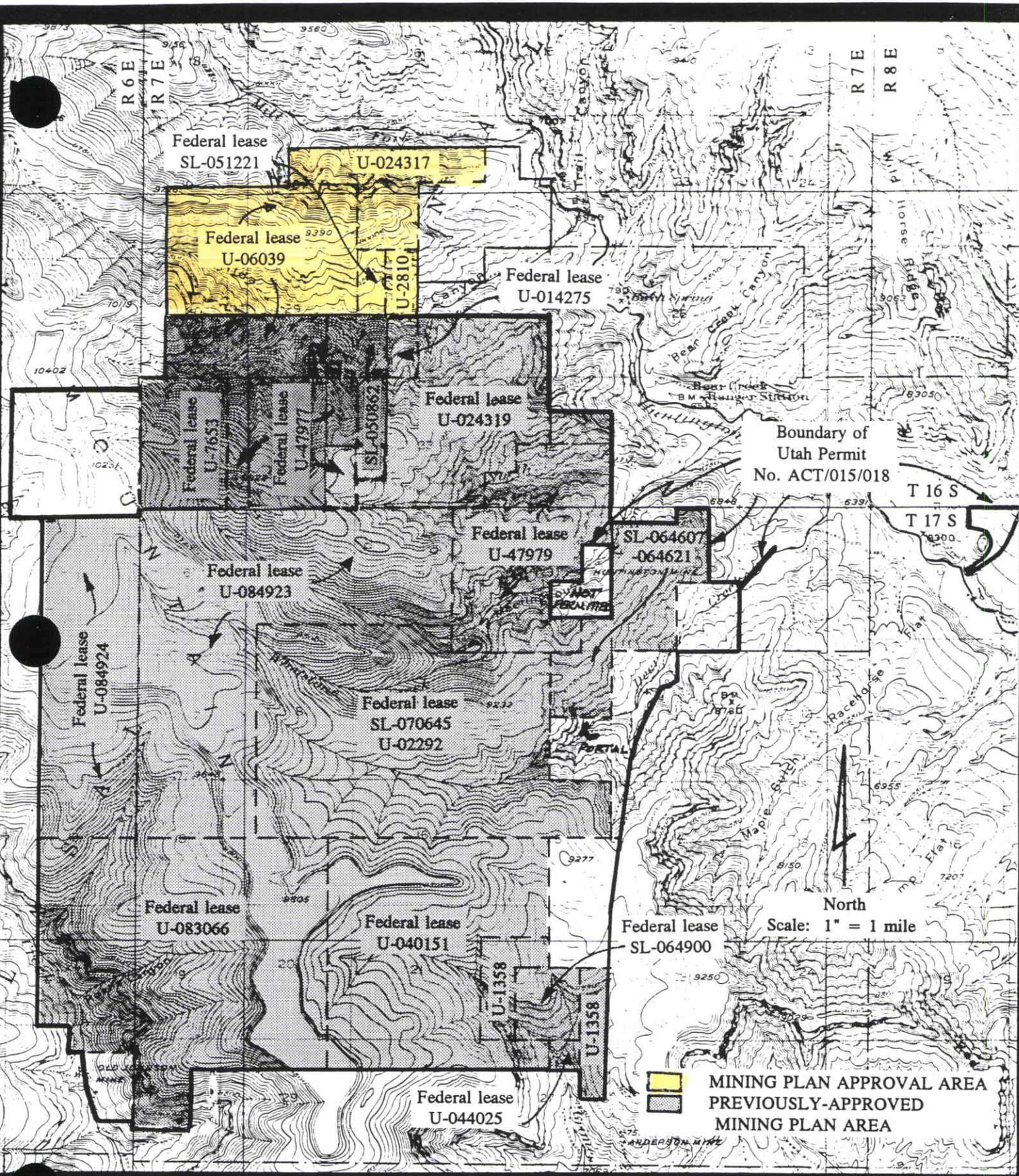
bcc: OSM Record;OSM Reading(2);CIMS;Dir;DD;AD/PS;Office of Title V Policy;Reading;ASLMM(2);rtw;WRCC:Ranvir Singh;208-2564;08/04/97



KANE COUNTY
 CARBON COUNTY

0 3mi 6mi
 SCALE

- 
 DEER CREEK MINE PERMIT AREA
- 
 NORTH RILDA PERMIT AREA EXTENSION



Attachment A
 Mining Plan Approval Area
 Deer Creek Mine
 Emery County, Utah

CHRONOLOGY

Deer Creek (North Rilda) Mine
Federal Leases U-024317, U-06039, U-2180, and SL-051221
Mining Plan Decision Document

DATE	EVENT
February 4, 1997	PacifiCorp submitted the permit application package(PAP) under the approved Utah State Program to the Utah Division of Oil, Gas and Mining (DOGM) for a permit for North Rilda Lease of the Deer Creek Mine.
February 12, 1997	The Office of Surface Mining Reclamation and Enforcement (OSM) received the PAP.
March 11, 1997	The U.S. Fish and Wildlife Service provided its no comments opinion on the coal mining operations proposed in the mining
May 13, 1997	PacifiCorp published in the Emery County Progress the fourth consecutive weekly notice that its complete PAP was filed with DOGM.
June 17, 1997	DOGM determined that the PAP was administratively complete for public review and comment.
July 8, 1997	The State Historic Preservation Office provided its comments on the mining plan.
July 15, 1997	U.S.D.A. Forest Service provided its conditional consent to the proposed mining plan.
July 16, 1997	DOGM approved the PAP and issued the permit.
July 16, 1997	The Bureau of Land Management provided its recommendations on the approval of the mining plan.
July 18, 1997	OSM received DOGM's final State decision and findings

DATE

EVENT

August 5, 1997

OSM's Western Regional Coordinating Center recommended to the Acting Director, OSM, that the mining plan action be approved.

August 12, 1997

Assistant Secretary, Land and Minerals Management approved the mining plan.

U.S. DEPARTMENT OF THE INTERIOR OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT FINDING OF NO SIGNIFICANT IMPACT
FOR

Deer Creek (North Rilda Lease) Mine

Federal Leases U-024317, U-06039, U-2180, and SL-051221

Mining Plan Decision Document

A. Introduction

PacifiCorp submitted a permit application package (PAP) for a permit for the Deer Creek (North Rilda Lease) 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 about 1960 acres of Federal leases U-024317, U-06039, U-2180, and SL-051221. The proposed mining plan would cause no new surface disturbance except that which results from mining-induced subsidence.

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 leases U-024317, U-06039, U-2180, and SL-051221. Pursuant to 30 CFR Part 746, the Office of Surface Mining Reclamation and Enforcement (OSM) is recommending approval of this mining plan with conditions.

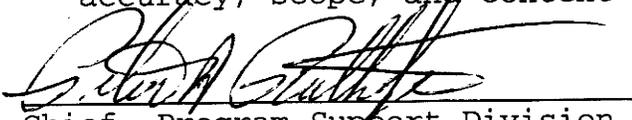
B. Statement of Environmental Significance of the Proposed Action

The undersigned person has determined that the above-named proposed action 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 environmental assessment (EA) prepared August 1994, by the U.S.D.A. Forest Service in cooperation with the Bureau of Land Management and OSM. The EA addressed the environmental impacts resulting from the approval of Pacificorp's proposed mining plan for Federal leases U-7653, U-06039, U-47977, SL-050862, including construction of surface facilities and mining under Rilda Canyon escarpments. The proposed mining plan area is immediately north of and has environmental setting similar to the area covered in the August 1994 EA. The mining plan recommended for approval with conditions by OSM is for underground mining activities only and does not include construction of any surface facilities. The approval conditions, developed by the Forest Service, will mitigate the adverse environmental and health and safety effects of

potential escarpment failures in the vicinity of Rilda Creek.

OSM independently evaluated the EA as of the date specified below and determined that it adequately and accurately assesses the environmental impacts of the proposed action and provides sufficient evidence and analysis for this finding of no significant impact. OSM takes full responsibility for the accuracy, scope, and content of the attached EA.



Chief, Program Support Division
Western Regional Coordinating Center

8/5/97

Date

ENVIRONMENTAL ASSESSMENT

PacifiCorp Deer Creek Mine Surface Facilities
and
Mining Under Canyon Escarpments
in Rilda Canyon

USDA Forest Service
Intermountain Region
Manti-La Sal National Forest
Price Ranger District
Emery County, Utah

August, 1994

Responsible Officials:

GEORGE A. MORRIS
Forest Supervisor
Manti-La Sal National Forest
599 West Price River Drive
Price, Utah 84501

ROGER ZORTMAN
District Manager
Bureau of Land Management
Moab District
P.O. Box 970
Moab, Utah 84532

Cooperating Agencies:

Bureau of Land Management

Office of Surface Mining

For Further Information
Contact:

Charlie Jankiewicz
District Ranger
Price Ranger District
599 West Price River Drive
Price, Utah 84501
(801) 637-2817

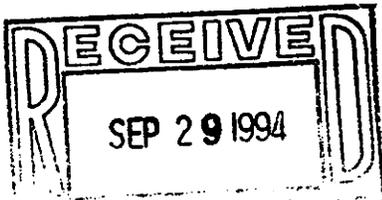


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CHAPTER I
PURPOSE AND NEED FOR ACTION

I. INTRODUCTION

PacifiCorp submitted a permit revision and mining plan to the Utah Division of Oil, Gas and Mining proposing to construct a breakout with ancillary facilities in Rilda Canyon for the Deer Creek Mine. The purpose of the breakout is to provide intake and exhaust portals for ventilation of underground workings. The proposal would include construction of a facilities pad and new access road on Federal Coal Lease U-06039, reconstruction of the existing road in Rilda Canyon to accommodate project and public use, and installation of an overhead power transmission line (Maps 1 and 3).

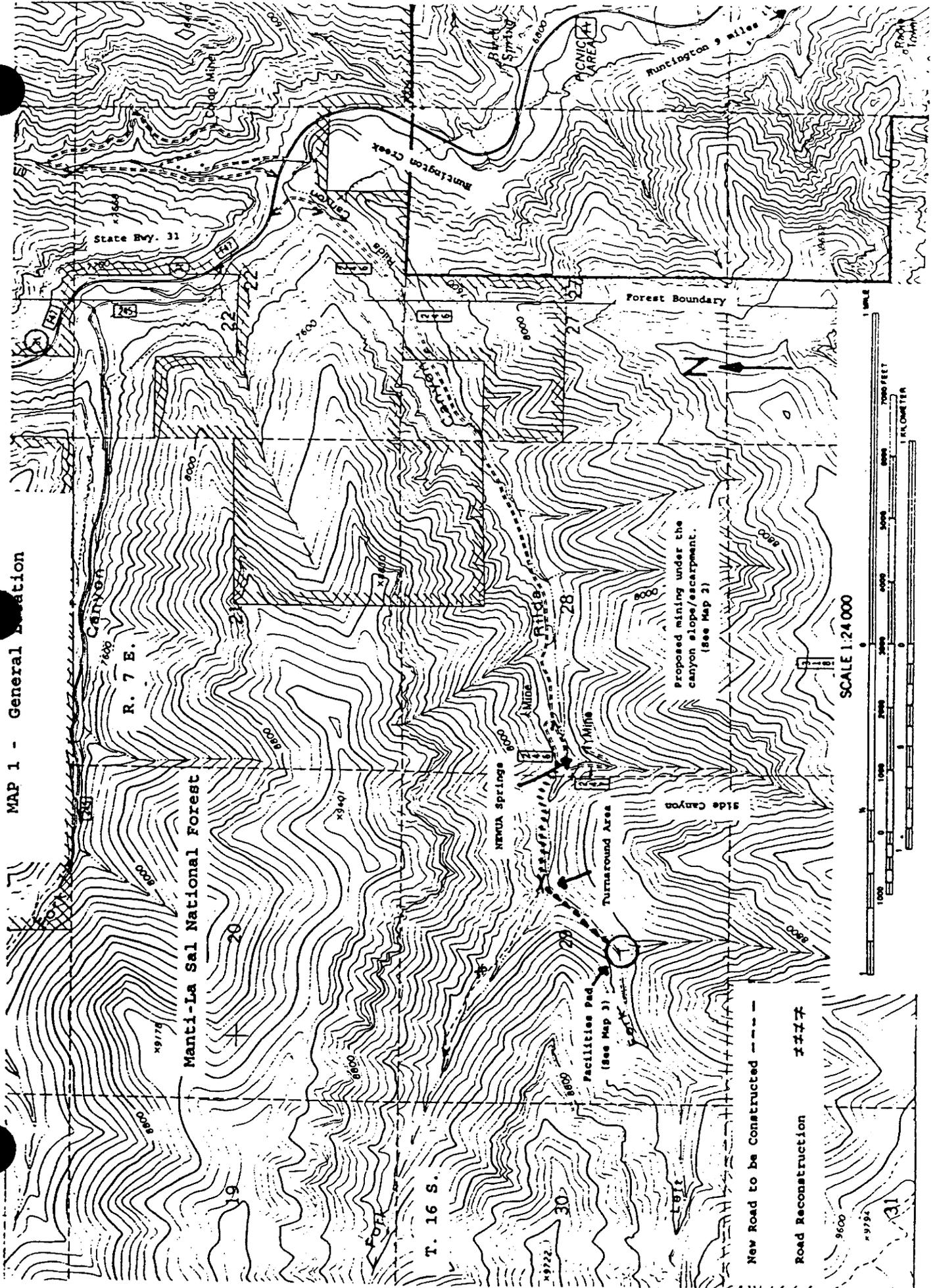
PacifiCorp has also proposed to mine beneath the south slope (escarpment) of Rilda Canyon (below the forks) and the Left Fork of Rilda Canyon on Federal Coal Leases U-06039, U-7653, U-47977, SL-050862, U-014275, and U-024319 which would cause subsidence of this area (Maps 1 and 2). The purpose is to maximize production of coal resources and extend the life of the Deer Creek Mine. Stipulations contained in the Federal coal leases proposed for mining contain a restriction that prohibits underground mining operations and surface subsidence that could cause the creation of hazardous conditions such as potential escarpment failures and landslides, unless specifically evaluated and approved. Specific evaluation and approval of mining under escarpments is required to prevent hazardous conditions and associated impacts, unless they can be mitigated to be consistent with Forest Plan goals and prescriptions.

The proposed facilities pad would be located on National Forest System lands in the Left Fork of Rilda Canyon administered by the Price Ranger District of the Manti-La Sal National Forest in Section 29, T. 16 S., R. 7 E., SLB&M, Emery County, Utah (Map 1). The new road for access to the facilities pad lies entirely on National Forest System lands in the left fork. Those portions of the existing Rilda Canyon road to be upgraded for this project are located in Rilda Canyon within the administrative boundary of the Manti-La Sal National Forest on Federal and private lands. The proposed powerline traverses National Forest System lands, private lands within and outside of the administrative boundary of the Forest, and public lands administered by the Bureau of Land Management, San Rafael Resource Area.

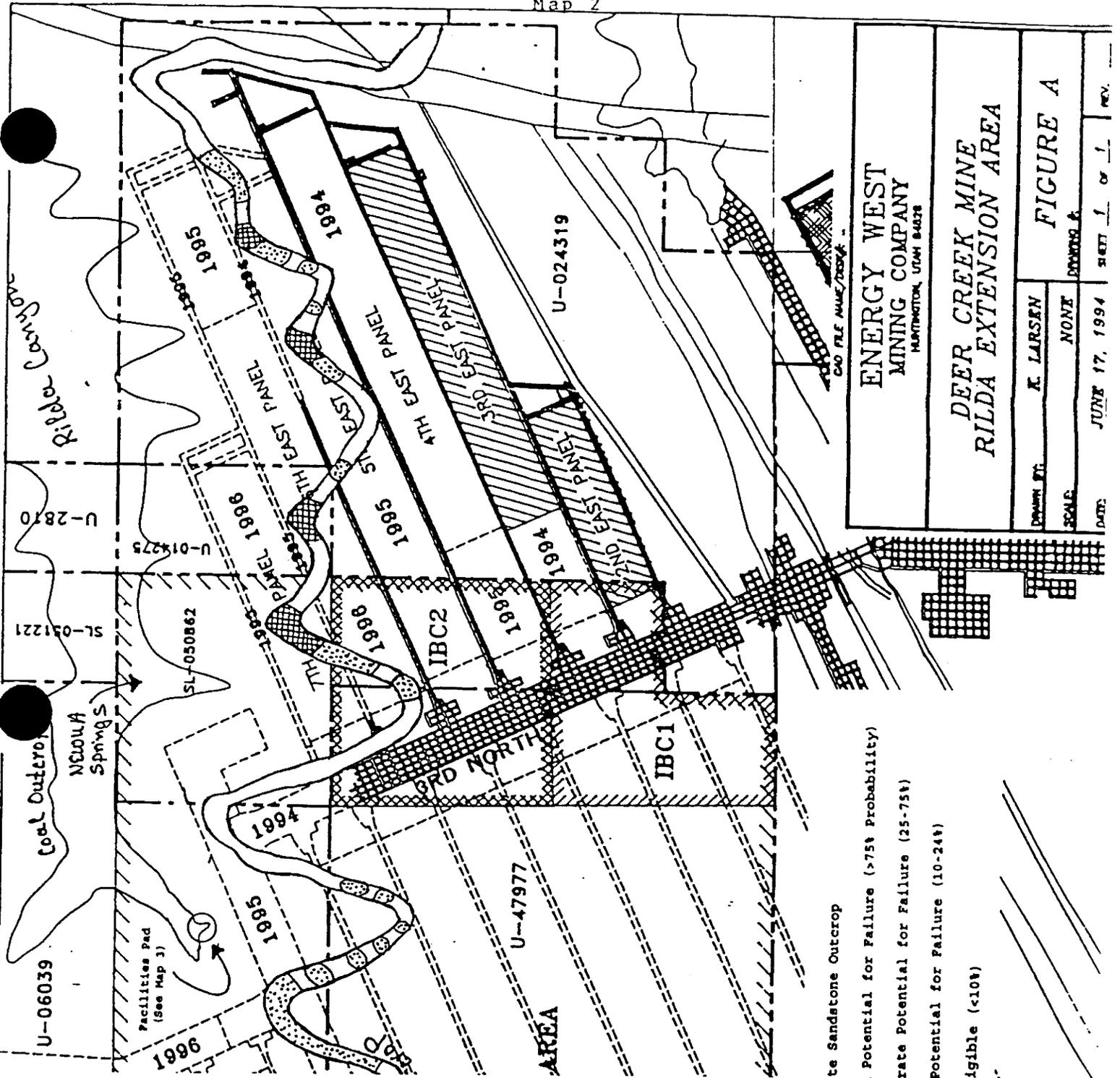
II. PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is to maximize the recovery of coal reserves and the associated socioeconomic benefits. Mining under the escarpments would maximize recovery of the coal reserves within the associated Federal coal leases. The breakouts and ancillary facilities are needed to provide ventilation of the existing and proposed underground mine workings in the area and provide for the safety of the miners consistent with Mine Safety and Health Administration regulations.

MAP 1 - General Location



CONTOUR INTERVAL 90 FEET



ENERGY WEST MINING COMPANY <small>HARRINGTON, UTAH 84028</small>	
DEER CREEK MINE RILDA EXTENSION AREA	
DESIGN BY: K. LARSEN	DRAWING NO.
SCALE: NONE	DATE: JUNE 17, 1994
SHEET 1 OF 1	
FIGURE A	

to Sandstone Outcrop

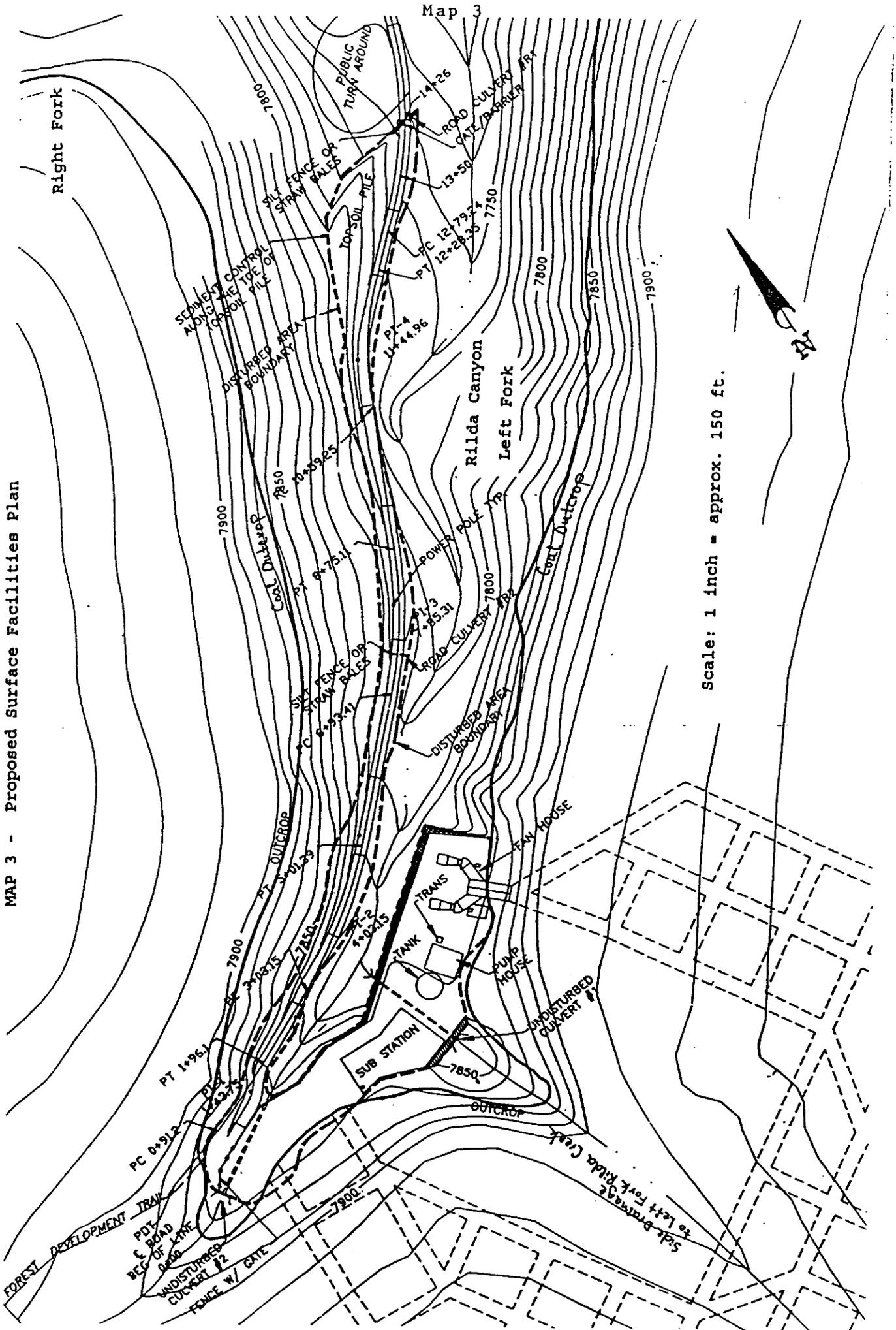
Potential for Failure (>75% Probability)

rate Potential for Failure (25-75%)

Potential for Failure (10-24%)

Igible (<10%)

MAP 3 - Proposed Surface Facilities Plan



Scale: 1 inch = approx. 150 ft.

The Bureau of Land Management, Office of Surface Mining, and Forest Service must evaluate the proposal and conduct an environmental analysis under the National Environmental Protection Act of 1969 and their specific authorities. The environmental analysis will be used by the agencies as the basis for making their respective decisions in regard to the proposed action and issuing required permits.

This analysis is tiered to the Final Environmental Impact Statement, Manti-La Sal National Forest, 1986 and the Final Environmental Impact Statement, San Rafael Resource Management Plan, 1988.

III. AUTHORITIES

The proposed action falls under the authorities of the Mineral Leasing Act of 1920, as amended (MLA); Surface Mining Control and Reclamation Act of 1977 (SMCRA); Federal Coal Leasing Amendments Act of 1975 (FCLAA); Federal Land Policy and Management Act of 1977 (FLPMA); National Forest Roads and Trails Act of 1964 (FRTA); Federal Regulations 43 CFR 3400 and 30 CFR 700 to end; Land and Resource Management Plan, Manti-La Sal National Forest, 1986; and San Rafael Resource Management Plan, 1988.

IV. PROPOSED ACTION

The facilities pad would contain 3 mine openings or portals, a fan at the easternmost of the three portals, a substation, water storage tank, and pumphouse. To provide the area needed for the facilities pad approximately 140 feet of the Left Fork drainage channel and 140 feet of a small side drainage would be channeled into culverts. Approximately 17,000 cubic yards of fill would be imported to cover the culverts and form the pad. A "Hilficker" type retaining wall would be installed to support a near vertical fill slope adjacent to the drainages to reduce the overall size of the area to be disturbed, protect the pad from erosion, and reduce sediment production. The northeast corner of the pad would be approximately 40 feet in elevation above the road. The facilities pad would disturb 1.2 acres.

The Rilda Canyon road (Forest Development Road 50246), from the North Emery Water Users Association springs (end of Emery County jurisdiction) to the forks of Rilda Canyon, would be reconstructed to a one-lane standard with turnouts and a 14 foot gravel surface. Improvement of the road would provide access adequate for PacifiCorp's operations and public use. A gravel turnaround/parking area would also be constructed at the Forks. The parking/turnaround area would provide parking and a turnaround area for recreational traffic in the canyon, mostly associated with the trails in the North and South Forks. The length of this existing road segment is 3,800 feet with a disturbed area of 2.4 acres. The road would be partially relocated resulting in an overall length of 3,500 feet with a final disturbed area of 4.2 acres. Approximately 1,000 feet of the old road would be contemporaneously reclaimed (0.6 acres). Net new disturbance after reclamation would be 1.8 acres. Emery County has applied for an easement across National Forest System lands to reconstruct

and maintain this road and the parking/turnaround area to meet the needs of PacifiCorp and Emery County. If approved, the work would be authorized under a project agreement between Emery County and the Manti-La Sal National Forest. Once the road is completed, an easement would be granted by the Forest Service to Emery County for operation and maintenance.

A new access road would be constructed along the north slope of the Left Fork from the end of Forest Development Road 50246 and the turnaround/parking area to the facilities pad, a distance of 1,350 feet. The road would follow the general alignment of an existing trail. It would be constructed to a one-lane standard with a 12 foot gravel surface. Access would be restricted to PacifiCorp personnel by construction of a gate. The new road would disturb 1.3 acres.

A new 25KV overhead powerline would be constructed from the Huntington Canyon Power Plant to the facilities pad in Rilda Canyon. The new line would be constructed parallel to the existing Mill Fork powerline in Huntington Canyon. The alignment would deviate from the existing line in Huntington Canyon near the mouth of Rilda Canyon and extend along the Rilda Canyon road on the north (uphill) edge to the facilities pad. The powerline would supply electrical power to the fan and pumphouse. The powerline would physically disturb only the areas where poles would be installed.

The new line would be constructed to a design that would protect raptors from electrocution. The existing line would be upgraded to be raptor safe.

V. SCOPE OF THE ANALYSIS

The scope of the analysis is confined to issues associated with the proposed action. The analysis considers the cumulative effects to specific components of the ecosystems and socioeconomic climate identified as issues.

The analysis is tiered to the Final Environmental Impact Statement, Manti-La Sal National Forest, 1986 (Forest Plan FEIS) and the Final Environmental Impact Statement, San Rafael Resource Management Plan, 1988.

VI. ANALYSIS AND DECISION CRITERIA

The powerline and road reconstruction would be located in MMA (Emphasis on Leasable Minerals Development), RNG (Emphasis on Production of Forage), and RPN (Emphasis on Riparian Area Management) Management Units. The new road and facilities pad would lie within the RNG Management Unit. The decision must be consistent with applicable laws and regulations, as well as Forest Plan forestwide management goals for the affected resources, and management prescriptions for the MMA, RNG, and RPN Management Units. Construction of the powerline across public lands administered by the Bureau of Land Management must comply with direction in the San Rafael Resource Management Plan (RMP).

The mine plan must be in compliance with the Surface Mining Control and Reclamation Act of 1977, Federal Regulations 30 CFR 700 to end, and the Utah Coal Rules, and MSHA (Mine Safety and Health Administration) regulations (30 CFR 1-199) for underground safety.

Surveys have been completed by qualified specialists in conformance with the National Historic Preservation Act and the Endangered Species Act and associated laws and regulations. It has been determined that the proposed action would not cause adverse impacts to cultural resources or Threatened, Endangered, and sensitive plant and animal species. Copies of the Biological Evaluation and Cultural Resources Survey Reports are included in the project file.

VII. DECISIONS TO BE MADE

The Department of the Interior Assistant Secretary, Land and Minerals Management (ASLMM) must decide whether to approve, conditionally approve, or disapprove the mining plan for Federal Coal Leases SL-050862, U-47977, U-7653, and U-06039 under the authority of the Mineral Leasing Act of 1920 (MLA). The Office of Surface Mining (OSM) must prepare a decision document for the ASLMM that recommends approval, conditional approval, or disapproval of the mining plan.

OSM's recommendation on the mining plan is based on (1) the complete permit application package, including the permit application and resource recovery and protection plan, (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 leases and the Mineral Leasing Act, and (6) the findings and recommendations of the Utah Division of Oil, Gas and Mining (DOG M) with respect to the permit application and the Utah State Program. The respective roles of OSM and DOGM are described in Appendix 4.

The Bureau of Land Management (BLM) must decide whether the mining operations proposed in the (changes to the) resource recovery and protection plan will achieve maximum economic recovery of the Federal Coal and whether the proposed operations are in compliance with the terms and conditions of the Federal leases, the Mineral Leasing Act of 1920, as amended, and 43 CFR 3400. The BLM must also decide whether to issue a right-of-way (FLPMA) for those portions of the proposed powerline that cross public lands administered by BLM.

The Forest Supervisor, Manti-La Sal National Forest, must decide whether or not to consent to construction of the surface facilities and mining under the canyon slope that could cause slope/escarpment failures. Consent authority is provided under FCLAA, SMCRA, and requirement for consultation with the surface management agency 30 CFR 700 to end. If consent is given, the Forest Service must identify required measures for the protection of non-mineral resources. In addition, the Forest Service

must decide whether or not to issue the required special-use permit for the powerline on National Forest System lands (FLPMA), and whether or not to authorize Emery County to reconstruct Forest Development Road 50246 under a project agreement and to grant an easement to Emery County for operation and maintenance of the road (FRTA). The Forest Supervisor must decide whether or not to allow new disturbance and use of facilities in the RPN (Riparian) Management Unit adjacent to perennial portions of Rilda Creek in conformance with management direction for RPN Management Units in the Forest Plan.

CHAPTER 2
ALTERNATIVES

I. INTRODUCTION

This chapter describes the issues identified during project scoping by the public and interdisciplinary team and the alternatives considered. A table that compares the alternatives in relation to the issues is presented. This table is a summary of the information on the effects of implementation from Chapter 4. Alternatives that were considered but not evaluated are described with an explanation of why they were not evaluated.

II. ISSUES

Letters were sent to potentially affected parties on May 5, 1994 (Appendix 1). The letters briefly described the proposed action and location, and specifically invited comments and identification of issues. A legal notice was published in the Sun Advocate of Price, Utah (publication of record) on May 5, and the Emery County Progress (supplemental publication) on May 10, that also briefly described the proposal and invited public comment. The letters and legal notices identified the close of the comment period as June 6, 1994.

Two letters were received in response to project scoping. Emery County stated that they support the proposal. The Utah Division of Wildlife Resources expressed concern in regard to potential impacts to wildlife habitat and riparian vegetation in Rilda Canyon, and suggested measures that should be taken to safeguard these values. The Huntington-Cleveland Irrigation Company responded by telephone on July 12, 1994, and requested that they be included on the mailing list to receive information on the proposal.

The interdisciplinary team reviewed the responses and identified the following issues:

- * Mining under the steep canyon slopes/escarpments could result in subsidence that could cause escarpment failures. Slope/escarpment failures could destroy existing vegetation along the slope, change the wildlife habitat, increase erosion along the slopes, and increase sediment in Rilda Creek. (Measured by area of disturbance and relative change in sediment production.)
- * Escarpment failures could present a safety hazard to people using the road in the bottom of the canyon and anyone hiking or hunting along the canyon slope. (Measured by relative safety hazard)
- * If the escarpment fails at the location of golden eagle nest #296A, the nest could be destroyed. It was last active in 1989 and has been inactive to the present. It was tended in 1991. (Measured by probability of nest failure.)
- * Construction and operation of the new road and facilities and reconstruction of the existing Rilda Canyon Road would remove

approximately 4.3 acres of vegetation that could increase the amount of sediment production in Rilda and Huntington Creeks. Increased sediment could affect downstream water uses and the fishery in Huntington Creek.

- * Construction and use of the facilities would cause human activity that could displace spotted bats and goshawks. After construction is completed, the disturbance caused by vehicle access would be infrequent, however, the disturbance caused by exhaust fan noise would be constant. (Measured by area and duration of potential habitat loss)
- * The new powerline would be visible along the Rilda Canyon road. The pad facility would be visible along the trail in the South Fork of Rilda Creek. The additional powerline to be constructed along an existing powerline in Huntington Canyon could increase the visibility of these facilities. The proposed facilities would be consistent with the visual quality objectives for the area (modification, partial retention) but the visual quality would be decreased. (Measured by consistency with visual quality objectives and relative change in visual quality.)
- * The Recreation Opportunity Spectrum (ROS) classification for the area is Roded Natural Appearing. The project could decrease the quality of the recreation experience in Rilda Canyon due to the fan noise and visibility of facilities. (Measured by relative change in recreation use.)
- * Mining in the area and construction of the proposed facilities could affect flow and quality of North Emery Water User's Association's (NEWUA) springs in Rilda Canyon that lie approximately one mile downstream of the proposed facilities pad. (Measured by acres of disturbance and relative duration of sediment production.)
- * Mining and subsidence of escarpments could intercept ground water that contributes to ground and surface water flow in Rilda Creek. (Measured by potential for decreasing flow.)
- * Mining and surface facilities could decrease riparian vegetation and RPN (riparian) management units in Rilda Canyon. (Measured by area and duration of loss.)

III. ALTERNATIVES

A. Alternatives Considered and Evaluated

1. No Action - The No Action alternative must be evaluated for all proposals. Under this alternative the proposal would not be approved.
2. Proposed Action with Mitigations - Allow the surface facilities and mining under the escarpment as proposed with mitigation measures (Appendix 3) to minimize impacts.

3. Modified Proposed Action with Mitigations - Allow the surface facilities with mitigation measures (Appendix 3) to minimize impacts, but do not allow mining under the canyon slope/escarpment that is likely to cause slope/escarpment failures.

B. Alternatives Considered but Eliminated for Evaluation

1. Helicopter and Underground Access Only - Allow construction of the pad but do not allow improvement of the Forest Development Road from the NEWUA springs to the Forks or construction of the new road from the Forks to the facilities pad. The breakouts would be constructed from within the mine and all access to the pad would be provided through the mine workings and/or by helicopter. This would include providing electrical power to the fan and northern mine area by running a 25KV cable through the underground mine workings.

This alternative was eliminated from further evaluation because of the high costs involved for helicopter transport of the transformer, fan, and 17,000 cubic yards of fill material needed to build up the facilities pad and control erosion. In addition, the transformer and fan components are too large to be transported through the mine working, even when dismantled for transportation. According to PacifiCorp installation of a 25KV cable through the mine workings would present safety and economic problems.

