

MINING PLAN DECISION DOCUMENT

**Canyon Fuel Company, LLC
Dugout Canyon Mine
Federal Lease U-07064-027821
Carbon County, Utah**



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

**Prepared
August 2000**

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Federal Lease U-07064-027821
Mining Plan Decision Document

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DIVISION OF
OIL, GAS AND MINING



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

1999 Broadway, Suite 3320

Denver, Colorado 80202-5733

July 27, 2000

UT-0041

IN REPLY REFER TO:

MEMORANDUM

TO: Acting Director, Office of Surface Mining

FROM: Regional Director, Western Regional Coordinating Center

SUBJECT: Recommendation for Approval Without Special Conditions of the New Mining Plan at Canyon Fuel Company, LLC's Dugout Canyon Mine on Federal Lease U-07064-027821 located in Carbon County, Utah

I. Recommendation

I recommend approval without special conditions of a new mining plan for Federal lease U-07064-027821 at the Dugout Canyon Mine. This is a new mining plan for a underground coal mine being permitted under the Federal lands program, the approved Utah State program, and the cooperative agreement.

My recommendation to approve the new mining plan is based on:

- (1) Canyon Fuel Company, LLC's (CFC) 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 regarding the resource recovery and protection plan, the Federal lease requirements, 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.

If you concur with this recommendation, please sign the attached memorandum to the Assistant Secretary, Land and Minerals Management.

II. Background

The Dugout Canyon Mine underground coal mine is located in Carbon County, Utah. The mine has been in operation since 1998. The life of the currently approved mining operations within the approved permit area is estimated to be 3 years. The mining operations use room and pillar mining methods. The average annual production rate is 2.0 million tons per year from the Rock Canyon coal seam but the maximum production rate could reach the approved 4.0 million tons per year.

The State's permit area covers 4,035 acres.

About 20.1 surface acres are disturbed within the State's permit area.

No Federal coal leases exist in the currently approved permit area.

A total of 576 acres of Federal surface land exist in the currently approved permit area.

The postmining land use within the currently approved permit area is grazing and fish and wildlife habitat.

III. The Proposed Action

This mining plan action consists of a new mining plan on Federal lease U-07064-027821. Specifically, the mining plan action proposed by CFC consists of mining all of the 2,416 acres in Federal lease U-07064-027821 using longwall mining methods.

The following is the legal description for Federal lease U-07064-027821:

T. 13 S., R. 12 E., SLM, Utah

Sec. 13, S $\frac{1}{2}$;

Sec. 23, E $\frac{1}{2}$ E $\frac{1}{2}$, W $\frac{1}{2}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$;

Sec. 24, all;

Sec. 25, N $\frac{1}{2}$ N $\frac{1}{2}$;

Sec. 26, N $\frac{1}{2}$ NE $\frac{1}{4}$.

T. 13 S., R. 13 E., SLM, Utah

Sec. 18, Lots 3,4, E $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$;

Sec. 19, lots 1-4, E $\frac{1}{2}$ W $\frac{1}{2}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 30, lot 1.

The life of the mining operations is expected to continue for 9 years under Utah Permit No. ACT/007/039 and this proposed new mining plan.

The proposed average annual production rate would increase by 2.0 million tons per year and the maximum production rate would increase to 4.0 million tons per year.

The approved State permit area would increase by 3,134 acres from its present 4,035 acres to a new total of 7,169 acres.

Surface disturbance within the approved State permit area would not change.

This new mining plan will result in 2,416 acres of leased Federal coal being included within the approved permit area shown on the map included with this decision document.

Approval of this new mining plan will authorize mining of 29.3 million tons of recoverable Federal coal.

About 566 acres of Federal surface lands will be included in the new mining plan area as a result of this action.

The postmining land use within the permit and mining plan area will not change.

The DOGM has attached two new permit stipulations to this permitting action and has carried-over 17 other stipulations that continue in force. These stipulations are described in the State Decision Document section of this decision document.

Canyon Fuel Company, LLC's proposal does not require any special conditions to comply with Federal laws.

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 §944.30). Pursuant to the Utah State program and the cooperative agreement, DOGM approved the permit revision on March 31, 2000.

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 mining plan decision document.

The Bureau of Land Management (BLM) indicated in a letter dated April 7, 2000, that the proposal was in compliance with the Mineral Leasing Act of 1920, as amended, and 43 CFR Part 3480.

In accordance with the September 24, 1996, Biological Opinion and Conference Report from the U.S. Fish and Wildlife Service (USFWS) to OSM, the DOGM has sought comments from the USFWS on threatened and endangered species and has incorporated the necessary reporting requirements into the PAP and findings. As stated in a letter dated March 28, 2000, the USFWS and the DOGM did not develop or recommend any species-specific protective measures.

OSM concurs with the State Historic Preservation Officer's (SHPO) assessment of cultural resources related to this new mine plan, as stated in the SHPO's letter dated November 17, 1999.

The BLM had no objections with the proposed new mining plan with respect to Federal surface lands within the proposed mining plan area per BLM letter dated July 7, 2000.

The proposed area of mining plan approval is not unsuitable for mining according to section 522(b) of SMCRA.

The new mining plan area is not on any Federal lands within the boundaries of any national forest.

I have determined that approval of this new mining plan will not have a significant impact on the quality of the human environment. The Environmental Impact Statement titled "Final Environmental Statement Development of Coal Resources in Central Utah," prepared by Department of the Interior noted in the Finding of No Significant Impact (FONSI), describes the impacts that may result from approval of this new mining plan and its alternatives. The FONSI and supporting environmental analyses are included in this decision document.

OSM's review of the proposed action did not identify any issues that required resolution via the addition of special conditions to the mining plan approval.

Publication of four consecutive weekly notices in the Sun Advocate newspaper notified the public of the availability of the administratively complete PAP for review. The last publication date was October 28, 1999. No public comments on the PAP were received after the public notice was published.

The DOGM determined that a bond for \$3,682,000 is adequate for the Utah Permit No. ACT/007/039 associated with this new mining plan. The bond is payable to the State and the United States.

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

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

- the PAP submitted by CFC and updated through May 28, 2000,
- DOGM's Permit for Federal Lease U07064-027821, Dugout Canyon Mine, Canyon Fuel Company, LLC., ACT/007/039 provided to OSM under the cooperative agreement,
- the Environmental Assessment entitled Final Environmental Statement Development of Coal Resources in Central Utah,
- 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 1 2000

MEMORANDUM

To: Sylvia Baca, Assistant Secretary
Land and Minerals Management

From: Kathrine L. Henry, Acting Director
Office of Surface Mining Reclamation and Enforcement

Subject: Recommendation for Approval of the New Mining Plan at Canyon Fuel
Company, LLC's Dugout Canyon Mine on Federal Lease U-07064-027821 Mine
located in Carbon County, Utah

I recommend approval without special conditions of this new mining plan. My recommendation is based on:

- (1) Canyon Fuel Company, LLC'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 regarding the resource recovery and protection plan, the Federal lease requirements, and the Mineral Leasing Act, and
- (6) the findings and recommendations of the Utah Division of Oil, Gas and Mining regarding the PAP and the Utah State program.

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

Attachment

CHRONOLOGY

Dugout Canyon Mine
Federal Lease U-07064-027821
Mining Plan Decision Document

<u>DATE</u>	<u>EVENT</u>
May 21, 1999	Canyon Fuel Company, LLC(CFC) 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 revision for the Dugout Canyon Mine.
August 30, 1999	DOGM determined that the PAP was administratively complete for public review and comment.
September 13, 1999	The Office of Surface Mining Reclamation and Enforcement (OSM) received the PAP.
October 28, 1999	CFC published in the Sun Advocate the fourth consecutive weekly notice that its complete PAP was filed with DOGM.
November 17, 1999	The State Historic Preservation Office provided its comments on the mining plan.
March 28, 2000	The U.S. Fish and Wildlife Service provided its final consultation comments on the mining plan.
March 31, 2000	DOGM approved the PAP.
April 7, 2000	The Bureau of Land Management provided its findings and recommendations on the approval of the mining plan.
July 7, 2000	The BLM had on objections with the proposed new mining plan modification with respect to Federal surface lands within the proposed mining plan area.
July 27, 2000	OSM's Western Regional Coordinating Center recommended to the Director, OSM, that the mining plan action be approved.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
FINDING OF NO SIGNIFICANT IMPACT
FOR
Dugout Canyon Mine
Federal Coal Lease U-07064-027821
Mining Plan Decision Document

Introduction

A. Canyon Fuel Company, LLC submitted a permit application package (PAP) for a permit revision for the Dugout Canyon Mine to the Utah Division of Oil, Gas and Mining (DOG M). The PAP proposed extending underground mining operations into 2416.1 acres of Federal lease U-07064-027821. Under the Mineral Leasing Act of 1920, the Assistant Secretary, Land and Minerals Management, must approve, approve with conditions, or disapprove the new mining plan for Federal lease U-07064-027821. Pursuant to 30 CFR Part 746, the Office of Surface Mining (OSM) is recommending approval of the mining plan action without special 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.

C. Reasons

This finding of no significant impact is based on the attached Environmental Impact Statement (EIS) prepared by the Department of the Interior, U.S. Geological Survey, titled Final Environmental Statement Development of Coal Resources in Central Utah. It has been independently evaluated by OSM and determined to assess the environmental impacts of the proposed action adequately and accurately, and provide sufficient evidence and analysis for this finding of no significant impact. OSM takes full responsibility for the accuracy, scope, and content of the attached EIS.

Ranvir Singh
Chief, Northwest Branch

July 25, 2002
Date

Attachment

1792
**SITE SPECIFIC ANALYSIS
PART 2**

Dugout



**FINAL
ENVIRONMENTAL STATEMENT**
Development of Coal Resources in Central Utah

DEPARTMENT OF THE INTERIOR
FINAL
ENVIROMENTAL STATEMENT
SITE SPECIFIC ANALYSIS - PART 2

DEVELOPMENT OF COAL RESOURCES
IN
CENTRAL UTAH

Prepared by the
DEPARTMENT OF THE INTERIOR



H. William Menard
H. William Menard, Director
U.S. Geological Survey

1979

VOLUME CONTENTS

Part 2

SITE SPECIFIC ANALYSIS

Mine name and proponent

B Canyon mine;
United States Steel Corporation

Belina No. 2 and O'Connor mines;
Valley Camp of Utah, Incorporated

Deadman Canyon mine;
AMCA Coal Leasing, Incorporated

Fish Creek and Dugout Canyon mines;
Pacific Gas & Electric Company

McKinnon Nos. 1 and 2 mines;
Routt County Development, Limited

Mountain States No. 1 mine;
Mountain States Resources Company

Skumpah Canyon mine;
Energy Reserves Group, Incorporated

S I T E S P E C I F I C A N A L Y S I S

Fish Creek and Dugout Canyon Mines

Lease Nos. U-0144820, U-07746, U-089096, U-092147, and

U-07064-U-027821

Proponent: Pacific Gas and Electric Company

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FISH CREEK AND DUGOUT CANYON MINES

(PROONENT: PACIFIC GAS AND ELECTRIC COMPANY)

CHAPTER I

DESCRIPTION OF PROPOSED ACTION

A. INTRODUCTION

Pacific Gas and Electric Company (P.G. & E.) and Kennecott Copper Corporation (KCC) own coal leases in the Sage Point and Dugout Canyon areas, respectively, of the Book Cliffs coal field (part 1, chapter 2), and propose to have Natural Gas Corporation of California (NGC), a P.G. & E. subsidiary, develop and operate an underground coal mine on each property. P.G. & E. has submitted plans for approval to mine 3.2 million tons per year (mty) from about 10,000 acres of Federal, State and private land (Federal lease Nos. U-0144820, U-07746, U-089096, U-092147, and U-07064-U-027821). The purpose of this statement is to analyze environmental impacts that could result from approval and implementation of the mining plan and associated ancilliary facilities for which right-of-way applications have been applied. The coal mined would supply needs for one of two proposed 800 MW coal-fired electric generating plants to be built in P.G. & E.'s service area of northern California by 1985. The coal would also supply KCC's metallurgical and power generation needs in Nevada and Utah.

The properties are about 15 miles east-northeast of Price, Utah in Carbon County (fig. 1). A gravel-surfaced haul road extends 9 miles northeast from Soldier Creek Road (formerly U-53) to the Dugout Canyon site where coal was mined from 1957-65 (fig. 2). The Fish Creek mine-site on the Sage Point property is 2 miles west of Dugout Canyon and is accessible by jeep road.

P.G. & E.'s coal leases include 7,468 acres, 5,852 on all or part of six Federal leases, 976 on three State mineral leases, and 640 on fee land (fig. 2). KCC's leases at Dugout Canyon adjoin the Sage Point property on the east and include 2,576 acres, including 2,416 on Federal leases, and 160 on fee land. Figure 3 shows surface ownership in the two property areas.

Mining and reclamation plans were submitted to the U.S. Geological Survey (USGS) on November 3, 1976, in accordance with Title 30 (Mineral Resources) CFR part 211 (Coal Mining Operating Regulations). Natural Gas Corporation of America, the designated operator, has applied to the Bureau of Land Management (BLM) for rights-of-way and special land-use permits for several purposes under a variety of Acts since superseded by Title 5 of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 USC 1961) (table 1). The complete mining and reclamation plan (MRP) is on file and available for public review in the office of the Area Mining Supervisor, USGS, Salt Lake City, Utah.