2. Breakout at the Outcrop/Pipe Air to Facilities Down Canyon

Under this alternative the breakout would occur from within the mine with no road access. A pipe would be constructed from the breakout down-canyon to a facilities pad on an existing flat open area.

This alternative was eliminated from further evaluation because the pipe would need to carry 600,000 cubic feet per minute of air. This would require a concrete reinforced 8 ft. diameter pipe to prevent collapse under the suction within the pipe. It would also need to be anchored to the ground for stability. This would require the same level of disturbance as the proposed road. It would offer no practical environmental advantages with higher cost.

3. Mining of 4 Additional Longwall Panels in the Blind Canyon Seam (upper seam) and 1 Panel in the Hiawatha Seam (lower seam) Under the Left Fork of Rilda Creek.

PacifiCorp in their Probable Hydrologic Consequences (PHC) and the regulatory agencies have identified the potential for this mining to subside the channel, crack the ground surface, and drain water flowing through the alluvial aquifer into the mine workings or other permeable rock layers. Overburden in the area

ranges from 250 to 500 feet. This could decrease the flow of the NEWUA springs and the flow in Rilda Creek with impacts to other surface resources.

Data collected for the area is not sufficient to quantify the potential water loss downstream at the springs and in the perennial portion of the Rilda Creek. PacifiCorp withdrew their proposal to mine in this area and will initiate a study to collect the necessary data. Depending on the results of the study, PacifiCorp may or may not again propose to mine in this area.

IV. COMPARISON OF ALTERNATIVES

The following table has been generated to display the differences between the evaluated alternatives relative to the identified issues. Each issue is identified by heading with subheadings for the specific resources that could be affected. Comparisons are based on the potential effects to each issue by resource category. Parameters of measure used to compare alternatives are discussed for each issue are identified in the descriptions of the issues in Chapter 2, Item II. Refer to Chapter 4 for a detailed discussion of the environmental effects for resource categories by alternative.

TABLE 1, COMPARISON OF ALTERNATIVES

<u>ISSUE/RESOURCE</u>	<u>ALT. 1 NO ACTION</u>	<u>ALT. 2 PROP. ACTION W/MITIGATIONS</u>	<u>ALT. 3 MOD. PROP. ACTION W/MITIGATIONS</u>
Escarpment Failure			
Vegetation	No Effect	Long-term removal of <10 acres Spruce/Fir Coniferous Forest.	No Effect
Wildlife Habitat	No Effect	Long-term loss of <10 acres of forage and cover.	No Effect
Golden eagle Nest #296A	No Effect	Low potential (<10%) for loss of the nest.	No Effect
Increase Erosion and sediment prod.	No Effect	Temporary increase in erosion on barren slopes with some sediment production. (<10 acres)	No Effect
Surface Water Quality	No Effect	Temporary increase in sediment to Rilda Creek.	No Effect
Public Safety	No Effect	Low risk of rocks reaching the road. Low risk of personal injury due to low usage of the steep canyon slopes.	No Effect
Visual Quality	No Effect	Decrease in visual quality but would be natural appearing. Consistent with visual quality objectives.	No Effect
Mining under escarpments could intercept ground water.			
Flow at NEWUA springs and Rilda Creek could be decreased.	No Change (Low Potential)	Increased potential due to subsidence. (Low Potential)	No Change (Low Potential)

TABLE 1, COMPARISON OF ALTERNATIVES (Cont.)

<u>ISSUE/RESOURCE</u>	<u>ALT. 1 NO ACTION</u>	<u>ALT. 2 PROP. ACTION W/MITIGATIONS</u>	<u>ALT. 3 MOD. PROP. ACTION W/MITIGATIONS</u>
Escarpment Failures (Cont.)			
Riparian Veg./ RPN Management Unit	No Change (Low Potential)	Decreased flow could alter the riparian vegetation community species in Rilda Creek. (Low Potential)	No Change (Low Potential)
Wildlife Habitat	No Change (Low Potential)	Decreased flow could decrease habitat. (Low Potential)	No Change (Low Potential)
Construction and use of surface facilities.			
Wildlife (Terrestrial)	No Change	Human activity and fan noise could displace wildlife into adjacent areas. (1.5 sq. mi. Short-Term) (< 1 sq. mi. Long-Term)	Same as Alt. 2
Ground and Surface Water	No Effect	Any spills of fuel or other substances could pollute the NEWUA springs and Rilda Creek. Increase sediment in Rilda Creek during construction (4.3 acres new dist.).	Same as Alt. 2
Aquatic Wildlife	No Effect	Spills and sediment could affect macroinvertebrate populations/diversity.	Same as Alt. 2
Visual Quality	No Effect	Decrease visual quality in Huntington Canyon (powerline) and Rilda Canyon (road, powerline, facilities pad). (Consistent with visual quality objectives.)	Same as Alt. 2

TABLE 1, COMPARISON OF ALTERNATIVES (Cont.)

<u>ISSUE/RESOURCE</u>	<u>ALT. 1 NO ACTION</u>	<u>ALT. 2 PROP. ACTION W/MITIGATIONS</u>	<u>ALT. 3 MOD. PROP. ACTION W/MITIGATIONS</u>
Construction and use of Surface Facilities (Cont.)			
Recreation	No Effect	Decrease in visual quality and fan noise could decrease dispersed recreation quality in Rilda Canyon. (Potential slight decrease in use).	Same as Alt. 2
Riparian Vegetation/ RPN Management Unit	No Effect (Consistent with Mgt. Direction)	Approx. 4.3 acres of riparian vegetation (Narrow leaf Cottonwood/ dogwood community) would be removed for the life of operations. Temporary loss of an additional 0.6 acres. Condition of riparian vegetation in RPN Mgt. Unit below NEWUA springs could be improved by mitigations. (30 acres) (Consistent with Mgt. Direction)	Same as Alt. 2

CHAPTER 3
AFFECTED ENVIRONMENT

I. INTRODUCTION

This chapter describes the existing environment or conditions which could be affected by the proposed action and the alternatives described in Chapter 2.

II. FOREST PLAN/RESOURCE MANAGEMENT PLAN DIRECTION

This analysis is tiered to the Forest Plan. The surface facilities, road construction and reconstruction, and the upper portion of the power transmission line are located in the RNG Management Unit as designated in the Forest Plan. The lower portion of the powerline is located in an MMA Management Unit. A portion of the proposed reconstruction of the Rilda Canyon Road above the NEWUA springs would be located within an RPN Management Unit (defined as the area within 100 feet from the edge of perennial waters. Management emphasis in RPN units is on management of riparian areas and the component ecosystems. Management emphasis in RNG units is for the production of forage for livestock and wildlife. Management emphasis for MMA unit is production of leasable minerals (coal/oil and gas).

Management prescriptions for mineral operations in RNG units include:

- (01) Provide appropriate mitigation measures to assure continued livestock access and use.
- (02) Those authorized to conduct developments will be required to replace losses through appropriate mitigations, where a site-specific development adversely affects long-term production and management.

Management prescriptions for mineral operations in MMA units include:

- (01) Coordinate the various leasable mineral activities to minimize or eliminate conflicts.
- (02) Upon completion of the planned surface use, restore disturbed sites to their pre-disturbance conditions unless otherwise directed in the document authorizing use.

Management prescriptions for minerals operations in RPN units include:

- (01) Avoid and mitigate detrimental disturbance to the riparian area by mineral activities. Initiate timely and effective rehabilitation of disturbed sites.
- (02) No surface occupancy or use is allowed in riparian units, or within 200 feet of riparian units, unless it can be demonstrated that operations can be conducted without causing unacceptable

impacts, in which case, the restriction can be waived, accepted, or modified on a site-specific basis.

A portion of the powerline route crosses public land under the management of BLM. Analysis of this portion of the powerline route is tiered to the Resource Management Plan (RMP). Management objectives for powerline rights-of-way on BLM lands call for allowance of discretionary rights-of-way only as long as RMP goals can be met. The area in question calls for rights-of-way avoidance due to critical soils. Management prescriptions for areas of critical soils call for surface restrictions. However, the proposed powerline would parallel the existing Mill Fork line, which was granted prior to the RMP. The proposed powerline would meet the objectives of the RMP since the existing powerline has stabilized the critical soils with grading and seeding.

III. DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. General Setting, Topography and Geology

The project area is located in Rilda Canyon and East Mountain. Rilda Canyon is a deeply incised east-west trending canyon that is tributary to Huntington Canyon. It is one of the many canyons that drain the east slope of East Mountain and drain into Huntington Creek. Huntington Canyon is a deeply incised, broad, northwest/southeast trending canyon that dissects and drains the Wasatch Plateau.

Coal seams of the Cretaceous Blackhawk Formation in the Wasatch Plateau Coal Field crop out along the steep canyon slopes in both Huntington and Rilda Canyons. The outcrops provide access to the coal seams that extend throughout the plateau.

Rilda Canyon splits into two forks (Left and Right Forks) approximately 2.5 miles west of it's confluence with Huntington Canyon. The slope of the south canyon wall averages approximately 45%. The north canyon wall is considerably steeper, with considerable area of vertical cliffs.

Rock units exposed in the project area include (from oldest to youngest) the Cretaceous Mancos Shale, Starpoint Sandstone, Blackhawk Formation, Price River Formation, and Cretaceous/Tertiary North Horn Formation. The coal bearing Blackhawk Formation is approximately 900 ft. thick and consists of discontinuous interbedded shale and sandstone units. It is a slope forming unit exposed along the middle portion of the canyon wall in the project area. The cliff forming Castlegate Sandstone lies directly above the Blackhawk Formation. This is a massive sandstone unit that is approximately 250 ft. thick. It crops out along the upper 1/3 of the canyon slope/escarpment. In the potentially affected area on the south canyon wall it forms vertical cliff outcrops at prominent points between small side drainages (54% of the outcrop area). Rock falls are common at cliff outcrops where the joint systems are well developed. The remainder of the Castlegate Sandstone outcrop area is

either a vegetated slope consistent with the slope above and below (35%) or rock rubble areas with minor cliff development (11%). The topography along the plateau top flattens forming a series of rounded ridges between canyons.

B. Coal Occurrence, Reserves, and Mining

The Wasatch Plateau (Manti Division, Manti-La Sal National Forest) contains vast reserves of mineable low sulfur bituminous coal in the Cretaceous Blackhawk Formation. Mining has occurred in the area since the late 1800's and is presently the dominant component of the economies in Carbon and Emery Counties. Coal mining is also an important component of the State economy.

PacifiCorp presently operates the Deer Creek Mine that is located in Deer Creek, approximately 4 miles southeast of the proposed new facilities. The approved permit area for the mine encompasses most of the southern and central portions of East Mountain. PacifiCorp also controls the coal leases in the Rilda Canyon area that are being evaluated for inclusion in the permit/mine plan area by the State of Utah Division of Oil, Gas and Mining and the Office of Surface Mining under SMCRA, MLA, Utah Coal Rules and other applicable Federal laws. PacifiCorp also operates the Cottonwood/Wilberg Mine located in Grimes Wash, approximately 6 miles south of the proposed facilities. The permit areas for the two mines overlap in the southern portion of East Mountain with the lower seam being mined through the Cottonwood Mine. In 1993 the Deer Creek Mine produced 3.2 million tons of coal and the Cottonwood/Wilberg Mine produced 2.8 million tons.

The coal produced from the PacifiCorp mines is transported to the Huntington Plant in Huntington Canyon, the Hunter Plant near Castle Dale, and the Price Plant in Price Canyon north of Helper. The coal is used to generate electricity transmitted to locations in Utah, Nevada, and California.

Coal reserves in the south Rilda Canyon area occur in two minable seams, the Blind Canyon (upper) seam and the Hiawatha (lower) seam. Portions of 6 proposed longwall panels in the Blind Canyon seam and 4 proposed longwall panels in the Hiawatha seam lie under the escarpment and the associated 15 degree angle-of-draw subsidence zone. It is estimated that this area contains 10.4 million tons of recoverable coal.

C. Transportation/Special Uses

Approximately 436 acres of the land is in private ownership within the Rilda Canyon drainage. The canyon area is served by two Forest Development Roads, FDR 50246 the Rilda Canyon Road for approximately 2.4 miles, FDR 50247 an unnamed road for approximately 0.4 miles, and one designated trail Forest Development Trail (FDT) 295 for approximately 0.6 miles (inventoried).

The road being considered for reconstruction to provide improved access to the facilities pad is FDR 50246 the Rilda Canyon Road. Only that portion of this road from the NEWUA springs to the Forks of Rilda Canyon would need to be reconstructed because Emery County is already in the process of reconstructing this road from the Huntington-Fairview Highway (State Hwy. 31) to the springs. Approximately the first one mile (from Hwy. 31) is under jurisdiction of Emery County. The remaining 1.4 miles is under Forest Service jurisdiction. Emery County is in the process of replacing the existing one-lane bridge across Huntington Creek on private land with a two-lane bridge and reconditioning the traveled way and shoulder to provide for placement of a gravel running surface. The purpose of reconditioning this portion of road is to provide improved access to the NEWUA springs and to decrease erosion and maintenance costs. Damaged drainage structures and additional drainage features are being placed to remove water from the travelway and prevent ditch and embankment erosion. The travelway is being reconditioned to two 10-foot lanes through the first 2.1 miles (including 1.1 miles of County and 1.0 miles of Forest Service). This work would stay within the roadway limits except for the last 0.25 miles where curve widening and minor realignment is needed. A slight increase in existing traffic volumes could result.

The Road Management Objective for FDR 50246 is to provide a single lane native surface road to provide for high clearance vehicles at traffic service level "D" and operation maintenance level "2". The road is restricted to commercial haul by permit only. The expected intermittent use period is June 1 to October 30. Traffic prior to any mine facilities or timber utilization is expected to remain below 5 vehicles per day, with use by NEWUA averaging 3 to 5 trips per week. The area was identified in the Forest Plan for a coal production portal with potential for removal of 1 to 3 million tons per year.

Special-uses in the canyon include the culinary water springs under permit to NEWUA and water monitoring wells under permit to PacifiCorp (See discussions on ground and surface water below).

D. Surface Hydrology/Watershed

Rilda Creek is one of several east-west trending drainages that drain the east flank of East Mountain into Huntington Creek. Typical of the area, the erosive action of Rilda and Huntington Creeks has gouged deep canyons in the Wasatch Plateau. Huntington Creek is tributary to the San Rafael River. The San Rafael River drains into the Green River which in turn drains into the Colorado River.

The entire Rilda Creek watershed encompasses about 5,139 acres. Approximately two miles up from the confluence with Huntington Creek, Rilda Creek branches into the Left and Right Forks. The Right Fork watershed encompasses approximately 2,110 acres (3.3 square miles). The Left Fork watershed encompasses approximately 1,376 acres (2.2 square miles) which is about 40% of the watershed above the forks.

Rilda Creek has been determined to be perennial from the NEWUA springs to it's confluence with Huntington Creek. It is considered to be ephemeral above this point with water flowing underground in the alluvial system. Hydrologic monitoring and studies conducted by PacifiCorp indicate that ground water flows into the creek through east-west and north-south trending fracture or fault systems and alluvium. Alluvial fill in the drainage has been determined to be as thick as 75 feet in some areas. Only one other spring has been identified within the project area. This spring is located on the ridge between the Right and Left Forks. It is located at the contact between the Starpoint Sandstone and Blackhawk Formation. Water from this spring flows along the surface for only a short distance where it disappears underground into the alluvial material associated with the drainages.

During the monitoring period (1990-1992) there was no measurable flow in the Left Fork during 1990 and 1992. In 1991, the flow was measured from May through August with a peak flow of approximately 65 GPM at the end of May. Monitoring of the main channel above the springs showed that flow occurred during the months of May through June, with peak flow of 300 GPM in May and a base flow of 0.0 GPM during the months of January through April and July through December. Below the NEWUA springs, flow was monitored at two locations. Station RCF3 lies just below the springs. RCW4 lies in Rilda Creek just above it's confluence with Huntington Creek. During 1992 the peak flow occurring in June was 319 GPM for RCF3 and 402 GPM for RCW4. Base flows in 1992 were 9 GPM for RCF3 and 78 GPM for RCW4. Data suggests that the stream loses water to the alluvium above the springs. Flow again emerges to the surface at and below the springs.

Water quality is good and meets State water quality standards for parameters measured (for which standards have been developed). The predominant dissolved chemical constituents in tributaries to Huntington Creek are calcium, magnesium, and bicarbonate. During periods of base flow Danielson, ReMillard, and Fuller (Hydrology of the Coal-Resource Areas in the Upper Drainages of Huntington and Cottonwood Creeks, Central Utah, U.S. Geological Survey Water-Resources Investigations Open File Report 81-539, 1981) found that concentrations of sulfate in water at the mouths of Deer Creek and Rilda Canyon were significantly higher than sulfate concentrations in water in Huntington Creek. Total dissolved solids concentrations in Rilda Creek (1976-1979) ranged from 292 mg/l (July 1979) to 503 mg/l (October 1979). PacifiCorp's monitoring data is consistent with these findings.

E. Ground Water Hydrology

The stream in the upper reaches of Rilda Canyon is limited to sub-surface flow in the alluvial deposits. In the upper reaches surface flow occurs in periods of excess precipitation or heavy snow melt, therefore the stream is considered to be ephemeral. Water

monitoring in Rilda Canyon continues to determine the quality and flow characteristics.

Ground water above the coal seams mostly occurs in discontinuous perched aquifers consisting of permeable fluvial sandstone channels in the North Horn and Blackhawk Formations. Additional water occurs throughout the Wasatch Plateau in the Starpoint Sandstone and lower portions of the Blackhawk Formation. The USGS (Lines, Open File Report 84-067) reports that this is a regional aquifer known as the Blackhawk-Starpoint regional aquifer. PacifiCorp contends that ground water on East Mountain, other than stored water, only exists within this zone in areas of secondary permeability caused by fractures and faults because of the low permeability of the Starpoint sandstones and siltstones. Recharge is in higher elevations of the Wasatch Plateau. Snowmelt runs off as surface water and some enters the ground water regime through fractures in the Flagstaff Limestone, faults and fractures, and other permeable zones. It flows vertically until it becomes perched by impermeable rock layers and continues to flow laterally or becomes trapped as stored water. Since the rock layers in the area dip to the southeast, it is expected that recharge is from the north and west.

The Division (State of Utah Department of Natural Resources, Division of Oil, Gas and Mining) is currently analyzing PacifiCorp's PHC (Probable Hydrologic Consequences) determination for the East Mountain property which includes Rilda Canyon. Of particular interest are the culinary springs located in Rilda Canyon which are used by NEWUA. The East Mountain CHIA (Cumulative Hydrologic Impact Analysis) is being prepared by the Division and is scheduled to be completed in summer 1994.

Springs inventoried within the Rilda Canyon area include a spring that issues along the point of the ridge between the Left and Right Forks of Rilda Creek (PacifiCorp 80-50) and the NEWUA's springs that lie near Side Canyon approximately 1/2 mile downstream of the confluence of the left and right forks.

Spring 80-50 issues from the contact between the Blackhawk Formation and Starpoint Sandstone. It was last monitored in August of 1980 with a flow of 3 gpm.

The NEWUA springs were developed as a culinary water source to provide water to northern Emery County, currently serving 410 connections. They are located at the Starpoint Sandstone and include three distinct groups of springs (Side Canyon Springs, North Springs, and South Spring). The Side Canyon springs are located in Side Canyon and issue from the Blackhawk/Starpoint contact. The North Springs and South Spring are located immediately above the stream channel on the south slope of Rilda Canyon at the the confluence of the South Canyon and Rilda Creek.

Water monitoring wells were installed in the vicinity of the NEWUA springs and pump tests were conducted to determine water sources near these springs and volumes. Hydraulic conductivity of these alluvial

materials was calculated at a low of 6,100 up to 35,900 gallons per day per square foot. An average long-term transmissivity of 20,000 gallons per day was derived from these pump tests by averaging the various drawdown curve methods (See Volume 9A of the PacifiCorp PHC for complete pump tests report).

Resistivity surveys were also conducted along the canyon bottom and along several cross sections to identify geologic structures and other water bearing strata. Fractures in the rock strata provide rapid secondary porosity and serve as conduits for ground water movement. Many water producing fractures or anomalies were identified. These may contribute a portion of the flow to the springs and the stream.

Based on the well tests and the resistivity investigations, the water sources contributing to the NEWUA springs and the stream's base-flow are believed to originate from the alluvial deposits, a north-south trending fault or fracture system just west of the NEWUA springs, and an east-west trending fault or fracture system that lies to the north of the canyon floor.

Monitoring of flows in the NEWUA springs at the collection system meters from September 6, 1990 through April 7, 1992 shows a total maximum flow of 267.5 gpm on July 17, 1991 and a minimum flow of 61.7 gpm on April 7, 1992. Historical data shows a maximum flow in August 1987 to be just above 400 gpm and a minimum flow of 50 gpm in December/January of 1978. This data shows that maximum annual flows occur in July and August and minimum flows occur in November and December. The South Canyon Spring and South Spring contribute only a small proportion of the overall flow.

Ground water quality is good in strata above the highly saline Mancos Shale. The USGS reports a range in TDS (total dissolved solids) from 50 to 750 mg/l for samples from 140 springs in the region issuing from the Starpoint Sandstone and overlying formations (Danielson et. al., 1981). They also identified a regional trend of decreasing water quality from north to south and west to east across the Wasatch Plateau. Waters percolating through the underlying Mancos Shale quickly deteriorate, with TDS concentrations frequently exceeding 3,000 mg/l. PacifiCorp's monitoring confirms this information. The predominant dissolved chemical constituents of ground water from both surface springs and samples collected in the PacifiCorp mines are calcium, bicarbonate, magnesium, and sulfate. Concentrations of magnesium are normally about half the concentration of calcium. Sulfate concentrations are typically higher in water from springs issuing from the Starpoint-Blackhawk aquifer or confined aquifers intersected by mine workings.

Ground water in Rilda Canyon is of excellent quality and meets State water quality standards. PacifiCorp reports in the PHC that there are distinct groupings in regard to TDS concentrations and sulfate concentrations. These groupings indicate differences in the source of the ground water that reaches the surface at the NEWUA springs.

F. Vegetation

An inventory of the vegetation in the project area was conducted by Mt. Nebo Scientific for PacifiCorp in August-September 1990 with the report finalized in March 1994. The report contains a map of the vegetation communities and a description of each community.

According to the report, the vegetation on the north slope of Rilda Canyon is categorized as a Mtn. Brush/Salina Wildrye community. Vegetation along the south slope and along the ridge separating the left and right forks is categorized as a Spruce/Fir Coniferous Forest community. The vegetation along the canyon bottom, including the main channel and Left and Right Forks, is categorized as an Aspen/Fir/Dogwood community.

The Forest Service has categorized the vegetation in the canyon bottom to be a Narrow Leaf Cottonwood/Dogwood community which is considered to be a riparian community. The area within 100 feet of the edge of the perennial portions of Rilda Creek is managed as an RPN Management Unit under the Forest Plan with emphasis on management of the riparian area and component ecosystems. Rilda Creek is considered to be perennial from the NEWUA springs to the confluence with Huntington Creek.

The riparian vegetation diversity and density in the canyon has been altered by many years of man's activities including livestock grazing, diversion of water at the springs, recreation, timber harvest, and mining.

No Threatened, Endangered, or sensitive plant species have been identified in Rilda Canyon. The Biological Evaluation (BE) is contained in the project file.

G. Wildlife

The Rilda Canyon proposed project area is inhabited by a variety of wildlife species. Bear, cougar, deer, elk, birds, reptiles and amphibians are supported by habitats within the project area. The area is used as spring and winter foraging by deer and occasionally elk. Deer may also use this area for fawning. Raptors known to occur within the area include cooper's hawks, red-tails, sharp-shinned hawks, golden eagles, and a number of owl species. Within the Rilda Canyon area there are known cooper's hawk and golden eagle nesting and territory areas. Other terrestrial organisms present include bats, rodents, lagomorphs, upland ground birds, songbirds, coyotes, bobcats, and woodpeckers.

Listed threatened, endangered, and sensitive species that may occur in the area are bald eagles, northern goshawk, peregrine falcon, spotted bats, and northern three-toed woodpeckers. Bald eagles may occasionally pass through the area during winter migration. Northern goshawk and northern three-toed woodpecker are listed as sensitive species that may inhabit the project area. Surveys for the presence

of these species were conducted in June and July of 1994. No sensitive species were identified. A copy of the Biological Evaluation is included in the project file. No other threatened, endangered or sensitive species have been observed in the project area.

Riparian vegetation zones have been identified within the project area. These areas include the Right Fork and Left Fork of Rilda Canyon, and Rilda Creek. They provide important habitat for water dependent and terrestrial species. Even though Rilda Canyon Creek (a tributary to Huntington Creek which supports a number of fish species) is not an important fishery, it does have value for other aquatic resources. Rilda Canyon Creek supports aquatic invertebrates which are important to the fishery resources in Huntington Creek below and to terrestrial species which feed along the creek.

H. Visual Quality

According to the Forest Plan the proposed breakout facility, new access road, and a majority of the powerline and reconstructed road would be located in an area presently managed under the visual quality objective of modification. The term visual quality objective (VQO) may be defined as follows: A desired level of excellence based on physical and sociological characteristics of an area; refers to the degree of acceptable alteration of the Landscape.

Under the VQO of modification, management activities may visually dominate the original characteristic landscape. However, activities of vegetative and landform alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Additional parts of these activities such as structures and roads must remain visually subordinate to the proposed composition. Reduction in form, line, color, and texture should be accomplished in the first year or at a minimum should meet regional guidelines. More simply put; this broad objective allows for most forms of development associated with mining activities, however a reasonable attempt should be made to fit within the context of the natural surroundings as soon as is practically possible.

The reconstructed road and the parallel overhead powerline would also pass through a small portion (1/16 section) of Rilda Canyon that is presently managed under the VQO of partial retention.

Under partial retention, activities should remain visually subordinate to the landscape. Activities may repeat form, color, or texture; but changes in qualities of size, amount, intensity, direction, pattern, etc., should be accomplished as soon as possible after reconstruction/installation or within a minimum of the first year. In other words, partial retention objectives will also allow development associated with mining to occur, provided that revegetation, etc. restores disturbed areas to a natural appearing

condition. Mitigative steps to reduce visual contrast to an appropriate level should be accomplished right away or at most within a year of actual construction.

The area where the facilities pad is proposed is densely vegetated. It contains an evergreen screen that in concert with existing topography appears adequate enough to provide camouflage for long views year-round.

The road to be reconstructed on lands managed by the Forest Service in Rilda Canyon is not be visible from State Highway 31 which has been designated as a Scenic Byway.

There is an existing powerline in Huntington Canyon that leads from the Huntington Canyon Coal Fired Powerplant to Mill Fork and beyond over the ridge to Crandall Canyon (next canyon north of Mill Fork) to the Crandall Canyon Mine. The powerline in Huntington Canyon is highly visible from the Fairview-Huntington Highway (State Hwy. 31) which has been designated as a Scenic Byway. The proposed powerline would parallel the existing powerline. It would depart from the existing powerline just south of the Rilda Creek/Huntington Creek confluence where it would cross a small ridge, turn west, and proceed into Rilda Canyon.

I. Recreation

Recreation in this area is primarily limited to big game hunting during the autumn hunting seasons and occasional use by hikers and horseback riders during the summer months. According to the Manti-La Sal National Forest Land and Resource Management Plan the proposed breakout facility and approximately the upper one-half of the new access road would be located in an area designated as semi-primitive motorized. The remainder of National Forest System land through which the lower one-half of the new access road, the reconstructed road, and the overhead powerline pass would be within an area designated as roaded natural appearing.

The project area is located in a portion of Rilda Canyon that is used primarily as a corridor to access lands in the upper Rilda Drainage for big game hunting and to a lesser extent backpacking/hiking. Consequently, this route of access offers unrestricted recreational opportunities to the public and is managed accordingly. Safety would be a concern (although minimal) for those using the canyon near potential escarpment failures.

J. Socioeconomics

PacifiCorp is the lessee of the coal leases that encompass the Rilda Canyon area. Part of the south-east side of Rilda Canyon is in the Deer Creek Mine permit area. The west end of Rilda Canyon is not in the permit area and the proposal being evaluated is part of the process to obtain a permit to mine. However, the whole of the south

side of Rilda Canyon is analyzed in this EA due to the plan to mine under the escarpment of which a portion is permitted and a portion is not permitted. Approximately 10.4 million tons of recoverable coal lie beneath the escarpments on the south side of Rilda Canyon. This represents about 4 years of mine life. Another 16 million tons of recoverable coal in longwall panels and main entry development lie away from the escarpments but within the Rilda Lease Tract Extension area to be added to the Deer Creek Mine permit area. This represents another 6 years of mine life. The proposed ventilation fan would provide the needed ventilation requirements to access and mine the north property where potential reserves to the year 2015 are located. At current production and price of coal, over \$90 million in Federal royalty could be paid over the life of the mine serviced by the fan. These combined reserves could provide direct employment of about 300 miners for the life of the mine (year 2015). For this period, they would supply the coal requirements for the Huntington Power Station which generates 850 megawatts of electricity for the State of Utah. Indirect benefits to the economies of Carbon and Emery County are substantial as the direct economic state of these two counties are heavily dependent on the mining and burning of coal for energy production.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

I. INTRODUCTION

Chapter 4 discloses the potential environmental consequences that could result from implementation of the alternatives considered and evaluated. The environmental effects focus on the lands in the decision area and in some cases the surrounding lands.

This chapter discusses potential impacts by resource category in the same order that the resource categories are discussed in Chapter 3. Effects and consequences are described or grouped as follows:

Direct and Indirect (secondary) Effects - Direct effects are caused by the action occurring at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.

Cumulative Effects - Cumulative effects result from the incremental change over time where the action is added to other past, present, and reasonably foreseeable future actions (regardless of what agency or person undertakes such actions).

Consistency with Forest Plan/Resource Management Plan - This refers to the degree to which the implementation of an alternative conforms or conflicts with Forest Plan goals, direction, and goals.

The duration of impacts is often discussed in the following terms:

Long-term Effects - Effects that would be evident for a period of time that exceeds 5 years.

Short-term Effects - Effects that would be be evident for a period of time not greater than 5 years.

II. AFFECTS OF IMPLEMENTATION BY RESOURCE/ALTERNATIVE

A. General Setting, Topography, Geology

Alternative 1 (No Action)

Under this alternative the surface facilities and mining as proposed would not be approved. The surface facilities would not be constructed and mining that would cause subsidence of the escarpments would not be allowed. The surface resources in Rilda Canyon would not be affected.

Alternative 2 (Proposed Action)

Under this alternative, the action as proposed would be approved with mitigations designed to minimize impacts. The construction and

operation of the proposed surface facilities would result in surficial changes to the topography (approximately 4.3 acres). The changes would be long-term lasting for the duration of mining in the area. The life of operations is predicted to be approximately 20 years.

Mining under the escarpments would be completed using the longwall mining method. Underground workings would include development entries and longwall panels. Extraction of the longwall panels would induce fracturing and collapse of the rock layers above the workings and subsidence of the ground surface. Mining of two overlapping coal seams is proposed. Approximately 9 feet of coal in each seam would be extracted for a total of approximately 18 vertical feet of extraction. As observed on East Mountain to the south, the amount of surface subsidence could reach 70% of the extracted height (subsidence factor). The maximum subsidence is therefore expected to be 12.6 feet. The longwall method ultimately results in the development of a gradual and even subsidence trough. Subsidence begins almost immediately as longwall mining begins and progresses at the approximate rate of extraction. Cracks in the ground surface could occur at the flanks of individual panels within the zone of extensional forces. The potential for cracks to occur is higher in areas of shallow overburden in the escarpment areas. Due to the steep/uneven topography, the subsidence would not result in a perceptible change in the topography. Cracks that occur where there is unconsolidated colluvial cover are expected to heal after a few years.

Studies conducted by PacifiCorp and the Bureau of Land Management have been completed to determine the potential for escarpment failure to occur. A copy of BLM's report for this EA is available in the project file. Factors considered to contribute to mining induced escarpment failure are:

- * A pronounced escarpment or cliff formed by a thick section of Castlegate Sandstone along the rim of the canyon.
- * Longwall panels oriented parallel to the strike of the cliff.
- * A major set of fractures in the Castlegate Sandstone oriented parallel to the cliff face and longwall panels.
- * Talus slopes below the Castlegate Sandstone which are sparsely vegetated.
- * Convex cliff areas are zones of tension where tension cracks are more likely to occur and thus are more susceptible to escarpment failure. Conversely, concave cliff areas are zones of compression and thus are more stable.

It was determined that the highest potential for mining to cause spalling of the Castlegate Sandstone outcrop along the canyon slope or escarpment is at the prominent points (convex area with thick section of sandstone) between small side drainages that are within

the predicted subsidence (Map 2). The potential for failures has been determined to be moderate in these areas (25-75% probability of failure). Disruption of the already fractured sandstone and new fractures caused by subsidence could cause blocks of the sandstone to break-off from the outcrop and fall down the canyon slope. The BLM has determined that the potential for failure of the outcrop is low (10-25%) or negligible (less than 10%) in the remaining areas. It is not likely (low potential) that rock falls would reach the stream in Rilda Canyon or the Rilda Canyon Road because of the slope (45%), vegetation cover, and most likely travel path toward the side drainages. BLM estimates that less than (<) 10 acres would be disturbed by escarpment failure.

Alternative 3 (Proposed Action with Modifications)

The changes in topography from construction of the surface facilities described under Alternative 2 could occur. Since mining that would cause subsidence of the canyon slope and Left Fork of Rilda Creek would not be approved under this alternative, subsidence and changes to the topography in these areas would not occur.

B. Coal Occurrence, Reserves, and Mining

A discussion of how the alternatives could affect the recoverable coal reserves and life of the Deer Creek Mine is included in Section J, Socioeconomics.

C. Transportation/Special Uses

Alternative 1 (No Action)

Under this alternative the fan portal and new road in the Left Fork would not be constructed. Emery County would probably not reconstruct that portion of the road from the NEWUA springs to the forks and construct the turnaround area. This segment of the road would remain under Forest Service jurisdiction and maintenance.

Emery County is reconditioning and stabilizing the Rilda Canyon Road and realigning portions of roadway to a double lane width below the springs. This project lies within private lands and a road corridor on National Forest System lands under Emery County jurisdiction (Revised Statute 2477). A USDA easement will be granted on Forest Service segments to recognize and record their jurisdiction. They will become the primary operator. Construction of the new bridge and approach will result in new disturbance near Huntington Creek. This disturbance is on private lands and easements held by Emery County. This work will result in safer approaches to the highway and safer crossing of Huntington Creek. The bridge meets highway safety standards for sub-structure, super-structure, and deck. The hardening of the travelway and ditches will reduce sediment from run-off and dusting of the native surface. The armored fill

embankments will be stable during high stream flows. Present erosion rates would be reduced.

Reconditioning will require disturbance of approximately 0.2 acres of National Forest System lands to widen two sections of approximately 250 feet each in order to provide for two 10 foot finished surface lanes. The placement of enzyme stabilized aggregate on the recondition roadway will reduce the production of sediment from dust and run-off. The eroding cut ditch will be stabilized in steep grade section to reduce erosion and embankment within the flood plains will be armored to reduce erosion. The season of use will be extended for the forest user. NEWUA will have more dependable access to their springs. Maintenance costs and user cost will be reduced. Safety will be improved. Forest Service maintenance responsibilities and costs will be reduced.

Alternative 2 (Proposed Action)

The following would occur in addition to reconditioning of a portion of the Rilda Canyon Road discussed under Alternative 1.