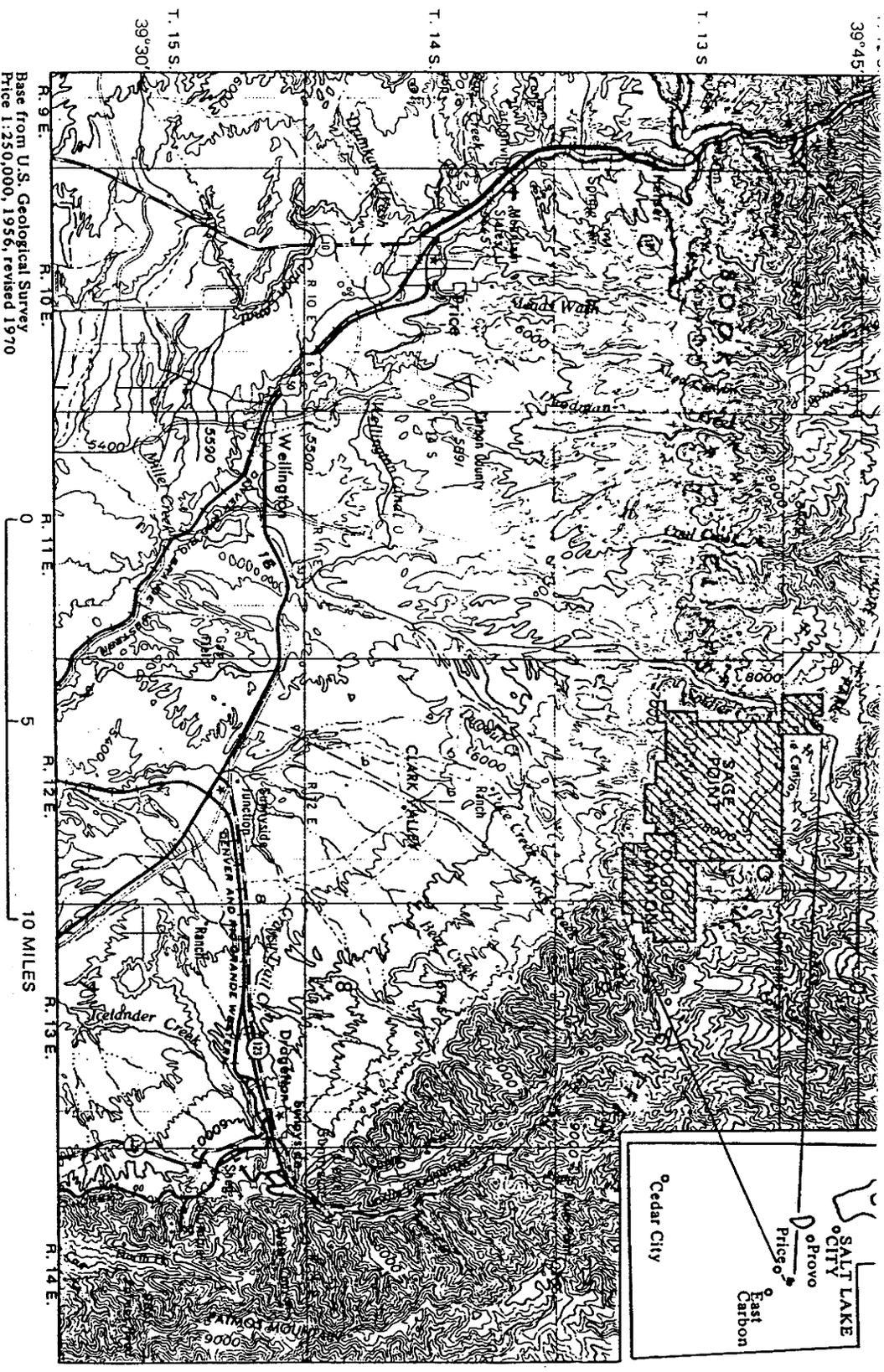


FIGURE 1.—Location of Pacific Gas and Electric's Sage Point-Dugout Canyon properties, Carbon County, Utah.

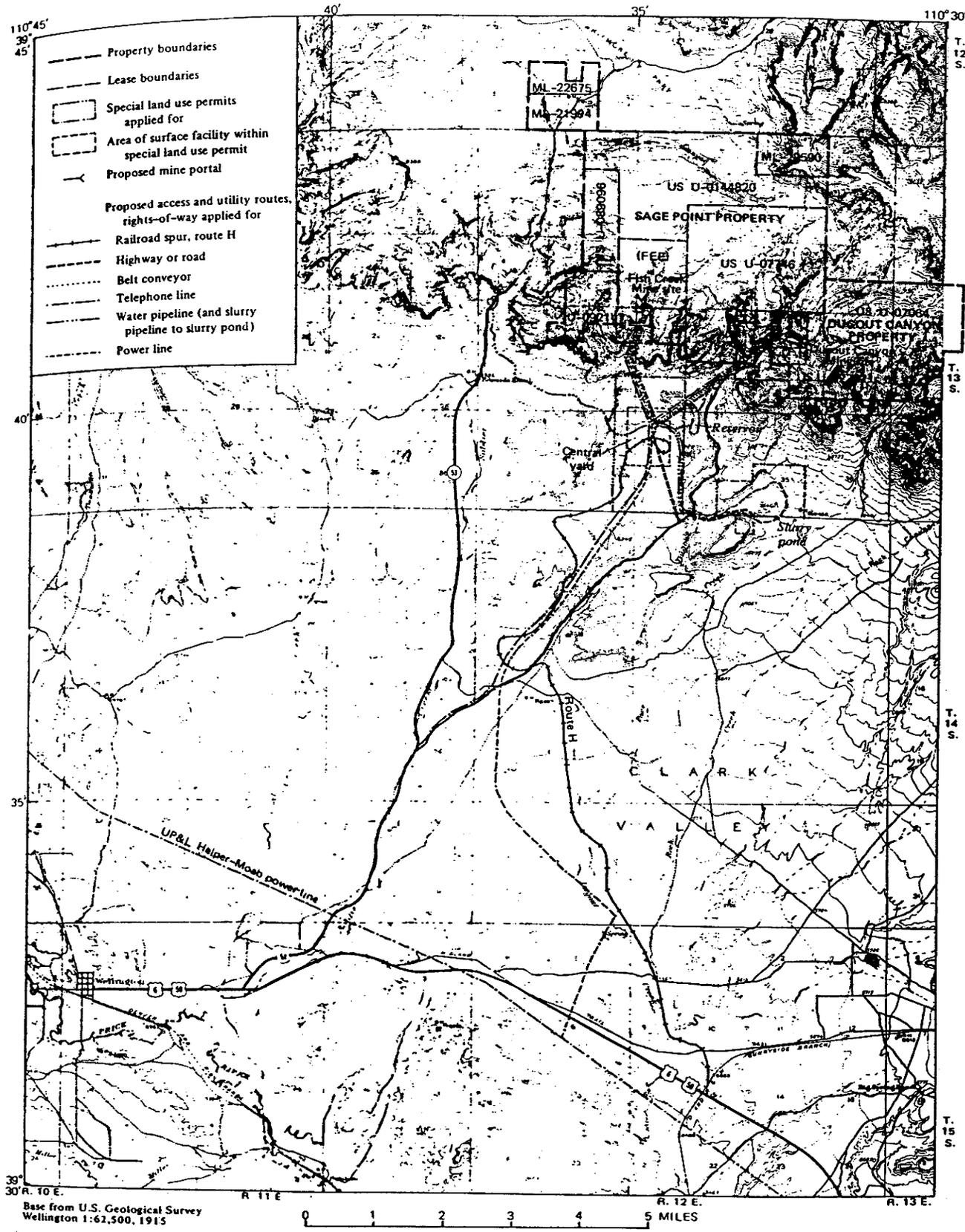


FIGURE 2.--Sage Point and Dugout Canyon coal properties and proposed surface facilities, Carbon County, Utah.

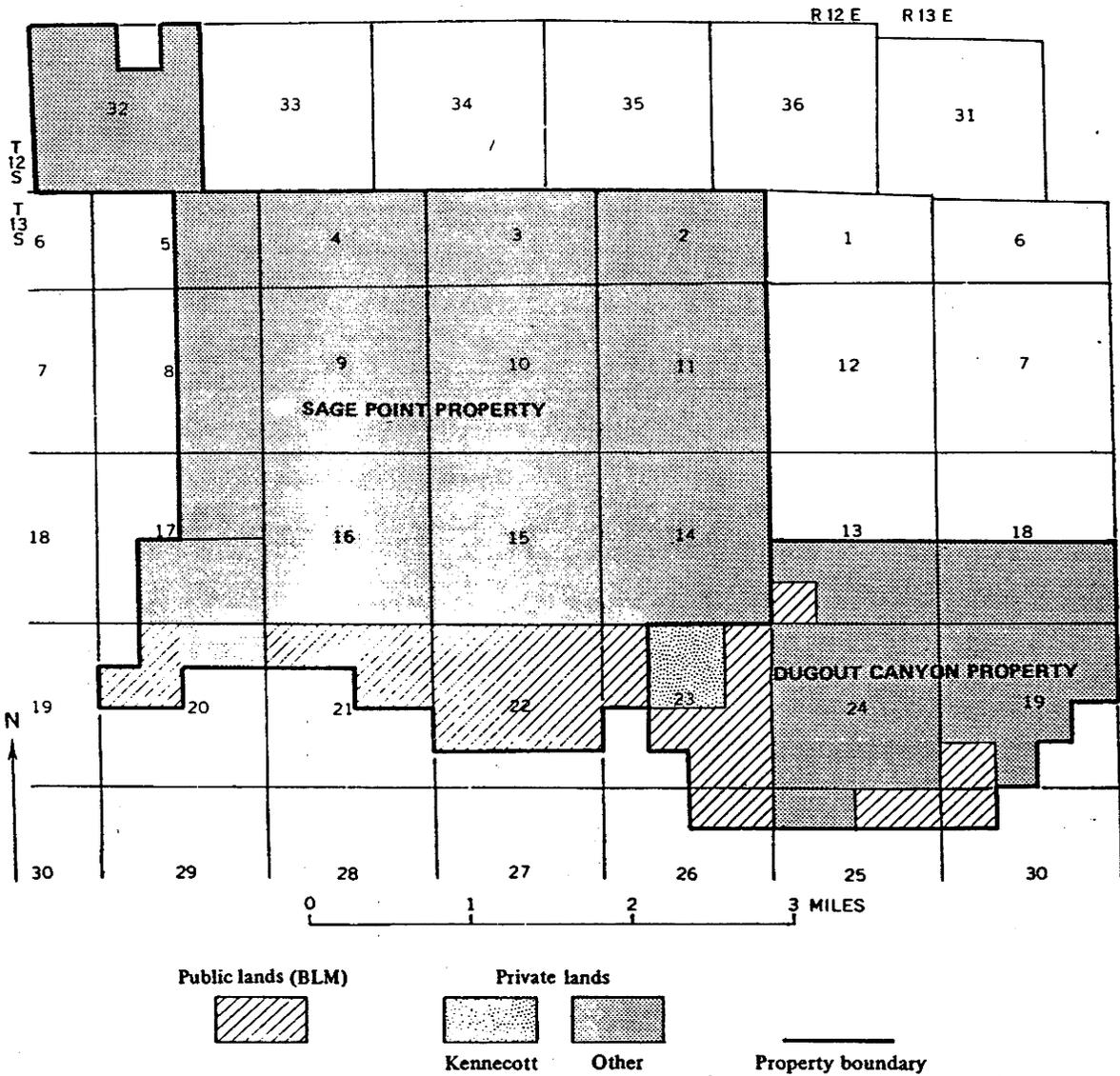


FIGURE 3.—Surface ownership within boundaries of the Sage Point-Dugout Canyon properties, Pacific Gas and Electric Company.

TABLE 1.--Summary of mining and reclamation plan and ancillary facilities

Mine plan area (acres):	Dugout Canyon	Fish Creek	Total
	mine	mine	both mines
Federal lease-----	2,416	5,852	8,268
State lease-----		976	976
Private land-----	160	640	800
Total-----	2,576	7,468	10,044

Product----- Washed coal Raw coal

Market----- Proposed P.G. & E. generating plant
in northern California, and KCC
power and metallurgical needs in
Utah and Nevada.

Estimated coal reserves
(million tons):

In place-----	80	142
Recoverable-----	40	71
Production rate-----	0.9 mty	2.3 mty
Development schedule (years):		
Initiation to production-----	2	2
Initiation to full production---	8	8
Estimated production life-----	40	40

Surface requirements:

Facility	Federal land applications				Surface disturbance (acres)
	Number	Miles	Width	Acres	
Dugout Canyon mine plantsite--	U-35689	---	---	400	32
Fish Creek mine plantsite-----	U-35689	---	---	160	18
Central processing plantsite--	U-35689	---	---	1,280	360
Slurry pond site-----	U-35689	---	---	560	221
Overland conveyors-----	U-35687	4	50 ft	24	12
Haul roads-----	U-35688	5.4	60 ft	39	39
Railroad (route H)-----	U-35681	13.5	100 ft	163	163
Reservoir-----	U-35682	---	---	24	24
Waterlines-----	U-35683	8.4	25 ft	25	25
Tailings slurry line-----	U-35684	2.2	25 ft	7	7
Telephone line-----	U-35685	10.0	40 ft	48	13
Electric powerlines-----	U-35686	13.7	75 ft	125	18
Totals-----				2,855	932

Other requirements:

Major resource:

Water:

 For mining and related activity¹----- 420 acre-feet per year

 Community supply (offsite)²----- 1,400 acre-feet per year

 Limestone³----- 16,000 tons per year

Personnel:

 Mine operation and processing plant-----⁴950 -----⁵930

¹Includes about 175 acre-feet of water per year for washing coal.

²Based on projected population increases.

³Based on 10 pounds of limestone per ton of recovered coal.

⁴From the mining proposal "Schedule of Development".

⁵Based on 15 tons per man-shift including support personnel.