The 1,426 feet of new road from the forks to the proposed portal would be constructed along the alignment of the crude trail and remnants of 4 wheel jeep trail in the Left Fork of Rilda Canyon. This trail parallels the drainage course and sets near the base of alluvium or colluvium deposit on the north slope of the canyon. The proposal is to provide a travelway of 12 feet, hardened with 6 inches of aggregate. Natural drainage would be conveyed in culverts and roadway drainage would be collected in ditches and crossed in culverts. The road would be gated and the traffic controlled, so no additional turnouts would be constructed in this restrictive section. The proposal indicates cut slope construction of 3/4:1 in the colluvium or alluvium deposit under the cliff forming sandstone/shales. The fill slope and the flood plain bound one-another along 40% of the proposed construction, from station 0+00 to 3+00, from 6+00 to 7+40, and from 9+50 to 11+00. The proposed grade is in excess of 8% from 0+91 to 6+50. The proposed traffic would be approximately 10 to 20 vehicles per day during the construction and reclamation periods. During the remaining periods the use is predicted to be below 1 vehicle per week. The six inches of aggregate should provide for adequate running surface for the proposed construction and reclamation traffic, if use is restricted to dry season (June 15 to October 1) when sub-grades are not saturated. The proposed cut slopes in colluvium or alluvium deposits would likely continue to ravel or sluff if unsupported and would require constant maintenance in order to assure a open travelway. There is almost no potential to re-establish vegetation on the cut slope of 3/4:1. Required support would mitigate this impact. Over the life of the mine portal, flood flow can be expected that could endanger the fill slopes. Required riprap would protect the fill slopes and prevent excessive sediment production. Less than 1.3 acres would be disturbed by the proposed roadway construction.

Emery County would upgrade the Rilda Canyon Road from the springs to the Left and Right Forks of Rilda Creek. Approximately 3,800 feet of existing 12 foot wide single lane road with natural turnouts and no permanent drainage structures would be improved. The roadway now affects approximately 2.4 acres. Work would consist of re-alignment of approximately one-third of the existing road to improve grades, sight distance, stability, and drainage. The improved road would be 3,500 feet in length with a single lane 14 foot finished travelway width. The travelway would be stabilized with 6 inches of aggregate. Both natural and roadway drainage would be carried across the road in culverts. Embankments and drainage structures within the flood plain would be armored with riprap. Turn-outs would be constructed and stabilized along the travelway at horizontal and vertical curves to improve safety. Approximately 4.2 acres would be within the roadway limits and about 1,000 feet of old roadway would be reclaimed. Approximately 260 feet of riprap armor would be placed along embankments. There would be a short-term increase in erosion/sediment during the construct period and for a short time after, then a long-term decrease in erosion/sediment would result because of the hardening of the travelway with gravel, removal of natural and surface water via culverts, and hardening of embankments with riprap. The proposed increase in traffic could be accommodated with increased safety and reduced sediment yield. The traffic could be supported during the current season of use and the use of light vehicle traffic could be extended earlier and later in the year.

Improvement of the road from the springs to the forks with a single lane travelway with turnouts and stable surface would allow passenger type cars access to the trailheads near the forks. Safety would improve by the construction of stabilized turnouts on vertical and horizontal curves rather than utilizing natural occurring non-stabilized open areas. The present primitive native surface travelway provides poor support for light vehicles during the fall hunting seasons when saturated from fall storms. Rutting from this use can concentrate water and increase sediment movement from the roadway to the drainages. Improvements to surface and ditches would reduce surface and ditch sediments. Additional culverts would reduce concentration of water and energy available to transport sediment. Armoring of the road embankment in the floodplains would reduce erosion during high runoff events. User cost and environmental costs would be reduced. The area of disturbance would increase by 2.4 acres, but 0.6 acres of this area would be reclaimed when road construction is completed for a long-term increase in the disturbed area of 1.8 acres.

Alternative 3 (Proposal with Modifications)

The impacts would be the same as discussed under Alternative 2 above since there would be no differences in the transportation situation.

D. Surface Hydrology/Watershed

Alternative 1 (No Action)

Under the no action alternative, the mining as proposed would not be approved. No underground mine development that could cause subsidence of the escarpment or surface construction would be allowed. Under this alternative surface water resources and the watershed in Rilda Canyon would not be affected beyond the impacts that could occur from already approved mining operations. The potential for development workings to affect the flow of the NEWUA springs and Rilda Creek is low because recharge is from the north and west and workings in this area have not encountered significant amounts of water.

Alternative 2 (Proposed Action)

Under this alternative, the proposal would be approved. This would allow for construction of the surface facilities and mining under the canyon slope/escarpments on the south slopes of Rilda Creek.

The water at the NEWUA springs and the flow in Rilda Creek have been identified for protection. Lease stipulations and provisions of the approved mining plan call for replacement of water in these sources if it is determined that mining adversely affects them.

PacifiCorp has entered into a formal agreement with NEWUA to construct a water treatment facility on land owned by PacifiCorp in Huntington Canyon, approximately two miles southeast and downstream of the Rilda Creek/Huntington Creek confluence, near the Huntington Power Plant. Water in the NEWUA culinary water system collected from the Rilda Canyon springs and other potential sources will be treated at this facility to mitigate any water quality impacts. Deep alluvial wells in this vicinity will be drilled to replace any loss of water at the springs.

Mining into the escarpment area and subsidence of the escarpment area could cause cracks and intercept ground water in fractures that could be contributing water to the NEWUA springs. The potential for affecting the flow is low because the majority of flow is attributed to alluvial water upstream of the springs and rock formations and fracture systems that lie to the north that would not be disturbed. There is, however, a low risk of decreasing the flow in the springs if there is any recharge from the south. This is most likely in the Side Canyon and South Springs that have the lowest flow of the three spring groups. If this occurs, there could be a corresponding decrease in flow in Rilda Creek. The potential for this to occur is also considered to be low. Development workings on the south slope have not encountered significant amounts of water, supporting that there is only a low risk of diverting ground water flow. If flow is diverted, it would remain underground and could be diverted into the mine workings and discharged back to the surface in Deer Creek or could continue to flow southward through the ground water system. It

is unlikely that water would be diverted from the Huntington Creek watershed or from the Colorado River system.

If subsidence results in rock spalling along the Castlegate Sandstone outcrop, there could be some short-term increase in sediment that could reach Rilda Creek. BLM estimates that less than (<) 10 acres would be disturbed.

Construction of the surface facilities would contribute to sediment in Rilda Creek. This would disturb approximately 4.3 acres of previously undisturbed ground. Best management practices required by the regulatory agencies and measures proposed by PacifiCorp would minimize the amount of sediment that would reach the drainage. This impact would be short-term lasting throughout the construction phase of operations. Once the facilities are completed, sediment control measures would be effective in controlling sediment produced and capturing sediment from the disturbed area on site. Sediment reaching the creek would be reduced from the present condition due to surfacing of the road (gravel), protection of the stream banks by riprap, and sediment control structures.

If there are any spills of diesel fuel or other potentially polluting substances during construction or operation of facilities, that are not adequately contained before they reach alluvial or surface water, water quality could be affected. The potential for this to occur is low and the duration of impacts would depend on the location of the spill, the timing and effectiveness of containment/removal actions taken, and the type of material spilled. PacifiCorp would be required to implement their Spill Prevention and Counter Control Plan in the event that a spill occurs.

Alternative 3 (Proposed Action with Modifications)

As discussed above under Alternative 2, there could be a short-term increase in sediment production due to construction of facilities and a long-term decrease in sediment in the creek due to measures for controlling erosion and sediment transport to the creek.

Under this alternative, mining that would cause subsidence of the escarpment areas would not be approved. The potential for mining to decrease the flow to the stream or springs associated would be minimized.

E. Ground Water Hydrology

Alternative 1 (No Action)

Under the no action alternative the mining as proposed would not be approved. Subsidence of the canyon slope/escarpment and construction of the surface facilities would not be approved. Mining in the area that has already been approved could alter the ground water system but the potential would be low. Based on the results of

hydrologic monitoring, impacts to the flow in Rilda Creek and the NEWUA springs should be minimal.

Alternative 2 (Proposed Action)

Under this alternative the mining would be approved as submitted. This would allow construction of the surface facilities and subsidence of the canyon slope/escarpments.

The mining of longwall panels under the canyon slope/escarpment would cause subsidence and cracks in the ground surface. The potential for the development of cracks is highest where the overburden is shallow. Overburden above the area proposed for mining ranges from 2,000 feet at the ridgetop to 250 feet near the coal outcrop on the canyon slope. Some water runoff during snowmelt and rainstorms could be diverted underground until the cracks heal and allow this water to continue downslope. Most cracks heal within a period of just a few years.

Mining under the escarpments and subsidence increases the risk of interception of water bearing fractures associated with the springs. PacifiCorp's studies of the hydrology indicate that alluvial water in the Left and Right Forks of Rilda Creek contribute the majority of flow to the NEWUA springs. Additional water has been attributed to north-south trending and east-west trending fracture systems that intersect near the springs. The geologic structure and dip of the rock layers indicate that recharge is mostly from the area north of Rilda Canyon. Since the proposed mining is on the south slope of the canyon, there is some potential that the flow in the springs could be affected but the potential is low. The potential for decreased flow is greater for the Side Canyon and South Springs. These springs contribute the least amount of flow of the three groups of springs.

Alternative 3 (Proposal with Modifications)

This alternative would allow the construction of the surface facilities with mitigation measures to minimize impacts but not approve mining under the canyon slope/escarpments that could cause subsidence and escarpment failures.

This would reduce the potential for interception of water filled fractures due to subsidence. Assuming that water filled fractures extend into the mountain from the outcrop, mining could still intercept these fractures and the water associated within them. The degree of potential impact would be approximately the same as for Alternative 2 (Proposed Action), which is low.

F. Vegetation

Alternative 1 (No Action)

Under this alternative there would be no changes to vegetation except for the 0.2 acres of disturbance associated with reconstruction of the Rilda Canyon from State Hwy. 31 to the NEWUA springs by Emery County.

The potential for flow in the drainage that could also cause indirect changes in riparian vegetation is low.

Alternative 2 (Proposed Action)

Under this alternative vegetation would be removed for construction of the new road, pad, and turnaround area, as well as for improvement (widening to a 14 foot travel surface) of the existing road. Vegetation would be removed from a 1.2 acre area for the facilities pad and 1.3 acres for the new facilities pad access road. Reconstruction of the Rilda Canyon Road from the NEWUA springs to the forks would disturb approximately 1.8 acres of additional lands. Approximately 0.6 acres of the old road (already disturbed area) would be reclaimed and revegetated. Long-term disturbance would be 4.3 acres. Additional short-term disturbance would be 0.6 acres.

PacifiCorp would be required to fence the canyon near the mouth to prevent livestock grazing in the perennial reaches of Rilda Canyon. This would improve the riparian vegetation condition and diversity in the associated RPN Management Unit to mitigate the loss of riparian vegetation from construction/operations. The RPN Management Unit extends 100 feet on either side of the perennial stream, on National Forest System lands, from the springs to the private lands downstream. This area encompasses a 1.25 mile length of stream and an approximate area of 30 acres.

If mining under the escarpments intersects fractures that provide water to the NEWUA springs, there could be some decrease in flow in the springs and downstream in Rilda Creek. This could result in some decrease in the width and diversity of the riparian community in and adjacent to the stream channel over the long-term. The potential is low because the potential for decreasing the flow is low and the stream receives water from several sources. Flows should continue sufficient to support the riparian vegetation community.

Subsidence induced spalling of the Castlegate Sandstone outcrop could result in sandstone blocks breaking away and tumbling down the slope. There could be some loss of vegetation (Spruce/Fir Coniferous Forest) along the slopes below the outcrop, depending on the area affected. BLM estimates that the affected area would be less than (<) 10 acres. Some large trees could be knocked over and understory vegetation could be covered or destroyed by debris. This is expected to occur only along the prominent cliff outcrops along the points between side drainages.

Alternative 3 (Proposed Action with Modifications)

Since subsidence of the canyon slope would not be approved, only the impacts discussed above under Alternative 2 for construction of the surface facilities are expected to occur.

G. Wildlife

Alternative 1 (No Action)

The proposed actions would not take place and the impacts discussed for the action alternatives below would not occur.

Alternative 2 (Proposed Action)

Activities associated with construction of the facilities pad and construction/reconstruction of the access roads could displace wildlife species into adjacent areas. This activity would be short-term. If species avoid a 1/2 mile area, the short-term habitat loss could be 1.5 square miles. Once construction is completed, there could be a long-term loss of habitat associated with the disturbed area (4.3 acres) due to vegetation removal, increased traffic (operations), and fan noise. Fan noise could continue to displace some species for the life of the mining operation. If a 1/2 mile area is avoided, the area would be less than 1 square mile. Most species, including big game species and birds would become accustomed to the noise and activity and slowly move back into the area. There would be a decrease in use by deer and elk for winter foraging, thermal cover, and security. Foraging, nesting, and cover use could decrease by other species. This impact would be consistent with Forest Plan direction because the activity would not result in a loss of crucial habitat needed to maintain viable populations or meet population goals.

Subsidence of the escarpment on the south slope of Rilda Canyon could cause failures of the Castlegate outcrop along the prominent points between small side drainages (less than 10 acres). This is not likely to alter habitat to any significant degree. Golden eagle Nest 296A could be at risk, however, the BLM has determined that there is negligible potential (less than 10%) for the outcrop to fail at the nest location because only first mining that is not expected to cause subsidence is planned under the nest. PacifiCorp would be required to obtain a permit to take the nest from the U.S. Fish and Wildlife Service. Mitigations would include taking appropriate measures to assure that the nest does not become active during the period that subsidence could take place in the area. There would be a negligible potential for impact to eagles. Raptor nesting habitat could be decreased until the escarpment areas stabilize.

There are no known threatened or endangered species in the area. The Northern Goshawk, Spotted bat, and Northern Three-toed woodpecker (and their habitat) are the most likely Sensitive species to exist within and adjacent to the project area. They were not found in Rilda

Canyon during the surveys conducted in June and July of 1994. Impacts to habitat are expected to be minimal. A copy of the Biological Evaluation is contained in the project file.

Loss of water due to mining could decrease the quality of riparian habitat. The potential for this to occur is expected to be low because the potential for decreasing water flow is low and remaining flows should be sufficient to maintain this habitat and provide adequate watering sources.

The short-term potential increase in sediment in Rilda Creek during construction could decrease the quality of habitat for aquatic invertebrate species in Rilda Creek and decrease populations. This could decrease habitat and food availability for trout in Huntington Creek and other species dependent on macroinvertebrates.

Alternative 3 (Proposed Action with Modifications)

Since subsidence of the canyon escarpment would not be approved under this alternative, only the impacts discussed under Alternative 2 above related to construction and operation of surface facilities would occur. The canyon escarpments would not be subsided and golden eagle Nest 296A would not be at risk.

H. Visual Quality

Alternative 1 (No Action)

The impacts discussed below for the action alternatives would not occur. Reconstruction of the Rilda Canyon County road from the intersection with the Fairview-Huntington Highway (State Hwy. 31) and replacement of the bridge will temporarily decrease visual quality consistent with visual quality objectives for the short-term (1994 summer season). The activity is visible from Huntington Canyon and State Hwy. 31 and from the Rilda Canyon County Road.

Alternative 2 (Proposed Action)

The breakout facility would be located in a densely vegetated area which contains an evergreen screen that in concert with existing topography appears adequate enough to provide camouflage for long views year-round. The new access road would require cutting into the toe of the north slope of the canyon at various points and cursory observation indicates that revegetation of these cuts may prove unsuccessful.

The road to be reconstructed on lands managed by the Forest Service in Rilda Canyon would not be visible from State Highway 31 which has been designated as a Scenic Byway. The section of powerline to be installed parallel to this reconstructed road on the National Forest would also not be visible from Highway 31. However, the powerline would be readily seen from highway 31 as it leaves Rilda canyon and passes through adjacent BLM and private lands. At this location the

powerline crosses a ridge south of the Rilda Creek/Huntington Creek confluence and would be highly visible. This would be a new visual intrusion on the landscape. The powerline would then merge with the existing powerline in Huntington Canyon and parallel it. Since there is already a powerline along this corridor, the decrease in visual quality caused by installing a parallel line would be minimal. The visibility would be increased but the visual intrusion of the existing powerline already exists.

Escarpment failures could visually impact National Forest lands on or near the walls of the canyon. The new or subsequently larger talus slopes associated with these failures would appear to be natural but can be expected to be visible from within Rilda Canyon itself, from higher elevations in other adjacent drainages, and possibly from portions of State Highway 31.

The project would be consistent with visual quality objectives.

Alternative 3 (Proposed Action with Modifications)

Since subsidence of the canyon escarpment would not be approved, only the impacts associated with construction of the surface facilities discussed above under Alternative 2 are expected to occur.

I. Recreation

Alternative 1 (No Action)

Under this alternative there would be no impacts to recreation in the area other than those expected from reconstruction of the Rilda Canyon Road from the intersection with State Hwy. 31 to the NEWUA springs. This would improve recreation access to the springs but not beyond. A negligible increase in recreation use in the canyon could occur due to the increased accessibility for passenger car traffic.

Alternative 2 (Proposed Action)

In addition to reconstruction of the road from the intersection with State Hwy. 31, Emery County would improve the Rilda Canyon Road from the springs to the forks and construct a turnaround area at the forks. This would improve access to the trails in the Left and Right Forks of Rilda Canyon and provide a parking area suitable for parking and turning large vehicles such as RVs. The improved access could increase motorized sight-seeing in the canyon during the summer season for two to three years until people become familiar with the road and facilities in the canyon.

The change in visual quality in the canyon, noise from the exhaust fan, and the musty mine odor that may be present during certain weather conditions could detract from the recreation experience in the canyon, depending on the sensitivity of individuals toward mining activities and the type of recreation experience sought after.

It is expected that hunting in the upper reaches of Rilda Canyon could decrease due to the perception by hunters that fan noise would decrease use of the area by big game species. This could be offset somewhat by the improvement of access to the area. Other recreational use of the trails, such as hiking and horseback riding, would probably slightly decrease or remain the same.

The decrease in visual quality in Huntington Canyon due to construction of the powerline is not expected to affect recreation because there is already one powerline along the proposed alignment. The presence of the powerline in Rilda Canyon would probably not affect use of the canyon by hunters.

Overall, recreation use in the canyon would probably decrease by a negligible amount in the long-term.

Failures of the Castlegate Sandstone outcrop on the south slope of Rilda Canyon is not expected to affect recreation because the failures would appear to be natural considering that this type of failure is common throughout the cliffs in Huntington Canyon. It is not likely that rocks would reach the road in the canyon bottom considering the distance, slope, and tree buffer. Monitoring would be done by the operator to assess the potential safety hazard. If the hazard becomes a concern appropriate measures would be taken to warn the public and control use in the areas where the hazard exists.

Alternative 3 (Proposed Action with Modifications)

The impacts would be the same as discussed under Alternative 2 resulting in some decrease in recreation use in Rilda Canyon. However, there would be no subsidence of the canyon escarpment and related safety concerns.

J. Socioeconomics

Alternative 1 (No Action)

Under this alternative, the surface facilities and the mining plan as proposed would not be approved. Approximately 10.4 million tons of recoverable coal would not be mined from the longwall panels that are under the escarpments. No other mining methods are feasible for these areas as some sort of non-subsidence mining would require total reinvestment by PacifiCorp for an extra continuous mining machine and support equipment to produce enough coal to supply the Huntington Power Plant. This would force the company to possibly mine Federal coal at a loss contrary to the Mineral Leasing Act of 1920, as amended. Consequently, these reserves could be lost. At current coal prices, this represents an estimated loss of the value of the coal of \$260 million to PacifiCorp and a loss of \$20 million in Federal coal royalties of which half would not be returned to the State of Utah. This loss would prevent increasing the mine life by 4 years. This would equate to 300 jobs for 4 years or roughly \$42 million in direct wages and another \$20 million in indirect wages.

PacifiCorp would need to begin developing longwall panels in other areas of the mine. The current longwall panel could be mined-out long before new panels are developed in other mine areas and longwall production could cease until new panels are developed. Since roughly 3/4 of the mine's production capacity comes from the longwall section, PacifiCorp might be forced to obtain coal reserves from alternate supplies. In addition, without the proposed ventilation fan and portals in Rilda Canyon, much of the northern and western reserves could not be mined at rates to meet demand and still meet minimum ventilation requirements. This could jeopardize the reserves for an estimated 20 years of mine life. As the mine currently has about 300 employees, employment could decrease as the mine closes. This could have a multiplier effect on the economies of Carbon and Emery County as many of the service and support industries in these counties could have to curtail business.

Alternative 2 (Proposed Action)

Under this alternative, PacifiCorp would be allowed to continue developing and mining longwall panels north towards Rilda Canyon. The ventilation fan and portals would be constructed and additional air requirements for future mining areas would be met. With additional air from the Rilda Canyon ventilation fan and portals, PacifiCorp's future reserves to the west and north can be accessed and mined and the mine life would extend to the year 2015. Approximately 10.4 million tons of coal could be recovered under the escarpments on the south side of Rilda Canyon. Employment and associated socioeconomic benefits could continue.

Alternative 3 (Proposed Action with Modifications)

Under this alternative, longwall mining under the escarpments would not be allowed but the ventilation fan and intake portals would be allowed in Rilda Canyon. Approximately 10.4 million tons of recoverable coal under the escarpments could be lost to mining. This could result in a loss of \$20 million in Federal royalty. The opportunity to extend the mine life by 4 years and employment and associated socioeconomic benefits could be reduced. The instillation of the fan would allow access and future mining of PacifiCorp's leased reserves to the west and north.

K. Short-term Use of Man's Environment vs. Long-term Productivity

Alternative 1 (No Action)

There would be no change from the current situation.

Alternative 2 (Proposed Action)

Mining of coal as proposed would extend the life of the Deer Creek Mine by approximately 20 years and provide 10.4 million tons of coal for the production of electricity. This would be a one-time short-term benefit since coal is a nonrenewable resource.

The long-term productivity of resources could be affected but not to a significant degree. Vegetation, wildlife habitat, and visual quality related to construction and operation of the surface facilities would be restored once reclamation is accomplished and determined to be successful. There could be some decrease in the flow of the NEWUA springs Rilda Creek if subsidence causes diversion of ground water. This could decrease the productivity of riparian vegetation and macroinvertebrate populations in Rilda Creek. Construction of the water treatment facility by PacifiCorp would replace any water loss to the NEWUA culinary springs and could result in an overall increase in the availability of the culinary water supply. The condition and diversity of riparian vegetation in the perennial section of Rilda Creek, at and below the springs, could be enhanced as a mitigation intended to offset the potential loss of riparian vegetation from construction of the facilities.

Alternative 3 (Proposal with Modifications)

The affects would be the same as discussed under Alternative 2 above, except that the potential for affecting the springs and flow in Rilda Canyon would be reduced by not allowing subsidence of the canyon slope (escarpment).

L. Irreversible and Irretrievable Commitments of Resources

Alternative 1 (No Action)

The minable coal reserves not mined under this alternative would be irreversibly lost considering present mining technology. It would be bypassed. The associated loss of energy and economic benefits would be irreversible.

Alternative 2 (Proposed Action)

The loss of vegetation and associated wildlife habitat and impacts to visual quality from the surface facilities would be irretrievable but not irreversible. Once operations are completed (approximately 20 years), the disturbed area would be recontoured and reclaimed. It would take approximately 3-5 years to re-establish vegetation on the disturbed sites and 5-10 years for tree species to become established and vegetation to blend in with the surrounding areas.

Damage to vegetation from escarpment failure would be irretrievable and would take longer to naturally recover because of the steep slopes. Efforts to reclaim these sites are not planned because of the steep slopes, small extent of area expected disrupted, distance from the creek, and rocky nature of the slopes.

Any loss of flow in the springs, alluvial aquifer, and in Rilda Creek due to mining in the escarpment areas and along the ridge tops would be irretrievable and potentially irreversible. Various methods could be used to replace some flow and expanding clays are expected to seal

cracks and replace some flow paths but the change to the ground water system would probably be permanent.

Coal is not a renewable resource. Mining and burning of the coal to produce electricity would be an irreversible commitment of the coal itself and other energy resources used in the mining process.

Alternative 3 (Proposed Action with Modifications)

Irretrievable and irreversible impacts would be the same as discussed above under Alternative 2 except that there would be no irretrievable impacts to vegetation and wildlife habitat on the escarpment and the potential for irretrievable and irreversible impacts to the NEWUA springs and flow in Rilda Creek would be reduced from the already low potential under Alternative 2.

M. Cumulative Impacts

Alternative 1 (No Action)

Under this alternative, there would be no changes to the current situation.

The Rilda Canyon area and ecosystem has been continuously altered by natural flooding, erosion, glacial activity, fires, insect infestations, and other natural processes prior to encroachment by man. There is some evidence of long-term habitation by Formative (Fremont) Stage (AD 400 to AD 1300) peoples. Temporary occupation on a seasonal basis is suspected by Archaic and later populations. European settlement resulted in hunting/trapping of game, timber harvest, livestock grazing, and coal mining. Livestock grazing on the Wasatch Plateau was extensive in the late 1800s resulting in extensive watershed damage and erosion. Management of grazing by the Forest Service since 1906 has resulted in significant improvement of resource conditions. Rilda Canyon has not been as severely altered by grazing as many other areas on the plateau. Vegetation density is high and the range conditions are generally good.

Rilda Canyon is included within the Gentry Canyon (forks of Rilda Creek to Huntington Creek) and the Trail Mountain (Left Fork of Rilda Creek) Cattle and Horse Grazing Allotments). These allotments are grazed in early spring. Grazing has resulted in the decrease in native understory species and the introduction of non-native species and potentially the overall reduction of understory plant diversity. The present level of grazing will continue with some potential decreases in numbers in the future.

Coal prospecting and some limited mining probably occurred in Rilda Canyon in the late 1800s. Four coal mines have operated on and off between 1936 and 1969. The mines resulted in improvement of any prior existing access in the canyon and changes in the topography related to access to the portals and development of portals. Trees were harvested for mine support timbers. The old coal storage areas,

portals, and portal access roads were reclaimed in 1990 by the Utah Division of Oil, Gas and Mining under the abandoned coal mine reclamation program. Development of facilities and the human activity in the canyon undoubtedly caused increased erosion and sediment production, disturbance of wildlife, and decrease in water quality. Reclamation and revegetation have been monitored and have proven to be very successful. The springs later developed by NEWUA were probably developed to provide water for mining operations. The reclaimed mines were not producing water.

NEWUA developed the springs at the Side Canyon drainage in Rilda Canyon in 1972. The development includes the water collection systems and a 6 inch pipeline buried under the road. Water is diverted from the creek to serve approximately 421 families in northern Emery County with culinary water. This diversion decreases the surface flow in Rilda Creek by as much as 400 gpm, but flow continues to be perennial below the springs in amounts sufficient to sustain the stream integrity, riparian vegetation, and the overall health of the ecosystem.

The Rilda Canyon road (jurisdiction of Emery County from Hwy. 31 to the NEWUA springs under R.S. 2477) is a native surface road which is in poor condition resulting in severe erosion of the road surface and associated ditch during spring runoff and rainstorms. Sediment contributions to Rilda Creek and Huntington Creek is high during these periods. Reconstruction of the road by Emery County to a 20 foot travel width with designed drainage will decrease erosion and sediment production in the long-term, once construction is completed. The inside road ditch and culvert outlets will be armored with rock riprap to control water velocities and erosion. Existing ground and surface water quality and flow is described in Chapter 3, Items D and E.

Approximately 2,000 acres of vegetation burned on East Mountain in the Fall of 1993. The fire included the upper portion of the Right Fork of Rilda Canyon but did not encroach into the Left Fork. The fire burned mostly understory vegetation and conifer stands. The estimated burn within the fire perimeter is 50-60%. Water monitoring in Rilda Creek by PacifiCorp has shown that there is no measurable difference in water quality in Rilda Creek with the possible exception of sediment production during runoff from snowmelt and rainstorms. Ash from the burned vegetation has been observed in the creek during rainstorm runoff. A significant recovery of understory vegetation and aspen has been observed in the 1994 spring/summer season. Near complete recovery of understory vegetation is expected during the 1995 spring/summer season. Sediment increases have been negligible since the fire and are not expected to continue beyond the 1994.

A short-term increase in motorized sight seeing in Rilda Canyon is expected due to the road improvement.

No other management activities are planned for the canyon.

Alternative 2 (Proposed Action)

The anticipated impacts to the existing environment (referred to as the affected environment in Chapter 3) were described throughout Chapter 4 by resource category. They would be cumulative, adding to changes that man's activities have already caused in Rilda Canyon.

Surface facilities are expected to cause some but an insignificant amount of vegetation removal and loss of wildlife habitat. The loss of habitat would contribute to cumulative losses but wildlife species have sufficient areas available to maintain populations.

It is unlikely that the cumulative impacts would cause significant impacts to flow, stream channel morphology, riparian vegetation, and wildlife species in the canyon, even though some changes could occur. Any potential loss of culinary water would be offset by development of the reservoir, deep water wells, and the water treatment facility near Deer Creek. Exclusion of livestock use in Rilda Canyon as a mitigation, should result in improved diversity and health of the riparian ecosystem from the springs downstream to private lands at the canyon mouth. Short-term increased sediment levels from road reconstruction and construction of the facilities should be offset by a long-term decrease in sediment production. Sediment production from the existing low standard road has been high.

Water intercepted during mining could enter the mine workings and be discharged into Deer Creek or could continue to flow down-dip to the south in the ground water system. It is not likely that water would be depleted from the Huntington Canyon watershed or the Colorado River system.

A decrease in the use of the trails in the Left and Right Forks is expected due to the fan noise, decrease in visual quality from the surface facilities pad, and increased human presence from mining related activities. Hunting in the canyon is also expected to decrease.

No additional disturbance for surface facilities is reasonably foreseeable at this time. PacifiCorp evaluated the potential for loading and hauling coal at the proposed breakouts for trucking to the Huntington Power Plant. This scenario would have involved parking areas for the miners, a bathhouse, coal storage and loading facilities, equipment storage, and paving the Rilda Canyon Road for hauling. This scenario was replaced with the current proposal due to Forest Service concerns and available mineable reserves. It was determined that the proposed facilities would provide for the reasonably foreseeable needs of the operator for mining.

Alternative 3 (Proposed Action with Modifications)

The impacts would be the same as discussed under Alternative 2 except that there would be no mining induced failures of the canyon slope/escarpment and associated loss of vegetation. The potential

for mining to cause a decrease in flow at the NEWUA springs and in Rilda Creek would be decreased.

CHAPTER 5
LIST OF PREPARERS

The following is a list of interdisciplinary team members who directly participated in conducting the environmental analysis and preparing the environmental assessment. The title resource area represented and role on the team is indicated for each person. Other employees of the Forest Service, Bureau of Land Management, and Office of Surface Mining provided comments.

<u>Name</u>	<u>Analysis Skills/Specialty</u>	<u>Role</u>
Carter Reed	Geology/Minerals	Team Leader
Brent Barney	Engineering/Transportation	Core Team Member
Dennis Kelly	Surface Water Hydrology	Core Team Member
Steve Romero	Wildlife	Core Team Member
Paul Burns	Wildlife (Aquatic)	Extended Team Member
Kevin Draper	Visual Quality/Recreation	Core Team Member
Bob Thompson	Vegetation/Reclamation	Extended Team Member
Steve Falk	Mining Engineer/BLM Rep.	Core Team Member
Ken Wyatt	Ground Water Hydrology	Core Team Member
Floyd McMullen	OSMRE Rep.	Extended Team Member

CHAPTER 6
REFERENCES

The following is a list of tiering and reference documents:

Danielson, Terence W., et. al., 1981, Hydrology of the Coal-Resource Areas in the Upper Drainages of Huntington and Cottonwood Creeks, Central Utah, U.S.G.S. Water-Resources Investigations Open-File Report 81-539.

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

PacifiCorp, 1993, Deer Creek Coal Mine Permit Application, Deer Creek (ACT/015/018)/Cottonwood (ACT/015/019), Des-Bee-Dove (ACT/015/017), Hydrologic Section, Volume 9, Revised March 41, 1993.

USDA, Forest Service, 1986, Final Environmental Impact Statement and Land and Resource Management Plan, Manti-La Sal National Forest, Price, Utah (Forest Plan).

USDI, Bureau of Land Management, 1988, Final Environmental Impact Statement, San Rafael Resource Management Plan, 1988 (RMP).

USDA, Forest Service, 1986, Environmental Assessment for Readjustment of Consolidated Federal Coal Lease SL-050862/U-24069/U-24070, Price Ranger District, Manti-La Sal National Forest, Emery County, Utah, December, 1986

USDA, Forest Service, 1976, Environmental Analysis Report/Part 23 Technical Examination, Peabody Coal Company, Federal Leases U-06039, SL-051221, and U-014275, Lease Readjustment, October 4, 1976.

USDA, Forest Service, 1992, Decision Notice and Finding of No Significant Impact for the Readjustment of Federal Coal Lease U-06039, Price Ranger District, Manti-La Sal National Forest, Emery County, Utah, May 15, 1992 (See Attachment B, Environmental Analysis Summary Matrix).

USDA, Forest Service, 1990, Environmental Assessment for the Readjustment of Federal Coal Lease U-7653, Price Ranger District, Manti-La Sal National Forest, Emery County, Utah, January, 1990.

USDA, Forest Service, 1980, Environmental Assessment, 40 CFR 1500, 43 CFR 3521, 1-4, Proposed Coal Lease Tract, Section 32, T. 16 S., R. 7 E., SLM, Emery County, Utah, October 8, 1980 (This lease was officially assigned No. U-47977 when it was leased in 1982).

USDA, Forest Service, 1989, Environmental Assessment for the Readjustment of Federal Coal Lease U-024319, Price Ranger District, Manti-La Sal National Forest, Emery County, Utah, July, 1989.

APPENDICES

- APPENDIX 1 - Public Scoping Letter with Mailing List
- APPENDIX 2 - Public Notices
- APPENDIX 3 - Mitigations
- APPENDIX 4 - Role of Office of Surface Mining Reclamation and Enforcement in the Regulation of Coal Mining

Appendix 1

United States
Department of
Agriculture

Forest
Service

Manti-La Sal
National Forest

Price Ranger District
599 West Price River Dr.
Price, Utah 84501

Reply to: 2820

Date: May 5, 1994

m01n

m02n

PacifiCorp has submitted a mine plan amendment to the Utah Division of Oil, Gas and Mining proposing to construct a breakout on the south slope of the Left Fork of Rilda Canyon and to mine and subside the south slope of Rilda Canyon and the upper reaches of the Left Fork drainage channel on their existing coal leases. The breakout would provide air ventilation for the Deer Creek Mine. The 1.2 acre facilities pad would contain three portals, a ventilation fan on the easternmost portal, an electric substation, water storage tank, and pumphouse. The existing Rilda Canyon road (Forest Development Road 50246) would be improved to a 14 foot gravelled travel width from the intersection with the county road at the North Emery Water Users Association springs to the forks (0.5 mile). A turnaround area would be constructed at the forks. A new (gravelled, restricted access) road would be constructed from the forks to the facilities pad, a distance of 1,350 feet (1.3 acres). A new 25KV overhead power line would be constructed along the Rilda Canyon road to the substation on the facilities pad.

As the surface management agency for the majority of the lands involved, the Forest Service will take the lead on conducting the environmental analysis of the proposal under the National Environmental Policy Act of 1969 (NEPA). The Bureau of Land Management, and Office of Surface Mining Reclamation and Enforcement will cooperate in conducting the analysis.

You are invited to provide comments and identify issues. Please send any comments to Charlie Jankiewicz, District Ranger, Price Ranger District, Manti-La Sal National Forest, 599 West Price River Drive, Price, Utah 84501. To obtain additional information or comment on the proposed action by telephone, contact Carter Reed or Jeff DeFreest at 801-637-2817. Comments must be received by the close of business on June 3, 1994.

Sincerely,

/s/ Charlie J. Jankiewicz

CHARLIE JANKIEWICZ
District Ranger

J.Defreest:dm

m01nKen Phippen
Division of Wildlife Resources
455 W. Railroad Avenue
Price, UT 84501
m02nDear Ken:

m01nEmery County Commissioners
c/o Dixie Thompson
P.O. Box 629
Castle Dale, Utah 84513
m02nDear Dixie:

m01nDick Carter
Utah Wilderness Association
455 E. 400 S.
Salt Lake City, Utah 84111
m02nDear Dick:

m01nHuntington Cleveland Irrigation
c/o J. Craig Smith
P.O. Box 11808
Salt Lake City, Utah 84147
m02nDear Craig:

m01nEmery County Water Conservancy District
c/o Jay Mark Humphrey
P.O. Box 998
Castle Dale, Utah 84513
m02nDear Jay:

m01nPacifiCorp
c/o Interwest Mining Co.
ATTN: Property Administration
One Utah Center, Suite 2000
201 South Main Street
Salt Lake City, Utah 84140
m02nDear Sir:

m01nHuntington Cleveland Irrigation
c/o Varden Willson
P.O. Box 327
Huntington, Utah 84528
m02nDear Varden:

m01nNorth Emery Water Users Association
c/o Jack Stoyanoff
P.O. Box 160
Elmo, Utah 84521
m02nDear Jack:

m01nCrاندall Ridge S&G Allotment
c/o John Larsen
1665 E. 1280 N. #84
Mt. Pleasant, Utah 84647
m02nDear John:

m01nLee Lemmon
Huntington Cattlemen's Association
P.O. Box 193
Huntington, UT 84528
m02nDear Lee:

Appendix 2

For publication in the Sun Advocate on Thursday, May 5 and
the Emery County Progress on Tuesday, May 10.
For further information contact: Carter Reed at 637-2817.

LEGAL NOTICE

USDA Forest Service
Intermountain Region
Manti-La Sal National Forest
Price Ranger District
Emery County, Utah

The Price Ranger District of the Manti-La Sal National Forest is evaluating a proposal by PacifiCorp to construct a breakout on the south slope of the Left Fork of Rilda Canyon and to mine and subside the south slope of Rilda Canyon and the drainage channel in the upper reaches of the left fork. The breakout would provide air ventilation for the Deer Creek Mine. The 1.2 acre facilities pad would contain 3 portals, a ventilation fan on the easternmost portal, a substation, water storage tank, and pumphouse. The existing Rilda Canyon road (Forest Development Road 50246) would be improved to a 14 foot gravelled travel width from the intersection with the county road at the North Emery Water Users Association springs to the forks (0.5 mile). A turnaround area would be constructed at the forks. A new low standard gravelled restricted access road would be constructed from the forks to the facilities pad, a distance of 1,350 feet (1.3 acres). A new 25KV overhead power line would be constructed along the Rilda Canyon road to the substation on the facilities pad.

The Forest Service, Bureau of Land Management, and Office of Surface Mining Reclamation and Enforcement will cooperate in conducting an environmental analysis for the proposal.

The public is invited to provide comments and identify issues. To obtain additional information or comment on the proposed action, contact Carter Reed or Jeff DeFreest at the Manti-La Sal National Forest Supervisor's Office, 599 West Price River Drive, Price, Utah 84501, (Phone 801-637-2817). Comments must be received by the close of business on June 3, 1994.

APPENDIX 3

MITIGATIONS FOR ALTERNATIVES 2 AND 3

Mitigations that will be required for operations if one of the two action alternatives (Alternatives 2 and 3) is selected are discussed in this appendix. The mitigations common to both alternatives are discussed as well as those specific to Alternative 2 are discussed under separate headings. Operations are subject to adherence to the stipulations attached to the individual coal leases affected by operations and to provisions of the approved mine plan and mine permit.

A. Mitigations Common to Alternatives 2 and 3

1. The operator must construct a fence and cattleguard at the mouth of Rilda Creek to exclude livestock use in the canyon. Maintenance of this facility during the life of operations would be the operator's responsibility. This would prevent damage to the riparian vegetation and enhance the area for wildlife to offset the loss of riparian vegetation from facilities pad and road construction. The fence and cattleguard designs and specific location are subject to Forest Service review and approval.
2. The facilities pad must be fenced to provide for public safety and prevent access by livestock and big game species.
3. Facilities must be painted with a color that blends naturally with the surrounding environment. The color is subject to approval by the Forest Service.

B. Mitigations Specific to Alternative 2

1. In the event that rocks or other debris from the escarpment reach Rilda Creek and cause blockage or alteration of the natural flows, the operator will be required to remove the materials causing the blockage, take necessary measures to prevent sediment production, replace riparian vegetation through reclamation of other means, and replace the the natural flow patterns. The method of conducting these required activities are subject to approval of the regulatory authority with consent from the Forest Service.
2. Any damage to fences, roads, spring developments, etc. caused by escarpment failures or other operations must be repaired or replaced as soon as possible. Methods for repair or replacement of such facilities are subject to approval of the regulatory authority with consent from and Forest Service.
3. The operator must take necessary measures to prevent raptors from building and occupying nests in the escarpment area during periods that they would be at risk from subsidence. Golden eagle nest 296A must be protected from subsidence unless the operator obtains a take permit from the U.S. Fish and Wildlife Service.

4. The operator must monitor subsidence and escarpment areas to determine the extent of escarpment failures that occur and to determine when they stabilize. The operator is responsible to ensure public safety in the areas where escarpment failures are likely to occur until it is determined that subsidence is substantially complete and the escarpments have stabilized. Methods of providing for public safety and for monitoring escarpment failures (including the frequency of monitoring) are subject to approval of the regulatory authority with consent from the Forest Service.

5. Should escarpment failures occur to an extent beyond that predicted and cause functional impairment of surface resources (impacts that are not consistent with management prescriptions in the Forest Plan), additional operations that could cause escarpment failures must be suspended pending evaluation by the regulatory authority in consultation with the Forest Service.

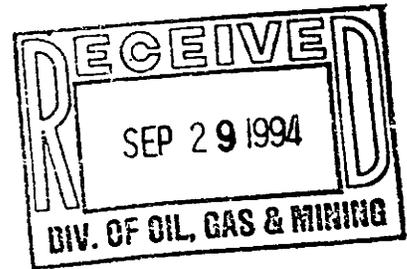
Appendix 4 - Role of Office of Surface Mining Reclamation and Enforcement
in the Regulation of Coal Mining

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 (DOGGM) 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.

DECISION NOTICE
AND
FINDING OF NO SIGNIFICANT IMPACT



PACIFICORP DEER CREEK MINE SURFACE FACILITIES
AND
MINING UNDER THE CANYON ESCARPMENT
IN RILDA CANYON

USDA FOREST SERVICE, INTERMOUNTAIN REGION
MANTI-LA SAL NATIONAL FOREST
PRICE RANGER DISTRICT
EMERY COUNTY, UTAH

INTRODUCTION

PacifiCorp submitted a permit revision and mining plan to the Utah Division of Oil, Gas and Mining (UDOGM) proposing to construct a breakout with ancillary facilities in Rilda Canyon to provide ventilation of underground workings for the Deer Creek Coal Mine. The proposal would include construction of a facilities pad and new access road on Federal Coal Lease U-06039, reconstruction of the existing road in Rilda Canyon to accommodate project and public use, and installation of an overhead 25 KV power transmission line from the Huntington Power Plant in Huntington Canyon to the facilities pad. The facilities pad would contain 3 mine openings or portals, a fan at the easternmost of the three portals, a substation, water storage tank, and pumphouse.

In addition, the mining plan calls for mining beneath the south slope or escarpment of Rilda Canyon, including the lower reaches of the south slope of the Left Fork of Rilda Canyon on Federal Coal Leases U-06039, U-7653, U-47977, SL-050862, U-014275, and U-024319. The proposed mining (longwall method) would induce subsidence that could cause escarpment failures along the Castlegate Sandstone outcrop. Lease stipulations contain a restriction that prohibits underground mining that could cause the creation of hazardous conditions such as escarpment failures and landslides, unless specifically evaluated and approved. Specific evaluation and approval is required to prevent hazardous conditions and associated impacts.

The Forest Supervisor, Manti-La Sal National Forest, must decide whether or not to consent to construction of the surface facilities and mining under the canyon slope that could cause subsidence and potential escarpment failures. Consent authority is provided under the Federal Coal Leasing Amendment's Act of 1975, Surface Mining Control and Reclamation Act of 1977 and Federal Regulations 30 CFR 700 to end. If consent is given, the Forest Supervisor must identify any measures required for the protection of non-mineral resources. In addition, the Forest Supervisor must decide whether or not to issue the required special-use permit for the powerline on National Forest System lands under the Federal Land Policy and Management Act of 1976,

authorize Emery County to reconstruct Forest Development Road 50246 (Rilda Canyon Road) under a project agreement, and grant an easement to Emery County for operation and maintenance under the Federal Roads and Trails Act of 1964.

An Environmental Assessment (EA) was prepared for this proposal by the Forest Service with participation from the Bureau of Land Management and Office of Surface Management which were identified as cooperating agencies. The EA was tiered to the Final Environmental Impact Statement, Manti-La Sal National Forest (Forest Plan FEIS). The EA evaluated three alternatives which consist of (1) No Action, (2) the proposed action (plan as proposed by PacifiCorp) with required mitigations, and (3) a modified proposed action alternative that would not allow mining which would cause subsidence of the canyon slope/escarpment and potential escarpment failures. The analysis considered cumulative impacts to the ecosystems in Rilda Canyon, socioeconomic impacts, and concerns regarding maximum economic recovery of the coal resources in the area.

DECISION/RATIONALE (DECISION NOTICE)

Based on the analysis, I have decided to consent to the proposal by PacifiCorp with mitigations designed to mitigate the anticipated impacts (Alternative 2, Proposed Action with Mitigations). A copy of the required mitigations are included as Attachment 1. Implementation of this decision would include issuance of a special-use permit to authorize construction of the 25KV overhead powerline, and completion of a project agreement with Emery County for reconstruction of the Rilda Canyon Road (FDR 50246) currently under Forest Service jurisdiction (from the North Emery Water User's Association (NEWUA) springs to the Forks of Rilda Creek). Once this reconstruction is completed in accordance with the project agreement, an easement would be issued to Emery County, transferring jurisdiction of this road.

I feel that this alternative best meets the needs of the general public by providing a balance between recovery of Federal coal reserves in the area and preserving the integrity of the ecosystems in Rilda Canyon consistent with Forest Plan direction. It would provide for recovery of approximately 10.4 million tons of recoverable coal under the escarpment and necessary ventilation to safely mine reserves to the west. It would involve a low risk of causing long-term impacts to water quality and quantity in Rilda Creek and the North Emery Water User's Association culinary springs. It provides for up-front mitigation of possible impacts to the NEWUA culinary water supply (potential net benefit), and requires measures that would improve the condition of riparian vegetation in the RPN (Emphasis on Riparian Area Management) Management Unit to offset the estimated 2.4 acres of long-term loss of riparian vegetation in the RNG (Emphasis on Production of Forage) Management Unit. The potential public safety hazard is considered low because it is not likely that rocks would reach the Rilda Canyon due to distance, topographic factors, and vegetation.

The decisions required by the cooperating agencies in regard to the proposal will be documented in separate decision documents, released to the public, and appealable in accordance with that agency's specific regulations.

PUBLIC INVOLVEMENT

Scoping letters were sent to interested parties on May 5, 1994, that briefly described the proposal and requested public comment. A legal notice informing the public of the proposal and requesting public comment was published in the Sun Advocate (publication of record) on May 5, 1994, and the Emery County Progress (supplemental publication) on May 10, 1994. Two response letters were received during project scoping and a third letter was received during preparation of the environmental analysis. Emery County stated that they support the proposal. The Utah Division of Wildlife Resources expressed concern in regard to potential impacts to wildlife and riparian habitat in Rilda Canyon and suggested that measures be taken to mitigate habitat loss and improve riparian habitat in adjacent areas. In the third letter, Huntington-Cleveland Irrigation Company requested a copy of the EA for review when completed.

A copy of the EA was sent to potentially affected parties, and those who responded during project scoping or specifically requested a copy on August 4, 1994. A legal notice was published in the Sun Advocate and Emery County Progress on August 9, 1994 notifying the general public that the EA was available for public review for 30 days and that Alternative 2 was the Forest Service preferred alternative. Two letters were received as described below.

The Huntington Cattlemans Association stated that they protest construction of a fence at the mouth of Rilda Canyon in Huntington Canyon because this area has been grazed for many years and is spring range that is of vital importance to them. In a telephone conversation between District Ranger Jankiewicz and Lee Lemmon of the Cattle Association, it was explained that the fence would prevent grazing of approximately 7.6 Animal Unit Months (AUM) of approximately 4,512 AUMs provided in the Gentry C&H Allotment which has been determined to be an insignificant amount of use in a non-critical area. Lee stated that he would not object further but wanted to be on record as protesting the decision.

Craig Smith of Nielsen & Senior, representing the Huntington-Cleveland Irrigation Company, responded with a series of comments regarding potential impacts to water in the Huntington drainage. The comments and Forest Service responses are included in this document as Attachment 2. As discussed in the responses, I feel that the EA adequately addresses the concerns. The EA and Cumulative Hydrologic Impact Assessment (CHIA) show that the selected alternative would not have a significant impact to the hydrologic balance in Huntington Creek.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Based on the referenced EA for this project, I have determined that implementation of this project is not a major Federal action that would significantly affect the quality of the human environment. Therefore, the preparation of an Environmental Impact Statement is not required. This determination was made considering the following factors:

My decision and the resulting actions comply with direction of the Land and Resource Management Plan, Manti-La Sal National Forest, 1986, as amended (Forest Plan).

There are no anticipated significant effects on the quality of the human environment, either as an individual action, or as part of the cumulative effects of other past, present, and reasonably foreseeable actions within the Rilda Canyon area.

There would be no unacceptable hazards to public health or safety.

There are no highly uncertain, highly controversial, unique, or unknown risks.

There will be no adverse affects to districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. There will be no loss or destruction of cultural or historical resources.

There will be no adverse affects to endangered, threatened, or sensitive plant or animal species or their habitat, as documented in the Biological Evaluation in the project file.

The decision and resulting actions comply with other Federal, State, and local laws and requirements imposed for the protection of resources.

Mitigation measures specified in this Decision Notice will be monitored to assure that they are carried out as planned.

IMPLEMENTATION DATE AND MONITORING

Implementation of this decision may take place no sooner than November 21, 1994 which is the fifth business day following the end of the 45 day appeal period. See appeal rights discussed in the next section.

Monitoring of subsidence, flow and quality of water in Rilda Creek and the NEWUA springs is the responsibility of PacifiCorp under lease stipulations and requirements of the approved mining permit. Water monitoring information is submitted to the Utah Division of Oil, Gas and Mining on intervals specified in the Mine Plan. Subsidence monitoring results and an annual summary of hydrologic monitoring are submitted on an annual basis.

APPEAL RIGHTS

This decision is subject to appeal pursuant to 36 CFR Part 215.7 and Part 251.

Any written appeal under 36 CFR Part 215.7 must be postmarked or received by the Appeal Deciding Officer, Dale Bosworth, USDA Forest Service, Intermountain Region, 324 25th Street, Ogden, Utah 84401 within 45 days after publication of the Notice of Decision in the Sun Advocate Newspaper of Price, Utah (publication of record). The Notice of Decision will be published on September 27, 1994, therefore, any appeals must be filed on or before November 14, 1994. Appeals must meet the requirements of 36 CFR 215.14.

This decision is subject to appeal under 36 CFR 251, Subpart C. Any written notice of appeal submitted by the holder of a written instrument to occupy and use National Forest System lands must be fully consistent with 36 CFR 251.90 including the reasons for the appeal and must be filed on or before November 14, 1994. Notice of Appeal and statement of reasons must be submitted in writing to Dale Bosworth, USDA Forest Service, Intermountain Region 324 25th Street, Ogden, Utah 84401. Simultaneously send a copy of the Notice of Appeal to George Morris, Forest Supervisor, Manti-La Sal National Forest, 599 West Price River Drive, 84501.

Required decisions of the cooperating agencies would be subject to review and appeal specific to their appropriate regulations and are not appealable to the Forest Service as specified in the above paragraph.

George A. Morris

GEORGE A. MORRIS
Forest Supervisor

9-27-94

Date

MITIGATIONS

Operations are subject to adherence to the stipulations attached to the individual coal leases affected by operations and to provisions of the approved mine plan and permit. The mitigations listed below are in addition to those required by the leases or mine permit.

1. The permittee must construct a fence and cattleguard at in Rilda Creek at the east boundary of National Forest System lands to exclude livestock use on National Forest System lands in the canyon. Maintenance of this facility during the life of operations would be the operator's responsibility. This would prevent damage to the riparian vegetation and enhance the area for wildlife to offset the loss of riparian vegetation from facilities pad and road construction. The fence and cattleguard designs and specific location are subject to Forest Service review and approval.
2. The facilities pad must be fenced to provide for public safety safety and prevent access by livestock and big game species.
3. Facilities must be painted with a color that blends naturally with the surrounding environment. The color is subject to approval by the Forest Service.
4. In the event that rocks or other debris from the escarpment reach Rilda Creek and cause blockage or alteration of the natural flows, the operator will be required to remove the materials causing the blockage, take necessary measures to prevent sediment production, replace riparian vegetation through reclamation or other means, and re-establish the the natural flow patterns. The method of conducting these required activities are subject to approval of the regulatory authority with consent from the Forest Service.
5. Any damage to fences, roads, spring developments, etc. caused by escarpment failures or other operations must be repaired or replaced as soon as possible. Methods for repair or replacement of such facilities are subject to approval of the regulatory authority with consent from and Forest Service.
6. The permittee must take necessary measures to prevent raptors from building and occupying nests in the escarpment area during periods that they would be at risk from subsidence. Golden eagle nest 296A must be protected from subsidence unless the operator obtains a take permit from the U.S. Fish and Wildlife Service.
7. The permittee must monitor subsidence and escarpment areas to determine the extent of escarpment failures that occur and to determine when they stabilize. The operator is responsible to ensure public safety in the areas where escarpment failures are likely to occur until it is determined that subsidence is substantially complete

and the escarpments have stabilized. Methods of providing for public safety and for monitoring escarpment failures (including the frequency of monitoring) are subject to approval of the regulatory authority with consent from the Forest Service.

8. Should escarpment failures occur to an extent beyond that predicted and cause functional impairment of surface resources (impacts that are not consistent with management prescriptions in the Forest Plan), additional operations that could cause escarpment failures must be suspended pending evaluation by the regulatory authority in consultation with the Forest Service.
9. The permittee must provide final designs for the facilities pad access road that address stabilization of the cut and fill slopes, protection of the road from stream erosion, and measures to prevent materials from entering stream channels. Forest Service approval of the designs is required prior to implementation.

HUNTINGTON-CLEVELAND IRRIGATION CO. COMMENTS WITH FOREST SERVICE RESPONSES

The specific concerns (comments) in the September 7, 1994 letter are listed below (underlined), followed by the Forest Service response (September 15, 1994 letter to Craig Smith):

1. The EA should contain specific mitigation requirements for water quantity or quality impacts on ground and surface water. The requirements must be keyed and tailored to specific impacts on specific water sources and include how a particular impact will be mitigated.

In the process of conducting the environmental analysis, it was identified that the greatest risk of disrupting flow is from proposed longwall panels in shallow overburden (less than 500 feet) under the Left Fork of Rilda Creek. Due to the high potential for cracks to develop and potentially drain water from the alluvial aquifer, PacifiCorp agreed to drop these longwall panels from their proposal. Additional information would be required to determine how much of the total flow of Rilda Creek is contributed by this segment of the alluvial aquifer before the panels can be further considered for approval.

Our findings show that groundwater recharge is from the north of the canyon, the stream channel would be protected from subsidence, and there are no springs other than the NEWUA springs. Based on these findings, the only remaining concerns in regard to water quality and flow involve (1) sediment production from construction activities, (2) potential spills, and (3) effects to flow at the NEWUA springs. The proposal includes a sediment plan with best management practices for minimizing the production of sediment. Upon approval by UDOGM/OSM, operations would be subject to provisions already included in the approved Mining and Reclamation Plan, such as the spill contingency plan. Hydrologic data indicates that there is only low potential for mining on the south slope of Rilda Canyon to affect flow at the NEWUA springs because recharge is from the alluvial aquifer and the area north of Rilda Creek. Since the flow at the NEWUA springs is being diverted for culinary water, loss of flow in Rilda Creek is not likely. PacifiCorp has taken measures, specified in their agreement with NEWUA, to replace water in quality and quantity in the event that impacts occur. It is most likely that these measures would provide an overall net benefit to water users by providing up-front mitigation before mining occurs. Since this was part of the proposal and PacifiCorp has already committed to replacement of water in concept (pages 4-77, 4-78, and 4-83), there is no need for additional stipulations. These measures are adequately discussed and considered in the EA.

2. The EA fails to address the issue of how and where PacifiCorp intends to dispose of water encountered in its mining operations in the Rilda

Canyon area. Until this issue is addressed, it is difficult to provide comment.

The proposal does not request or provide for water discharge or disposal in Rilda Creek. A UPDES permit would be required by the State of Utah for any water discharge. Discharge of water into Rilda Creek was not raised as an issue by the public or participating agencies.

The EA addresses discharge of water encountered in the mine on page IV-18, paragraph 4. Water encountered during mining would be stored in the mine workings or discharged into Deer Creek under PacifiCorp's existing UPDES discharge permit. The facilities pad is designed to drain precipitation back into the mine workings, preventing the need for a sediment pond in Rilda Canyon that would result in additional surface disturbance. Considering geologic conditions in the area, there is no expectation that water encountered in the mine workings would drain from the Rilda Canyon portals once the workings are abandoned and surface disturbances are reclaimed.

3. A general stipulation prohibiting trans-drainage movement of water is also needed to prevent water encountered in the mine acres within Huntington Canyon being moved.

As discussed in the EA, it was determined that groundwater recharge of the springs and alluvial flow in Rilda Creek is mostly, if not all, from the north because of the southerly dip of the rock layers. Very little water has been encountered in the development workings on the south side of the canyon. Due to the dip of the rock layers and small amount of water encountered in this area thus far, it is not likely that flow in Rilda Creek would be diverted. Any water encountered in the mine workings would be stored in the mine or discharged into Deer Creek that would drain back into Huntington Creek. Under the UPDES permit, water discharged from the mine must meet State water quality standards.

Underground mining would not likely divert a significant amount of surface flow from precipitation/runoff from the south slope of Rilda Canyon into the groundwater regime.

4. It is of particular concern that this EA has been prepared and issued without the benefit of the final approved Probable Hydrologic Consequences (PHC) or the preparation of a Cumulative Hydrologic Impact Analysis (CHIA). It is stated on page III-6 of the EA that the PHC is being analyzed and the CHIA is being prepared. Without these important hydrological documents, the EA is premature. The EA should not be issued until after the public has an opportunity to review the Division of Oil, Gas & Mining's review of the PHC and CHIA. This is not merely a procedural issue, but a substantive one. Huntington-Cleveland believes that the PHC understates the scope and nature of impact that the mining activities of PacifiCorp will have. Specifically, it is believed that mining in Rilda Canyon will disrupt nearby springs in Huntington Canyon as well. This potential impact cannot be seriously discussed without the final CHIA.

There is no requirement that the CHIA be completed prior to conducting an environmental analysis for a project, however, the EA was completed as a parallel and coordinated process with the Division's review of the PHC and preparation of the CHIA. The hydrologist that has the lead for preparation of the CHIA participated as an interdisciplinary (ID) team member for preparation of the EA, representing OSM. The purpose of the statement in the EA (page III-6) was to reference the CHIA and show that the evaluations are consistent. The EA substantively discloses the hydrologic impacts and resulting cumulative effects related to mining south of Rilda Canyon that are contained in the CHIA. Development and review of the PHC has been ongoing for several years.

Forest Service decision regarding consent will be based on the results of the EA. Before the Department of Interior Assistant Secretary, Lands and Minerals Management (ASLMM) can approve the proposal, the Office of Surface Mining must have the EA, the Forest Service consent decision, and CHIA, as well as other required documents.

5. Another area of general concern is the total lack of any required mitigation for surface and groundwater impacts in the EA. A telephone discussion of this issue with Forest Service officials revealed that the Forest Service is relying on general stipulations found in the Forest Plan. We believe that this approach is insufficient to address impacts on ground and surface water.

PacifiCorp has been monitoring the hydrology in the Rilda Canyon area for several years to collect data for the PHC and CHIA. The Mining and Reclamation Plan includes provisions for hydrologic monitoring (Volume 9, Appendix A), and for replacement of water (pages 4-77, 4-78, 4-83, and Volume 9, Appendix G). In addition, the affected Federal Coal leases contain a stipulation that requires replacement of water in quality and quantity in the event that it is lost due to mining. All operations within the leases are subject to these stipulations.

Appendix 3 of the EA contains stipulations. In the first paragraph, it is stated "Operations are subject to adherence to the stipulations attached to the individual coal leases affected by operations and to provisions of the approved mine plan and mine permit". Since these provisions are already in place and PacifiCorp's proposal contains a commitment consistent with this stipulation, there is no need to specify their inclusion again. As stated in our response to your first comment, the proposal for operations in Rilda Canyon contains specific mitigations that have already been initiated to replace water if monitoring detects effects that can be attributed to mining.

The hydrologic monitoring plan includes monthly monitoring of water flow at the Right Fork surface well (RCF1), just below the springs in the main channel of Rilda Creek (RCF3), and the mouth of Rilda Creek (RCW4). The flow at the NEWUA springs is monitored monthly. The

monitoring wells (P1, P3-7) near the springs will also be monitored on a monthly basis. Quality is monitored at these stations quarterly.

6. Finally, a follow-up and enforcement mechanism needs to be implemented whereby impacts, if occurring, will be identified and mitigation required. Currently, there is no such mechanism and impacts beyond those predicted are not addressed.

PacifiCorp has already done extensive detailed monitoring of the hydrology in Rilda Canyon. They have committed to a comprehensive monitoring program to detect impacts to water quality and quantity. The results of monitoring must be submitted to the Utah Division of Oil, Gas and Mining within a certain time frame after it is collected. Enforcement of the mine plan provisions and mining regulations is a responsibility of the Division. The Forest Service does not have funding and personnel available to review all monitoring data. We are, however, notified by the operator and/or the Division if impacts are detected. It is our policy to cooperate with the Division in their enforcement of any applicable stipulations. If you feel that additional monitoring should be accomplished, we would encourage you to enter into an agreement with PacifiCorp to cooperate in their monitoring effort or to conduct independent monitoring. If you wish to do so, please contact Charlie Jankiewicz, District Ranger, to make necessary arrangements to conduct this work.



United States Department of the Interior
FISH AND WILDLIFE SERVICE

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

In Reply Refer To

(CO/KS/NE/UT)

March 11, 1997

Daron Haddock
Permit Supervisor/Permitting
Utah Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, UT 84114-5801

RE: North Rilda Lease Extension, PacifiCorp, Deer Creek Mine, ACT/015/018-97C

Dear Mr Haddock:

We have received your letters of February 7 and 21, 1997. The U.S. Fish and Wildlife Service offers no comment at this time. Should issues of concern arise, we may provide comments at a later date.

Sincerely,

Robert D. Williams
Assistant Field Supervisor

cc: Pamela Grubaugh-Littig, State of Utah, Department of Natural Resources, Division of Oil, Gas and Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, UT 84114-5801

JUL-09-1997 16:44

UTAH STATE HISTORICAL SOC



State of Utah

Department of Community & Economic Development
Division of State History
Utah State Historical Society



Michael O. Leavitt
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
(801) 533-3500 • FAX: 533-3503 • TDD: 533-3502
cchistry.ushs@email.state.ut.us

July 8, 1997

Pamela Grubaugh-Littig
Permit Supervisor
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City UT 84114-5801

RE: North Rilda Lease Area Deer Creek Mine, Pacific Corp. ACT/015/018-97-1, Folder #3,
Emery County, Utah

In Reply Please Refer to Case No. 90-1579

Dear Ms. Grubaugh-Littig:

The Utah State Historic Preservation Office received the above referenced information. The report states that no cultural resources were located in the project area. We, therefore, concur with the report's 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 36CFR800. If you have questions, please contact me at (801) 533-3555, or Barbara L. Murphy at (801) 533-3563. My email address is: jdykman@history.state.ut.us

As ever

Post-it® Fax Note	7671	Date	7/10/97	# of pages	1
To	Ranvir Singh	From	Don G-L		
Co./Dept.	88m	Co.	DOG M		
Phone #		Phone #	1-801-533-5268		
Fax #	1-505-248-5081	Fax #			

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chaeologist

07/15/97 15:48 FAX 801 637 4940

MANTI-LA SAL NF --- UDOGM-SLC

002/002

United States
Department of
Agriculture

Forest
Service

Manti-La Sal
National Forest

599 West Price River Dr.
Price, Utah 84501
Phone # (801) 637-2817
FAX # (801) 637-4940

Reply to: 2820-4

Date: July 15, 1997

Utah Division of Oil, Gas, and Mining
ATTN: Pamela Grubaugh-Littig
1594 West Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: Response to Deficiencies, North Rilda Lease, PacifiCorp, Deer Creek Mine,
ACT/015/18-97-1, Folder #3, Emery County, Utah

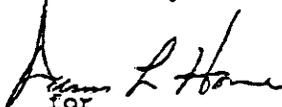
Dear Pam:

As discussed during yesterday's DOGM, BLM, FS conference call, clarification to our July 3, 1997 letter is needed. The referenced letter contained six requirements associated with Forest Service consent to the North Rilda Lease Extension. Clarifications in the form of reworking are provided as follows (numbers refer to requirements in the 07/03/97 letter):

3. When the mains under the North Fork of Rilda Creek are no longer needed, the operator must ensure long term stability for the riparian zone/alluvial hydrologic system through backstowing, backfilling, grouting, or other means utilizing best available technology at that time.
4. Appropriate measures, in consultation with the BLM and the Surface Management Agency (SMA), must be taken to locate and prevent dewatering of the Mill Fork Fault system. Where the fault system is penetrated, permanent seals must be installed.
5. Operator will not be permitted to subside under escarpments along the North side of Rilda Canyon unless consented to by the SMA.

Please contact Aaron Howe or Carter Reed at (801) 637-2817 if you have any questions relative to these clarifications.

Sincerely,



FOR
JANETTE S. KAISER
Forest Supervisor

Pamela Grubaugh-Littig

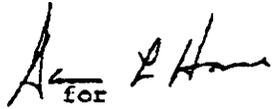
Page 3

Stipulation #6

The MRP contains the statement that they will notify the Utah Division of Oil, Gas and Mining if water loss occurs on National Forest System lands. The Forest Service also needs to know as soon as a water loss occurs.

Please contact Carter Reed or Dale Harber at (801) 637-2817 if you have any questions.

Sincerely,



for

JANETTE S. KAISER
Forest Supervisor

United States
Department of
Agriculture

Forest
Service

Manti-La Sal
National Forest

599 West Price River Dr.
Price, Utah 84501
Phone # (801) 637-2817
Fax # (801) 637-4940

File Code: 2820-4

Date: July 3, 1997

Utah Division of Oil, Gas and Mining
ATTN: Pamela Grubaugh-Littig
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: Response to Deficiencies, North Rilda Lease, PacifiCorp, Deer Creek Mine,
ACT/015/018-97-1, Folder #3, Emery County, Utah

Dear Pam:

The Manti-La Sal National Forest has completed a review of PacifiCorp's deficiency submittal for their application for a mine plan revision to expand the Deer Creek Mine permit area. Additionally, we have completed an analysis of impacts associated with potential failure of sandstone outcrops (escarpments) on the south side of Mill Fork Canyon and have decided to make an exception to the lease stipulation that precludes escarpment failure. We consent to the North Rilda mine plan revision subject to the following requirements:

1. Archaeology survey, and documentation and recording of cultural resources, in escarpment areas to be failed.
2. A survey for spotted bats (USDA-FS Sensitive Species) will be conducted for all escarpment areas to be failed. If bats are located, then evaluations will be made for mitigation needs. Mitigations could include avoidance during specific times and/or prevention of bat occupancy during periods of subsidence, such as by netting or screening. Mitigations will be evaluated on a case-by-case basis.
3. When the mains under the North Fork of Rilda Creek are no longer needed, the operator must backstow, backfill, and/or grout the mains, using the best technology available at that time.
4. The operator must delineate the Mill Fork Graben with some method other than direct mining. Acceptable methods include, but are not limited to, surface and in-mine drilling or geophysical methods.
5. Only full-support mining is permitted under escarpments along the north side of Rilda Canyon unless the lease stipulation prohibiting escarpment failure is waived by the Forest Service.

Pamela Grubaugh-Littig

Page 2

6. The operator must notify the surface management agency (Forest Service) if a water loss occurs on National Forest System lands.

Following are our comments/rationale for each of the above stipulations:

Stipulation #1

A cultural resources survey is required by Forest Service Special Stipulation #1 in the coal lease for this area, and by the National Historic Preservation Act of 1966.

Stipulation #2

A biological survey is required by Forest Service Special Stipulation #2 and by the Manti-La Sal National Forest Land and Resource Management Plan.

Stipulation #3

Engineering data have been provided to support the statement that there will be no subsidence of the North Fork of Rilda Creek for the long-term (hundreds of years). However, the engineering calculations are made using the assumption that the rock above the mined area is homogeneous, a situation which is seldom true in nature. We are also concerned with the shallow overburden at the point the mains cross under the creek, which consists of approximately 50 feet of alluvium/colluvium and 50 to 70 feet of competent rock (Attachment #1, Coal Lithologic Log, Drill Hole EM-158). The Forest Service would require that what ever methods are technically feasible be used to prevent any additional subsidence. This is provided for in 30 CFR 748.20(b)(5), which mentions specific methods to prevent subsidence, including backstowing or backfilling.

Stipulation #4

The revised plan states that the 4th North Mains will be driven to the northwest until they intersect the Mill Fork Graben or until they reach the western margin of the Blind Canyon coal seam. We do not feel that mining into the graben is an appropriate method of delineating the fault, due to the potential for impacting the groundwater resources. A resistivity survey done by PacifiCorp indicates the fault is wet. PacifiCorp stated that springs in the area may be related to the Mill Fork Graben. Mining into the fault could divert water into the mine.

Stipulation #5

Full extraction mining under the north side of Rilda Canyon (the three southern panels) and the south side of Mill Fork Canyon (the three northern panels) would subside Castlegate sandstone escarpment areas, requiring an environmental analysis to disclose impacts before the lease stipulation on escarpment failure could be waived. The analysis for mining under the Castlegate sandstone on the south side of Mill Fork Canyon is being done at this time.

Pamela Grubaugh-Littig

Page 3

Stipulation #6

The MRP contains the statement that they will notify the Utah Division of Oil, Gas and Mining if water loss occurs on National Forest System lands. The Forest Service also needs to know as soon as a water loss occurs.

Please contact Carter Reed or Dale Harber at (801) 637-2817 if you have any questions.