B. PROPOSED ACTION

Coal production in Dugout Canyon is proposed from the previously mined Gilson and Rock Canyon beds in the Blackhawk Formation of Late Cretaceous age. A third bed, the Sunnyside, is also of minable thickness (4 feet or more) in the Sage Point property and would be mined concurrently with the Rock Canyon bed. The interval between the Gilson and Rock Canyon beds is 30 to 100 feet, and that between the Rock Canyon and Sunnyside beds 130 to 180 feet. The beds have been explored by core drilling and by measuring sections along outcrops.

Over the proposed mining area, the Sunnyside bed ranges from less than 4 to more than 12 feet in thickness, including partings and bone coal; the Rock Canyon bed from less than 4 to 10.5 feet; and the Gilson bed from less than 4 to more than 16 feet. The beds thin or thicken rather abruptly in some places. The three beds crop out in the Book Cliffs at altitudes of 7,200 to 7,800 feet and dip north-northeastward toward the Uinta basin uniformly at 6° to 7°. Overburden ranges from 0 to more than 3,000 feet, but is mostly less than 2,500 feet.

Analyses of coal (dry basis) in cores are reported by the proponent to average 13.8 percent ash, 35.9 percent volatile material, 47.8 percent fixed carbon, 0.6 percent sulfur, and 12,405 Btu's per pound. Estimated mineable coal reserves in the Sage Point property total 142 million tons. Incomplete drilling data on the Dugout Canyon property indicate 80 million tons in the Gilson and Rock Canyon beds. At expected full annual production of 3.2 million tons (lesser amounts during mine development) and estimated recovery of 50 percent, the total reserves of 222 million tons would last about 40 years (table 1). About 16,000 tons of limestone would be needed each year to allay mine dust.

The proposed Fish Creek mine would have a single-entry rock tunnel starting at or below the lowest minable bed (Gilson) and driven parallel to the dip on a 2 percent plus grade. The tunnel would intersect all three minable beds in 1,800 feet. This tunnel would provide access to the two upper beds, with track haulage for men and supplies and an overhead belt conveyor above a steel divider to carry coal out of the mine. Other entries would be driven from inside the mine to the outcrops for the ventilation system. Later mining of the Gilson bed would start from an adit on the coal outcrop about 700 feet southwest of the rock tunnel portal.

At the Dugout Canyon minesite, adits to the Gilson and Rock Canyon beds would be directly on the coal outcrops, avoiding the previously mined areas to the north and east. All portals on coal outcrops would have a minimum of four entries to provide for haulage way and ventilation. Belt conveyors would be used for moving coal and track haulage for men and supplies.

Coal from both mines would be moved by belt conveyors to a central yard (fig. 2) to be cleaned and loaded on unit trains for shipment to California, Nevada, and places in Utah.

The 6-year initial production schedule for the Fish Creek mine calls for phased development of the Sunnyside and Rock Canyon beds. Production would increase rapidly in the Sunnyside bed, with longwall mining being added in the fifth year. A total of nine continuous- and longwall-mining units would be operating by the end of the sixth year. Mining of the Rock Canyon seam would be at a relatively steady rate with two continuous mining units. At the Dugout Canyon mine, coal production from the Rock Canyon bed would increase steadily, with four continuous and longwall units in operation by the end of the fifth year. Development of the Gilson bed would not start until the fifth year.

The Fish Creek plantsite is in a narrow canyon, which would require extensive excavation along the sides to provide the required level area (figs. 4 and 5). Major excavation would be on the east side of the canyon. The course of Fish Creek would be shifted as much as 100 feet westward over a distance of about 600 feet. Much less preparation for the Dugout Canyon plantsite would be required, as the canyon is wider and the site has been used for previous mining (figs. 6 and 7). The central yard site, on essentially flat ground southwest of the Book Cliffs, would require some leveling where crossed by minor streams (figs. 8 and 9).

Present roads from US 6 east of Wellington to the mining area consist of the Soldier Creek County road (5 miles of bituminous surfaced road), 9 miles of improved graveled road to the old mines in Dugout Canyon, and 4 miles of unimproved dirt road to the Fish Creek minesite. The company plans to upgrade the 4 miles of unimproved dirt road and construct 1.4 miles of roads to service the slurry pond site and to service the conveyors to both the Dugout Canyon and Fish Creek plantsites. The proposed railroad spur, route H (fig. 2 and table 1), would extend from the Denver and Rio Grande Western Railroad line near Sunnyside Junction to the central yard. Alternate routes are discussed in chapter VIII.

Power would be obtained from Utah Power & Light Company's Helper-Moab 138 kV line. The proposed powerline would be near proposed railspur H to the central yard, with branching lines to the two mine plantsites (fig. 2). Telephone communication would be provided by a line from Soldier Creek road along the graveled access road to the central yard, with branching lines extending to the two plantsites (fig. 2).

Water requirements of 42 acre-feet per year of culinary water and 378 acre-feet per year of industrial water have been determined, but definite sources of supply have not been identified. Culinary water would be obtained from Price River Water Improvement District or from wells or springs. Possible sources of industrial water are from storage of runoff in Pine Canyon, Soldier Creek, and Dugout Creek, or from deep wells drilled to the Ferron Sandstone Member of the Mancos Shale. Proposed pipeline routes from Soldier and Dugout Creeks to the central yard are shown in figure 2. A system of water pipelines would interconnect the two plantsites and central yard to supply culinary and industry water. Water settlement and treatment plants, storage tanks,



FIGURE 4.--Photograph showing proposed portal area in Fish Creek, Carbon County, Utah. The portal facilities would be in the center of the photograph and include the areas cleared of vegetation.

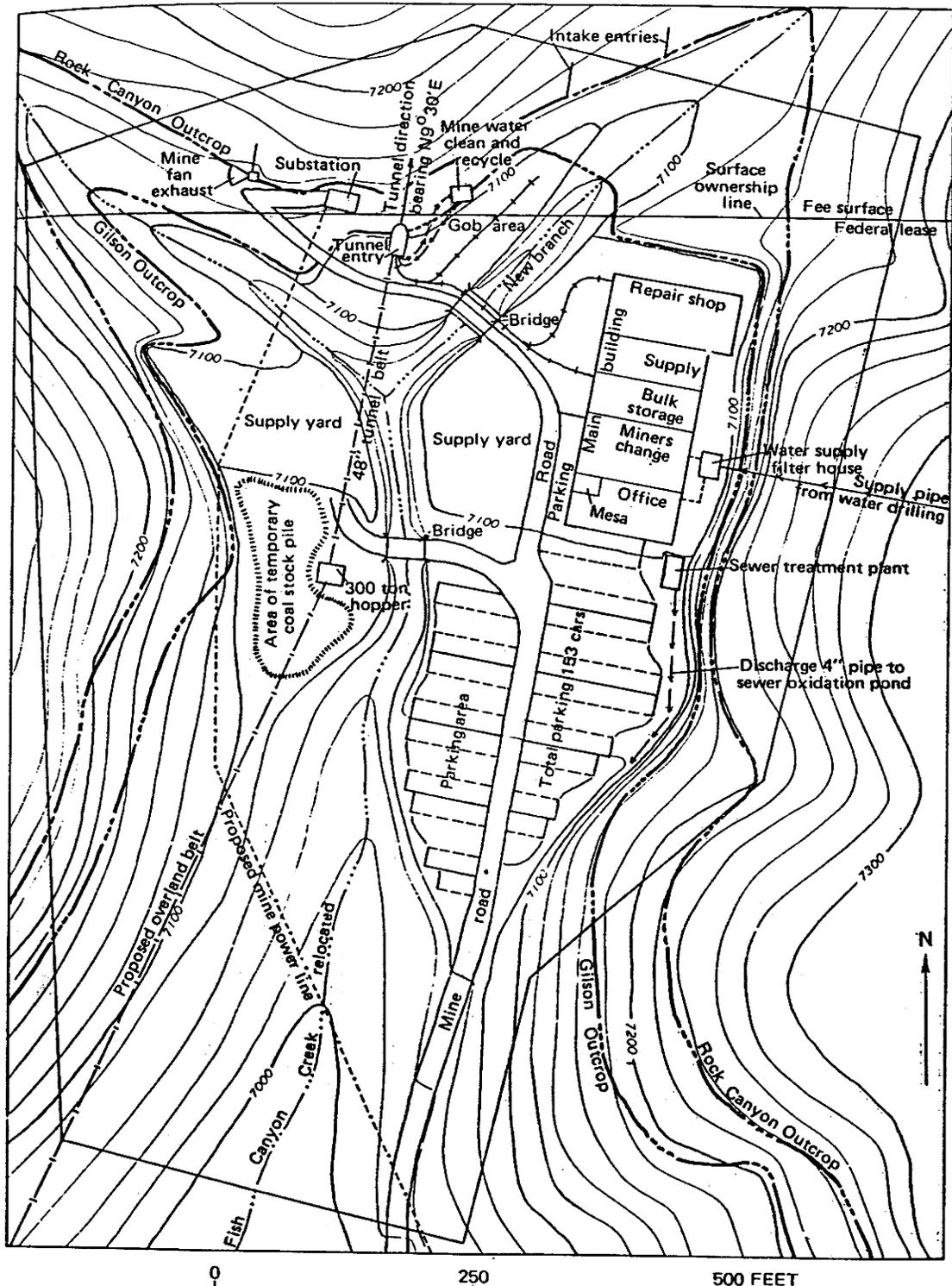


FIGURE 5.--Proposed layout of surface facilities at the Fish Creek minesite in sec. 21, T. 12 S., R. 13 E., showing final topography after site preparation.

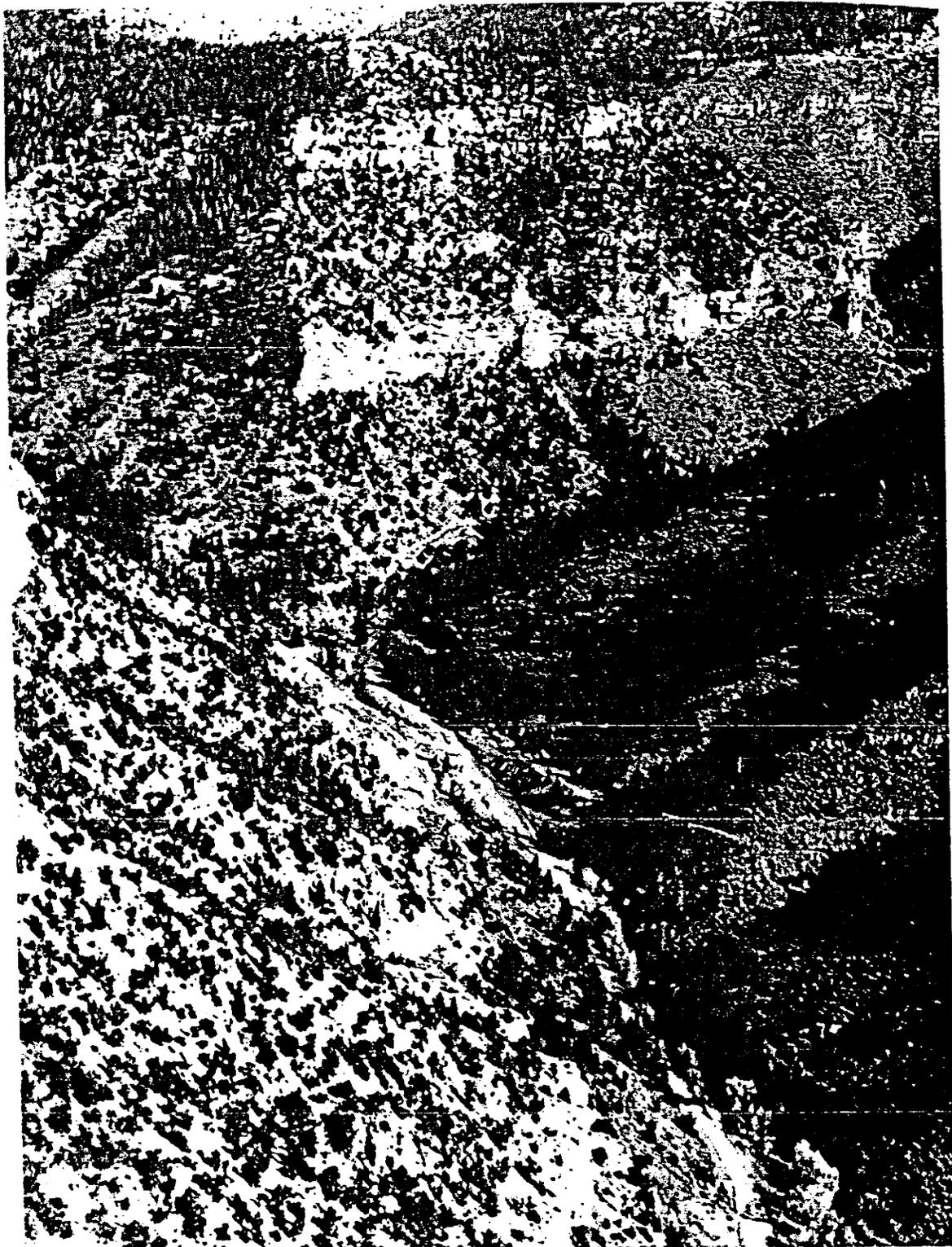


FIGURE 6.--Photograph showing proposed portal area in Dugout Canyon, Carbon County, Utah. The portal facilities would be below the drainage junction in the middle of the photograph and would extend downcanyon to include all of the old mine surface facility area. Note the two old buildings near the road.

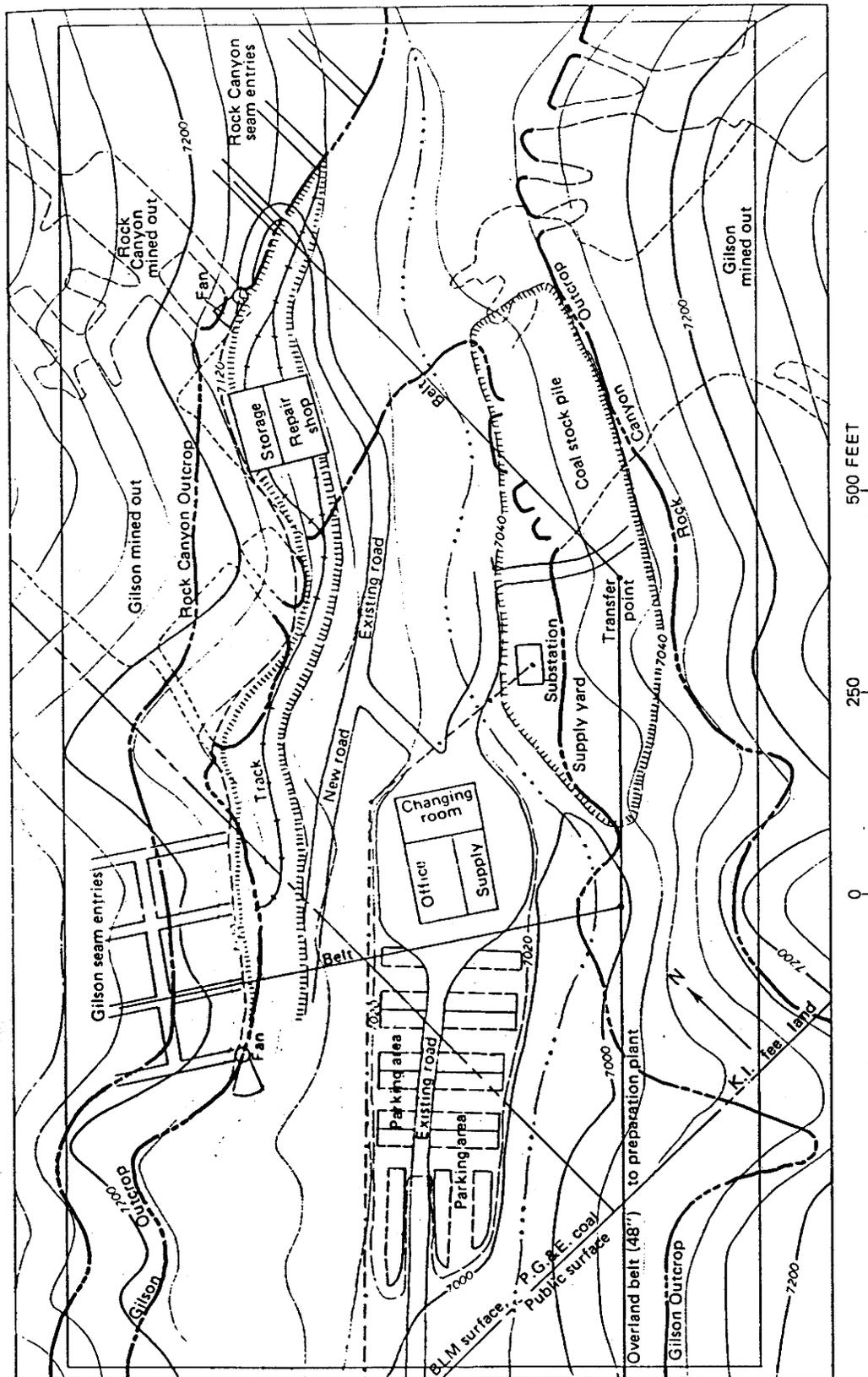


FIGURE 7.--Proposed layout of surface facilities at the Dugout Canyon minesite in sec. 23, T. 13 S., R. 12 E., including topography.



FIGURE 8.--Photograph showing northward view of the Fish Creek-Dugout Canyon central yardsite. The site would be located just left and above the center of the photograph in the dense woodland. The railroad would enter the picture above the road junction at the left edge of the photograph and loop around the yardsite.

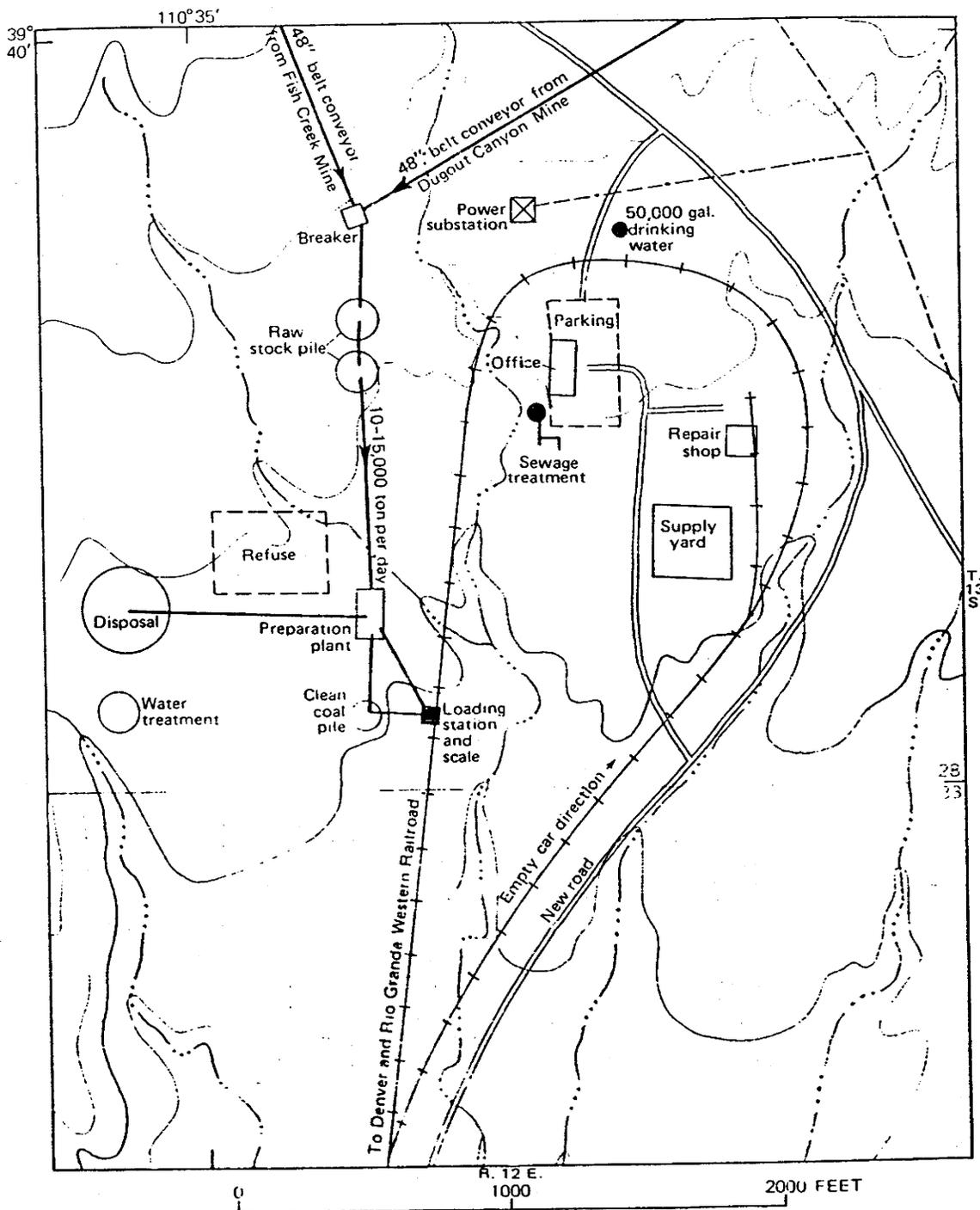


FIGURE 9.--Proposed layout of the surface facilities at the central yardsite for the Fish Creek and Dugout Canyon mines, Carbon County, Utah.

and reservoirs would also be part of the system. Water in the mines would probably not be available or in sufficient supply until mining has continued for 5 years or more. A hydrologic study is now being made. Needs for industrial water at the central yard would be low at first because coal preparation would not include washing until the fifth or sixth year of mining, when shipments of coal to California are expected to begin.

The company's proposed schedule of development shows construction and mine development starting in the third year and continuing for 6 years. Employment (at year end) during this time would increase from 203 to 950, and total coal production from 115,000 to 3.2 million tons annually (table 1). Based on current and projected Utah production rates, approximately 930 employees would be needed to produce 3.2 mty. This calculation is based on a production rate of 15 tons per manshift, including support personnel. All socioeconomic observations are based on these estimates.

C. ENVIRONMENTAL PROTECTION AND RECLAMATION

The mine plans contain the following statements with regard to protection of the environment during construction and mining:

"There is a risk of subsidence when mining coal under the sharp and steep scarp of the Book Cliffs * * *. To alleviate or avoid this happening at Sage Point-Dugout Canyon, a 50 percent extraction rate of recoverable reserves will be enforced near the cliffs.

"Sage Point-Dugout Canyon Mine plans call for the columnization of workings on the three seams so far as is possible.

"A possible hazard is that of flooding during and after a major storm. This hazard is not considered severe as the maximum recorded rainfall at Price is 1.24 inches in 24 hours. The main slurry storage pond will be designed to contain 10,000,000 cubic yards.

"In the course of underground mining, dusts are generated by continuous mining and longwall and other coal handling equipment. Most dusts are wetted and thereby allayed.

"Central yard air pollution can be expected from the coal washery. Coal dusts are generated by coal breakers. As a part of coal washing the first action is to wet the incoming raw coal. Dust collectors are used throughout the plant to capture most dust.

"The coal washing plant with its coal breakers, vibrating screens, coal transfer chutes, compressors and vacuum pumps all produce excessive noise that can be reduced. Sound attenuators and silencers will be used. Noise control in the future will conform with the rules and regulations covering noise abatement of both State and Federal agencies.

"Housing is not now available for as many as 900 employees. Once again, depending on circumstances then in effect, housing will be an important factor in project planning.

"Applicant plans to cooperate in community planning.

"NGC intends to participate, indirectly or directly, in providing sufficient and adequate housing.

"Water quality will not be affected as there will be a closed hydraulic system with no discharge to natural drainage.

"The project is designed to maximize recovery and efficiency and will be engineered and operated to maximize safety, dependability, and long-term performance.

"The overland belts will be 48 inches wide equipped with a protective cover.

"Facilities for the collection, treatment, and disposal of human wastes meeting all State, Federal, and local codes and regulations will be provided. Effluent water will not be discharged into the natural stream drainages. Portable toilets are required for each underground section and collection of wastes must be a regular routine. Water treatment ponds will be fenced, either individually or through fencing of the entire operations area, to reduce the hazard to public, livestock, and wildlife safety.

"In a similar fashion the wastes from mechanical maintenance (rags, oil, and grease) will be collected and disposed of (buried) in a way that will not pollute or contaminate either the air or the water quality.

"Eventually, when the mine makes water, pumps must be provided to move this water to treatment so that the water may be re-used.

"Water re-use and conservation will be the watchwords of mine water policy. There is not enough water to allow waste.

"Water losses will be the result of evaporation and seepage. Water, whether potable or industrial, will not be discharged to natural drainage. Refuse-slurry dams will be sited to avoid natural drainage."

The mine plan contains the following statements with regard to reclamation:

"The Sage Point-Dugout Canyon Project calls for two periods of reclamation. The first is after the completion of construction (five years), estimated to take place during 1984. The second, and by far the most important, is exhaustion of coal reserves, estimated during the decade of the 2020's.

"After completion of construction at each site, the area would be policed to remove all debris. Surfaces of lay-down areas not to be used permanently would be graded to minimize erosion and to conform to natural contours. Revegetation would be attempted by mulching, if required, and by reseeded with species suitable for the area. All construction equipment not adaptable to the coal mining operation would be dismantled and removed from the project site at the end of the construction phase.

"Within 2 years after the exhaustion of mineable coal or the cessation of coal mining, whichever occurs first, all the area will be reclaimed. Support facilities such as rail spur; buildings; structures and fences; electric, communications and hydraulic lines; and all other equipment will be modified or abandoned in accord with legislation and regulations in effect at that time. Roads and rail-spur foundations will be graded, bridges removed and construction sites graded as required. Refuse dams and reservoirs will be graded and covered with soil. Dams will have been built to maximum slopes of 2:1 and hence should be stable.

"Reclamation of the two mine surface areas will require special attention. Because of large rock excavations required to provide sufficient space (horizontal to vertical ratio of 2:1), these areas will be graded to conform to the natural topography as closely as possible. Drainages will be restored. Mine portals and all other openings to the surface will be permanently sealed. Surface drill holes and water wells, except those for which further use has been arranged, will be plugged.

"Re-vegetation will commence as soon as practical. Mulchers and fertilizer along with re-seeding of native flora will take place.

"To predict what might happen over a span of forty years is risky. In the event that circumstances might result in closing one or both of the mines and substituting other entries from the surface, say a new portal or even a shaft, reclamation of the abandoned facility will commence promptly.

"NGC intends to conform insofar as possible to Federal and State rules and regulations in effect at the time of reclamation."

The mine plan refers to monitoring in the following statements:

"Beginning in June 1976, a water quantity monitoring program was started * * *. From the first month's measurements 14 locations were chosen as sites of representative flows * * *. These sites will be measured monthly for at least one year. Of the 14, permanent measuring devices have been installed at 4 locations * * *.

"Water quality sampling began in late August 1976 * * *. Plans are to continue to sample and analyze every six months for the next two years. Depending on the results of the present sampling program, the program will be expanded or reduced. Plans have also been made to turn three of the 1976-77 proposed drill holes into water monitoring wells after the holes have been completed."

D. LEGALLY ENFORCEABLE MITIGATING MEASURES

Planning and environmental controls that govern and importantly relate to the proposed action are in chapter III, part 1. Total mining operations will be conducted in accordance with Federal and State laws and regulations, and State approval of the proposed actions with regard to State environmental laws will be required before approval of the mining plan.