Sincerely,

/s/ Aaron L. Howe

for
JANETTE S. KAISER
Forest Supervisor

DHarber:co

DECISION MEMO

for

**Proposed Mine Plan Modification
North Rilda Canyon Extension
Deer Creek Mine**

July, 1997

**USDA, Forest Service, Region 4
Manti-La Sal National Forest
Ferron-Price Ranger District
Emery County, Utah****Purpose and Need and Proposed Action**

PacifiCorp (Energy West) has proposed to add their remaining Federal coal leases and fee lands in the North Rilda Canyon area to their Deer Creek Mine permit area. The Federal Coal Leases involved include U-024317, SL-051221, U-2810, and a portion of U-06039. This proposal would enable them to extend underground workings northward to Mill Fork Canyon. The purpose is to recover remaining minable coal reserves in the area.

As proposed, underground mining in the area could subside the steep south slope of Mill Fork Canyon and cause minor spalling of the limited Castlegate Sandstone outcrop. The Manti-La Sal National Forest and Office of Surface Mining are conducting an environmental analysis to evaluate the proposal for consent/approval respectively. Existing Environmental Assessments for the leases have disclosed the potential impacts of underground mining and subsidence, but did not consider the effects of subsiding the Castlegate Sandstone outcrops due to lease stipulations that prevented subsidence of the escarpments. Therefore, anticipated surface disturbance associated this subsidence must be evaluated.

This analysis only considers impacts associated with escarpment failure on the south slope (north facing) of Mill Fork Canyon. The extraction of the northern longwall panels could cause spalling of the limited Castlegate Sandstone outcroppings referenced above. Full extraction mining that would subside the exposed Castlegate Sandstone on the south facing slope of Rilda ridge would require a separate environmental analysis to evaluate the potential impacts there.

Authority

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 these leases contain lands, the surface of which are managed by the United States Department of Agriculture, Forest Service - Manti-La Sal National Forest.

Decision and Rationale

After careful review of the proposal, public comments, and the environmental analysis disclosed in the project file, I have decided to consent to the amendment of the mine plan, thereby excepting the stipulation for the protection of the outcroppings of Castlegate Sandstone on the south slope of Mill Fork Canyon. The stipulation is still in force for all other escarpments within these leases. I believe the remainder of the terms and conditions listed in the Forest Plan and contained in the leases adequately address and mitigate the anticipated impacts to the resource issues and are hereby incorporated into my decision as conditions of approval.

Additionally, surveys for cultural resources and Western Spotted Bats (sensitive species) in the escarpments will have to be conducted prior to undermining and subsidizing the escarpments in Mill Fork Canyon. Further mitigation may be required depending on the results of the surveys and subsequent consultation(s) as necessary. Specifically, consultation with the State Historic Preservation Office, and appropriate Native American tribes will be required.

The US Fish and Wildlife Service was primarily concerned about impacts to raptors. I believe the stipulations on the leases involved directly address their concerns and adequately mitigate the anticipated impacts. Additionally the possible presence of the peregrine falcon (endangered) is addressed in the biological evaluation found in the project file (no effect determination)

The Emery Water Conservancy District expressed concern about the potential for loss of water quality/quantity due to mining activities. I believe that Forest Plan required stipulations attached to the leases address this concern and adequately provide for mitigations of any potential impacts.

Coal leasing and development are implemented under the authority of the following actions: the Mineral Leasing Act of 1920, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976; the Surface Mining Control and Reclamation Act (SMCRA) OF 1977; the National Environmental Policy Act of 1969 (NEPA); the Federal Coal Leasing Amendments Act of 1976, as amended; regulations: Title 43 CFR Group 3400, and Title 30 CFR Group 700; and the Manti-La Sal National Forest Land and Resource Management Plan, Final Environmental Impact Statement, and Record of Decision, 1986.

The current approved Deer Creek Mine Mining and Reclamation Plan (MRP) is consistent with all special stipulations on the referenced leases.

Reasons for Categorically Excluding the Proposed Action

Based on the environmental analysis disclosed in the project file, along with the East Mountain Cumulative Hydrologic Impact Assessment, and the Technical Analysis & Findings, prepared by Utah Division of Oil, Gas, and Mining (UDOGM), I found no extraordinary circumstances or effects (FSH 1909.15, 30.3 and 30.5) to exist that might cause this action to have significant effects on the quality of the human environment (40 CFR 1508.27).

No known prime or unique farmlands, wetlands, timber lands, or rangelands; floodplains; alluvial valley floors; cultural or significant paleontological resources; nor Threatened, Endangered, or Sensitive floral or faunal species will be impacted. Biological Evaluations in the project file, developed for this action, contain "no effect" determinations.

Finding no extraordinary circumstances, I determined the proposed action may be categorically excluded under FSH 1909.15, Chapter 31.1b, category 7; sale or exchange of land, or interest in land and resources where resulting land use remains essentially the same.

Public Involvement

Scoping was initiated June 10, 1997. Legal Notices were published in the Sun Advocate and the Emery County Progress, and scoping letters were sent to a list of interested parties. Issues were raised by the US Fish and Wildlife Service and Emery Water Conservancy District and have been addressed above. In addition, a letter and telephone contact in support of the action were received from the Utah Mining Association and Mr. James Beason respectively. A telephone contact was also made by Bill Bates of the Utah Division of Wildlife Resources requesting further information.

Findings Required by other Laws

The analysis is tiered to the Manti-La Sal National Forest Land and Resources Management Plan, EIS, and Record of Decision (1986), as amended. Referenced are the Environmental Analysis Report/Part 23 Technical Examination, Peabody Coal Company Federal Leases U-06039, SL-051221, and U-014275 Lease Readjustment, 10/76; Environmental Assessment for the Readjustment of Federal Coal Lease U-024319, 1989; Environmental Assessment for the Readjustment of Federal Coal Lease SL-051221, 1994; Environmental Assessment for the Readjustment of Federal Coal Lease U-2810 and the Decision Notice/Finding of No Significant Impact for the Readjustment of Federal Coal Lease U-06039, 5/92; Environmental Assessment, PacifiCorp Deer Creek Mine Surface Facilities and Mining Under Escarpments in Rilda Canyon, 8/94 and the Deer Creek Coal Mine, Mining and Reclamation Plan. Additionally referenced is the East Mountain Cumulative Hydrologic Impact Assessment and the Technical Analysis prepared by UDOGM.

Management prescriptions contained in the Forest Plan for the lease area emphasize forage production, riparian area management, and leaseable mineral development. Mineral activities are allowed with "appropriate mitigation measures to assure continued livestock access and use"; "Those being authorized to conduct developments will be required to replace losses where development adversely affects long-term production or management" of range land (Forest Plan, page III-66). Mineral management activities should "avoid and mitigate detrimental disturbance to riparian areas" (Forest Plan, page III-72)

My decision is consistent with the Forest Plan and will not require amendments. I have considered and find the decision consistent with the National Forest Management Act requirements as expressed in 36 CFR 219.27. The decision complies with the Endangered Species Act of 1973 and Section 106 of the National Historic Preservation Act of 1966 (Project File).

Implementation Date

My decision may be implemented on or after the date of signature.

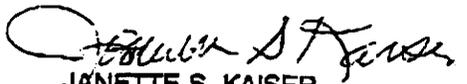
Administrative Review or Appeal Opportunities

I am willing to meet with the holder of a written instrument and hear any concerns or issues related to this decision. PacifiCorp may appeal this decision under 36 CFR 251, Subpart C. Any written notice of appeal must be fully consistent with 36 CFR 251.90 including the reasons for the appeal and must be filed within 45 days of this decision. The decision is not subject to appeal under 36 CFR 215 and 217.

Notice of Appeal and statement of reasons must be submitted in writing to ATTN: Regional Forester, Reviewing Officer, USDA Forest Service, 324 25th Street, Ogden, UT 84401. Simultaneously send a copy of the Notice of Appeal to: ATTN: Forest Supervisor, Manti-La Sal National Forest, 599 West Price River Drive, Price, UT 84501.

Contact Person

Persons with questions related to this decision may contact Jeff DeFrees at the Ferron-Price Ranger District, 599 West Price River Drive, Price, Utah 84523 or call (801) 637-2817.


JANETTE S. KAISER
Forest Supervisor

Date 7-3-97



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Moab District
Price River/San Rafael Resource Area
125 South 600 West
P. O. Box 7004
Price, Utah 84501

July 16, 1997

3482
U-06039
U-024317
SL-051221
U-2810
(UT-066)

Pamela Grubaugh-Littig
Permit Supervisor
Department of Utah Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801

Re: Resource Recovery and Protection Plan (R2P2), PacifiCorp. Deer Creek Mine, Emery County, Utah

Dear Ms. Grubaugh-Littig

On May 16, 1997, the Bureau of Land Management (BLM) received from your office for our review/comments, PacifiCorp's response to technical deficiencies concerning the North Rilda area. Also, on July 2nd, we received from the Manti-LaSal National Forest (FS), PacifiCorp's revisions concerning:

- 1) the ground stability of the 4th North Mains crossing of the Right Fork Rilda Canyon; and
- 2) the Castlegate Escarpment statement of mining in the North Rilda area,

which was submitted to their office on the same date.

In addition to your request for BLM's review/comments, the FS has requested documentation of our findings concerning the location and entry stability of the proposed route (4th North Mains) accessing reserves of the Blind Canyon and Hiawatha coal seams in the North Rilda area.

As you may be aware, an approved R2P2 for the subject area is already in place. It is our understanding that PacifiCorp is now requesting to expand the current Deer Creek mining operation/mine permit area. In part, PacifiCorp seeks partial approval to afford a timely access into the North Rilda area in order to sustain the current level of longwall coal production.

According to the proposal, the 4th North Mains would access the reserves by advancing beyond the current permit boundary to the northern boundaries of Federal coal leases U-06039 and U-024317. Then, a series of east-west-oriented longwall panels would be developed along the east side of the Mains. These panels would be developed and sequentially extracted from the north to the south. PacifiCorp proposes to confine mine development at this time to the Blind Canyon coal seam and limit panel extraction to the four most northern panels.

Approval to complete extraction of the remaining panels in the Blind Canyon and Hiawatha Seams, which are developed under the Castlegate Escarpment, would be subject to the findings of the on-going Castlegate Escarpment Geotechnical Studies and number of other requirements made by the FS (archaeology survey, Spotted Bat survey, EA) on the affected areas.

BLM's findings regarding the 4th North Mains:

The projected access route into the North Rilda area is constrained by the Mill Fork Fault Zone to the west, a shallow overburden to the east, and a potential for the coal seam to pinch out in a westerly direction. These adverse geologic conditions more or less dictated the location of the access route and have precluded alternative routes into the subject area. The exact location of the 4th North Mains will be determined upon delineation of the Mill Fork Fault Zone or by the seam geology of the Blind Canyon Seam (insufficient seam height). PacifiCorp's intent is to explore the fault zone and seam geology by using either the continuous miner, in-mine drilling, surface drilling, or any combination of the three methodologies.

Subsequently, the access route will pass under an upland ephemeral stream in the right fork of the Rilda Canyon which has been designated by the Surface Managing Agency (SMA) as an important alluvial/hydrologic system and riparian zone. Due to the potential for surface impacts from subsidence, the SMA has restricted mining based on their concerns for the preservation of this hydrologic resource.

In efforts to ensure long-term stability of the underground excavation and to protect against surface impacts in the riparian zone, PacifiCorp has proposed the following mine design criteria:

- 1) Include, per SMA's request, a protective buffer zone of sufficient size to isolate the riparian zone from all potential effects of mining.
- 2) Utilize an entry/pillar configuration consisting of a 5-entry system with staggered crosscuts on 80x150-foot centers, with an entry width of 20 feet and entry height of 8 feet.
- 3) Provide secondary roof support, as needed, to maintain the long-term stability of the underground workings and to prevent/limit the potential of any future surface impacts.

Also, PacifiCorp has agreed to comply with the stipulated approval of the Minor Modification Request (The Proposed Location for the 4th North Mains off the 10th West Mains, North Rilda Canyon Reserve Access) dated February 13, 1997, from our office which states in part:

"PacifiCorp shall submit a written evaluation documenting entry and pillar stability for the Rilda Canyon Fork area. The specific areas to be addressed are the 4th North Mains in the Blind Canyon Seam and the access entries to the Hiawatha Seam reserve where the entries pass under the riparian zones, as illustrated on Enclosure 2. The evaluation shall determine whether additional secondary entry support is needed to prevent the occurrence of surface impact due to mining. The evaluation shall be submitted 60 calendar days prior to final abandonment of the North Rilda Canyon area. The evaluation shall be subject to BLM's approval based on verification of the reported documentation."

The BLM concurs with PacifiCorp on the following:

We find the requested "riparian buffer zone" to be of sufficient size. It has been designed using a 15° "angle-of-draw"/"angle-of-influence" calculated from the Hiawatha Seam to delineate the zone. The referenced 15° "angle-of-draw" is an industry/agency-accepted standard, based on full extraction mining. In addition, PacifiCorp's mining experience at the Deer Creek, Trail Mountain and Cottonwood Mines over the last 20 years provides a sound basis for the design criteria. Furthermore, the area has been restricted to first mining, making the required buffer zone a moot issue.

In regard to the location and long-term stability of the 4th North Mains:

1) We recognize PacifiCorp's difficulty in determining the best location for the 4th North Mains and feel that an attempt to locate the Mill Fork fault zone by means of exploring with a continuous miner will not impact the surface or affect the hydrologic regime. However, it will provide data for maximizing recovery of the coal resource.

2) PacifiCorp, at the request of the SMA, provided step-by-step calculations to illustrate how the factor of safety was calculated for the coal pillars and entry opening. The safety factors were calculated by using **standard industry-accepted equations**. The calculated safety factors for pillar stability and entry opening are in the range of 3.57 to 23.94 and 4.92, respectively. In standard industry practice, safety factors used to define stable conditions and long-term stable conditions are 1 and 1.5 to 2, respectively. It is evident that PacifiCorp is well beyond the acceptable values for long-term stability.

Finally, approval for full-extraction (longwall) mining under the Castlegate Escarpment will be based on:

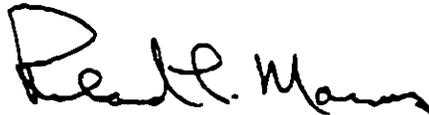
- 1) the **Castlegate Escarpment studies** provided by PacifiCorp; and
- 2) an **objective environmental analysis** of the affected resources by the SMA,

prior to BLM's determination.

The BLM has reviewed the proposed R2P2 Revisions/Deer Creek Mine Permit Expansion and all available information concerning the mining of the subject area. The BLM has determined that PacifiCorp's R2P2 for the Deer Creek Mine appears to be a logical and prudent mine plan. It is technically complete and complies with the Mineral Leasing Act of 1920, as amended, the regulations at 43 CFR 3480, the lease terms and conditions, and will achieve maximum economic recovery of the Federal coal. Therefore, we recommend approval of the proposed Deer Creek Mine permit expansion.

If you have any questions, please contact Barry Grosely in the Price River/San Rafael Resource Area at (801) 636-3606.

Sincerely,



Area Manager

cc: Manti-LaSal National Forest
599 Price River Drive
Price, Utah 84501

UNITED STATES

DEPARTMENT OF THE INTERIOR

This mining plan approval document is issued by the United States of America to:

PacifiCorp
201 South Main, Suite 2100
Salt Lake City, UT 84140-0021

for the Deer Creek (North Rilda Lease) Mine mining plan for Federal leases U-024317, U-06039, U-2180, and SL-051221 subject or Federal leases to the following conditions. PacifiCorp is hereinafter referred to as the operator.

1. Statutes and Regulations.--This mining plan approval is issued pursuant to Federal leases U-024317, U-06039, U-2180, and SL-051221; 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 Deer Creek (North Rilda Lease) Mine mining plan action for Federal leases U-024317, U-06039, U-2180, and SL-051221, and authorizes coal development or mining operations on the Federal leases within the area of mining plan approval. This authorization is not valid beyond the legal boundaries described below and shown on the map appended hereto as Attachment A.

Federal Lease No. U-06039
Township 16 South, Range 7 East, SLBM
Section 19:SE1/4
Section 20:S1/2
Section 29:N1/2, SW1/4, W1/2 SE1/4
Section 30:NE1/4, SE1/4 and Lot 4
Township 16 South, Range 6 East, SLBM
Section 25:E1/2SE1/4SE1/4

Federal Lease No. U-24317

Federal Lease No. U-2810
Township 16 South, Range 7 East, SLBM
Section 28: E1/2NW1/4

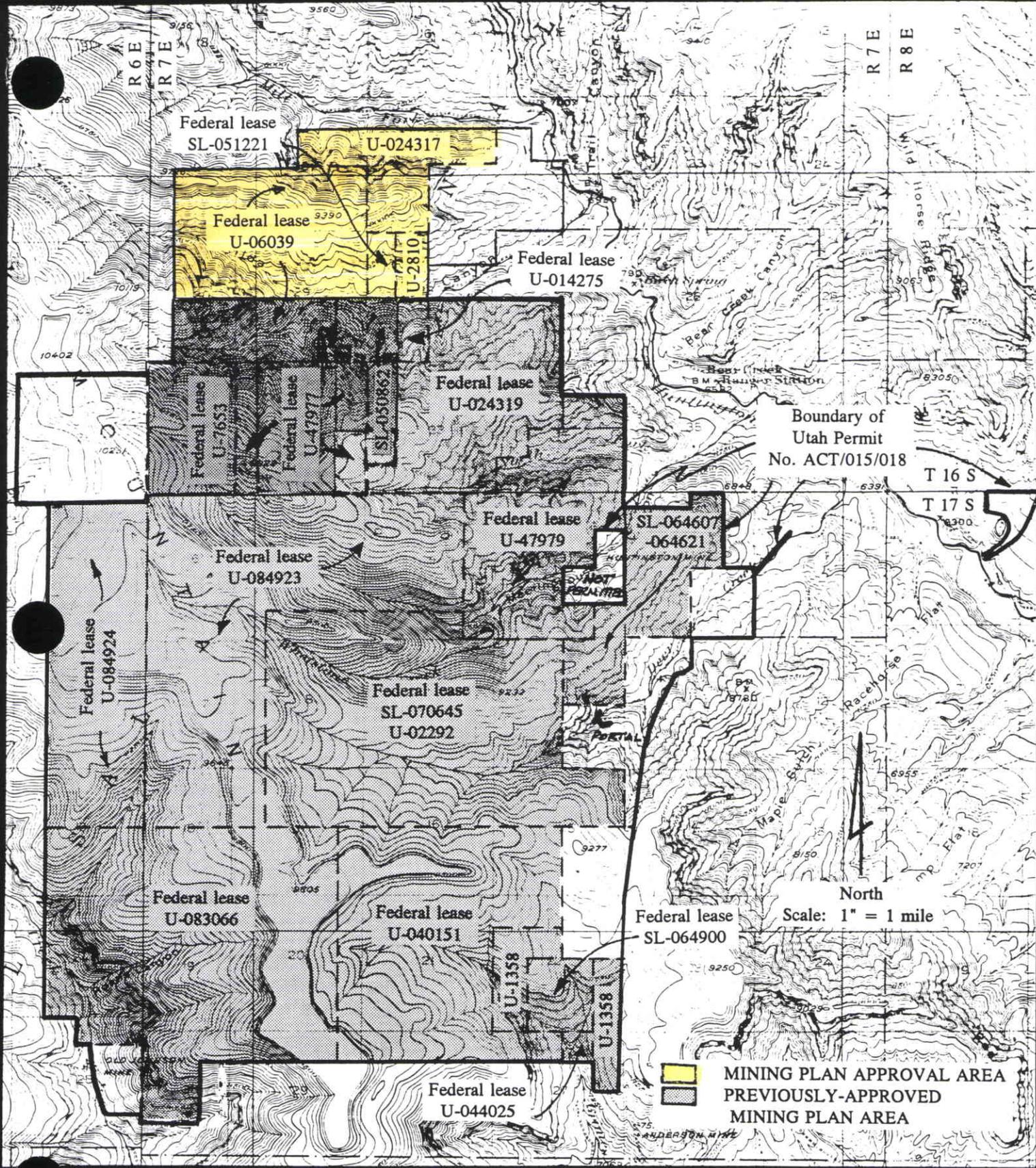
Federal Lease No. SL-051221
Township 16 South, Range 7 East, SLBM
Section 28:W1/2NW1/4

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 of this mining plan approval.
4. The operator shall comply with the terms and conditions of the leases, this mining plan approval, the special conditions appended hereto as Attachment B, and the requirements of the Utah Permit No. ACT/015/018 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, canceled, 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 the office of Surface Mining Reclamation and Enforcement (OSM). The operator shall take such actions as are required by Utah Division of Oil, Gas and Mining in coordination with OSM.
7. The Secretary retains jurisdiction to modify or cancel this approval, as required, on the basis of further consultation with the U.S. Fish and Wildlife Service pursuant to section 7 of the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq.


Assistant Secretary, Land and Minerals Management

Date

8/12/97



Attachment A
 Mining Plan Approval Area
 Deer Creek Mine
 Emery County, Utah

ATTACHMENT B

Special Conditions

1. When the mains under the North Fork of Rilda Creek are no longer needed, the operator must ensure long term stability for the riparian zone/alluvial hydrologic system through back stowing, backfilling, or grouting, or other means utilizing best available technology at that time.
2. Appropriate measures, in consultation with the BLM and the Surface Management Agency(SMA), must be taken to locate and prevent dewatering of the Mill Fork Fault system. Where the fault system is penetrated, permanent seals must be installed.
3. Operator will not be permitted to subside under escarpments along the North side of Rilda Canyon unless consented to by the SMA.

FEDERAL

PERMIT
Permit Number ACT/015/018

July 15, 1997

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple, suite 1210
Salt Lake City, Utah 84114-1210
(801) 538-5340

This permit, ACT/015/018, is issued for the state of Utah by the Utah Division of Oil, Gas and Mining (Division) to:

PacifiCorp
201 South Main Street
Salt Lake City, Utah 84140-0021
(801-220-4618)

for the Deer Creek Mine. A Surety Bond is filed with the Division in the amount of \$2,500,000, 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 Deer Creek Mine, situated in the state of Utah, Emery County:

The area to be mined is contained on the USGS 7.5-minute "Red Point", "Rilda" and "Mahogany Point" quadrangle maps. The areas contained in the permit area, approximately 17,000 acres, involve all or part of the following federal, state, and fee coal leases:

Lease No. SL-064607-064621
Issued to Clara Howard Miller 10/4/46
Township 17 South, Range 7 East, SLM, Utah
Containing 613.92 acres

Section 2: Lots 2, 5, 6, 7, 10, 11 and 12 and SW1/4

Section 3: SE1/4 SE1/4

Section 10: NE1/4

Post-it® Fax Note	7671	Date	7/16	# of pages	▶
To	RON Singh	From	Daron		
Co./Dept.		Co.	DOBIM		

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Lease No. SL-064900
Issued to Cyrus Wilberg 2/3/45
Township 17 South, Range 7 East, SLM, Utah
Containing 160 acres
Section 22: SE1/4 SW1/4, SW1/4 SE1/4, NE1/4 SW1/4, NW1/4 SE1/4

Lease No. U-1358
Issued to Castle Valley Mining Co. 8/1/67
Township 17 South, Range 7 East, SLM, Utah
Containing 320 acres
Section 22: S1/2 NW1/4, W1/2 SW1/4, E1/2 SE1/4
Section 27: E1/2 NE1/4

Lease No. SL-070645, U-02292
Issued to Clara Howard Miller 4/1/52
Township 17 South, Range 7 East, SLM, Utah
Containing 2560 acres
Section 4: SW1/4 SE1/4, S1/2 SW1/4
Section 5: SE1/4 SW1/4, S1/2 SE1/4
Section 8: E1/2, E1/2 W1/2
Section 9: All
Section 10: W1/2
Section 15: N1/2
Section 16: N1/2
Section 17: NE1/4, E1/2 NW1/4

Lease No. U-084923
Issued to Malcolm N. McKinnon 8/1/64
Township 17 South, Range 7 East, SLM, Utah
Containing 2252.42 acres
Section 4: Lots 2, 3, 4, 5, 6, 7, 10, 11, 12, NW1/4 SE1/4, N1/2 SW1/4
Section 5: Lots 1 thru 12, N1/2 S1/2, SW1/4 SW1/4
Section 6: Lots 1 thru 11, SE1/4
Section 7: Lots 1 thru 4, E1/2
Section 8: W1/2 W1/2
Section 17: W1/2 NW1/4
Section 18: Lots 1 and 2, N1/2

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Lease No. U-084924
Issued to Malcolm N. McKinnon 8/1/64
Township 17 South, Range 6 East, S1 M, Utah
Containing 1211.48 acres
Section 1: Lots 1, 2, 3, S1/2 NE1/4, SE1/4 NW1/4, E1/2 SW1/4, SE1/4
Section 12: F1/2, E1/2 W1/2
Section 13: NE1/4, E1/2 NW1/4

Lease No. U-083066
Issued to Cooperative Security Corp. 3/1/62
Township 17 South, Range 6 East, SLM, Utah
Containing 2485 acres
Section 13: E1/2 SW1/4, SE1/4
Section 24: E1/2 W1/2, E1/2
Section 25: N1/2 NE1/4

Township 17 South, Range 7 East, SLM, Utah
Section 17: SW1/4, W1/2 SE1/4
Section 18: Lots 3 and 4, SE1/4
Section 19: Lots 1, 2, 3, 4, E1/2
Section 20: W1/2, W1/2 E1/2
Section 29: NW1/4 NE1/4, N1/2 NW1/4
Section 30: Lots 1, 2, 3, N1/2 NE1/4, SW1/4 NE1/4, NW1/4 SE1/4

Lease No. U-040151
Issued to Cooperative Security Corp. 3/1/62
Township 17 South, Range 7 East, SLM, Utah
Containing 1720 acres
Section 15: SW1/4
Section 16: S1/2
Section 17: E1/2 SE1/4
Section 20: E1/2 E1/2
Section 21: All
Section 22: N1/2 NW1/4
Section 27: N1/2 NW1/4
Section 28: N1/2 N1/2
Section 29: NE1/4 NE1/4

Lease No. U-044025
Issued to Cooperative Security Corp. 8/1/60
Township 17 South, Range 7 East, S1 M, Utah
Containing 40 acres
Section 27: NW1/4 NE1/4

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Lease No. U-024319
Issued to Huntington Corp. 5/1/60
Township 16 South, Range 7 East, SLM, Utah

Containing 1040 acres

Section 27: SW1/4

Section 28: SE1/4

Section 33: E1/2, E1/2 NW1/4, NE1/4 SW1/4, S1/2 SW1/4

Section 34: NW1/4, NW1/4 SW1/4

Lease No. U-014275
Issued to John Helco 10/1/55
Township 16 South, Range 7 East, SLM, Utah

Containing 80 acres

Section 28: E1/2 SW1/4

Lease No. U-47979
Issued to Utah Power & Light Co. 10/1/81
Containing 1,063.38 acres, more or less
Township 16 South, Range 7 East, SLM, Utah

Section 34: S1/2 NE1/4, NE1/4 SW1/4, S1/2 SW1/4, SE1/4

Township 17 South, Range 7 East, SLM, Utah

Section 3: Lots 1 thru 8, 10 thru 12, SW1/4, SW1/4 SE1/4

Section 4: Lots 1, 8, 9, E1/2 SE1/4

Lease No. U-47977
Township 16 South, Range 7 East, SLBM
Containing 640 acres

Section 32: All

Lease No. SL-050862 (consolidated to include U-24069 and U-24070)
Township 16 South, Range 7 East, SLBM

Containing 280 acres

Section 28: W1/2 SW1/4

Section 29: E1/2 SE1/4

Section 33: W1/2 NW1/4, NW1/4 SW1/4

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Lease No. U-06039
Containing 1402.97 acres
Issued to Ferdinand Hintze, 5/1/53
Township 16 South, Range 7 East, SLBM
Section 19: SE1/4
Section 20: S1/2
Section 29: N1/2, SW1/4, W1/2 SE1/4
Section 30: NE1/4, SE1/4 and Lot 4
Township 16 South, Range 6 East, SLBM
Section 25: E1/2SE1/4SE1/4

Lease No. U24317
Issued to Huntington Corp., 5/1/58
Containing 400 acres
Township 16 South, Range 7 East, SLBM
Section 20: S1/2NE1/4
Section 21: S1/2NW1/4, S1/2NE1/4, SW1/4

Lease No. U-2810
Issued to John Helco, 10/1/67
Containing 80 acres
Township 16 South, Range 7 East, SLBM
Section 28: E1/2NW1/4

Lease No. SL-051221
Issued to Rulon Jeppson, 11/5/34
Containing 80 acres
Township 16 South, Range 7 East, SLBM
Section 28: W1/2NW1/4

Lease No. U-7653
Township 16 South, Range 7 East, SLBM
Containing 411.6 acres
Section 31: All

OWNERS OF COAL TO BE MINED OTHER THAN THE UNITED STATES

State Lease ML-22509
Township 16 South, Range 6 East, SLBM
Containing 640 acres
Section 36: All

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The Estate of Malcolm McKinnon
Zions First National Bank, Trustee, Salt Lake City, Utah 84111
Township 17 South, Range 7 East, SLM, Utah
Section 10: SE1/4
Section 11: W1/2 W1/2, NE1/4 NW1/4
Section 14: W1/2 NW1/4

Cooperative Security Corp.
115 East South Temple, Salt Lake City, Utah 84111
Township 17 South, Range 7 East, SLM, Utah
Section 15: SE1/4
Section 22: NE1/4

Fee Leases held by Utah Power & Light
Patent No. 523194, containing 40 acres
Township 16 South, Range 7 East, SLM, Utah
Section 22: SW1/4NW1/4

Patent No. 523192, containing 160 acres
Township 16 South, Range 7 East, SLM, Utah
Section 22: SW1/4

Patent No. 523204, containing 80 acres
Township 16 South, Range 7 East, SLM, Utah
Section 28: N1/2NE1/4

Patent No. 523201, containing 160 acres
Township 16 South, Range 7 East, SLM, Utah
Section 21: SE1/4

Also:

Beginning at the SE corner of NE1/4 SE1/4 Section 25, T17S, R6E, SLM,
thence North 160 rods, West 116 rods to center line of Cottonwood Creek;
thence southerly along center line of said creek to a point 84 rods West of
the beginning; thence East 84 rods to the beginning.

The above listed surface rights and coal owned or leased by PacifiCorp,
successor in interest to Utah Power & Light Company.

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Township 17 South, Range 7 East, SLM, Utah
Section 14: SW1/4 (West of the Deer Creek Fault)

ADDITIONAL LANDS TO BE AFFECTED BY MINING

Township 17 South, Range 7 East, SLM, Utah
State of Utah Special Use Lease Agreement No. 284 utilized for conveyor and power line right-of-ways located in the southeast quarter of Section 2

Township 17 South, Range 8 East, SLM, Utah
PacifiCorp fee land (successor to Utah Power & Light Company) utilized for a Waste Rock Disposal Site located within Lots 4 and 5 of Section 5 and Lot 1 and the Southeast quarter of the Northeast quarter of Section 6

This legal description is for the permit area of the Deer Creek 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 is effective July 15, 1997, and expires on February 7, 2001.
- Sec. 5 ASSIGNMENT OF PERMIT RIGHTS** - The permit rights may not be transferred, assigned or sold without the 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 R645-303-300.
- 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, R645-400-220, 30 CFR 842.13 and R645-400-110;

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Federal Permit
July 15, 1997
Page 8

- (b) be accompanied by private persons for the purpose of conducting an inspection in accordance with R645-400-100 and R645-400-200 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 DISPOSAL OF POLLUTANTS - The permittee shall dispose of solids, sludge, filter backwash or pollutants in the course of treatment or control of waters or emissions to the air in the manner required by the approved Utah State Program and the Federal Lands Program which prevents violation of any applicable state or federal law.

Sec. 10 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.

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Page 9

- Sec. 11 EXISTING STRUCTURES** - As applicable, the permittee will comply with R645-301 and R645-302 for compliance, modification, or abandonment of existing structures.
- Sec. 12 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. 13 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. 14 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. 15 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. 16 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 of Oil, Gas, and Mining. The Division, after coordination with OSM, shall inform the permittee of necessary actions required. The permittee shall implement the mitigation measures required by the Division within the time frame specified by the Division.
- Sec. 17 APPEALS** - The permittee shall have the right to appeal as provided for under R645-300-200.
- Sec. 18 SPECIAL CONDITIONS** - There are special conditions associated with this permitting action as described in attachment A.

The above conditions (Secs. 1-18) 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

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Federal Permit
July 15, 1997
Page 10

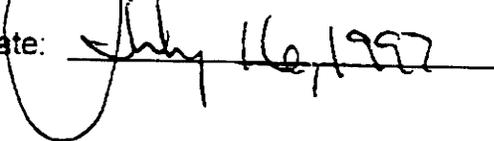
in the contracts between and among them. These conditions may be revised or amended, in writing, by the mutual consent of the Division and the permittee at any time to adjust to changed conditions or to correct an oversight. The Division may amend these conditions at any time without the consent of the 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: _____

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Federal Permit
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Attachment A

SPECIAL CONDITIONS

1. If during entry development, sustained quantities of groundwater are encountered which are greater than 5 gpm from a single source in an individual entry, and which continue after operational activities progress beyond the area of groundwater production, PacifiCorp must monitor these flows for quality and quantity under the approved baseline parameters.

PacifiCorp will notify the Division within 24 hours prior to initiation of said monitoring.
2. PacifiCorp must notify the Division within 14 days of the decision on the appeal of outstanding cessation order 94-020-370-002, 1 of 1.
3. This special condition is for normal working circumstances and does not apply in an emergency situation: Vehicle access will not be allowed in Rilda Canyon from December 1 to April 15 for construction, maintenance and/or repair of the Rilda Canyon Surface Facilities without prior written approval from the Division. Access will be allowed to the Rilda Canyon Surface Facilities through the Deer Creek Mine portals.
4. Mining in the "North Rilda Lease" area is authorized to the extent that the Surface Managing agency (U. S. Forest Service) has provided consent, per letters dated July 3, 1997 and July 15, 1997 (attached.)
5. Mining within the Federal Leases U-06039, U-24317, U-2810, and SL-051221 (North Rilda Area) is conditioned upon receiving Federal Mining Plan approval.

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

PacifiCorp
Deer Creek Mine
ACT/015/018
North Rilda Lease
Emery County, Utah

July 15, 1997

CONTENTS

- * Administrative Overview
- * Location Map
- * Permitting Chronology
- * Findings
- * Permit
- * Technical Analysis, June 17, 1997
- * Cumulative Hydrologic Impact Assessment (CHIA), dated September 1994
- * Letters of Concurrence
 - Bureau of Land Management, R2P2 - February 28, 1991, July 15, 1997
 - U.S. Fish and Wildlife Services, March 11, 1997
 - Division of State History, July 8, 1997
 - Forest Service, Manti La Sal, July 3, 1997 and July 15, 1997
 - Memo to File, Permittee Commitments for FS Conditions, July 8, 1997
 - Section 510 (c), Memo to File, June 26, 1997
- * Determination of Completeness, April 9, 1997
- * Affidavit or Publication

ADMINISTRATIVE OVERVIEW

PacifiCorp
Deer Creek Mine
North Rilda Area
ACT/015/018
Emery County, Utah

July 15, 1997

PROPOSAL

PacifiCorp submitted an application for the North Rilda Area (which included Federal Leases U-24317, U-2810, U-06039, SL-051221 and fee coal), for a total of 1960 acres on February 4, 1997. This represented about 23 million tons of minable coal to be mined over the life of the mine in this area.

Mining in this area was part of the original application made in 1981 for the entire 16,900 acres. However, this northern area was removed from the mining plan approval on March 11, 1985 by Allen Klein, at OSM, see original approval and only 14,620 acres were approved at that time.