The mining and reclamation plans included in this statement were submitted for review prior to the promulgation of initial regulations (30 CFR 700) required under Section 502 and 523 of the Surface Mining Control and Reclamation Act (SMCRA) of 1977 (P.L. 95-87) and have not been officially reviewed for compliance therewith. Therefore, the mining and reclamation plans may not reflect the requirements of the initial regulations. However, this analysis is based on the applicant adhering to applicable regulations. The operator has been requested to revise the mining and reclamation plans in accordance with the applicable initial regulations. As soon as the mining and reclamation plans are revised they are to be submitted to the Office of Surface Mining Reclamation and Enforcement (OSM) and the State regulatory authority to determine compliance with the requirements of State laws and of Federal regulations 30 CFR 211 and 30 CFR 700. The mining and reclamation plans cannot be approved until they conform to all applicable requirements.

The revised Utah State Antiquities Act (1977) provides for the preservation and (or) protection of paleontological values on State land. Discovery of such values on Federal land will be brought to the attention of the appropriate regulatory authority.

Mining as many as three coal beds increases dangers from subsidence. The mine company will monitor subsidence and where required, will fence and post areas potentially dangerous to humans and livestock. Fences will be constructed in accordance with surface regulatory agency requirements to allow proper wildlife movement. Areas disturbed during construction but not used will be revegetated as soon as possible to minimize erosion. If water is available, supplemental irrigation will assure establishment of vegetation where natural soil moisture is normally inadequate.

No wastes shall be placed where they will pollute any waters of the State. Substandard waste water shall be contained and treated to meet current water quality standards required by the State of Utah

(Title 73-14-1, et al.) or EPA, whichever is applicable, before being discharged or allowed to enter any waters of the State. If the flow or yield of any springs, streams, or wells from which water has been appropriated or which are deemed significant to the human environment, is reduced by mining, the company shall replace the water in kind or make restitution as required by the State of Utah (Title 73-3-23) or the Office of Surface Mining Reclamation and Enforcement, whichever is applicable. In order to have the information needed to determine the effect of mining on water, the company shall be responsible for inventorying said water resources before mining and for monitoring the flow of springs and streams, the water level in wells, and the chemical quality of these waters during mining.

Sawtimber, fenceposts, and firewood will be salvaged during clearing. Reclamation to restore vegetation to 90 percent of original productivity will be required. The various rights-of-way will not be fenced initially. If traffic becomes significant in livestock management, however, rights-of-way will be fenced. Any fences will allow deer passage. Consideration will be given to providing culverts for livestock to pass under heavily-traveled roads, railroads, etc. Prior to any land disturbing activities a survey will be made for threatened or endangered plant and animal species, especially the black-footed ferret. Any listed species found will be protected. (See part 1, chapter III, Endangered Species.) Consultation with the U.S. Fish and Wildlife Service may be required if a black-footed ferret is located.

No mining or rights-of-way will be approved until the surface management agency has coordinated professional cultural resource (cultural resources include archeological, architectural, and historical remains) surveys with the Utah State Historic Preservation Officer and mitigation may be necessary if surface evidence indicates further evaluation is necessary. In the event of discoveries of buried cultural resources as the result of exploration or mining activities the operator will notify the appropriate regulatory authority and suspend operations.

The Fish Creek-Dugout Canyon mine proponents and the appropriate regulatory authority will comply with the basic 1906 Federal Antiquities Act (P.L. 59-209; 34 Stat. 225), Sec. 106 of the National Historic Preservation Act of 1966 (P.L. 89-665, 80- Stat. 915, 16 USC Sec. 470f, as amended, 90 Stat. 1320), the Historical and Archeological Data Preservation Act of 1974 (P.L. 93-291), and the Advisory Counsel's "Procedures for the Protection of Historic and Cultural Properties: (36 CFR Part 800), prior to approval of any undertaking which will affect cultural properties included in or eligible for inclusion in the National Register of Historic Places.

The BLM, Utah State Director, and the Utah State Historic Preservation Officer have entered into a memorandum of understanding which sets forth measures the Bureau would undertake in regard to the protection of cultural resources on public lands. The principal point in the agreement is that

the project proponents will be required to have an intensive survey made for all areas that will be disturbed. If any sites are found to be of National Register significance, the project would either have to be altered so as to avoid the site(s) or provide for the preservation of data from the site(s). A cooperative agreement having the same effect exists between the USGS and BLM for "Protection of Cultural Resources related to Onshore Mineral Lease Options exclusive of Oil, Gas, Geothermal, and Oil Shale" leases.

An EPA review is required to determine the Best Available Control Technology (BACT) where potential fugitive dust emissions are equal to or greater than 250 tons per year. Each mine operator will have to employ the Best Management Practices for fugitive dust regardless of predicted concentrations during operation. Thus, each mining plan and the Department's approval thereof shall use an appropriate combination of fugitive dust controls, see EPA, 1978, and at a minimum the following:

1. Pavement or equivalent stabilization of all haul roads used or in place for more than one year. Major access routes and coal haulage routes are considered haul roads.
2. Treatment with semi-permanent dust suppressant of all haul roads used or in place for less than one year or for more than two months.
3. Watering of all other roads in advance of and during use whenever sufficient unstabilized material is present to cause excessive fugitive dust.
4. Reduction of fugitive dust to all coal dumps, truck to crusher locations through use of negative pressure bag house or equivalent methods. Inclusion of conveyor and transfer point covering and spraying and the use of coal loadout silos.

State law 27-12-146 requiring trucks to be constructed, loaded, or their loads so protected that material will not sift, fall, or otherwise leave the vehicle on or near public highways will be followed.

CHAPTER II

DESCRIPTION OF THE EXISTING ENVIRONMENT

A. NATURAL ENVIRONMENT

1. Climate

The general climate is described in part 1, chapter II. Onsite temperatures are likely to be 6° to 10°F cooler than at Price, 15 miles southwest and 2,000 feet lower. Average monthly temperatures at Price range from 25°F in January to 70°-75°F in July and August. Extreme temperatures of record are -31° and 108°F. Mean annual precipitation at the proposed minesites is about 12 inches, 6 inches between May and September. Watersheds above the minesites may receive up to 25 inches of precipitation annually. The 100-year, 6-hour precipitation is 2 inches. Snow generally falls from January through March, and temperatures occasionally reach -30°F. The average frostfree period is about 140 days and extends from mid-May to mid-September. Potential evaporation averages 30 to 40 inches per year.

2. Land

a. Land surface

The southwest-facing Book Cliffs are deeply dissected by box canyons of intermittent streams that also cut the pediments that slope gently away from the foot of the cliffs toward the Price River (figs. 1 and 2). Altitudes range from 7,100 to 7,200 feet at the portal sites to more than 8,800 feet in the northeast corner of the lease area, 2.5 to 3.5 miles to the northeast. Large boulders of sandstone eroded from the cliffs are strewn over the sides of the canyons and out onto the pediments beyond the canyon mouths.

Except for the plantsites near the mouths of Fish Creek and Dugout Canyon, surface facilities will be located on the boulder-strewn pediment southwest of the cliff front (fig. 2). The road and proposed railroad access routes are mostly parallel to the southwest-draining intermittent streams that have cut shallow courses into the pediment. The proposed railroad route (H) climbs from about 5,500 feet near its origin at Sunnyside Junction to 6,400 feet at the central yard site (fig. 2).

b. Geology

Coal-bearing rocks exposed at the minesites are of the Upper Cretaceous Mesaverde Group (fig. 10). The Castlegate Sandstone and other thick sandstone beds are cliff-forming and account for the rugged topography. The North Horn, Flagstaff, and Colton Formations are present in the northeastern part of the lease area. The Mancos Shale that underlies the Mesaverde Group is at the base of the Book Cliffs but is mostly covered by debris from the steep slopes above. The regional dip is away from the cliff face toward the Uinta basin at a uniform rate of 6° to 7°.

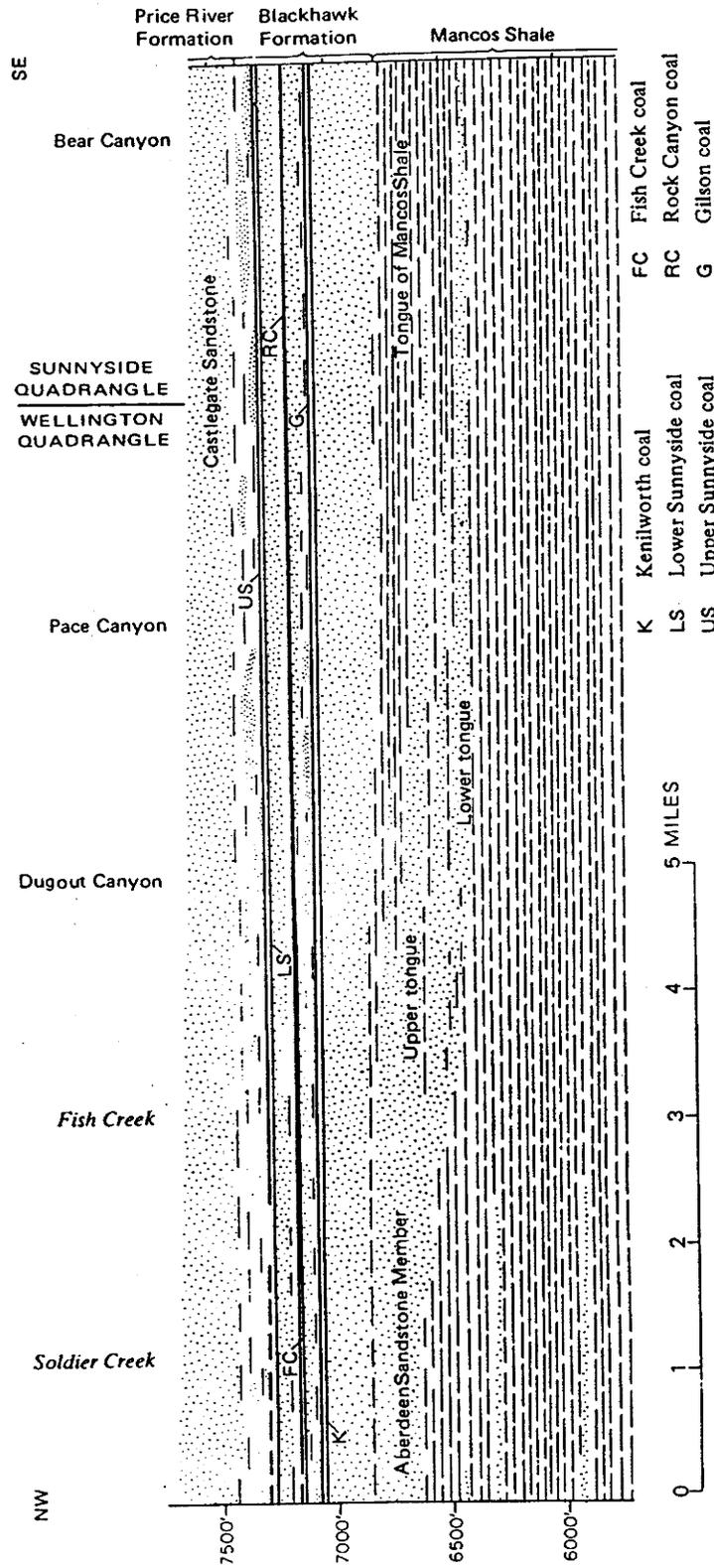


FIGURE 10.--Generalized section of Upper Cretaceous rocks in the area of the Fish Creek and Dugout Canyon minesites. (Adapted from Clark, 1928, p1.4.)

The project area has not been surveyed for paleontological resources. Vertebrate and plant fossil-bearing areas are discussed in part I, chapter II. Because of the lack of data and accepted evaluatory criteria for determination of significance, no meaningful assessment can be made as to the importance of these paleontological resources to science, education, or other values, hence to the significance of potential impacts on the fossil record.

The mining plan states that the area of calculated reserves is not faulted. However, Doelling (1972, p. 396) shows two northwest-trending faults that extend into the extreme northeast corner of the Sage Point property (sec. 2, T. 13 S., R. 12 E.). These faults, and other fractures measured in various parts of the section in different parts of the property, are approximately parallel to the regional strike of beds. They are probably related to slumping of large blocks of rock from cliff faces as the underlying soft Mancos Shale is eroded. Cores from a drilling program in 1975 show numerous slickensides and fractures that may be caused by rock movements at depth. None of the fracturing or faulting indicates large rock displacements that would create major problems in mining.

c. Energy and mineral resources

Coal, the major energy resource in the lease area, is discussed in chapter I-B. While none is produced at present on the Sage Point and Dugout Canyon properties, coal was mined from the Rock Canyon and Gilson beds at the Knight-Ideal mine in Dugout Canyon from 1940-65, mostly within the fee area of Kennecott Copper (fig. 3). During that time 1.3 million tons was produced. Kennecott Copper Corporation bought the mine in 1965, but later closed the mine and bought coal elsewhere.

No oil or gas tests have been drilled on the properties, but the rocks above and below the coal beds have produced oil and gas elsewhere in eastern Utah. Unsuccessful wells have been drilled near the properties to the north and south to test sandstone tongues in the Mancos Shale.

d. Soils

The minesites in Dugout Canyon and Fish Creek would be located near the bottoms of narrow canyons in the Book Cliffs, where soils are formed mainly from sandstone colluvium and bedrock. These soils are very cobbly to stony, medium textured, and neutral to moderately alkaline. Soil depths vary considerably, but are commonly 1 to 6 feet. They are well drained, runoff is rapid, and expected sediment yield is 2.0 to 2.5 cubic yards per acre per year if exposed (Pacific Southwest Inter-Agency Committee, 1968). Because of climatic and soil conditions, 20 to 50 percent of annual revegetation attempts are expected to be successful (based on Hagihara and others, 1972).

Soils at the proposed central yard site and about half of the railroad route are composed of gravelly to cobbly alluvium over shale. These are soils of the pediment slopes that support a pinyon-juniper vegetation type. They are well drained, medium textured, and calcareous. Sediment yield potential would be 1.6 to 1.8 cubic yards per acre per year if exposed. Because of climates and soil conditions, 50 to 70 percent of annual revegetation attempts are expected to be successful.

Soils on steep, southerly slopes are typically thin and rocky, rock cliffs being common. On protected aspects, soils are more continuous and have moderately thick, dark colored surface layers. They are formed primarily from sandstone, have medium textures, and are cobbly. The slopes are stable to moderately stable, and the natural estimated sediment yield is 0.5 to 2.0 cubic yards per acre per year on exposed surfaces. On the plateau (the dip slope of the Book Cliffs) soils are moderately deep and are dark. Textures are loam to clay loam. These soils have formed from limestone and sandstone and are neutral to moderately alkaline. The natural sediment yield is estimated at 0.3 to 1.0 cubic yards per acre per year, which is moderately low.

3. Water

a. Water supply

Seeps, springs, and streams supply water for livestock and wildlife, and water from Soldier and Dugout Creeks is diverted below the Book Cliffs for irrigation and livestock.

1) Surface water

The lease area is in the Price River basin and is drained mainly by three perennial streams--Dugout, Pine, and Soldier Creeks--and by several intermittent streams, of which Fish Creek is the largest (fig. 2). Numerous springs contribute small amounts of flow for short distances in some of the intermittent streams. Drainage areas total 27 square miles--15 square miles of lease area and 12 square miles upstream--and average annual runoff is estimated from USGS gaging-station records and channel geometry (K. M. Waddell, Hydrologist, USGS, written communication) as follows:

	<u>Acre-feet</u>
Dugout Creek-----	1,100
Pine Creek-----	900
Soldier Creek above Pine Creek-----	3,000
Fish Creek-----	200
Other drainages-----	300
Total-----	5,500

2) Ground water

The upper water-saturated sandstone beds are discontinuous and partly void of water near cliff faces. Ground water may be perched, or impeded from deeper infiltration, by one or more layers of rock having relatively low permeability. Permeable strata in most of the formations above the Mancos Shale, including the North Horn Formation (possibly the most permeable unit in the area) and the coal-bearing Blackhawk Formation, may be expected to yield water. Several deeper formations, including the Emery and Ferron Sandstone Members of the Mancos Shale also may be expected to yield water. Little or no water is present near outcrops along the Book Cliffs. Springs may discharge along outcrops of sandstone overlying less permeable strata and from fracture zones. Ground water is derived by recharge of direct precipitation which infiltrates downward. Although the amount of water moving downward through a unit area is small (probably much less than 5 percent of annual precipitation), the total area is large and the total downward moving water is significant--as much as 35 acre-feet per year per square mile.

4. Air

Air quality has not been monitored near this site. An annual average background level of total suspended particulates (TSP) for rural locations in central and southern Utah of 20 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) has been estimated (AeroVironment, 1977). The short-term (24 hour) TSP standard can be exceeded in many rural Utah areas as a result of wind blown dust. The background visual range is estimated to be 90 miles (145 km) and was based on the background TSP estimate.

Measurements of atmospheric visibility (visual range or discoloration) are extremely limited in the study area. Values of visual distance derived from light-scattering measurements from an integrating nephelometer averaged 67 miles for the period September 1970 to March 1971. Average visual range calculated from particle size distribution at Bear Creek and Huntington Canyons (fig. II-11) in 1974 was approximately 45 miles. Analysis of photographs taken at Clawson, Utah (fig. II-11) from January to June 1974 indicated 50 mile visibility 49 percent of the time. Visibility was reduced below 5 miles only 12 percent of the time. Visibility measurements at Cedar Mountain, east of Castle Dale (fig. II-11) averaged 94 miles in November-December 1976 and 54 miles in April 1977 (Pueschel and others, 1978).

5. Vegetation

The leases and surface-facility areas are covered by the Conifer-Aspen, Aspen, Pinyon-Juniper Woodland, Ponderosa Pine, Mountain Brush, Sagebrush-Grass, Streamside and Desert Shrub vegetative types. Most of the surface facility areas have either Sagebrush-Grass or Pinyon-Juniper Woodland cover; whereas, the upper areas have a mixture of types. The portal sites also have Streamside vegetation. Example species are cottonwood,

Douglas fir, Utah juniper, pinyon pine, big sagebrush, rabbitbrush, Gambel oak, maple, mahonia, elderberry, chokecherry, snowberry, serviceberry, Indian ricegrass, and wheatgrasses. These types are described in more detail, including species lists in the Task Force files. No threatened or endangered plant species have been identified in the lease area (Welsh, 1977).

6. Wildlife and Fisheries

A large variety of wildlife lives in the proposed mine development area. Vertebrates number nearly 360 varieties (Dalton and others, 1977). Better known species include mule deer, elk, mountain lions, (cougars) black bears, coyotes, red, gray and kit foxes, bobcats, raptors, chukar partridges, blue and ruffed grouse, mourning doves, and rabbits. Several varieties of lizards, snakes, and other reptiles are in the area, but no gamefish.

The proposed mines would be in the southern part of Utah's 1,169,000-acre deer herd Unit 27B (Range Creek) (part 1, chapter II). The Range Creek deer unit has 573,824 acres of winter range in normal winters and as little as 371,776 acres in severe winters (Utah Department of Fish and Game, 1967). Winter range is the limiting factor on this deer population. The Utah Division of Wildlife Resources has estimated that the available vegetation could winter 29,885 herd of deer on Unit 27B (written commun., Wilson, 1977). The mine portals and all the other facilities would be constructed in winter habitat. Winter deer habitat in the mines vicinity of unit 27B is pinyon-juniper-mountain brush-grass and pinyon-juniper-grass. Pinyon-juniper-grass habitat has a low potential for supporting deer; unit 27B has 11,392 acres available in severe winters, which could support 146 head of deer. Pinyon-juniper-mountain brush-grass furnishes major deer winter range and unit 27B has 195,584 acres in normal winters, but only 157,760 acres in severe winters. The potential deer numbers each vegetative association could support if populated at the optimum levels is: pinyon-juniper-grass, 146, and pinyon-juniper-mountain brush-grass, 10,893 (written commun., Wilson, UDWR, 1977).

Elk were transplanted to the Book Cliffs by the Utah Division of Wildlife Resources. One hundred and nine elk from the Horn Mountains were released February 12, 1976 in the Book Cliffs and early reports state that the transplants have dispersed and are reproducing. The proposed mine portals and plantsites are within the general range of these elk.

Mountain lions are in the vicinity. These extremely sensitive and usually solitary animals have home areas closely associated with the seasonal distribution of deer, which serve as their primary food source. Seidensticker and others (1973) found that yearly home areas of individual animals ranged from 67 to 175 square miles. Winter-spring home areas ranged from 12 to 38 square miles in 1971-72 and from 24 to 94 square miles in 1970-71. Summer-fall home areas ranged from 41 to 113 square miles in 1970-71. No population estimates are available for mountain lions.

however, unit 27B ranked first in the number of mountain lions harvested during the 6 years from July 1, 1971, through June 1977. Thirty-seven mountain lions, making up 5.1 percent of the entire State harvest, were taken in that time (Fair, 1977).

Black bears are in the Book Cliffs area, including the Dugout Canyon and Fish Creek vicinity. Based on Utah harvest figures, unit 27B, which includes these sites, ranked second highest in the numbers of bears taken in the State during 1967-76. Black bears essentially are solitary animals, regardless of population (Seton, 1909) and avoid human beings in their natural habitat. Seasonal movements generally are dictated by food availability (Skinner, 1925). Studies reported by Bray and Barnes (1967) indicate black bear males may have home ranges up to 700 square miles. Others found home areas as small as 32 square miles for females.

Cottontail rabbits, black-tailed and white-tailed jackrabbits, white-tailed prairie dogs, and several squirrels, chipmunks, and mice species are in the area. Most of these, except the white-tailed prairie dog, range throughout the area. A predatory-prey association exists between most of these species and predatory badgers, skunks, bobcats, coyotes, foxes, raptors, and possibly black-footed ferrets. Most predatory animals will readily scavenge given the opportunity.

The southern part of the area has been listed as potential black-footed ferret range (Scott and others, 1977). The potential range lies southward from the southernmost tier of sections (31 through 36) in both T. 13 S., R. 11 E. and T. 13 S., R. 13 E. This determination aside from the fact that the area is within the ferret's historical range, was based on (1) seven ferret sightings reported by reliable observers at various locations from north of Price through Woodside to near Green River, Utah, within the past 11 years (Hinckley, 1970); (2) suspected black-footed ferret trenches and plugged holes in the general area of reported sightings (Hinckley, 1970); and (3) the presence of white-tailed prairie dogs, their principal food source. To date none have been identified in the immediate area. The black-footed ferret is listed as endangered under P.L. 93-205, Endangered Species Act of 1973.

Raptors use the entire vicinity year-round, nesting on the cliffs and ledges or in the trees. The pediment sloping away from the Book Cliffs provides the raptors with hunting fields for small mammals, birds, and reptiles. The endangered peregrine falcon range includes the area. They have been reported occasionally in the Castle Valley area (part 1, chapter II); however, there have been no known sightings on the lease. Chukar partridge range along the base of the Book Cliffs around Fish Creek and Dugout Canyon. Blue and ruffed grouse may be in the vicinity, and mourning doves are common spring-summer nesting residents. A wide variety of perching birds inhabit the area year-round.

B. CULTURAL ENVIRONMENT

1. Lands

The Carbon County zoning ordinances permit coal mining in the area. A zoning ordinance was adopted May 19, 1959, by the Board of County Commissioners of Carbon County. Subsequent amendments have been adopted. The current printing of the ordinance is dated February 15, 1977, with a revised zone map dated 1974. The proposed P.G. & E. Fish Creek and Dugout Canyon mines, including Federal and State lands, lie within a mining and grazing zone. The mining and grazing zone is "characterized by large tracts of desert and open-range land with an occasional mine cabin dwelling, and (or) corral incidental to livestock operations...and has been established...as a district in which the primary use of the land is for mining and for livestock grazing purposes." Use requirements provide for "open-pit mines and mine waste dumps and underground mines and buildings and structures associated with mines and mine dumps.... Mine reduction and processing plants...reservoirs, dams, pumping plants, and water facilities...and caretaker dwellings, when incidental to and located on the same lot or parcel of land as a principle use permitted in the zone."

All mining operations are subject to the stipulation of the Price District Management Framework Plan published by BLM. All facility authorization must meet BLM standards detailed in the BLM Manual 2800 for minimal impact. Based on the BLM April 1977 Management Framework Plan, a corridor in the location of P.G. & E. railroad alternate route E (chapter VIII) would have the least impact. All leases and ancillary facilities related to the leases must meet BLM's visual resource management objectives.

2. Range and Timber

Cattle and sheep graze the project area as follows:

Allotment	Class	Number	Season	AUM's
Clark Valley-----	Cattle	141	4/16-5/31 10/16-12/31	567
Pine Canyon-----	Cattle	200	6/1-10/31	1,000
N. Clark Valley---	Sheep	--	--	496
Dugout Canyon-----	Cattle	200	6/16-11/15	1,000 (?)
Pace Canyon-----	Cattle	40	6/1-6/30 10/1-10/31	80
Total-----	Cattle	581		2,647
	Sheep	--		496

A few junipers are cut for fenceposts and firewood, and pinyon nuts are picked occasionally.

3. Socioeconomics

In this area, which has a present population of 16,000 to 18,000, "Coal is King." The socioeconomic structure tends to be significantly related to incomes and a tax base that derive primarily from mining. Residents, particularly those from Price, are of many ethnic and racial backgrounds. The general population is cosmopolitan yet separated from other cosmopolitan populations in Utah. Farming and other agricultural activities are essentially part-time occupations. Published reports indicate established residents express a high sense of community pride and happiness with their homes and friends (Geertsen and others, 1977). The regional socioeconomic environment and expected impacts are discussed in part 1.

4. Transportation and Utilities

Major highways near the proposed mine are US 6 and 50 and U 23 (table 2). The nearest railroad (Denver and Rio Grande Western) is about 13 miles southwest of the proposed minesite (fig. 2). Mine access would be via US 6 and 50, Soldier Creek road, and the proposed haul road. The proposed Dugout Canyon haul road intersects the Soldier Creek road about 4.5 miles north of US-6 and 50. A jeep road intersects the haul road about 4 miles northeast of the Soldiers Creek road and extends to the Fish Creek minesite. Both power and telephone lines are available near US 6 and 50 (fig. 2).

5. Recreation

The area lacks significant recreation attractions and is seldom used. Activities depend on low-standard roads and the natural character of the surrounding area. Deer hunting in late October and early November is the predominate use. Other recreation uses and activities include: (a) four-wheel driving on low-standard roads and viewing the environment; (b) target shooting; (c) gathering pine nuts and firewood, rock-hounding, etc.; and (d) hunting small game and nongame species. Dugout Canyon is also used minimally for overnight camping at undeveloped sites, and for horseback riding. Some ORV may have been used in Clark Valley (fig. 1) but there is little evidence of it at present. Clark Valley and the heads of Dugout Canyon and Fish Creek offer some opportunity for hiking, camping, nature studies, and solitude. Potable, perennial water is lacking in Fish Creek and Clark Valley. A small perennial stream flows in Dugout Canyon and does provide some user appeal and interest. No records on recreation uses or activities are available for the proposed impact area. A description of the regional recreation area that would be impacted by this proposal is included in part 1, chapter II.