This proposal for mining in the North Rilda Canyon Area would be done as an extension of current underground mining operations in the Blind Canyon seam and Hiawatha seam. Approval of this proposal reflects that mining under the south canyon escarpment has been conditioned according to specific requirements of the Forest Service.

BACKGROUND

The original permit for the Deer Creek Mine was issued February 7, 1986 for approximately 14,620 acres. The mining plan for Federal leases SL-064607-064621, SL-064900, SL-070645, U-1358, U-02292, U-084923, U-084924, U-083066, U-040151, U-044025, U-014275, U-024319, and U-47979 was approved on October 11, 1985 for the Deer Creek Mine. A Waste Rock Storage Facility was added September 1988. The permit was renewed on February 7, 1991.

The January 8, 1993 mining plan approval (IBC-1) added 120 acres of coal (80 acres in a portion of Lease No. U-47977 and 40 acres in a portion of Lease No. SL-050862). The July 22, 1993 mining plan approval (IBC-2) added 160 acres (80 acres in a portion of Lease U-47977 and 80 acres in a portion of Lease SL-050862).

Page 2
Administrative Overview
ACT/015/018
North Rilda Lease Area
July 15, 1997

PacifiCorp submitted the original application for the Rilda Canyon Lease Extension which included Leases U-7653, U-47977, U-06039, and SL-050862 on February 12, 1990 and resubmitted an application on February 8, 1994. This submittal was revised on June 27, 1994 as an incidental boundary change (IBC-3) to include development mining only in U-06039, U-47977, and SL-050862 (approximately 100,000 tons). Included in the revised application was longwall mining the Second, Third and Fourth East panels and development mining in the Third North Mains and the Sixth East Gate. Longwall mining would proceed in areas that were previously approved as incidental boundary changes with mining plan approval dates of January 8, 1993 (IBC-1) and July 22, 1993 (IBC-2). Entry development mining in the Third North Mains and the Sixth East Gates entailed about 40 acres beyond the currently approved permit boundary in Leases U-06039, U-47977 and SL-050862. IBC-3 was approved July 28, 1994.

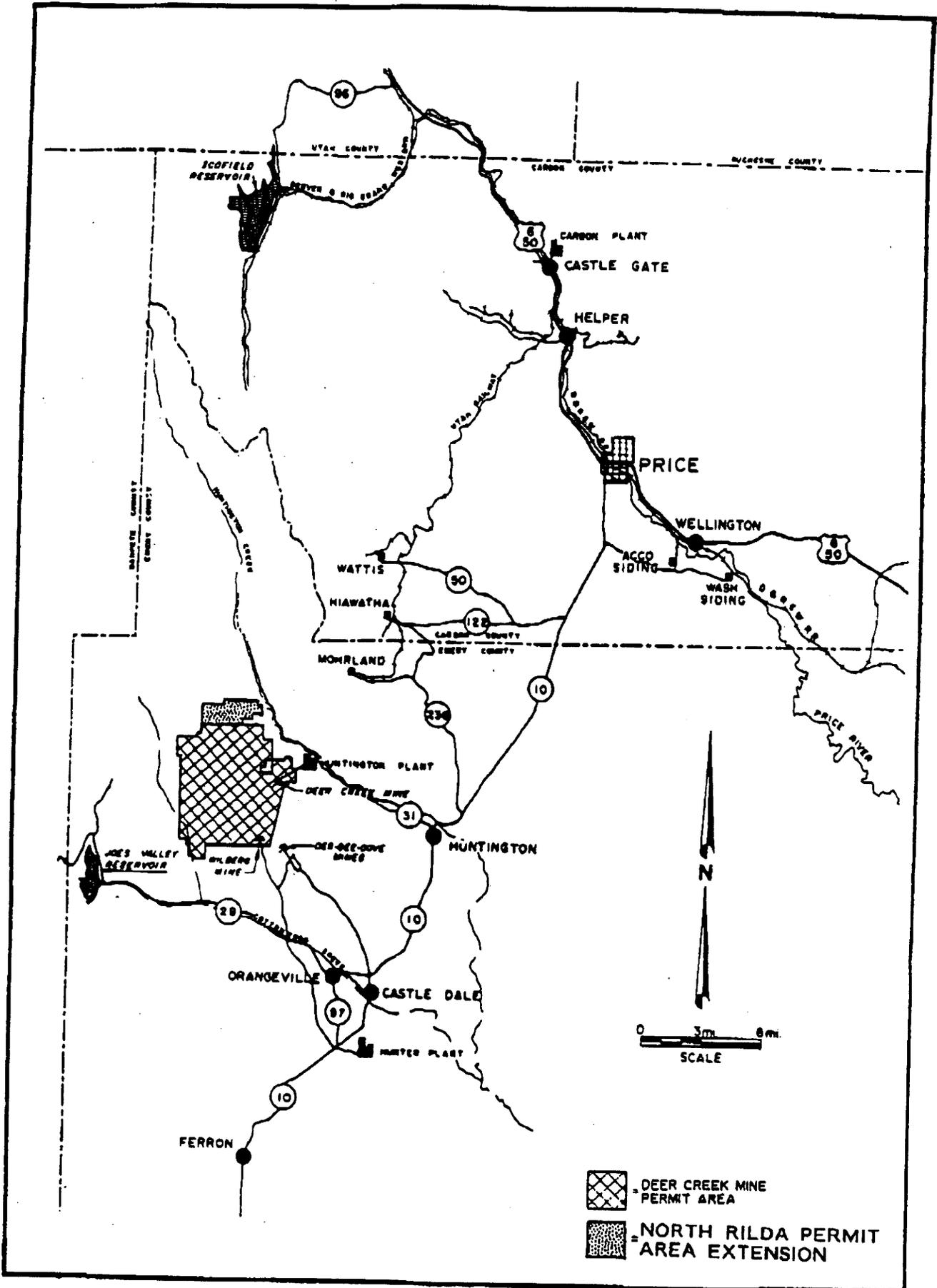
The Rilda Canyon Lease Extension to mine in federal leases U-7653, U-47977, SL-050862, part of U-06039, and state lease ML-22509 was approved on December 13, 1994.

A modification to lease U-06039 (not requiring mining plan approval) to mine 42.97 acres (or approximately 100,000 tons) was submitted on May 26, 1995 and approved on June 13, 1995.

Construction of the surface facilities which was a significant revision to the Deer Creek Mine permit was submitted on March 29, 1994. The approval to construct surface facilities in Rilda Canyon was approved on July 31, 1995 with nine conditions. All of the conditions were met on November 8, 1995.

RECOMMENDATION

The proposal to mine in the North Rilda Lease Area has been reviewed by the Division and other appropriate federal and state agencies. It is recommended that mining in the North Rilda Lease Area in federal leases U-2810, U-24317, SL-051221, and the remaining part of U-06039, and fee coal areas be approved with the attached conditions.



 DEER CREEK MINE PERMIT AREA
 NORTH RILDA PERMIT AREA EXTENSION

PERMITTING CHRONOLOGY

PacifiCorp
Deer Creek Mine
North Rilda Lease Area
Emery County, Utah

July 15, 1997

Background Chronology

- March 11, 1985 By letter from Allen Klein, OSM, Western Tech Center, UP&L is notified that the mining plan approval for Deer Creek Mine permit will not include the northern leases, and reduce the permit area from 16,900 acres to 14,620 acres.
- January 8, 1993 Mining plan approval of 120 acres as an incidental boundary change (IBC-1) in portions of Leases U-47977 and SL-050862.
- June 29, 1994 Determination of Completeness for Rilda Canyon Lease Extension sent to all interested parties for the Rilda Canyon Lease Extension area.
- July 28, 1994 IBC-3 is approved by the Secretary.
- September 23, 1994 Cumulative Hydrologic Impact Assessment for Rilda Canyon is completed.
- October 27, 1994 State Decision Document for the Rilda Canyon Lease Extension is prepared and forwarded to the Office Of Surface Mining Reclamation and Enforcement for concurrence and secretarial signature.
- December 13, 1994 Mining plan approval for Rilda Canyon Lease extension signed by the Secretary.
- June 13, 1995 Modification to U-06039 approved.
- July 31, 1995 Rilda Canyon Surface Facilities approved with nine conditions. All of the conditions were met by November 8, 1995.

Page 2
Permitting Chronology
ACT/015/018
North Rilda Lease Area
July 15, 1997

August 23, 1996 Forest Service consents to six exploration holes in federal coal leases for the North Rilda area.

North Rilda Lease Area Chronology

February 4, 1997 North Rilda Area application submitted to the Division.

February 7, 1997 North Rilda Area application submitted to other agencies.

March 26, 1997 Meeting with Division, Forest Service, and Bureau of Land Management about Rilda Lease Area issues.

April 9, 1997 Determination of Administrative Completeness and draft TA sent to PacifiCorp.

April 22, 29,
May 6, 13, 1997 North Rilda Lease Area addition to Deer Creek permit area published for four consecutive weeks in Emery County Progress.

May 14, 1997 Response by PacifiCorp to deficiencies.

June 17, 1997 TA completed.

July 3, 1997 Forest Service consent with six stipulations.

July 15, 1997 Forest Service letter with revised stipulations #3, #4, and #5 and Bureau Land Management letter issued. Permit issued with five conditions.

FINDINGS

Pacificorp
Deer Creek Mine
North Rilda Lease Area
ACT/015/018-97-1
Emery County, Utah

June 27, 1997

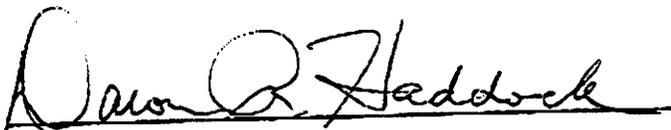
1. The revised plan and the permit application are accurate and complete and all requirements of the Surface Mining Control and Reclamation Act, and the approved Utah State Program (the "Act") have been complied with (R645-300-133.100).
2. No additional surface reclamation is required since the additional permit area will be mined as an underground extension of the existing mine. There will be no new surface facilities (R645-300-133.710).
3. The assessment of the probable cumulative impacts of all anticipated coal mining and reclamation activities in the general area on the hydrologic balance has been conducted by the regulatory authority and no significant impacts were identified. The Mining and Reclamation Plan (MRP) proposed under the application has been designed to prevent damage to the hydrologic balance in the permit area and in associated off-site areas (R645-300-133.400 and UCA 40-10-11 {2}{c}) The area comprising the North Rilda Lease was included in the CHIA completed in 1994 for the East Mountain area. (See 1994 Cumulative Hydrologic Impact Analysis [CHIA]).
4. The proposed lands to be included within the permit area are:
 - a. not included within an area designated unsuitable for underground coal mining operations (R645-300-133.220) ;
 - b. not within an area under study for designated lands unsuitable for underground coal mining operations (R645-300-133.210) ;
 - 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);

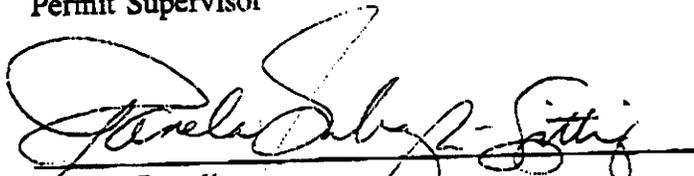
North Rilda Lease
ACT/015/018-97-1
June 27, 1997

- d. not within 100 feet of the outside right-of-way of a public road (R645-300-133.220);
 - e. not within 300 feet of any occupied dwelling (R645-300-133-220).
5. The regulatory authority's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) (R645-300-133.600).
6. The applicant has the legal right to enter and complete mining activities through federal and fee coal leases. (R645-300-133.300).
7. A 510(c) report has been run on the Applicant Violator System (AVS), which shows that: prior violations of applicable laws and regulations have been corrected; neither Andalex Resources Inc., or any affiliated company, are delinquent in payment of fees for the Abandoned Mine Reclamation Fund; and the applicant does not control and has not controlled mining operations with demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (R645-300-133.730).
8. Underground mining operations to be performed under the permit will not be inconsistent with other operations anticipated to be performed in areas adjacent to the proposed permit area.
9. The applicant has posted a surety bond for the Deer Creek Mine in the amount of \$2,500,000. No additional surety will be required, since there is no additional surface disturbance proposed (R645-300-134).
10. No lands designated as prime farmlands or alluvial valley floors occur on the permit area (R645-302-313.100) (R645-302-321.100).
11. The proposed postmining land-use of the permit area is the same as the pre-mining land use and has been approved by the regulatory authority and the surface land management agency

North Rilda Lease
ACT/015/018-97-1
June 27, 1997

- 12. The regulatory authority has made all specific approvals required by the Act, the Cooperative Agreement, and the Federal Lands Program.
- 13. The proposed operation will not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats (R645-300-133.500).
- 14. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (R645-300-120).
- 15. No existing structures will be used in conjunction with mining of the underground lease addition other than those constructed in compliance with the performance standards of R645-301 and R645-302 (R645-300-133.720).


 Permit Supervisor


 Permit Coordinator

Associate Director, Mining

Director

07/15/97 15:48 FAX 801 637 4940

MANTI-LA SAL NF --- UDOGM-SLC

002/002

United States
Department of
Agriculture

Forest
Service

Manti-La Sal
National Forest

599 West Price River Dr.
Price, Utah 84501
Phone # (801) 637-2817
Fax # (801) 637-4940

Reply to: 2820-4

Date: July 15, 1997

Utah Division of Oil, Gas, and Mining
ATTN: Pamela Grubaugh-Littig
1594 West Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: Response to Deficiencies, North Rilda Lease, PacifiCorp, Deer Creek Mine,
ACT/015/18-97-1, Folder #3, Emery County, Utah

Dear Pam:

As discussed during yesterday's DOGM, BLM, FS conference call, clarification to our July 3, 1997 letter is needed. The referenced letter contained six requirements associated with Forest Service consent to the North Rilda Lease Extension. Clarifications in the form of reworking are provided as follows (numbers refer to requirements in the 07/03/97 letter):

3. When the mains under the North Fork of Rilda Creek are no longer needed, the operator must ensure long term stability for the riparian zone/alluvial hydrologic system through backstowing, backfilling, grouting, or other means utilizing best available technology at that time.
4. Appropriate measures, in consultation with the BLM and the Surface Management Agency (SMA), must be taken to locate and prevent dewatering of the Mill Fork Fault system. Where the fault system is penetrated, permanent seals must be installed.
5. Operator will not be permitted to subside under escarpments along the North side of Rilda Canyon unless consented to by the SMA.

Please contact Aaron Howe or Carter Reed at (801) 637-2817 if you have any questions relative to these clarifications.

Sincerely,


for
JANETTE S. KAISER
Forest Supervisor

07/03/97 15:17 FAX 801 637 4940

MANTI-LA SAL NF 443 UDOGM-SEC

004/004

Page 3

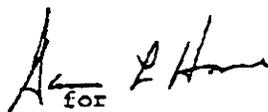
Pamela Grubaugh-Littig

Stipulation #6

The MRP contains the statement that they will notify the Utah Division of Oil, Gas and Mining if water loss occurs on National Forest System lands. The Forest Service also needs to know as soon as a water loss occurs.

Please contact Carter Reed or Dale Harber at (801) 637-2817 if you have any questions.

Sincerely,



for
JANETTE S. KAISER
Forest Supervisor

United States
Department of
Agriculture

Forest
Service

Manti-La Sal
National Forest

599 West Price River Dr.
Price, Utah 84501
Phone # (801) 637-2817
Fax # (801) 637-4940

File Code: 2820-4

Date: July 3, 1997

Utah Division of Oil, Gas and Mining
ATTN: Pamela Grubaugh-Littig
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: Response to Deficiencies, North Rilda Lease, PacifiCorp, Deer Creek Mine,
ACT/015/018-97-1, Folder #3, Emery County, Utah

Dear Pam:

The Manti-La Sal National Forest has completed a review of PacifiCorp's deficiency submittal for their application for a mine plan revision to expand the Deer Creek Mine permit area. Additionally, we have completed an analysis of impacts associated with potential failure of sandstone outcrops (escarpments) on the south side of Mill Fork Canyon and have decided to make an exception to the lease stipulation that precludes escarpment failure. We consent to the North Rilda mine plan revision subject to the following requirements:

1. Archaeology survey, and documentation and recording of cultural resources, in escarpment areas to be failed.
2. A survey for spotted bats (USDA-FS Sensitive Species) will be conducted for all escarpment areas to be failed. If bats are located, then evaluations will be made for mitigation needs. Mitigations could include avoidance during specific times and/or prevention of bat occupancy during periods of subsidence, such as by netting or screening. Mitigations will be evaluated on a case-by-case basis.
3. When the mains under the North Fork of Rilda Creek are no longer needed, the operator must backstow, backfill, and/or grout the mains, using the best technology available at that time.
4. The operator must delineate the Mill Fork Graben with some method other than direct mining. Acceptable methods include, but are not limited to, surface and in-mine drilling or geophysical methods.
5. Only full-support mining is permitted under escarpments along the north side of Rilda Canyon unless the lease stipulation prohibiting escarpment failure is waived by the Forest Service.

Pamela Grubaugh-Littig

Page 2

6. The operator must notify the surface management agency (Forest Service) if a water loss occurs on National Forest System lands.

Following are our comments/rationale for each of the above stipulations:

Stipulation #1

A cultural resources survey is required by Forest Service Special Stipulation #1 in the coal lease for this area, and by the National Historic Preservation Act of 1966.

Stipulation #2

A biological survey is required by Forest Service Special Stipulation #2 and by the Manti-La Sal National Forest Land and Resource Management Plan.

Stipulation #3

Engineering data have been provided to support the statement that there will be no subsidence of the North Fork of Rilda Creek for the long-term (hundreds of years). However, the engineering calculations are made using the assumption that the rock above the mined area is homogeneous, a situation which is seldom true in nature. We are also concerned with the shallow overburden at the point the mains cross under the creek, which consists of approximately 50 feet of alluvium/colluvium and 50 to 70 feet of competent rock (Attachment #1, Coal Lithologic Log, Drill Hole EM-158). The Forest Service would require that what ever methods are technically feasible be used to prevent any additional subsidence. This is provided for in 30 CFR 748.20(b)(5), which mentions specific methods to prevent subsidence, including backstowing or backfilling.

Stipulation #4

The revised plan states that the 4th North Mains will be driven to the northwest until they intersect the Mill Fork Graben or until they reach the western margin of the Blind Canyon coal seam. We do not feel that mining into the graben is an appropriate method of delineating the fault, due to the potential for impacting the groundwater resources. A resistivity survey done by PacifiCorp indicates the fault is wet. PacifiCorp stated that springs in the area may be related to the Mill Fork Graben. Mining into the fault could divert water into the mine.

Stipulation #5

Full extraction mining under the north side of Rilda Canyon (the three southern panels) and the south side of Mill Fork Canyon (the three northern panels) would subside Castlegate sandstone escarpment areas, requiring an environmental analysis to disclose impacts before the lease stipulation on escarpment failure could be waived. The analysis for mining under the Castlegate sandstone on the south side of Mill Fork Canyon is being done at this time.

Pamela Grubaugh-Littig

Page 3

Stipulation #6

The MRP contains the statement that they will notify the Utah Division of Oil, Gas and Mining if water loss occurs on National Forest System lands. The Forest Service also needs to know as soon as a water loss occurs.

Please contact Carter Reed or Dale Harber at (801) 637-2817 if you have any questions.

Sincerely,

/s/ Aaron L. Howe

for
JANETTE S. KAISER
Forest Supervisor

DHarber:co

DECISION MEMO

for

Proposed Mine Plan Modification North Rilda Canyon Extension Deer Creek Mine

July, 1997

USDA, Forest Service, Region 4
Manti-La Sal National Forest
Ferron-Price Ranger District
Emery County, Utah

Purpose and Need and Proposed Action

PacifiCorp (Energy West) has proposed to add their remaining Federal coal leases and fee lands in the North Rilda Canyon area to their Deer Creek Mine permit area. The Federal Coal Leases involved include U-024317, SL-051221, U-2810, and a portion of U-06039. This proposal would enable them to extend underground workings northward to Mill Fork Canyon. The purpose is to recover remaining minable coal reserves in the area.

As proposed, underground mining in the area could subside the steep south slope of Mill Fork Canyon and cause minor spalling of the limited Castlegate Sandstone outcrop. The Manti-La Sal National Forest and Office of Surface Mining are conducting an environmental analysis to evaluate the proposal for consent/approval respectively. Existing Environmental Assessments for the leases have disclosed the potential impacts of underground mining and subsidence, but did not consider the effects of subsiding the Castlegate Sandstone outcrops due to lease stipulations that prevented subsidence of the escarpments. Therefore, anticipated surface disturbance associated this subsidence must be evaluated.

This analysis only considers impacts associated with escarpment failure on the south slope (north facing) of Mill Fork Canyon. The extraction of the northern longwall panels could cause spalling of the limited Castlegate Sandstone outcroppings referenced above. Full extraction mining that would subside the exposed Castlegate Sandstone on the south facing slope of Rilda ridge would require a separate environmental analysis to evaluate the potential impacts there.

Authority

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 these leases contain lands, the surface of which are managed by the United States Department of Agriculture, Forest Service - Manti-La Sal National Forest.

Decision and Rationale

After careful review of the proposal, public comments, and the environmental analysis disclosed in the project file, I have decided to consent to the amendment of the mine plan, thereby excepting the stipulation for the protection of the outcroppings of Castlegate Sandstone on the south slope of Mill Fork Canyon. The stipulation is still in force for all other escarpments within these leases. I believe the remainder of the terms and conditions listed in the Forest Plan and contained in the leases adequately address and mitigate the anticipated impacts to the resource issues and are hereby incorporated into my decision as conditions of approval.

Additionally, surveys for cultural resources and Western Spotted Bats (sensitive species) in the escarpments will have to be conducted prior to undermining and subsidizing the escarpments in Mill Fork Canyon. Further mitigation may be required depending on the results of the surveys and subsequent consultation(s) as necessary. Specifically, consultation with the State Historic Preservation Office, and appropriate Native American tribes will be required.

The US Fish and Wildlife Service was primarily concerned about impacts to raptors. I believe the stipulations on the leases involved directly address their concerns and adequately mitigate the anticipated impacts. Additionally the possible presence of the peregrine falcon (endangered) is addressed in the biological evaluation found in the project file (no effect determination)

The Emery Water Conservancy District expressed concern about the potential for loss of water quality/quantity due to mining activities. I believe that Forest Plan required stipulations attached to the leases address this concern and adequately provide for mitigations of any potential impacts.

Coal leasing and development are implemented under the authority of the following actions: the Mineral Leasing Act of 1920, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976; the Surface Mining Control and Reclamation Act (SMCRA) of 1977; the National Environmental Policy Act of 1969 (NEPA); the Federal Coal Leasing Amendments Act of 1976, as amended; regulations: Title 43 CFR Group 3400, and Title 30 CFR Group 700; and the Manti-La Sal National Forest Land and Resource Management Plan, Final Environmental Impact Statement, and Record of Decision, 1986.

The current approved Deer Creek Mine Mining and Reclamation Plan (MRP) is consistent with all special stipulations on the referenced leases.

Reasons for Categorically Excluding the Proposed Action

Based on the environmental analysis disclosed in the project file, along with the East Mountain Cumulative Hydrologic Impact Assessment, and the Technical Analysis & Findings, prepared by Utah Division of Oil, Gas, and Mining (UDOGM), I found no extraordinary circumstances or effects (FSH 1909.15, 30.3 and 30.5) to exist that might cause this action to have significant effects on the quality of the human environment (40 CFR 1508.27).

No known prime or unique farmlands, wetlands, timber lands, or rangelands; floodplains; alluvial valley floors; cultural or significant paleontological resources; nor Threatened, Endangered, or Sensitive floral or faunal species will be impacted. Biological Evaluations in the project file, developed for this action, contain "no effect" determinations.

Finding no extraordinary circumstances, I determined the proposed action may be categorically excluded under FSH 1909.15, Chapter 31.1b, category 7; sale or exchange of land, or interest in land and resources where resulting land use remains essentially the same.

Public Involvement

Scoping was initiated June 10, 1997. Legal Notices were published in the Sun Advocate and the Emery County Progress, and scoping letters were sent to a list of interested parties. Issues were raised by the US Fish and Wildlife Service and Emery Water Conservancy District and have been addressed above. In addition, a letter and telephone contact in support of the action were received from the Utah Mining Association and Mr. James Beason respectively. A telephone contact was also made by Bill Bates of the Utah Division of Wildlife Resources requesting further information.

Findings Required by other Laws

The analysis is tiered to the Manti-La Sal National Forest Land and Resources Management Plan, EIS, and Record of Decision (1986), as amended. Referenced are the Environmental Analysis Report/Part 23 Technical Examination, Peabody Coal Company Federal Leases U-06039, SL-051221, and U-014275 Lease Readjustment, 10/76; Environmental Assessment for the Readjustment of Federal Coal Lease U-024319, 1989; Environmental Assessment for the Readjustment of Federal Coal Lease SL-051221, 1994; Environmental Assessment for the Readjustment of Federal Coal Lease U-2810 and the Decision Notice/Finding of No Significant Impact for the Readjustment of Federal Coal Lease U-06039, 5/92; Environmental Assessment, PacifiCorp Deer Creek Mine Surface Facilities and Mining Under Escarpments in Rilda Canyon, 8/94 and the Deer Creek Coal Mine, Mining and Reclamation Plan. Additionally referenced is the East Mountain Cumulative Hydrologic Impact Assessment and the Technical Analysis prepared by UDOGM.

Management prescriptions contained in the Forest Plan for the lease area emphasize forage production, riparian area management, and leaseable mineral development. Mineral activities are allowed with "appropriate mitigation measures to assure continued livestock access and use"; "Those being authorized to conduct developments will be required to replace losses where development adversely affects long-term production or management" of range land (Forest Plan, page III-66). Mineral management activities should "avoid and mitigate detrimental disturbance to riparian areas" (Forest Plan, page III-72)

My decision is consistent with the Forest Plan and will not require amendments. I have considered and find the decision consistent with the National Forest Management Act requirements as expressed in 36 CFR 219.27. The decision complies with the Endangered Species Act of 1973 and Section 106 of the National Historic Preservation Act of 1966 (Project File).

Implementation Date

My decision may be implemented on or after the date of signature.

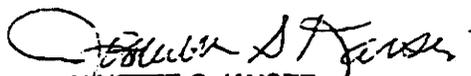
Administrative Review or Appeal Opportunities

I am willing to meet with the holder of a written instrument and hear any concerns or issues related to this decision. PacifiCorp may appeal this decision under 36 CFR 251, Subpart C. Any written notice of appeal must be fully consistent with 36 CFR 251.90 including the reasons for the appeal and must be filed within 45 days of this decision. The decision is not subject to appeal under 36 CFR 215 and 217.

Notice of Appeal and statement of reasons must be submitted in writing to ATTN: Regional Forester, Reviewing Officer, USDA Forest Service, 324 25th Street, Ogden, UT 84401. Simultaneously send a copy of the Notice of Appeal to: ATTN: Forest Supervisor, Manti-La Sal National Forest, 599 West Price River Drive, Price, UT 84501.

Contact Person

Persons with questions related to this decision may contact Jeff DeFreest at the Ferron-Price Ranger District, 599 West Price River Drive, Price, Utah 84523 or call (801) 637-2817.


JANETTE S. KAISER
Forest Supervisor

Date 7-3-97

State of Utah
Division of Oil, Gas and Mining
Utah Coal Regulatory Program



Technical Analysis and Findings
North Rilda Lease
Deer Creek Mine
ACT/015/018-97-1
June 17, 1997

INTRODUCTION

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

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ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR Sec. 783., et. al.

PERMIT AREA

Regulatory Requirements: 30 CFR Sec. 783.12; R645-301-521.

Analysis:

The permit area, as enlarged in 1997 by the addition of the North Rilda Lease Extension, is shown on Figure R645-301-100a--Mine Permit Boundaries, on Plate HM-9--North Rilda Area Geologic and Hydrologic Information, and on Plate HM-10--Right Fork of Rilda Canyon; Geologic Cross Section A-A'. Also shown on these maps are the boundaries of the individual leases and patent fee claims which make up the lease extension.

Plates HM-9 and HM-10 were certified in January of 1997 by John Christensen, a licensed professional engineer registered in the state of Utah.

Findings:

The plan fulfills the requirements of this section.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Permit Area Boundary Maps

The permit area, as enlarged in 1997 by the addition of the North Rilda Lease Extension, is shown on Figure R645-301-100a--Mine Permit Boundaries, on Plate HM-9--North Rilda Area Geologic and Hydrologic Information, and on Plate HM-10--Right Fork of Rilda Canyon; Geologic Cross Section A-A'. Also shown on these maps are the boundaries of the individual leases and patent fee claims which make up the lease extension.

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Plates HM-9 and HM-10 were certified in January of 1997 by John Christensen, a licensed professional engineer registered in the state of Utah.

Coal Resource and Geologic Information Maps

Map HM-9 shows surface geology and faults in the North Rilda and adjacent areas. The outcrops of the Blind Canyon coal seam and of the Castlegate Sandstone are highlighted. HM-10 shows a cross section along the bottom of a portion of the Right Fork of Rilda Canyon that shows the strata down to the Star Point Sandstone. HM-11 is a cross section at a right angle to HM-10 and shows the riparian-buffer zone and angle-of-draw projections. Other required geologic information is in the current MRP.

Mine Workings Maps

Location and extent of know workings of active, inactive, or abandoned underground mines are shown on HM-9. The Division's AML section closed the surface openings and reclaimed the disturbed areas of three mines in the North Rilda Area in 1988, and the locations of those closed portals are also shown on HM-9.

Monitoring Sampling Location Maps

Elevations and locations of test borings and of monitoring stations used to gather data on water quality and quantity for the proposed North Rilda Area Amendment are shown on map HM-9

Subsurface Water Resource Maps

Map HM-9 indicates that the only bore holes in the North Rilda Area that encountered measurable ground water are located along the Right Fork of Rilda Canyon. Water was found in the alluvium.

Surface Water Resource Maps

Locations of spring collection boxes, pipelines, and meters belonging to the North Emery Water Users Association (NEWUA) are shown on map HM-9, which was submitted as part of the proposed North Rilda Area Amendment. That map also shows locations of streams, springs, and seeps within the proposed North Rilda amendment area and adjacent areas.

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Well Maps

There are no gas and oil wells or water wells within the proposed North Rilda amendment area and adjacent areas.

Certification

Maps HM-9, HM-10, and HM-11, which were included in the proposed North Rilda Area Amendment, are were prepared by or under the direction of, and certified by a qualified, registered, professional engineer (p. 4).

Findings:

Maps, plans, and cross sections that were submitted for the proposed North Rilda Area Amendment to the Deer Creek Mine MRP to show resource information on coal resources, geologic information, mine workings, monitoring sampling locations, subsurface water resources, surface-water resources, and wells are considered adequate to meet the requirements of this section.

GEOLOGIC RESOURCE INFORMATION

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

Analysis:

The proposed North Rilda Area amendment makes reference to the currently approved MRP for geologic information. The current MRP includes geologic information in sufficient detail to assist in determining the probable hydrologic consequences of the North Rilda Area operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface- and ground-water monitoring is necessary. Geologic information in the current MRP is sufficient to determine all potentially acid- or toxic-forming strata down to and including the stratum immediately below the coal seam to be mined. There is no surface disturbance planned in the North Rilda Area so geologic information is not needed to determine whether reclamation can be accomplished. The current MRP includes geologic information in sufficient detail to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area, and to prepare the subsidence control plan.

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Geologic information includes a description of the geology of the current permit and adjacent areas, including the proposed North Rilda addition, from the surface down to and including the lower Blackhawk Formation and Star Point Sandstone. The Blackhawk and Star Point are the strata immediately below the lowest coal seam to be mined and act in some parts of the Wasatch Plateau as a regional aquifer. Areal and structural geology of the permit and adjacent areas are described, including how the areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water. The description is based on maps and plans required as resource information for the plan, detailed site specific information, and, geologic literature and practices.

Strata above the coal seam to be mined will not be removed, so samples have been collected and analyzed from test borings or drill cores to provide logs of drill holes that show: lithologic characteristics, including physical properties and thickness of each stratum that may be impacted; the location of ground water where encountered; chemical analyses for acid- or toxic-forming or alkalinity-producing materials in the strata immediately above and below the coal seam to be mined; chemical analyses of the coal seam for acid- or toxic-forming materials, including the total sulfur and pyritic sulfur; and the thickness and engineering properties of clays or soft rock in the stratum immediately above and below each coal seam to be mined.

The Division has not determined it necessary to require the collection, analysis, and description of additional geologic information to protect the hydrologic balance, to minimize or prevent subsidence, or to meet performance standards.

The applicant has not requested that the Division waive in whole or in part the requirements of the borehole information or analysis required of this section.

Findings:

Geologic resource information submitted in the proposed North Rilda Area Amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements of this section.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Sampling and analysis.

Water-quality sampling and analyses of samples collected by PacifiCorp will be done according to the "Standard Methods for the Examination of Water and Wastewater" (p. 55).

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Baseline information.

The Division has not required additional baseline information for the North Rilda Area.

Ground-water information.

The location of existing wells, springs, and other ground-water resources for the North Rilda Area and adjacent areas is shown on map HM-9 and information on location and water rights is on pages 10 to 43 in the North Rilda amendment and in Volume 9 of the Deer Creek Mine MRP. Information on seasonal quality and quantity of ground water is in the Annual Hydrologic Monitoring Reports. Water-quality descriptions include, at a minimum, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese. Ground-water quantity descriptions include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam and water-bearing strata above and below the coal seam.

Surface-water information.

The locations of surface-water bodies, namely streams, in the North Rilda Area are shown on map HM-9. Descriptions and information on names, water rights and usage, and location are also on pages 44 to 54 in the proposed North Rilda amendment and in Volume 9 of the Deer Creek Mine MRP. There are no lakes or impoundments in the North Rilda Area and no discharge into any surface-water body in the North Rilda Area and adjacent areas. Information on surface-water quality and quantity is in the Annual Hydrologic Monitoring Reports and is sufficient to demonstrate seasonal variation. Water-quality descriptions include, at a minimum, baseline information on total suspended solids, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, and total manganese. There is little potential for acid drainage from the proposed mining operation in the North Rilda Area, but baseline acidity and dissolved carbonate and bicarbonate have been determined. Water-quantity descriptions include, at a minimum, baseline information on seasonal flow rates.

Baseline cumulative impact area information.

Hydrologic and geologic information for the cumulative impact area necessary to assess the probable cumulative hydrologic impacts of the proposed operation and all anticipated mining on surface- and ground-water systems has been obtained from appropriate Federal or State agencies and also from the applicant.

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Modeling.

No modeling has been used in the proposed North Rilda Area Amendment.

Probable hydrologic consequences (PHC) determination.

A PHC determination that includes the North Rilda Area is included in the currently approved Deer Creek Mine MRP. The proposed North Rilda Area Amendment contains a PHC determination of the proposed operation that provides some additional information and discussion specific to the North Rilda Area, based upon the quality and quantity of surface and ground water under seasonal flow conditions for the North Rilda Area and adjacent areas, including the currently permitted Deer Creek Mine. The PHC utilizes baseline and operational hydrologic, geologic, and other information collected for the North Rilda Area and the currently operating Deer Creek Mine. The PHC does not rely on data statistically representative of the site. The PHC determination includes findings that data collected by PacifiCorp over a fifteen-year period indicate subsidence has not produced any detectable impacts to surface streams and that subsidence should not cause significant impacts to the surface-water system.

Flow in Deer Creek is greater than before mining began because of discharge from the mine, and during low flow the higher TDS content of the mine discharge water is likely causing some degradation of water quality in the stream.