TABLE 2.--Highway traffic counts near the Fish Creek and Dugout Canyon mine areas

[Source: Utah Department of Transportation, 1975, except for Soldier Creek Road which is calculated]

Highway	Highway section	Average daily traffic		
		Cars and light trucks	Trucks, 6 wheels or more	Total traffic
Soldier Creek	Between access road junction and US 6 and 50-----	30	5	35
US 6 & 50--	Between Soldier Creek junction and Sunnyside Junction-----	2,690	325	3,015
U-23-----	Between US-6 and 50 and Dragerton-----	895	135	1,030
U-23-----	Between Soldier Creek junction and Wellington-----	2,690	325	3,015
US 6 & 50--	Between Wellington and Price---	3,968	335	4,303
US 6 & 50--	Between Price and Helper-----	3,555	745	4,300

The percentage of local, long distance, and commercial traffic is not known.

6. Esthetics

That part of Clark Valley where the access road, railroad system, and power and telephone lines would be located is classified as having low (Class C) scenic quality. The valley is dominated by big sagebrush and stands of pinyon-juniper having little or no understory. The landform has little variation, and rock formations are of minimal interest. There are no outstanding or dominant features, and the landscape is similar to that of the pediment south of the Book Cliffs.

Dugout Canyon and Fish Creek and the area to the south, where the mine portal entries, coal conveyor belt system, and plant facilities would be located, have a common (Class B) scenic quality. Slopes are moderately to deeply dissected; rock formations are not outstanding; and vegetation patterns have some diversity but are common to the general surrounding area and are restricted in species composition. The straight cliffs above

the proposed minesite attract notice because of their prominence, but lack uniqueness or variety in color or form. They create a prominent, but common, panoramic scene in the background viewing zone from US-6 for a length of 65 miles. The combination of these features tends to be common throughout the character type, as viewed onsite and from US-6.

The BLM's Visual Resource Management Class for the entire area falls within the IVb and IVc classifications (Roy Mann Associates, Inc., 1977). Both classifications are directed toward the maintenance, simulation, or enhancement of the natural landscape in all management or project activities. Visual Resource Management Classes IVb and IVc permit modification and maximum modification, respectively, during the life of a project or management activity. However, subsequent rehabilitation or reclamation must be adequate to, and directed toward, the reestablishment in appearance of a natural or near natural landscape.

Man-made intrusions include: the low-standard roads in Clark Valley and Dugout Canyon and along Fish Creek, a small voltage powerline, excavations at the proposed minesite at Fish Creek, and remnants and debris from the old mine in Dugout Canyon. Clark Valley has a natural character, where intrusions or uses, other than grazing, are few. However, much of Clark Valley was irrigated and farmed during the 1900's and the community of Kiz was in the area. Some remnants of the community, including building foundations and a cemetery remain. Remnants of the community would not be affected by the proposal, and previously-irrigated lands have reverted to big sagebrush and pinyon-juniper vegetative types.

7. Archeologic and Historic Values

Little archeological data are available of the lease area and immediate vicinity although some work has been done in neighboring areas. A reconnaissance survey of the lease area was done in September of 1977 by K. K. Pelli (Pierson, 1977). This survey located a previously-recorded pictograph panel in Dugout Canyon. No other sites were recorded. The National Register of Historic Places lists no cultural sites for the area.

C. FUTURE ENVIRONMENT

The BLM land use plan orients management of these lands to livestock, wildlife, and watershed, with some incidental recreation use. Little, if any, development would occur in the area and the environment would remain about the same without mining.

CHAPTER III

ENVIRONMENTAL IMPACTS

A. NATURAL ENVIRONMENT

1. Land

a. Land surface

About 932 acres of land surface would be disturbed to some extent in constructing the proposed facilities (table 1, fig. 2). The slurry pond dam would require 1,650,000 cubic yards of fill. Subsidence could affect nearly all of the 2,576 acres of Dugout Canyon property, and from 5,000 to 6,000 acres of the 7,468 acres of the Sage Point property. Subsidence could be as much as 70 percent of the thickness of the mined coal (Dunrud, 1976, fig. 20); about 5.6 feet for a single 8-foot bed.

b. Geology

Impacts to paleontological resources would consist of losses of plant, invertebrate, and vertebrate fossil materials for scientific research, public education (interpretative programs), and to other values. Losses would result from destruction, disturbance or removal of fossil materials as a result of coal mining activities, unauthorized collection, and vandalism. A beneficial impact of development would be the exposure of fossil materials for scientific examination and collection which otherwise may never occur except as a result of overburden clearance, exposure of rock strata, and mineral excavation. All exposed fossiliferous formations within the region could also be affected by increased unauthorized fossil collecting and vandalism as a result of increased regional population. The extent of this impact cannot be assessed because of a general lack of specific data on such activities. Because of the lack of data and accepted evaluatory criteria for determination of significance, no meaningful assessment can be made as to the extent and nature of the loss of these paleontological values to science or education, or hence to the significance of potential impacts on the fossil record.

Faults mapped at the surface in the northeast corner of the Sage Point property (See chapter II, Geology.) are in the area where overburden above the coal beds is 3,000 feet or more. If the faults extend to the coal beds, mining in or near them may trigger movement on these faults and cause landslides and rockfalls in the cliff areas above. Large scale excavation in preparation of the Fish Creek mine plantsite would result in a greatly steepened slope for about 700 feet along the east side of the canyon (fig. 5), and potential for landslides would be increased.

c. Energy and mineral resources

Proposed plans and mining methods would leave about 111 million of the 222 million tons (estimated) of minable reserves in the Sunnyside,

Sunnyside, Rock Canyon, and Gilson beds under a maximum 3,000 feet of overburden. Additional unknown amounts of coal would be left where these beds thin to less than 4 feet and in other thin coal beds. During the 40-year life (estimated) of the mine, improved technology and economic changes may increase possible recovery.

d. Soils

Soils would be disturbed on about 932 acres (table 1). About 50 acres would be disturbed for construction of facilities at the Fish Creek and Dugout Canyon mines. Erosion of exposed soil materials, primarily during construction, could exceed 7 cubic yards per acre per year on steep slopes. Sediment would be collected on the site in sediment control ponds. At the central yard and slurry pond sites, impact to soils would relate primarily to taking the lands out of vegetative production for 40 years. Soil productivity would be returned to near its present status after reclamation.

Road and railroad construction would disturb soil on about 202 acres, which would increase erosion and reduce soil productivity. Construction and maintenance problems would accrue from soils formed on the Mancos Shale. Montmorillonitic clay in the Mancos Shale has a high shrink-swell potential, which could result in road surface heaving. About 87 additional acres would be subject to varying types of soil disturbance.

2. Water

a. Water supply

The proposed mines would require 420 acre-feet of water per year for consumptive use. Increased population would require an additional 1,400 acre-feet of water per year for domestic use, of which 50 percent would be used consumptively; the other 50 percent would be discharged as treated effluent.

1) Surface water

The impact of subsidence and subsequent earth cracks on the flow of springs and streams cannot be predicted. Above the proposed mines, some surface flow, potentially as much as 5,500 acre-feet of water per year, could be diverted into the ground. However, it is unlikely that more than one-fourth of that would be diverted, perhaps none. Such diversion, if it occurs, would reduce available water on the lease, which would restrict use by wildlife and livestock. The flow of Soldier and Dugout Creeks below the Book Cliffs also might be reduced. Diverted water probably would be discharged eventually, but potential points of discharge cannot be predicted.

2) Ground Water

Any water use and mining below sandstone beds saturated with ground water would alter regional ground-water resources. Mining would cause a local decline in ground-water levels. The first effect of declining water levels necessarily would be in the strata mined in the Blackhawk Formation. Downward drainage into the mine could result in dewatering upper strata which might decrease spring flow. Subsidence and associated cracking might drain saturated beds, such as the permeable North Horn Formation above the Blackhawk Formation, and increase recharge to saturated beds in and below the Blackhawk.

3. Air

Particulates would be the only significant contributors to air pollution at the mines. Most coal particles would settle within one mile or less downwind of the mine. Increases in other pollutants such as sulfur dioxide, nitrogen oxides, carbon monoxide, and photochemical oxidants would be negligible. Using AeroVironment 1977 analysis, estimated TSP concentrations as great as $240 \mu\text{g}/\text{m}^3$ above background levels could occur within 110 yards (100 meters) of the unpaved but watered road from daily one way passes of 950 cars and 130 trucks. The secondary NAAQS is $150 \mu\text{g}/\text{m}^3$. Total annual potential emissions from the mine (coal storage and transfer) and fugitive dust from auto and supply truck travel on an unpaved road would be an estimated 6,720 tons (120 tons from mining activities and 6,600 tons from auto and supply truck travel and would require EPA review (chapter I-D).

Pavement or equivalent stabilization as required in chapter I-D would reduce air quality and visibility impacts to insignificant levels. The maximum 24-hour incremental increase in TSP would be about $70 \mu\text{g}/\text{m}^3$.

4. Vegetation

About 932 acres of vegetation would be impacted (table 1), mainly Sagebrush-Grass, Pinyon-Juniper Woodland, Streamside and Conifer-Aspen vegetative types. Impacts in the portal areas would be more significant because of the Streamside type. Little or no impact is foreseen on the vegetation overlying the underground workings. No threatened or endangered plant species would be impacted.

5. Wildlife and Fisheries

Wildlife habitat would be degraded by soil disturbance and (or) vegetation removal where mine facilities are constructed. Because of noise, lights, activities, and traffic, some wildlife would avoid adjacent areas. Effects of habitat degradation or destruction can be measured and quantified for some species but avoidance effects are more difficult to determine. Improved access would bring more visitors to this

relatively unvisited area. Their presence would affect the more sensitive species, such as black bears, mountain lions, and deer. The magnitude of these impacts is not predictable.

Wildlife habitat would be directly destroyed on 932 acres (table 1). Winter deer range totaling 837 acres would be lost. Construction of ancillary facilities outside the limits of winter deer range would destroy summer range. Small and nongame mammals, birds, and reptile habitat would be reduced by 1,020 acres, lowering their populations. Lowered numbers of these small animals would, in turn, reduce the food source of predatory birds and mammals. Data necessary to predict the impact to small and nongame mammals and birds or predatory birds and mammals are not available. The habitat loss would be expected to alter animal species and density composition. Because of mine-caused disturbances and the blocking effect of conveyors, deer would be expected to avoid 3,148 acres of available winter range surrounding the mines. The disturbance impact area would extend outward one-tenth mile from the periphery of disturbance centers at plantsites, central yard, and from the highway and conveyor. In this zone, deer feeding would be expected to be about 50 percent less than in wintering habitat not subject to the same amount of disturbance. Avoidance would be expected to be total at the disturbance source, gradually decreasing outward. It is anticipated that the proposed 4.0 mile conveyor would block all migrating deer from crossing. The block caused by the conveyor and avoidance routes around the plantsites would form a shadowlike area downslope, where deer use would be lower.

Construction would destroy 77 acres of pinyon-juniper-mountain brush-grass winter deer habitat and deer would be expected to partly relinquish use on 433 acres more. The loss of 77 acres would reduce the deer population potential in this habitat by five head, whereas partial relinquishment would reduce the potential deer population by another 15 head. About 760 acres of pinyon-juniper-grass winter deer habitat destroyed and occupied by mine facilities, and partial relinquishment would be expected on 2,715 acres more. The loss of 760 acres would reduce the deer population potential by eight deer whereas partial relinquishment would reduce the deer potential by 14 deer. The proposed action would reduce potential to support deer by 42 head annually (about 0.14 percent of total potential population for deer herd Unit 27B). Potential elk habitat loss would include the area within at least half a mile radius of the plantsites and the entire area upslope from the conveyor between the two mine portals (about 2,000 acres).

Reduced winter deer use, intrusions of the mine into Fish Creek and Dugout Canyon and the sensitive nature of mountain lions would probably reduce the mountain lion population potential in unit 27B by four. This projection is based on mountain lion behavior, in which male and female home areas overlap completely. Each drainage appears to have a favorable vegetation-topography/prey-vulnerability complex to support a resident male and female.

Destruction of canyon bottom vegetation for plantsites, roads, and conveyors would remove black bear and ruffed grouse food such as serviceberries, snowberries, elderberries, and dogwood. Fear of mining activities also would cause black bears to avoid using the mine vicinity. Probable impacts could affect two black bears. If the probable home areas in Fish Creek and Dugout Canyon are not occupied, they would not be expected to be reoccupied if the mine is opened. Several blue grouse broods would be expected to be displaced if food were destroyed in Fish Creek and Dugout Canyon.

Available water is probably the most important habitat component for nesting doves. Loss of springs or seeps would reduce or eliminate the dove population. Chukars require water nearby after the chicks hatch. Loss of springs and seeps would adversely affect their population, but lack of data prevents predicting the number of birds affected.

Collison hazard with vehicles would increase for all wildlife. Powerlines would present a strike hazard for birds. Deer would risk collison crossing roads in daily feeding migrations. Chipmunks, prairie dogs, and ground squirrels would risk collison during the day. Deer, jackrabbits, cottontails, mice, and snakes would experience the risk at night. Scavenging birds and mammals could then be struck by subsequent vehicles. Raptors on roosting perches greatly increase their susceptibility to illegal shooting if near a road. The incidence of illegal shooting in Utah is high where power poles are near roads and nearly nonexistent where they are distant (Ellis and others, 1969).

The proposed railroad spur, central yard facilities, slurry pond, water and slurry line, telephone line, and powerline (fig. 2) are within potential black-footed ferret range (Scott and others, 1977). If 300 acres of community development occurs within the Castle Valley pheasant range, the habitat loss might cause the loss of 50 to 60 adult Ring-neck pheasants per year (BLM, 1977; UDWR, 1977). Demand for game and fish and illegal acts toward all wildlife would increase because of the increased population. Fisheries in the surrounding area may be reduced by withdrawing water to support the proposed action.

B. CULTURAL ENVIRONMENT AND LAND USE

1. Land Use

As much as 300 acres would be converted to community use because of the influx of about 5,500 new residents. Inventories, analyses, and decision as to whether parts of the area would qualify as a roadless area or a wilderness study area have not been completed. Approval of the proposed action would preclude delineation of occupied areas as roadless or wilderness study areas.