No acid-forming or toxic-forming materials that could result in the contamination of surface- or ground-water supplies are present. There is to be no surface disturbance associated with mining in the North Rilda Area so there will be no impact on sediment yield, acidity, total suspended and dissolved solids or other water quality parameters of local impact, flooding, or streamflow alteration from a disturbed area.

Four springs belonging to North Emery Water Users Association (NEWUA) lie within or immediately adjacent to the North Rilda amendment area. There are also two seeps in the area. None of the seeps and springs directly overlie the proposed mining operation. Some recharge to these seeps and springs could be intercepted by cracks or fractures opened by subsidence. Based on studies of the springs and observation wells and after negotiations with NEWUA, PacifiCorp constructed a slow sand water treatment plant to mitigate potential impacts to the North Rilda springs. A copy of the agreement between PacifiCorp and NEWUA is in Volume 9 - Appendix G. The plant was placed on-line in November 1994 utilizing the Rilda Canyon springs as one of the water sources (p. 84).

Ground water intercepted by mine workings is water that has been held in storage in the rock, principally in perched, fluvial-channel sandstone systems. Data from surface monitoring and the hydrologic characteristics of the Blackhawk Formation and Starpoint Sandstone indicate that the interception of this ground water produces only a minor reduction of

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natural discharge from the ground-water systems. Long-term monitoring of water producing zones in the Deer Creek and Wilberg-Cottonwood Mines has established that in-mine flows decrease in volume with time and are not subject to seasonal or yearly fluctuations (p. 85).

No faulting is projected within the North Rilda Area, so interception of ground water from faults and fractures is not anticipated. Geologic structure is an influence on ground-water systems to the south of Rilda Canyon, but the less complex geologic structure of the North Rilda Area, as compared to the permit area to the south, is not expected to influence ground water occurrence or movement.

Supplemental information.

Results of pump tests in observation wells in Rilda Canyon and a discussion of potential impacts of mining on the NEWUA springs located there are in the proposed North Rilda Area Amendment and the current MRP.

Ground-water monitoring plan.

The proposed North Rilda Area Amendment includes a ground-water monitoring plan based upon the PHC determination and the analysis of all baseline hydrologic, geologic, and other information in the permit application. The plan provides for the monitoring of parameters that relate to the suitability of the ground water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance.

Parameters to be analyzed are those listed in the Division's guidelines for water quality monitoring, which include TDS or specific conductance corrected to 25°C, pH, total iron, total manganese. Water levels are to be monitored quarterly in the five piezometers in Rilda Canyon. Information on quantity and quality parameters to be monitored, sampling frequency, and site locations is in Volume 9 - Appendix A of the current MRP.

Data from monitoring is to be submitted to the Division every 3 months. Annual reports will contain summaries of all hydrology data. The Division has not required additional monitoring as a condition of approval of this proposed North Rilda Area Amendment. Quarterly operational monitoring will be done to delineate seasonal variations and assess changes in water quality.

The applicant has not requested that monitoring of any water-bearing stratum in the proposed North Rilda Area be waived. Therefore, the Division has made no waiver of monitoring.

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Surface-water monitoring plan.

The proposed North Rilda Area Amendment includes a surface-water monitoring plan based upon the PHC determination and the analysis of all baseline hydrologic, geologic, and other information in the permit application. The plan provides for the monitoring of parameters that relate to the suitability of the ground water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance. There will be no discharges in the North Rilda Area and therefore effluent limitations are not a direct or specific concern of this amendment. Ground water intercepted by coal-mine operations in the North Rilda Area should have no impact on the operator's ability to control quality or quantity of water discharged from the mine at locations outside Rilda Canyon.

Information on quantity and quality parameters to be monitored, sampling frequency, and site locations is in Volume 9 - Appendix A of the current MRP. Parameters to be analyzed are those listed in the Division's guidelines for water quality monitoring, which include TDS or specific conductance corrected to 25°C, total suspended solids, pH, total iron, total manganese, and flow.

Data from monitoring are to be submitted to the Division every 3 months. Annual reports will contain summaries of all hydrology data. Quarterly operational monitoring will be done to delineate seasonal variations and assess changes in water quality.

The Division has not required additional monitoring as a condition of approval of this proposed North Rilda Area Amendment.

Findings:

Hydrologic resource information submitted in the proposed North Rilda Area Amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements of this section.

OPERATION PLAN

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Analysis:

Protection and enhancement plan.

The Utah Division of Wildlife Resources (UDWR) has reviewed the proposed amendment and made several comments on how mining and any related subsidence could directly or indirectly affect wildlife resources. Areas of concern are the riparian zones along the Right and Left Forks of Rilda Canyon and the Castlegate Sandstone escarpments. Only the Right Fork is in the North Rilda Area. The riparian areas are possibly moose habitat and the area is classified as Critical Elk Summer and Winter Range. Although there were no active raptor nests found in the area in 1996 (letter from John Kimball (UDWR) to Jim Carter (UDOGM) dated March 5, 1997), the area has significant historical use by raptors with the Castlegate escarpments providing nesting sites.

A monitoring well and a water monitoring station with a flume are located immediately downstream of the proposed entries beneath the Right Fork of Rilda Canyon. These monitoring stations should detect any significant loss of water from the surface and alluvium into the underground workings at this location.

UDWR is of the opinion that no mining should be allowed where subsidence has the potential, as indicated by angle-of-draw, to affect the riparian areas. Neither should subsidence be allowed to disturb active raptor nests if any are found.

No full-extraction mining is planned under the riparian areas. However, part of one longwall panel will be within 200 feet of the Right Fork of Rilda Canyon riparian area. The relative thinness of overburden where planned longwall panels will be closest to the riparian area increases the possibility for subsidence induced fractures to reach the surface. But the relative thinness of overburden also reduces the likelihood that subsidence effects will extend laterally into the riparian area. To protect the alluvial-colluvial system in the Right Fork a stream buffer zone has been established based on the extent of the riparian zone and a 15 degree angle-of-draw from the Hiawatha Seam, the lowest seam to be mined. Longwall-mining induced subsidence and related impacts are not projected to reach the North Rilda riparian areas, as shown on HM-9 and HM-11.

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Longwall mining is projected under most of the Castlegate escarpments in the North Rilda Area, and it can be assumed there will be some subsidence effects to the escarpments.

Findings:

Information in the proposed North Rilda Area Amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements of the fish and wildlife protection and enhancement plan.

COAL RECOVERY

Regulatory Reference: 30 CFR Sec. 817.59; R645-301-522.

Analysis:

See *General*, page 7, *Engineering*, pages 9, 10, 12-17.

Mining began in the North Rilda Lease Extension in 1997. The North Rilda Lease Extension lies to the north of Rilda Canyon. It comprises approximately 1,960 acres and consists of 4 Federal leases and 4 patent fee claims.

The North Rilda Lease Extension contains approximately 23 million minable tons of coal. The coal is in 2 seams: the upper Blind Canyon Seam and the lower Hiawatha Seam. Entry development will be done using continuous mining machinery. Most production, about 75%, will be done by longwall methods. Continuous mining machinery will be used to mine many areas which cannot be incorporated into longwall panels and will thus accomplish the remaining 25% of the total production. Production is expected to be 1,150 tons per day for the continuous miner and 9,000 tons per day for the longwall, which means a production rate for the entire mine of 10,150 tons per day, 190 days per year, or approximately 1.93 million tons per year.

The coal recovery rate in the longwall panels is expected to be about 85%. Combining the production from longwall and continuous miner sections, and considering in the coal that must remain in place in the form of property boundary barriers, main entry barriers, bleeder entry barriers and surface and subsurface resource protective barriers, the permittee expects to attain an overall coal recovery rate for the entire mine of about 65%. This compares favorably with the industry average for longwall mines, which is about 60%. Thus, the plan maximizes the utilization and conservation of the coal resource, in accordance with R645-301-522.

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Findings:

The plan fulfills the requirements of this section.

SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR Sec. 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

Analysis:

Subsidence control plan.

The subsidence control plan for the North Rilda Lease Extension incorporates 5 principles: 1) subsidence monitoring, 2) the use of longwall mining methods, 3) the establishment of large longwall panels, 4) the leaving of permanent barrier pillars, and 5) the use of yielding pillars between longwall panels.

Subsidence monitoring will be done exclusively by aerial photogrammetric methods. The yearly monitoring program already in use at the Deer Creek mine, as well as other adjacent mines owned and operated by the permittee, will simply be extended to include the lease extension area. Elevations are measured to a precision of ± 1 foot and the data are so abundant that they can be and are used to draft extensive isogrametric subsidence maps of the area being mined. These maps and the data upon which they are based have been very useful to both the permittee and the Division in monitoring and predicting subsidence.

As has been discussed, wherever practicable, longwall methods will be used. By allowing for vast and relatively uniform subsidence, longwall mining minimizes not only surface damage, but also damage to aquifers and other subsurface features.

Longwall panels have been designed to be as large as possible. The larger the panel, the less the extent of peripheral surface damage relative to the total area subsided.

Where necessary, permanent protective barrier pillars of coal will be left. These barrier pillars will be located on the basis of the angle of draw, which has been determined to be 18° in this area, and the depth of cover in a particular area. Property boundary pillars will be left to prevent subsidence from extending beyond the permit area. Pillars will be left to protect the South Castlegate escarpment, which lies on the north side of Rilda Canyon and which has significant vertical exposure. Pillars will be left to protect the riparian areas in both forks of Rilda Canyon from subsidence. Only entry development, and no pillar extraction or second mining, will take place in these pillars.

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Last, those pillars which are left between longwall panels for entry protection have been designed to yield, or crush out, with time. This means that unsubsidized ridges between panel subsidence troughs will be eliminated or lessened. Like the large longwall panels, this will make for more extensive and uniform subsidence and thus lessen damage to both surface and subsurface features.

The U.S. Forest Service (USFS) reviewed the plan for mining the North Rilda Lease Extension. On March 7, 1997, USFS sent a letter to the Division, outlining a number of deficiencies in the plan, the correction of which would be necessary before it (USFS) would allow mining beneath the escarpments of Mill Fork Canyon and Rilda Canyon, or even entry development beneath the right fork of Rilda Canyon, to proceed.

The deficiencies set forth by USFS have to do with the potential for subsidence. They center around 2 problems.

1) First, USFS fears that the development of entries beneath the riparian area and alluvial deposits in the right fork of Rilda Canyon might, at least in the long run, cause subsidence damage to the riparian area and to the water-bearing capacity of the alluvial deposits. In turn, this might cause a diminution in the quality or quantity of water in nearby springs that are owned by the North Emery Water Users Association.

In order to address USFS's concerns about the stability of the riparian area and alluvial deposits above the proposed entries, the permittee did a stability analysis of both the proposed entry pillars and the overlying strata. The analysis is found in Appendix 1. The analysis indicates that the stability safety factor of the proposed entry pillars ranges from 3.57 at the edges of the canyon, where the overburden is over 600 feet thick, to 23.94 in the middle of the canyon, where the overburden, at 99 feet, is shallowest. The beam analysis of the strata which will overlie the entries indicates for them a stability safety factor of 4.92. The Division is satisfied that these large stability safety factors guarantee that the proposed entries will be stable over the long run.

2) Second, the stipulations of the North Rilda Lease agreement prohibit subsidence damage to the escarpments in Mill Fork and Rilda Canyons.

The escarpment in Mill Fork Canyon is very small. In a June 10, 1997 letter to the Division, USFS stated that it is willing to allow mining in that area through a categorical exclusion, which would eliminate the necessity of an Environmental Assessment (EA). The permittee has done a comparative study of this area and the south side of Rilda Canyon, which has been completely mined out. These areas are very similar. This study is found in Appendix 1. It indicates that the probability of major, or even noticeable, subsidence damage on the south slope of Mill Fork Canyon is very slight.

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The escarpments in Rilda Canyon, on the other hand, are high and quite extensive. Mining in this area, which might pose a threat of subsidence damage to those escarpments, is thus subject to a full EA. The permittee is conducting subsidence studies in other, similar areas, namely Cottonwood Newberry Canyon, Corncob Wash, and Trail Mountain. The permittee commits to using the data from these studies to predict the effects of subsidence on the escarpments of Rilda Canyon.

The layout and location of the entries and the longwall panels is the subject of ongoing study by the permittee and negotiation between the permittee and USFS. The permittee must design the subsidence control plan to the satisfaction of USFS before entry development and mining can proceed.

Findings:

The plan fulfills the requirements of this section. However, in accordance with R645-300-122, the permittee must design the subsidence control plan to the satisfaction of USFS before entry development and mining can proceed.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Affected area maps.

The permit area, as enlarged in 1997 by the addition of the North Rilda Lease Extension, is shown on Figure R645-301-100a--Mine Permit Boundaries, on Plate HM-9--North Rilda Area Geologic and Hydrologic Information, and on Plate HM-10--Right Fork of Rilda Canyon; Geologic Cross Section A-A'. Also shown on these maps are the boundaries of the individual leases and patent fee claims which make up the lease extension.

Plates HM-9 and HM-10 were certified in January of 1997 by John Christensen, a licensed professional engineer registered in the state of Utah.

Findings:

The plan fulfills the requirements of this section.

GEOLOGIC OPERATION INFORMATION

Regulatory Reference: R645-301-630, -640

Analysis:

Exploration holes and other bore-holes have been managed or will be managed to prevent acid or other toxic drainage from entering ground and surface waters; to minimize disturbance to the prevailing hydrologic balance; and to ensure the safety of people, livestock, fish and wildlife, and machinery in the permit and adjacent areas. Over 110 exploratory drill-holes have been drilled from the surface on the East Mountain properties. Upon completion of each hole, drilling fluids and cuttings have been disposed of properly and each hole sealed or plugged from total depth to the surface collar with cement or cement and bentonite (p.1 - Geology). Detailed information on procedures used to plug the seventeen exploration bore-holes in the North Rilda Area is given in Appendix 1 of Chapter 6 of the proposed North Rilda Area Amendment.

Findings:

Information in the proposed North Rilda Area Amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements for geologic information in the Operation Plan.

TECHNICAL ANALYSIS

Last revised - July 7, 1997

HYDROLOGIC INFORMATION

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

Analysis:

Ground-water monitoring.

There will be no surface disturbance in the North Rilda Area and therefore no earth materials and runoff to be handled in a manner to protect ground-water quality.

Ground-water monitoring is to be conducted according to the ground-water monitoring plan found in Volume 9 - Appendix A. The Division has not found additional monitoring necessary. Ground-water monitoring data will be submitted every 3 months to the Division. Monitoring reports will include analytical results from each sample taken during the reporting period. When analysis of any ground-water sample indicates non-compliance with the permit conditions, PacifiCorp will promptly notify the Division and immediately take actions provided for in R645-300-145 and R645-301-731.

Ground-water monitoring shall proceed through mining and continue during reclamation until bond release. Monitoring will be done at the sites listed on pages 99 and 100: East Mountain Springs; in-mine sites that meet the criteria in the Special Condition Stipulation in the Deer Creek permit renewal of February 6, 1996; the Waste Rock Wells; Rilda Canyon Springs - NEWUA; and Rilda Canyon Wells - NEWUA Spring area. Spring 80-50 is added to the East Mountain Spring Monitoring Program. Details of the monitoring program are in MRP Volume 9 - Hydrologic Section: Appendix A.

The proposed North Rilda Area Amendment contains a discussion of the NEWUA springs and the Wellhead Protection Program established by the Federal Safe Drinking Water Act (p. 80 - Hydrology). A draft form of the Utah Safe Drinking Water Committee's rules was used during the investigation for the NEWUA springs (1989-1990). The final wellhead protection rules were adopted in 1993, and delineation of protection zones and management areas remains unchanged from the draft guidelines in Table HT-11 (Volume 9 of the Deer Creek MRP).

Monitoring equipment and structures used in conjunction with monitoring the quality and quantity of ground water, on- and off-site, will be properly installed, maintained, operated, and removed by PacifiCorp when approved by the Division (p. 98 - Hydrology).

TECHNICAL ANALYSIS

Last revised - July 7, 1997

Surface Water Monitoring.

In order to protect the hydrologic balance, underground mining activities will be conducted according to the approved plan. There will be no surface disturbance in the North Rilda Area and therefore no earth materials, ground-water discharges, and runoff to be handled in a manner to protect surface-water quality, prevent additional contribution of suspended solids to streamflow outside the permit area, or protect surface-water quantity and flow rates.

Surface-water monitoring is to be conducted according to the surface-water monitoring plan found in Volume 9 - Appendix A. The Division has not found additional monitoring necessary. Surface-water monitoring will be submitted every 3 months to the Division. Monitoring reports will include analytical results from each sample taken during the reporting period. When analysis of any surface-water sample indicates non-compliance with the permit conditions, PacifiCorp will promptly notify the Division and immediately take actions provided for in R645-300-145 and R645-301-731. For point source discharges, monitoring will be done in accordance with 40 CFR Parts 122 and 123, R645-301-751 and as required by the Utah Division of Environmental Health UPDES permit.

Surface-water monitoring is scheduled to continue through mining and reclamation until bond release. Monitoring will be done at the sites listed on pages 99 and 100: East Mountain Springs; in-mine sites that meet the criteria in the Special Condition Stipulation in the Deer Creek permit renewal of February 6, 1996; the Waste Rock Wells; Rilda Canyon Springs - NEWUA; and Rilda Canyon Wells - NEWUA Spring area. Spring 80-50 is added to the East Mountain Spring Monitoring Program. Details of the monitoring program are in MRP Volume 9 - Hydrologic Section: Appendix A.

Monitoring equipment and structures used in conjunction with monitoring the quality and quantity of ground water, on- and off-site, will be properly installed, maintained, operated, and removed by PacifiCorp when approved by the Division (p. 100 - Hydrology).

Acid- and toxic-forming materials and underground development waste.

Acid- and toxic-forming materials and underground development waste will be handled according to the Waste Rock Storage Facility operating plan described starting on page 4-6 in Volume 10.

Transfer of wells.

Each well will be cased, sealed, or other wise managed, as approved by the Division (p. 100 - Hydrology).

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Discharges into an underground mine.

No discharges into an underground mine are expected as part of the mining operation in the North Rilda Area. Discharges in other areas are handled according to UPDES information in Volume 9 - Appendix B.

Gravity discharges from underground mines.

There are no surface entries or accesses to underground workings planned for the North Rilda amendment area and there is no anticipated gravity discharge of water from the mine. All discharges from the mine are handled according to UPDES information in Volume 9 - Appendix B.

Water-quality standards and effluent limitations.

Discharges of water from areas disturbed by underground mining activities will be made in compliance with all applicable State and Federal water quality laws and regulations and with the effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434. UPDES information is in Volume 9 - Appendix B.

Casing and sealing of wells.

Each well will be cased, sealed, or other wise managed, as approved by the Division (p. 106).

Findings:

Information in the proposed North Rilda Area amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements for hydrologic information in the Operation Plan.

TECHNICAL ANALYSIS

Last revised - July 7, 1997

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Monitoring and sample location maps.

The North Rilda Area amendment contains maps, HM-9 and HM-10, that show the elevations and locations of test borings and of monitoring stations used to gather data on water quality and quantity.

Findings:

Information in the proposed North Rilda Area amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements on hydrologic monitoring and sample location maps in the Operation Plan.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

Each well will be cased, sealed, or other wise managed, as approved by the Division (p. 100).

Discharges from areas disturbed by coal mining and reclamation operations will be made in compliance with all federal and Utah water quality laws and regulations and with effluent limitations for coal mining promulgated by the EPA set forth in 40CFR Part 434 (page 101).

Findings:

Information in the proposed North Rilda Area amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements for general information in the Reclamation Plan.

MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748.

Analysis:

There will be no mine openings in the North Rilda Area.

To prevent acid or other toxic drainage from entering ground and surface waters, to minimize disturbance to the prevailing hydrologic balance and to ensure the safety of people, livestock, fish and wildlife, and machinery in the permit area and adjacent area, the operator commits that each well will be cased, sealed, or other wise managed, as approved by the Division (p. 106).

TECHNICAL ANALYSIS

Last revised - July 7, 1997

Findings:

Information in the proposed North Rilda Area amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements for mine-opening information in the Reclamation Plan.

HYDROLOGIC INFORMATION

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

Analysis:

There will be no surface disturbance associated with coal mine operations in the North Rilda Area, which will control drainage, minimize disturbance to the hydrologic balance within the permit and adjacent areas, prevent material damage outside the permit area, prevent additional contributions of suspended solids to streamflow, and meet applicable Federal and State water quality laws and regulations. Measures to be taken to avoid acid or toxic drainage from mine wastes and mine discharge are found in the current MRP.

Water treatment facilities have been built in Huntington Canyon as mitigation for potential loss of NEWUA water from springs in Rilda Canyon. The operator commits on page 103 to replace water determined to have been lost or adversely affected as a result of the mining operations if such impact occurs prior to final bond release. The water will be replaced from alternate sources in sufficient quantities to maintain current and post-mining land uses.

There are to be no stream channel diversions or other diversions, sedimentation ponds, or impoundments within the proposed North Rilda Area so there will be no postmining rehabilitation for such facilities.

There will be no permanent sedimentation ponds, diversions, impoundments, and treatment facilities in the North Rilda Area. Water treatment facilities built in Huntington Canyon by PacifiCorp are not to treat water to meet water quality standards or effluent discharge limitations, such as those set forth in 40 CFR Part 434, but rather to provide culinary water to NEWUA to replace NEWUA-owned spring water that may potentially be lost because of mining operations in the North Rilda Area.

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Operational ground-water monitoring of springs, wells and piezometers, and in-mine flows is discussed in the proposed North Rilda Area Amendment. Monitoring of ground-water resources will proceed through mining and continue during reclamation until bond release. Removal of the ground-water monitoring structures will be approved by the Division in conjunction with the Utah State Division of Water Rights.

The only temporary structures definitely identified in the proposed North Rilda Area Amendment are piezometers and flumes. The proposed North Rilda Area Amendment contains a commitment to case, seal, or otherwise manage wells, which includes the piezometers in the North Rilda Area. Monitoring will continue through mining and during reclamation. Monitoring will be done at the sites listed on pages 99 and 100: East Mountain Springs; in-mine sites that meet the criteria in the Special Condition Stipulation in the Deer Creek permit renewal of February 6, 1996; the Waste Rock Wells; Rilda Canyon Springs - NEWUA; and Rilda Canyon Wells - NEWUA Spring area. Spring 80-50 is added to the East Mountain Spring Monitoring Program. Removal of structures will be done following approval by the Division in conjunction with the Utah State Division of Water Rights (p.98).

Post-mining monitoring of surface-water will continue at representative stations determined with the aid of the Division. Representative stations will be monitored during high and low flow until release of the reclamation bond, or an earlier date determined through consultation with local, state, and federal agencies (p. 70). The hydrologic monitoring plan in Volume 9 - Appendix A indicates Parshall-style flumes are installed at long-term surface-water monitoring sites, including those in Rilda Canyon. Monitoring equipment and structures used in conjunction with monitoring the quality and quantity of surface water, on- and off-site, will be properly installed, maintained, operated, and removed by PacifiCorp when approved by the Division (p. 100).

Findings:

Information in the proposed North Rilda Area amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements for hydrologic information in the Reclamation Plan.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

There will be no surface disturbance associated with coal mine operations in the North Rilda Area, which will control drainage, minimize disturbance to the hydrologic balance within the permit

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and adjacent areas, prevent material damage outside the permit area, prevent additional contributions of suspended solids to streamflow, and meet applicable Federal and State water quality laws and regulations. Measures to be taken to avoid acid or toxic drainage from mine wastes and mine discharge are found in the current MRP.

Water treatment facilities have been built in Huntington Canyon as mitigation for potential loss of NEWUA water from springs in Rilda Canyon. The operator commits on page 103 to replace water determined to have been lost or adversely affected as a result of the mining operations if such impact occurs prior to final bond release. The water will be replaced from alternate sources in sufficient quantities to maintain current and post-mining land uses.

There are to be no stream channel diversions or other diversions, sedimentation ponds, or impoundments within the proposed North Rilda Area so there will be no postmining rehabilitation for such facilities.

There will be no permanent sedimentation ponds, diversions, impoundments, and treatment facilities in the North Rilda Area. Water treatment facilities built in Huntington Canyon by PacifiCorp are not to treat water to meet water quality standards or effluent discharge limitations, such as those set forth in 40 CFR Part 434, but rather to provide culinary water to NEWUA to replace NEWUA-owned spring water that may potentially be lost because of mining operations in the North Rilda Area.

Operational ground-water monitoring of springs, wells and piezometers, and in-mine flows is discussed in the proposed North Rilda Area Amendment. Monitoring of ground-water resources will proceed through mining and continue during reclamation until bond release. Removal of the ground-water monitoring structures will be approved by the Division in conjunction with the Utah State Division of Water Rights.

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Findings:

Information in the proposed North Rilda Area amendment to the Deer Creek Mine MRP is considered adequate to meet the requirements for hydrologic information in the Reclamation Plan.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

The Division prepared a CHIA of the entire East Mountain area in 1994. The North Rilda Area was included in the CHIA determination because the leases in the North Rilda Area had been issued to PacifiCorp even though they were not part of the Deer Creek Mine permit. The CHIA is sufficient to determine, for purposes of approval of the North Rilda Area amendment, that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

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**EAST MOUNTAIN
CUMULATIVE HYDROLOGIC IMPACT
ASSESSMENT**

Cottonwood/Wilberg Mine, ACT/015/019

Deer Creek Mine, ACT/015/018

Des-Bee-Dove Mines, ACT/015/017

Huntington #4 Mine, ACT/015/004

Crandall Canyon Mine, ACT/015/032

Emery County, Utah

February 1994

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I. INTRODUCTION

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

East Mountain occurs within the Wasatch Plateau Coal Field, approximately 20 miles southwest of Price, Utah (Figure 1). The eastern margin of the Wasatch Plateau forms a rugged escarpment that overlooks Castle Valley and the San Rafael Swell to the east. Elevations along the eastern escarpment of the Wasatch Plateau range from approximately 6,500 to over 9,000 feet.

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

GEOLOGY

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

VEGETATION

Vegetation of the Wasatch Plateau area is classified within the Colorado Plateau floristic division (Cronquist et al., 1972). The area occupies parts of both the Utah Plateaus and the Canyonlands floristic sections. Vegetation communities of the area include desert shrub (shadscale) at the lowest elevations through sagebrush, sagebrush-grassland, pinyon-juniper, mountain brush, Douglas fir-white fir-blue spruce, and Engleman spruce-subalpine fir.

Desert shrub communities are sparsely vegetated shrublands that, depending on elevation and soils, may be dominated by shadscale (Atriplex confertifolia), fourwing saltbush (A. canescens), Castle Valley clover (A. cuneata) or mat saltbush (A.

corrugata) and may include winterfat (Ceratoides lanata), Mormon tea (Ephedra spp.), budsage (Artemisia spinescens), miscellaneous buckwheats (Eriogonum spp.), Indian ricegrass (Oryzopsis hymenoides), galleta grass (Hilaria jamesii), grama grass (Bouteloua spp.), needle and thread grass (Stipa comata), sand dropseed (Sporobolus cryptandrus) and squirreltail (Sitanian hystrix). Greasewood (Sarcobatus vermiculatus) - saltgrass (Distichlis stricta) may dominate bottomlands.

Many sagebrush communities of the area are relatively dense shrub stands of (Artemisia tridentata) with very little understory growth. In relatively undisturbed sagebrush communities, rabbitbrush (Chrysothamnus nauseosus or C. viscidiflorus), Mormon tea, and several perennial grasses may be common, including thickspike and western wheatgrass (Agropyron dasystachyum and A. smithii), basin wildrye (Elymus cinereus), Indian ricegrass and dropseed species.

In the sagebrush-grassland type, the typical big sage may give way to Artemisia tridentata var. vaseyana (mountain big sage) with a co-dominant perennial grass understory. Salina wildrye (Elymus salinus) may be co-dominant in these communities and may dominate an herbaceous grassland type. Black sage (A. nova) with Salina wildrye or western wheatgrass understory is also common.

Pinyon-juniper woodlands occupy drier sites often with stoney to very rocky soils. Pinus edulis and Juniperus osteosperma are co-dominant in the overstory. Understory vegetation ranges from sparse to moderate ground cover on range sites in poor to excellent condition. Understory species include sagebrush, mountain mahogany (Cercocarpus montanus), snowberry (Symphoricarpus oreophilus), and several perennial grasses including slender wheatgrass (Agropyron trachycaulum), Salina wildrye, junegrass (Koeleria cristata) and Indian ricegrass.

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

The range of the Douglas fir-white fir-blue spruce community is about 8,000 to 10,000 feet. Douglas fir (Pseudotsuga mensiesii) usually the dominant tree with white fir (Abies concolor) and blue spruce (Picea pungens) usually limited to the most mesic sites, often along streams. With dense canopies, understory vegetation may be sparse. Common shrubs include serviceberry (Amelanchier spp.), Oregon grape (Berberis repens), chokecherry (Prunus virginiana), Rocky Mountain maple (Acer glabrum), mountain lover (Pachistima myrsinites) and snowberry. Bluebunch wheatgrass (Agropyron spicatum), mountain brome (Bromus

carinatus), and Kentucky bluegrass (Poa pratensis) are common grasses. Aspen stands (Populus tremuloides) can be found throughout the zone, particularly in mesic sites and as successful communities.

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

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

Additional riparian zone shrubs include Narrowleaf cottonwood (Populus angustifolia), red osier dogwood (Cornus stolonifera), skunkbush (Rhus trilobata), river birch (Betula occidentalis) and various willows (Salix spp.). Grass species from the mesic zones may be represented (mountain shrub and higher zones) along with fescues (Festuca spp.) and miscellaneous sedges (Carex spp). Small wet areas around springs and seeps will often support a dense growth of grasses, sedges and willows.

HYDROLOGY

Surface runoff from the Wasatch Plateau area flows either to the Price River Basin or the San Rafael River Basin. The Price River Basin, which includes about 1,800 square miles in six counties, is located primarily in Carbon and Emery Counties in East-Central Utah. The San Rafael River Basin, which includes about 2,300 square miles in three counties, is located mainly in Emery Country to the south of the Price River Basin. The Price river drainage originates in the Wasatch Plateau about 12 miles west and south of Scofield Reservoir. Downstream from the reservoir the river flows in a generally southeasterly direction. The drainage is bounded by the Book Cliffs on the northeast, the Wasatch Plateau on the west and the San Rafael Swell on the south. The San Rafael River Basin occupies part of two physiographic sections of the Colorado Plateau - The High Plateaus to the north and west and Canyonlands to the south and east (Fenneman, 1946). Principal streams in the basin are Huntington and Cottonwood Creeks, which merge to form the San Rafael River, and Ferron Creek, which joins the San Rafael River within a mile of that confluence. The San Rafael River also flows in a southeasterly direction to eventually join the Green River, after traveling from its headwaters in the Wasatch Plateau.

The water quality of both the Price River and the San Rafael Rivers is good in the mountainous headwater tributaries, but deteriorates rapidly as flow traverses the Mancos Shale. The shale lithology typically has low permeability, is easily eroded and contains large quantities of soluble salts that are major contributors to poor water quality. Depending upon the duration of contact, water quality degrades downstream to where Total Dissolved Solids (TDS) levels of 4,000 milligrams per liter (mg/l) are not uncommon. The predominant ion leached from the Mancos Shale is sulfate (SO₄) with values over 1,000 mg/l common in the lower reaches of the Price River.

Ground water is present in all lithostratigraphic units within the Wasatch Plateau Coal Field. Ground water occurs under localized conditions that often form a system of "perched" aquifers and associated springs and/or seeps. Significant localized ground-water resources are associated with the North Horn Formation and Price River Formation. The U.S. Geological Survey has identified and formally designated the Star Point-Blackhawk aquifer as the only regional ground-water resource occurring in the Wasatch Plateau Coal Field (Danielson, et al., 1981 and Lines, 1984).

II. CUMULATIVE IMPACT AREA (CIA)

Figure 2 delineates the CIA for current and projected mining in the East Mountain area. The CIA encompasses approximately 68 square miles and includes East Mountain. The western and eastern CIA boundaries are designated by Huntington Creek and Cottonwood Creek, whereas the southern extent is bounded by sections 8, 9 and 10, T18S, R7E, and the northern boundary is defined by a drainage divide.

III. SCOPE OF MINING

COTTONWOOD/WILBERG, DEER CREEK, AND DES-BEE-DOVE MINES (Utah Power and Light Company)

The Cottonwood/Wilberg, Deer Creek, and Des-Bee-Dove Mines represent three adjacent and overlapping permit areas encompassing about 29,000 acres.

The federal coal leases that are designated in the East Mountain "Logical Mining Units" are as follows:

Cottonwood/Wilberg

SL-64900, U-1358, U-083066, U-040151, U-44025, U-47978, and portions of SL-070645-U-02292, U-084923, and U-084924.

Deer Creek

SL-064607-064621, SL-064900, U-1358, SL-070645, U-02292, U-

84923, U-084924, U-083066, U-040151, U-044025, U-014275, U-024319, and U-47979. Future coal leases (not yet in permit area) are U-06039, U-024317, and SL-051221.

Des-Bee-Dove

U-02664, SL-050133, and SL-066116.

COTTONWOOD/WILBERG MINE

Coal mining operations have been in existence since the 1890's in the Wilberg area. Utah Power and Light Company (UP&L) acquired the Wilberg Mine in September 1977 from the Peabody Coal Company, which had acquired the lease in 1958. Mining had previously been conducted under the original owner, Cyrus Wilberg, beginning in 1945. With the UP&L acquisition, the Wilberg Mine was redesigned.

A tragic fire occurred in December of 1984. On July 1, 1985, it was decided to divide the Wilberg Coal Mine into two separate and independent coal mines; the Cottonwood and the Wilberg Coal Mines, each with a separate MSHA identification number. The mining and reclamation permit, however, was designated as ACT/015/019 for the Cottonwood/Wilberg Mine because the surface facilities were shared by each mine.

Longwall mining and limited room and pillar mining produces about 2.5 million tons from the Hiawatha and Blind Canyon seams. Mining is scheduled to cease around the year 2022.

Underground development waste, sediment from sedimentation ponds and trommel reject from the Des-Bee-Dove and Cottonwood/Wilberg Waste Rock Storage area approximately 1 mile south of the Cottonwood/Wilberg Mine. This disposal structure utilizes a maximum of sixteen acres and is part of approved BLM-ROW U-37642.

DEER CREEK MINE

UP&L purchased the Deer Creek Mine in 1977 from Peabody Coal Company, which had acquired leases on the Deer Creek property and began operations in 1969. Coal mining operations had taken place on fee land in Deer Creek Canyon prior to 1946 when the first federal coal lease was issued in this area. Operations of the Deer Creek Mine overlap those of the Wilberg Mine, predominantly in the Blind Canyon Seam. The Deer Creek Mine surface facilities are located on a 25-acre site at junction of Deer Creek Canyon and Elk Canyon.

The majority of the Deer Creek Mine utilizes the longwall mining method and produces about 2.5 million tons per year from the Hiawatha and Blind Canyon seams. All underground operations are scheduled to cease around the year 2032.

DES-BEE-DOVE MINE

The Des-Bee-Dove Mine complex (the Deseret, Beehive and Little Dove Mines) was acquired by UP&L in 1972 from the Deseret Coal Company, a Mormon Church enterprise. The Mormon Church and the Castle Valley Fuel Company mined the property from 1938 to 1947. From 1936 to 1938, the mine workings were operated by two men, Edwards and Broderick. Mining began in the canyon in 1898 as the Griffith Mine.

the Des-Bee-Dove Mine permit area contains two mineable coal seams - the Hiawatha and Blind Canyon. The mining plan consists of a series of room and pillar continuous mine sections.

The Des-Bee-Dove Mine ceased operations on February 6, 1987. UP&L is currently maintaining the site in an indefinite "temporary cessation" phase because if the coal market improves, this mine may be reactivated. Before UP&L temporarily ceased operations, the Des-Bee-Dove Mine produced 725,000 tons per year and projected that mining would end in the year 1998.

HUNTINGTON CANYON #4 (Beaver Creek Coal Company)

The Huntington Canyon #4 Mine permit area contains 1,320 acres. The underground operations utilized room and pillar mining methods in the Blind Canyon and Hiawatha coal seams in Federal Lease No. U-33454 and SL-064903. All underground mine operations ceased November 1, 1984.

Beaver Creek Coal Company reclaimed the site during the period of August 15, 1985 through September 30, 1985. Three portals and one opening were sealed, regrading and backfilling of the pad and road areas was completed, soil replaced, and reseeding done. The reclaimed site has been maintained since that time.

CRANDALL CANYON MINE (Genwal Coal Company)

Historically, mining had been conducted in Crandall Canyon from November of 1939 to September of 1955. Mining in Tract 1 by Genwal Coal Company began in 1983.

The permit area for the Crandall Canyon Mine contains approximately 158 acres in Huntington Canyon in Emery County, Utah. The current method of room and pillar mining for Federal Lease SL-062648 will be continued throughout Lease U-54762. Pillars will be removed upon abandonment of sections. Overall, an advance-retreat mining system is projected for the mine.

The reserves within the permit area are proposed for mining through 1994.

IV. STUDY AREA

GEOLOGY

The East Mountain CIA is characterized by cliffs, narrow canyons and high plateaus. Stratigraphic units outcropping within the area include, from oldest to youngest, the Mancos Shale, Star Point Sandstone, Blackhawk Formation, Castlegate Sandstone, Price River Formation, North Horn Formation, Flagstaff Limestone and Quaternary deposits. Lithologic descriptions and unit thickness are given in Figure 3.

Rocks in the study area strike northeast and dip from one to three degrees to the southeast. The four major structural features occurring on the East Mountain are: (1) Deer Creek Fault; (2) Roans Canyon Fault Graben; (3) Pleasant Valley Fault; and (4) Straight Canyon Syncline. The Deer Creek Fault and Pleasant Valley Fault trend north - south, whereas Roan's Canyon Fault Graben and Straight Canyon Syncline trend northeast - southwest. Fault displacements range from several feet to approximately 170 feet.

HYDROLOGIC RESOURCES

GROUND WATER

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

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

The Star Point Sandstone and lower portion of the Blackhawk Formation, Castlegate Sandstone, Price River Formation, North Horn Formation, Flagstaff Limestone, and Quaternary deposits are potential reservoirs or conduits for ground water in the CIA. Reservoir lithologies are predominantly sandstone and limestone. Sandstone reservoirs occur as channel and overbank, lenticular and tabular deposits, whereas limestone reservoirs have developed through solution processes and fracturing. Shale, siltstone and cemented sandstone beds act as aquacludes to impede ground-water movement. The Mancos Shale is considered a regional aquaclude that delimits downward flow within the CIA. Localized aquacludes include relatively thin, impermeable lithologies occurring within the stratigraphic section above the Star Point Sandstone.\\ The

Star Point-Blackhawk aquifer is present and represents the only identified regional ground-water resource in the study area (Danielson, et al., 1981). Ground water associated with the Price River Formation and North horn Formation may be characterized as occurring within an extensive "perched" aquifer zone and represents a significant hydrologic resource.

Faults and fractures act as effective conduits for ground water and allow unsaturated downward flow. Springs having significant discharges (10 gpm or greater) are most commonly located in proximity to north-south and northeast-southwest trending fault or fracture zones (Figure 4). In particular, the Roads Canyon Fault Graben appears to act as a significant conduit for ground water. Drilling from the Deer Creek Mine identified two major hydrogeologic units associated with the graben. Aquifer testing indicated the horizontal flow component within the graben is towards the east and suggests discharge occurs into the Huntington Creek drainages basin.

The Straight Canyon Syncline is also thought to direct ground-water movement towards the southwest into the Cottonwood Creek drainage basin.

Data from seven boreholes located within the Cottonwood/Wilberg Mine suggest that locally ground-water, in the Star Point Sandstone, is moving towards the northeast. Other, more regional data indicate ground water moves from north to south.

Approximately 160 seeps and springs occur within the CIA. Total spring discharge exceeds 1700 gpm. Spring discharge is distributed as follows:

<u>Lithologic Unit</u>	<u>Number of Springs</u>	<u>Total Discharge</u>
Flagstaff Limestone	5	20 gpm
Undifferentiated Flagstaff Limestone/North Horn Formation	5	60 gpm
North Horn Formation	42	1045 gpm
Undifferentiated North Horn Formation/Price River Formation	6	65 gpm
Price River Formation	28	140 gpm
Castlegate Sandstone	11	35 gpm
Blackhawk Formation	49	95 gpm
Star Point Sandstone	16	260 gpm

Analysis from spring samples indicate water quality progressively decreases from the Flagstaff Limestone to the Star Point Sandstone.

Mine inflow is estimate to total 1500 gpm for the Deer Creek Mine and Cottonwood/Wilberg Mine and 100 gpm in the Crandall Canyon Mine. Mine water is discharged to the Left Fork of Grimes Wash and Miller Canyon at the Cottonwood/Wilberg Mine and to the Huntington Power Plant at the Deer Creek Mine. Mine water is not discharged at the Crandall Canyon Mine or Des-Bee-Dove Mine. No discharge occurs at the reclaimed Huntington #4 Mine.

Mine water within the CIA represents ground-water depletion from storage in the Blackhawk Formation and Star Point Sandstone and interception of flow along faults/fractures.

SURFACE WATER

The CIA has been divided into six major drainage basins representing ten sub-drainage areas. The CIA encompasses drainage to Huntington Creek and Cottonwood Creek, both draining to the San Raphael River Basin (see Figure 5).

Crandall Canyon (1)

Crandall Canyon drainage (1) includes the disturbed area associated with the Crandall Canyon Mine. The mine exists in the lower reaches of the drainage which encompasses 3741.62 acres. The average gradient of Crandall Creek is 16 percent. Crandall Creek is perennial and flows east into Huntington Creek.

Mining is centered in the lower reaches of the drainage area and involves approximately 162 acres, of which 9.7 acres is surface disturbance. All surface disturbance is treated by maintained sediment controls.

Little Bear Canyon and Mill Fork Canyon (2 and 3)

Approximately 4319 acres drain from Little Bear Canyon and Mill Fork Canyon combined. The Huntington #4 Mine encompasses approximately 1320 acres with these two canyons. Reclaimed surface disturbance involves 12.5 acres in Mill Fork Canyon. Little Bear Creek is considered ephemeral and Mill Creek is considered perennial in its lower reaches. The average gradient of Little Bear Creek is 30 percent and the average gradient for Mill Creek is 13 percent.

Huntington #4 Mine has been reclaimed for several years and will have maintained sediment controls in place through the bonding period.

UP&L's permit area encompasses 390 acres in Mill Fork Canyon.

Rilda Creek (4)

Approximately 4586.8 acres drain Rilda Canyon. Rilda Creek is perennial due to several large springs found in the middle reaches of the creek. The average gradient of Rilda Creek is 11 percent.

The permit area of Utah Power and Light Company mines encompasses areas of Rilda Canyon. Previous surface disturbance was associated with the Helco Mine and North Emery Water Users have several developed springs adjacent to the Helco Mine. Reclamation of the abandoned Helco Mine is planned for the near future. UP&L's permit area encompasses 2417 acres of Rilda Canyon drainage.

Meetinghouse Canyon and Deer Creek Canyon (5 and 6)

Approximately 4955 acres drain Meetinghouse Canyon and 3593 acres drain Deer Creek Canyon. Meetinghouse Creek is considered ephemeral and Deer Creek is considered perennial. The average gradient of Meetinghouse Creek is 12 percent and the average gradient of Deer Creek is 13 percent. Approximately 56 acres of surface disturbance associated with the Deer Creek Mine is found in the middle of Deer Creek Canyon. The surface facilities are treated by sediment controls and all coal produced at the mine is conveyed to the Huntington Power Plant found adjacent to Huntington Creek near the bottom of Deer Creek Canyon.\

Meetingtonhouse Canyon contains 4535 acres and Deer Creek Canyon contains 3,347 acres of UP&L's permit area.

Maple Gulch and Danish Bench (7 and 8)

Approximately 6790 acres is associated with the drainage area of Maple Gulch and approximately 5960 acres is associated with the drainage area of Danish Bench. Both areas are primarily Mancos Shale flats draining away from the southern end of East Mountain and lack the confined canyons of some of the other drainages found in the CIA> Danish Bench drains to Cottonwood Creek and has an average gradient of 12.5 percent. Maple Gulch drains to Huntington Creek and has an average gradient of 17 percent. Permit areas of the UP&L mines encompasses 837 acres of Maple Gulch and 250 acres of Danish Bench. Neither area contains any surface disturbance associated with mining.

Grimes Wash (9)

Approximately 8412 acres is associated with Grimes Wash drainage. The Cottonwood/Wilberg Mine is situated within Grimes Wash and represents 31 acres of surface disturbance which is treated by sediment controls. The average gradient of Grimes Wash is 14 percent. UP&L's permit area encompasses 4120 acres of the Grimes Wash drainage.

Cottonwood Creek (10)

This drainage encompasses 10,373 acres and includes all drainage to Cottonwood Creek along the western half of the CIA area. It has many small canyons and contains 12 acres of surface disturbance associated with the Cottonwood Fan Portal area of the Cottonwood/Wilberg Mine. This area is treated by seiment controls and is partially reclaimed. The portion of UP&L's permit area contained in this drainage is 5120 acres. There is also a portal in Miller Canyon which drains to Cottonwood Creek and discharges periodically due to gravity drianage from the mine.

V. POTENTIAL IMPACTS

GROUND WATER

Dewatering and subsidence related to mining have the greatest potential for impacting ground-water resources in the CIA. The impact of changes in vegetation on ground-water recharge should be minimal since mining will disturb less than 150 acres of the 44,000 acre CIA. Disturbance of phreatophytic vegetation (primarily cottonwood and some willow) is negligible.

The Cottonwood/Wilberg Mine Waste Rock Storage area is located below the coal resource on Quaternary sediment gravel that directly overlies the Masuk member of the Mancos Shale. Inasmuch as the Mancos Shale is considered a regional aquiclude, the storage facility presents a low risk for impacting ground-water resources.

Dewatering. The volume of water being discharged from mines within the CIA (1,600 gpm) approximates the amount of water that is currently being withdrawn from the ground-water system. The current and projected withdrawal values may be totalled and compared to estimates of ground-water discharge and recharge within the CIA and thereby, allow an assessment of cumulative dewatering impacts.

Approximately 38,400 acres within the CIA overlie the Coal resource and represent a potential recharge area (Figure 6). Average annual precipitation is approximately 20 inches over the potential recharge area and hence, the total annual precipitation over the outcropping recharge are is 53,900 acre-feet.

Table 1A gives estimates for the total annual discharge of springs from water-bearing rock units that overlie the coal resource.

Table 1a. Precipitation and Spring Discharge Estimates for Areas Above the Coal Resource. East Mountain CIA.

<u>Lithologic Unit</u>	<u>Outcrop Area (acres)</u>	<u>Precipitation on Outcrop (acre-feet)</u>	<u>(Percent of annual precipitation on outcrop)</u>
Undivided Flagstaff Limestone, North Horn Formation, Price River Formation	26,000	43,300	3%
Castlegate Sandstone	3,300	5,600	1%
Blackhawk Formation, Star Point Sandstone	9,100	5,000	3%

TOTAL

Discharge also occurs directly to perennial streams where channels intersect ground water within the Blackhawk Formation and Star Point Sandstone. The six perennial streams that occur within the CIA are: Crandall Creek, Mill Fork Creek, Rilda Creek, Grimes Wash Creek, Cottonwood Creek, and Huntington Creek. All of these streams intersect the lower Blackhawk Formation and Star Point Sandstone. A study conducted along Miller Creek in the adjacent Gentry Mountain area indicated streamflow substantially increase (from 8 to 115 gpm) as a result of discharge from the Blackhawk Formation and Star Point Sandstone (Cyprus-Plateau Mining Company, Star Point Mine PAP, pages 783-40). The results from the Miller Creek Study suggest perennial steams that traverse the regional aquifer sustain similar ground-water discharges (or base flow recharge). Accordingly, total base flow recharge to perennial streams is estimated to be 600 gpm.

Table 1B lists estimated ground-water discharges to perennial steams and from mines.

Table 1B. Estimated Ground-water Discharge to Perennial Streams and from Mines. East Mountain CIA.

Discharge to Perennial Streams (6 total)	<u>600</u> gpm
Discharge from Mines (3 total)	<u>1600</u> gpm
Total	<u>2200</u> gpm

Table 1C approximates the amount of ground water discharged to the atmosphere by mine ventilation systems. Psychrometric formulas were utilized to derive ventilation discharge values and extrapolated to mine elevation. Average relative humidity data from the Central Weather Station in the Manti-LaSal National Forest were also used in the psychrometric calculation.

Table 1C. Approximate Atmospheric Discharges from Active Mines, East Mountain, CIA.

<u>Mine</u>	<u>Approximate Discharge Rate (gpm)</u>
Cottonwood/Wilberg Mine	36
Deer Creek Mine	36
Crandall Canyon Mine	<u>10</u>
TOTAL	82

Total ground-water discharge within the CIA (summed from Tables 1A, 1B, and 1C) is currently about 3700 gpm, where 41 percent (2100 gpm) of the total represents natural discharge to streams and springs and 59 percent (1600 gpm) results from mining activities.

Lines (1985) investigated the adjacent Trail Mountain area and indicated regional aquifer inflow to mines is derived from aquifer storage (80 percent) and aquifer discharge (20 percent). Extrapolating these percentages to the East Mountain CIA allows depletion, due to present mining activities (5200 acres mined), of regional aquifer storage and discharge to be estimated at 1280 gpm and 320 gpm, respectively. Assuming future mining encompasses 12,000 acres and will continue to encounter steady - state inflow from the regional aquifer, then depletion would increase to 2960 gpm for storage and 740 gpm for discharge.

UP&L has proposed to access coal reserves for the Deer Creek Mine by driving a rock tunnel across the Roans Canyon Fault Graben. A drilling and testing program identified two water-bearing zones within the graben. The operator intends to minimize inflow by pressure grouting the water-bearing zones during development of the rock tunnel. It is not anticipated that the diversion of ground-water flow within the Roans Canyon Fault Graben will exceed a total of 100 gpm.

Future mining-induced dewatering is projected to encompass 2100 gpm and hence, the cumulative dewatering total would be approximately 3700 gpm. Following the cessation of mining, the discharge of ground water to the Left Fork of Grimes Wash, Miller Canyon, Huntington Power Plant and the atmosphere will cease and workings will be to flood.

The impact associated with the reduction in surface flow is considered temporary. Mine flooding will conceivably recharge regional aquifer storage and re-establish the natural ground-water conduit system that was operational prior to mining. The maximum time span required for complete mine flooding may be derived by assuming the final workings (14,000 acres) will remain open (average 5 foot height) and caving will not occur. Accordingly, for workings that experience inflow

(Cottonwood/Wilberg Mine, Deer creek Mine, Crandall Canyon Mine) an upper limit of 20 years may be derived for complete mine flooding. It should be noted that complete flooding will, undoubtedly, never be achieved because the hydraulic head generated as flooding proceeds will increase until the hydraulic properties of the roof, floor and rib are exceeded and flow within the rocks initiates.

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

Mining will occur beneath approximately 13 springs that have a combined flow in excess of 625 gpm. Overburden thickness averages more than 1000 feet beneath areas where springs are located. Diversion of spring flow is considered to be at overall low risk.

SURFACE WATER

The cumulative impacts associated within the CIA will be summarized by individually discussing impacts associated with the Crandall Canyon Mine, Huntington #4 Mine, Deer Creek Mine, Cottonwood/Wilberg Mine and the Des-Bee-Dove Mine. Creeks and drainage areas which are referenced by (#) or discussed, are shown on Figure 5, Surface Water Drainage Map.

Cottonwood/Wilberg Mine. The Cottonwood/Wilberg Mine is located in Grimes Wash. Grimes Wash drainage quality is greatly affected by the influx of the Right Fork. The Right Fork originates in the North Horn Formation (interbedded shale, siltstones, and sandstones), which is abundant with calcareous material. As a result, the Right Fork contributes a relatively high amount of suspended solids to the Grimes Wash drainage. The greatest factor influencing the suspended solids level in the Right Fork drainage during 1988 was the sudden increase in temperature.

As reported in 1985, the TDS level increased slightly at the location below the mine. Two possible factors stated for the rise were Cottonwood/Wilberg Mine Discharge and Mancos Shale seeps. Due to the fact that no water was discharged from the mine during 1985 through 1988 (one exception in August 1986), seeps emanating from the Mancos Shale probably have the greatest

influence upon the level. Periodic sampling during 1986 and early 1987 confirmed the seeps' contribution to the TDS level. The average for the four samples collected was 1,188 mg/l, representing a nearly 3.3 fold increase over the historical averages for the Right and Left Forks. (Annual Hydrologic Monitoring Report for 1988, pg. 24).

All surface facilities are treated by sediment controls and as such, there are no potential impacts from sediments generated from disturbed areas.

Waste rock generated from the Des-Bee-Dove and Cottonwood/Wilberg Coal Mines is disposed of in a series of seven interconnected storage cells (Figure 4). The waste rock storage site is located at 6,800 feet elevation; annual precipitation is approximately 14 inches, and the vegetation surrounding the waste rock storage area is the pinyon-juniper community type.

Each complete waste rock containment structure consists of over four feet of shot and crushed coal, sandstone, and mudstone rock. The expected waste rock encountered will be approximately 70 percent sandstone, 20 percent interbedded mudstone and siltstone, and 10 percent boney coal.

Roof and floor materials are sandy loam to loamy sand in nature. Analyses of roof and floor material indicate high Sodium Adsorption Ratios (SAR) (Mean=17.36, Standard Deviation=25.14), and movement of sodic materials is typically associated with hygroscopic rise and leaching processes. High SAR in the waste rock storage area should not be a concern to water quality because drainage from the storage site should be minor.

Analyses from Drill Hole EM-23C, indicates low pH (3.3, 2.9, 3.7) within the mudstones and siltstones directly below the Hiawatha Coal Seam. Additionally, roof and floor analyses indicate high pyritic/marcasite levels (%Fe₂ Mean=8.15, Standard Deviation=10.82). The colluvium and Mancos Shale which underlies the waste rock storage area is calcareous and should be sufficient to neutralize drainage or seepage from areas within the waste rock storage site, which could potentially form acid.

Although most water associated with the Cottonwood/Wilberg Waste Rock Storage Area will evaporate, some water will inevitably percolate through the storage cells and underlying colluvium deposits. Eventually seepage would contact the Mancos Shale and further degradation (increased TDS and EC) of water quality would take place. Accordingly, drainage from the waste rock storage site would have little down-gradient effect.

Deer Creek Mine. Referencing Table 1D, it is apparent that the quality of Deer Creek runoff degrades from the upper to lower sampling points. The quality of the lower point is affected by the Mancos Shale and is dominated by chloride, sulfate and sodium.

Table 1D. Deer Creek Water Quality.

		<u>Calcium</u>	<u>Chloride</u>	<u>Conductivity</u>	<u>Magnesium</u>	<u>Sodium</u>	<u>Sulfate</u>	<u>TDS</u>	<u>TSS</u>
Above	Max	82.0	176.0	1580	183.9	111.6	255.0	897	3592.0
Mine	Mean	49.5	19.2	581	37.5	27.5	63.8	335.0	124.9
Below	Max	112	420.0	2300	122.8	233.8	500.0	1544	20540.0
Mine	Mean	73	120.4	1153	67.0	114.9	215.8	684	490.9

Deer Creek sediment pond discharge has been historically within UPDES limits, but discharges high Total Dissolved Solids degrading downstream water quality.

All surface drainage facilities are designed to safely control water and sediment runoff from all disturbed areas. In addition, all surface water originating from undisturbed lands upstream of the facilities area will be controlled and diverted around the operation. Storm runoff from within the mine facilities area is collected in a system of open ditches, bermed roadways and culverts, and is discharged to Deer Creek below the facilities area.

The sediment pond is designed to detain the 10-year, 24-hour storm event. It should be noted that when the design event is exceeded (i.e. storms larger than the 10-year, 24-hour storm), sediment detention times will be reduced, leading to a slightly higher sediment load in Deer Creek.

Runoff from 25 acres of disturbed land will be temporarily detained in the Deer Creek Mine sediment pond and will be released to Deer Creek within UPDES limitations. The surface-water impact associated with the Deer Creek Mine operations will be minimal.

Reclamation of the drainage at the Deer Creek Mine will consist of removing the temporary drainage system, diversion and sedimentation pond. Permanent channels will be constructed over the fill and into a splash basin. The Utah program regulations currently require all diversions to be routed away from fill. However, the applicant's proposal has been determined to be sound engineering design and acceptable as a state of the art experimental practice under UMC 785.13. All channels are designed to pass the 100-year, 24-hour runoff peak flow. The proposed surface-water reclamation plan will have negligible impact on water quantity or quality of Deer Creek and its tributaries.

Des-Bee-Dove Mine. The Des-Bee-Dove Mine complex ceased operations in February 1987 for economic reasons and is in an indefinite "temporary cessation". The mine is a dry mine and all surface drainage is treated by a sediment pond and released to an ephemeral wash. Since all surface water is treated by a maintained sediment pond, the effects of the Des-Bee-Dove Mine operations on the hydrologic balance are negligible.

Huntington #4 Mine. The major aquatic habitats within the permit area are Mill Fork and Little Bear Creek. All reclaimed mine lands are within Mill Fork Canyon. Based on benthic macroinvertebrate and aquatic habitat surveys conducted by the operator and on data provided by the Utah Division of Wildlife Resources, neither creek supports game or non-game fish and both lack sufficient flow in most years to provide spawning sites. However, these streams probably contribute some invertebrate food items and a small amount of surface flow to Huntington Creek, an important fishery in the region.

The mine is currently reclaimed and all surface structures have been removed and all disturbed areas reseeded. Sediment controls are in place (i.e. sediment ponds) and there is no anticipated impact to Mill Creek from the Huntington #4 Mine due to the lack of potential sources of impact.

Crandall Canyon Mine. Crandall Canyon Mine is located in Crandall Canyon. The U.S. Geological Survey established a gauging station at the mouth of Crandall Canyon Creek in 1978. Flow data collected at the Gauging station are not complete for the winter in most years, due presumably to data acquisition problems. However, the limited data indicate that most of the flow of Crandall Canyon Creek occurs in the period of May through July. Assuming an average of 30 acre-feet per month for the period when records were missing, the average annual flow for the six-year period of data was 2740 acre-feet.

Surface water quality data collected from Crandall Canyon Creek by Genwal Coal Company for the Tract 1 Lease from 1985 indicate that the dominant ions in Crandall Canyon Creek are calcium and bicarbonate. Total dissolved solids concentrations in the stream have varied from 180 to 286 milligrams per liter, with lower concentrations normally occurring during the high flow season. Total suspended solids concentrations in Crandall Canyon Creek have varied during the period of record from 0.5 to 208.0 milligrams per liter. As expected, the highest suspended solids concentrations generally occur during periods of highest flow.

The main concern in terms of impact to surface water is water quality deterioration downstream from the minesite, primarily in the form of suspended sediments. Typically the suspended sediment concentration in Crandall Canyon Creek since 1983 varied from approximately 205 mg/l to 0.5 mg/l. Low suspended sediment values are associated with natural climactic and geologic process although a proportion may be attributed to surface disturbances from roads and the mine pad area. Sediment controls do exist for the disturbed surface areas. Therefore, the impact associated with mining in Crandall Canyon is minimized by surface controls (i.e., sediment pond, diversions, etc.).

VI. SUMMARY

Mine operations within the CIA currently intercept regional aquifer flow at an approximate rate of 1,600 gpm. Of this total, approximately 1586 gpm area consumptively lost to mine ventilation (86 gpm) and cooling/evaporation at a power plant (1,500 gpm). The remaining 14 gpm are discharged, without interbasin transfer of water to streams. Mine water discharge meet required effluent limitations.

Future mining operations are designed to avoid interception of fault conduit flow and accordingly, inflow from the regional aquifer is estimated to increase from 1,600 gpm to 3700 gpm. Approximately 80 percent of the flow will be derived from storage and 20 percent from discharge. Consumptive use is not anticipated to increase. Mine water discharge (1500 gpm) and ventilation losses (86 gpm) will be discontinued upon cessation of mining. Concomitantly, flooding of abandoned workings will initiate. An upper limit of 20 years has been estimated for complete floodings of workings and re-establishment of the premining ground-water system.

Diversion of spring flow is considered to be at overall low risk.

Sediment control measures have been and will be designed and implemented to reduce and stabilize contamination of surface waters.

Following cessation of mining, waste rock storage areas will be adequately covered with topsoil and all disturbed areas will be stabilized and revegetated to prevent surface water contamination.

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

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Utah Power and Light Company, Hydrologic Monitoring Program,
Annual Reports for 1979, 1982 through 1988.

July 8, 1997

TO: File

FROM: Pamela Grubaugh-Littig, Permit Supervisor

RE: Permittee Commitments to Forest Service Conditions, Letter dated July 3, 1997, North Rilda Lease Area, Deer Creek Mine, PacifiCorp, ACT/015/018 - 97-1, Folder #3, Emery County, Utah

The six conditions that were outlined in the letter dated July 3, 1997 from the Forest have been addressed by PacifiCorp in their permit application package. This memo will enumerate where these commitments are found in the application and attach the pertinent pages:

- #1 Archaeology, survey and documentation and recording of cultural resources, in escarpment area to be failed.

This is found in the engineering section, page 10 and 11, revised 5/6/97

- #2 A survey for spotted bats (USDA-FS Sensitive Species) will be conducted for all escarpment areas to be failed. If bats are located, then evaluations will be made for mitigation needs. Mitigations could include avoidance during specific times and/or prevention of bat occupancy during period of subsidence, such as by netting or screening. Mitigations will be evaluation on a case-by-case basis.

This is found in the biology section, page 3 and 4, revised 5/6/97

- #3 When the mains under the North Fork of Rilda Creek are no longer needed, the operator must backstow, backfill, and/or group the mains, using the best technology available at that time.

This is found in Appendix 1, page 5, revised 7/1/97

- #4 The operator must delineate the Mill Fork Graben with some method other than direct mining. Acceptable methods include, but are not

limited to, surface and in-mine drilling or geophysical methods.

This is found in Appendix 1, page 2, revised 7/1/97

- #5 Only full-support mining is permitted under escarpments along the north side of Rilda Canyon unless the lease stipulation prohibiting escarpment failure is waived by the Forest Service.

This is found in Appendix 1, pages 4 and 5, revised 7/1/97.

- #6 The operator must notify the surface management agency (Forest Service) if a water loss occurs on National Forest System lands.

This is found in the engineering section, pages 32 and 33, revised 7/1/97.

All of the conditions have been adequately addressed by the applicant to satisfy the Forest Service conditions in letter dated July 3, 1997.

Attachments
A:\CONDITIO.WPD



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

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

1594 West North Temple, Suite 1210

Box 145801

Salt Lake City, Utah 84114-5801

801-538-5340

801-359-3940 (Fax)

801-538-7223 (TDD)

April 9, 1997

Chuck Semborski, Environmental Supervisor
PacifiCorp
P.O. Box 310
Huntington, Utah 84528

Re: North Rilda Lease, PacifiCorp, Deer Creek Mine, ACT/015/018-97-1, Folder #2,
Emery County, Utah

Dear Mr. Semborski:

The Division has completed a review of your application to permit the North Rilda Lease Area. We have coordinated with other agencies and solicited their input as well. Your plan is considered to be administratively complete, however, the review has identified a number of technical deficiencies. The enclosed technical analysis (TA), documents the findings that the Division has made to date on the application. Please review the TA and make sure you understand the requirements. The deficiencies must be adequately addressed in order for us to complete the permitting action.

At this time you should publish a Notice of Complete Application for the North Rilda Lease Addition as required by R645-300-121. A copy of the publication should be sent to the Division as soon as it is available. You should also insure that a copy of the application is on file at the Emery County Courthouse during the comment period.

We look forward to working with you on completing this permitting action. Please call if you have any questions.

Sincerely,

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

Daron R. Haddock
Permit Supervisor

enclosure

cc: P. Grubaugh-Littig, w/o enclosure

Pete Hess, PFO, w/o enclosure

0:1015018.DER\FINAL\RILDAACR.LET

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

ss.

County of Emery,)

I, Kevin Ashby, on oath, say that I am the Publisher of the Emery County Progress, a weekly newspaper of general circulation, 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 4 (Four) consecutive issues, and that the first publication was on the 22nd day of April, 1997 and that the last publication of such notice was in the issue of such newspaper dated the 13th day of May, 1997.

Kevin Ashby
Kevin Ashby - Publisher

Subscribed and sworn to before me this 13th day of May, 1997.

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

Publication fee, \$366.08

NOTICE

PacifiCorp, an Oregon Corporation, One Utah Center, 201 South Main, Salt Lake City, Utah 84140, hereby announces that an application to significantly revise the Dear Creek Mine Permit has been determined administratively complete by the Division of Oil, Gas & Mining. This revision involves the addition of approximately 1,980 acres of leased property to the Dear Creek Mine permit area.

A copy of the complete application is available for public inspection at the Emery County Recorder's Office, Emery County Courthouse, Castle Dale, Utah 84513.

Written comments on the application should be submitted to the Utah Coal Regulatory Program, State of Utah, Division of Oil, Gas and Mining, 1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, Utah 84114-5801. Said comments must be submitted within thirty (30) days from the date of last publication of this notice.

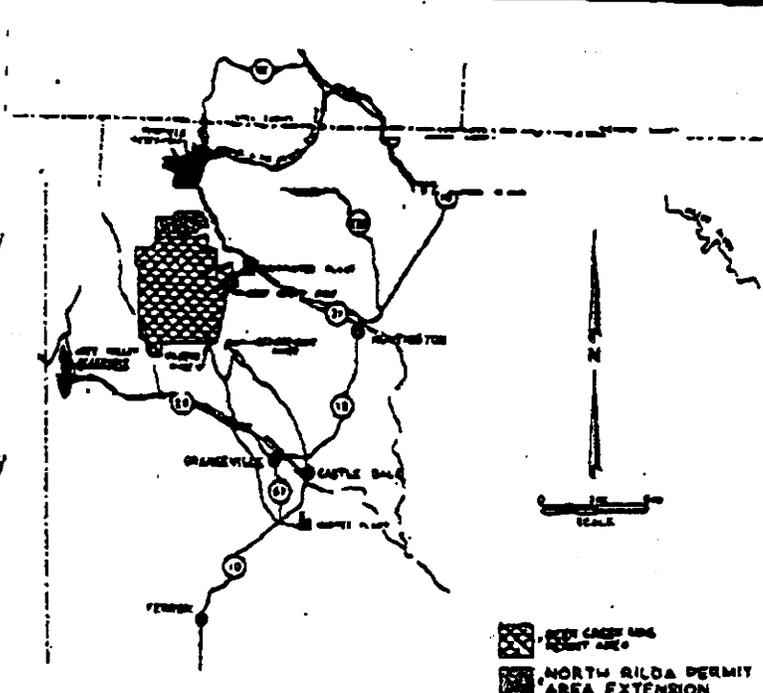
The area to be mined is contained on the USGS 7.5 minute "Rilda Canyon" quadrangle map. A map depicting the general area of the Dear Creek Mine is published herewith.

The Mine Permit Extension Area includes four (4) patent fee claims; three (3) complete Federal Coal Leases (U-024317, U-2810 and SL-051221; and the northern portion of Federal Coal Lease U-050338.

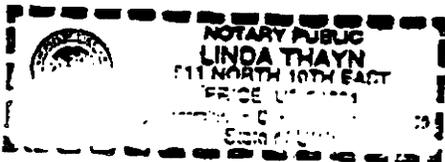
The extension area is more particularly described as follows:

- Township 16 South, Range 2 East, 31M, Utah
- Section 19: SE 1/4
- Section 20: S 1/2, S 1/2 NE 1/4
- Section 21: S 1/2 NW 1/4, S 1/2 NE 1/4, SW 1/4, SE 1/4
- Section 22: SW 1/4 NW 1/4, SW 1/4
- Section 30: NE 1/4
- Section 29: N 1/2
- Section 28: NW 1/4, N 1/2 NE 1/4

All together containing 1,980 acres, more or less.



Published in the Emery County Progress April 22, 29 and May 6 and 13, 1997.





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

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Box 145801

Salt Lake City, Utah 84114-5801

(801) 538-5340

(801) 359-3940 (Fax)

June 27, 1997

To: File

From: Pamela Grubaugh-Littig, Permit Supervisor *pgl*

Re: Compliance Review for Section 510 (c) Findings, Deer Creek Mine, PacifiCorp, Folder #3, Emery County, Utah

As of the writing of this memo, there are no NOVS or COs which are not corrected or in the process of being corrected. There are no finalized Civil Penalties which are outstanding and overdue in the name of PacifiCorp. PacifiCorp does not have a demonstrated pattern of willful violations, nor have they been subject to any bond forfeitures for any operation in the state of Utah.

The OSM recommendation from the Applicant Violator System (AVS) denotes a "conditional issue". As a Special Condition of the Deer Creek Mine permit, "PacifiCorp must notify the Division with 14 days of the decision on the appeal of outstanding cessation order 94-020-370-002, 1 of 1."

Applicant Evaluation Applicant Violator System 27-Jun-1997 10:46

State : UT Permit No : ACT015018 Appl No : ACT015018

Applicant : 108521(PACIFICORP) Seqno

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SYSTEM RECOMMENDATION : COND ISSUE 06/27/97

PREVIOUS SYSTEM RECOMMENDATION : COND ISSUE 06/17/96

Records retrieved : 1

ST	PERMIT	RP ID	SEQ	VTTYPE	VIOLNO	VIOLDATE
UT	NONE	108521	0	CMIS	C94-020-370-002	09/15/96

RCM_MNT(F7) PERMIT/APPL(F8) REPORTS(F9)

PRV_SCR(F3) VIOL(F4) EVOFT(F5) VOFT(F6) CHOICES(F10)

avsdg Capture Offsing 10 59

Applicant Evaluation Applicant Violator System 27-Jun-1997 10:57:46

State : UT Permit No : ACT015018 Appl No : ACT015018

Applicant : 108521(PACIFICORP) Seqno 3

SYSTEM RECOMMENDATION IS BASED ON ENTITY OFT

SYSTEM RECOMMENDATION : COND ISSUE 06/27/97

PREVIOUS SYSTEM RECOMMENDATION : COND ISSUE 06/17/96

Records retrieved : 1

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RCM_MNT(F7) PERMIT/APPL(F8) REPORTS(F9)

PRV_SCR(F3) VIOL(F4) EVOFT(F5) VOFT(F6) CHOICES(F10)

avsdg Capture Offsing 10:59

AVS- Recom Maint Applicant Violator System 27-Jun-1997 10:58

State : UT Permit No : ACT015018 Appl No : ACT015018

Permittee : 108521(PACIFICORP) Seqno 3

Applicant : 108521(PACIFICORP)

SYSTEM : C (COND ISSUE) Date : 27-Jun-1997 Mode : VIEW