2. Range and Timber

The 932 acres of vegetation impacted (table 1) would reduce grazing capacity by about 63 AUM's (2 percent of the total). Subsidence may cause some livestock watering springs to dry up. The project could further impact livestock by changing normal grazing and watering patterns. A moderate amount of sawtimber, fenceposts, fuelwood, and pinyon nuts would be lost to the project.

3. Socioeconomics

The proposed mines would add about 5,500 residents to the Price City-Carbon County area. Greatest impacts would accrue from urbanization. Carbon County's population could increase about 29 percent. This would result in the need for 650-750 new residences. New schools also would be necessary. Other impacts would be costs of constructing, operating, and maintaining sewers, water systems, and streets; collecting garbage and trash; and police, fire, and health protection.

At full mine production, the total annual mine payroll would be about \$15 million. Average salary for mine employees would be about \$1,500 per month, approximately \$200 more per month than Carbon County miners received per month in 1975. It is possible that county average annual salary would be about \$7,500 to \$8,000, which is approximately \$1,000 more than comparable figures for 1975. Benefits from higher incomes and an increased tax base would expand the Carbon County-Price City area economy.

4. Transportation and Utilities

At least one unit train per day would be added to present rail traffic between the mines and the proposed powerplant in central California. About 1,080 vehicles per day (950 commuter, 130 mine supply) would be added to present traffic (table 2). Traffic on Soldier Creek Road and the mine access road would increase more than 30 times. Mine traffic would increase the load on US-6 which is at its efficient capacity of about 3,000 vehicles per day. Thirteen miles of unpaved roads would have to be upgraded, presumably 9 miles by the county and 4 miles by the proponent. The company would construct 1.4 miles of service roads. It is likely that the paved Soldier Creek Road between Wellington and the mines turnoff would receive more maintenance and some upgrading.

5. Recreation

Mining and related activities at the mouths of Dugout Canyon and Fish Creek and at the plantsite would eliminate or displace present recreation activities. The greatest impact would be eliminating 100 visits and 50 visitor days use (estimated) at undeveloped campsites in Dugout Canyon. Present recreation uses in Clark Valley, south of the plantsite, would increase as a result of improved access. Some increase in use, to observe mining and associated activities, could also be expected.

Except for hunting and ORV use, impacts to of the recreation resource would be minimal. Hunter success (particularly mule deer) could decrease 5 to 7 percent (40 to 50 deer) annually during the life of the project. Increased ORV use in Clark Valley could result in wildlife disturbance and a loss of soil, vegetation, wildlife, and watershed production. Noise, TSP and littering and vandalism would increase with increased use. The projected increase of 5,000 new residents in Carbon and Emery Counties could create significant impacts to regional recreation attractions through increased visits and use.

6. Esthetics

The landscape would be modified by industrial facilities and activities. The proposed railroad system near the Sunnyside Junction (fig. 2) would be in the foreground-middleground (0-3 miles) viewing area from US-6, but mining intrusions could not be seen with clarity. Facilities and activities at the mines and plantsite would not be viewed by most of the travelling public. Some of the individuals viewing the proposed development would have major concerns for changes in the visual character of the area. Facilities and activities associated with the proposal would be similar to those supporting other mining activities in the general area. The sensitivity level, relating to modification or introduction of industrial intrusions, has been designated as Class M (Medium). The modifications would remain until mining ceased and reclamation and natural processes reestablished the present natural-appearing landscape. The deserted farming community of Kiz indicates that over the long term (50+ years) the landscape would return to a near-natural character. Some evidence of past mining, such as the main access road, railroad bed, and mining residues, would remain after reclamation.

7. Archeologic and Historic Values

The only site located during the reconnaissance was a pictograph panel (42cb92) recorded previously by Dale Berge of Brigham Young University and located originally by a Pacific Gas and Electric Company employee. This site may be vandalized because of its proximity to the road.

Additional archeological sites may be located during the intensive survey that will be conducted prior to development. Increased population may result in more vandalism of cultural, archeological, and historical sites. Improved access also may result in increased vandalism to sites that may be present. Required surveys will add to the cultural resource knowledge of the area.

CHAPTER IV
MITIGATING MEASURES

State and Federal laws, regulations, and administrative policies that require mitigation or reclamation of mine areas, and responsibility or requirements of the appropriate Federal and State regulatory authorities are listed in chapter III of part 1. These measures, and those in sections C and D of chapter I shall be required and are part of the Fish Creek-Dugout Canyon mining and reclamation plans.

The following mitigating measures could be required or implemented by the land management agency acting on behalf of the Secretary of the Interior; others could be required or implemented by the appropriate local, State or Federal agency. The effect of implementing these mitigations has not been assessed in the analyses presented in chapter V.

Safety problems and user conflicts on the improved access road could be mitigated by restricting use to mine traffic. Traffic, air quality, and visibility impacts could be reduced by bussing mine workers to the minesite.

Visual impacts could be mitigated by locating structures in seldom-seen areas and painting them to blend with the surrounding terrain and by removing residues from previous mining operations. Recreation and esthetic impacts could be reduced by constructing the railroad, mine access, and utility lines in a corridor outside Clark Valley. Powerlines separated from roadways by 300 yards could reduce shooting hazards to perching raptors.

CHAPTER V

ADVERSE EFFECTS THAT CANNOT BE AVOIDED

Land surface deformation caused by constructing surface facilities and waste-disposal systems would not be totally mitigated. Subsidence above mined out areas could create hazards for surface construction. Unavoidable destruction, disturbance, and removal of paleontological resources, both exposed and unexposed, would occur. The significance of this impact cannot be meaningfully assessed because of the lack of data and evaluatory criteria. As much as 50 percent of the minable coal (111 million tons) would remain unrecovered in pillars and barriers to provide roof support and fire protection during mining. Unknown amounts of coal would be left where beds are less than 4 feet thick.

Removal of vegetation and disturbance of the soil would result in increased erosion on 932 acres. Greatest potential for erosion would be during construction and the tear-down period just before reclamation, when erosion rates would be 2 to 7 cubic yards per acre per year. Sediment would be collected on the site in sediment control ponds. Soil productivity would be lost on areas occupied by mining and support facilities until the area is reclaimed after approximately 40 years. About 55 acres, out of production and subject to erosion only during construction, would be revegetated as soon after construction as possible.

Increased use and consumption of water for coal mining and associated uses cannot be avoided. About 420 acre-feet of water per year would be consumptively used in mining, and needs for domestic water supplies would increase by 1,400 acre-feet per year. Disruption of watersheds cannot be mitigated. The flow of springs and streams on about 15 square miles of the lease could be reduced; thus, less water may be readily available for onsite use by wildlife and livestock. Mining would cause a local decline in ground-water levels and alter ground-water flow patterns in the mine area. Requirement of BACT would reduce the 24-hour maximum incremental increase in TSP in the air to about $70 \mu\text{g}/\text{m}^3$.

About 63 AUM's annual grazing capacity would be lost and the normal grazing patterns of domestic livestock could be disrupted. A small volume of sawtimber, fenceposts, and firewood would be salvaged before construction and would not be replaced (regrown) until some years after mining ceases. Deterioration of wildlife habitat and vehicle-wildlife and bird-powerline collisions would reduce wildlife numbers. Most likely to be effected are about 42 deer or about 0.14 percent of the total deer herd unit population. Some Ring-neck pheasants may also be lost because of community development.

Other forms of transportation would be inconvenienced by the increase of 7 to 10 unit trains per week and the increase of about 1,080 vehicles per day to local traffic patterns. The traffic load on US-6

FD-V-2

would be beyond the highways efficient capacity. Eliminating or displacing recreation opportunities in the mouths of Fish Creek and Dugout Canyon and at the plantsite in upper Clark Valley would be unavoidable. Indiscriminate ORV use, loss of hunter success, and vandalism and littering would occur. The landscape would be altered from one with few obvious man-made intrusions to one of intense activity and substantial man-made intrusions. To individuals with major concerns (less than one-fourth of the viewers) for maintaining the present landscape character, this would be adverse. Increased population may result in vandalism to archeological and historical sites within the region.

CHAPTER VI

SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

This area is suitable for mining. Some mining has occurred there in the past, and so, other than implying an increase in production from the region, this mine would not create a significant change. The use of 932 acres for facilities and access routes (table 1) would interrupt but probably not change the long-term use or productivity of the land for grazing and hunting. Subsidence and potential subsidence above the undermined area of 7,500 to 8,500 acres could restrict long-term use involving building surface structures. An undetermined number of uninventoried exposed and unexposed fossil localities could be impacted or destroyed. Knowledge of paleontological resources could be acquired from surveys and exposure of resources which might never have been found without excavation.

In the short term, soil productivity and vegetation, including range, forage, and woodland products, would be lost to the project. In the long term, after reclamation, these areas should be almost as productive as now. Imperfect revegetation, loss of area to roads, and semipermanent changes in wildlife feeding habits or seasonal wildlife movements may cause a small reduction in the current level of production. Some sites may increase in productivity. Decreased wildlife population potential resulting from mining activities and increased human encroachment would be short term, but use of access routes after mining may cause a long-term impact to wildlife.

The increase in traffic consequent to the mining operation would be short term. Road construction and upgrading would probably be within the present road alignments and the improved roads would remain as a long-term improvement. The railroad spur would probably be salvaged or converted to other destinations. Short-term use would eliminate or displace 100 recreation visits and 50 visitor days (estimated) use in the mouths of Dugout Canyon and Fish Creek and at the plantsite in upper Clark Valley. Improved access in lower Clark Valley would improve the opportunity for more people to visit the area in motor vehicles and would generate additional permanent recreation use. Impacts to hunter success should be short term. Once reclamation and proper wildlife management were applied, wildlife numbers and hunter success would be expected to increase.

The present landscape would be modified from near-natural to one with significant industrial modifications and activities during the life of the mine. After mining and reclamation, the railroad bed, paved access road, and minor mining residuals would remain and would constitute a permanent, but minor, modification of the present landscape. As indicated by the natural succession process related to the deserted farming community of Kiz, the landscape would return to a near-natural character in the long term (50+ years). Any archeological sites disturbed during development of the site would result in a long-term impact to the in-place value of that site. Collection of sites that might be found will insure recording of information that could otherwise be lost to natural forces or vandalism.

CHAPTER VII

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An undetermined number of uninventoried exposed and unexposed fossil localities would be impacted or lost. Mining as many as three beds beneath 7,500 to 8,500 acres would irreversibly commit the surface to subsidence of as much as 70 percent of the thickness of coal removed. About 111 million tons would be left in place as barrier pillars, and other roof support. This and an unknown amount of coal in beds less than 4 feet thick would be unrecoverable with present day technology.

The 420 acre-feet of water used each year for mining would be irretrievable. Additional domestic water required, 1,400 acre-feet per year, would also be irretrievable except for treated effluent (about 700 acre-feet) which could be reclaimed. Changes in ground-water flow patterns resulting from mining and subsequent subsidence would be irreversible.

Emissions from secondary growth and related activity such as traffic, urban fuel consumption, etc., induced by the proposed action would be permanent and result in a long-term commitment of the air to some deterioration.

Soil productivity and vegetation, including range, forage, and woodland products, would be irretrievably lost to the project. Forage losses of 63 AUM's per year for 40 years would total 2,520 AUM's. Woodland products lost would be relatively minor. Proper reclamation of the disturbed areas would prevent irreversible commitment of the vegetative resources. Wildlife habitat destruction and disturbance resulting from permanent improved access would be irreversible.

Commitment of fuel, supplies, vehicles, and commuting time cannot be calculated. Improved permanent access would irreversibly commit the area to additional recreation use. Loss of hunter success during the life of the mine would be irretrievable. It would, however, be reversible, through applied management (limited or controlled hunts) after mining ceases. The area would revert back to near the present landscape character after mining and reclamation, except for some incidental residuals and the main access road. The cultural resources in the immediate project area could not be preserved in place.

CHAPTER VIII

ALTERNATIVES

Approval of the applicant's mining and reclamation plan, as submitted, has been analyzed as the proposed Federal action in this statement. Alternatives to that course of action are discussed below.

A. NO ACTION

Pursuant to implied covenants of both the Federal mineral leasing laws and the existing lease agreements, the Secretary of the Interior must respond to a legitimate application to conduct operations on a valid Federal lease, provided all terms and conditions of the lease have been met. The Secretary's response may be approval as proposed, rejection on various legitimate grounds, or to defer decision based on proper grounds. "No action" on the applicant's proposed mining and reclamation plan would mean maintaining the status quo on the leasehold. The impacts of taking action would be the same as described subsequently under the alternative "Reject the Mining and Reclamation Plan."

The coal that would be mined on the Sage Point property would be used by a generating plant to be built by P.G. & E. in northern California. The coal from the Dugout Canyon property would be used by KCC for fuel and metallurgical needs in Utah and Nevada. If the application to develop the properties were denied, the companies would seek and develop coal sources elsewhere or buy coal in the open market. The anticipated environmental impacts thus would be shifted to new supply area, possibly to areas less favorable, economically and environmentally, than the Price, Utah area, where coal mining is a long-established industry.

B. DEFER FEDERAL ACTION

In the event of noncompliance of the applicant's proposed mining and reclamation plan to provisions of the Surface Mining Control and Reclamation Act of 1977, the Secretary must defer action on the proposed plan. For other proper causes, he may also defer the decision. Such causes could include, but are not limited to, the time required and the need for the following:

- (1) Modification of the proposal to correct deficiencies unrelated to SMCRA or to reduce or avoid environmental impact.
- (2) Acquisition of additional data to provide an improved basis for technical or environmental evaluation.
- (3) Further evaluation of the proposal and (or) alternatives.
- (4) Development of an adequate system to monitor impacts for management and regulation.

The principal effect of deferring action would be a short-term delay in the imposition of all related impacts, both adverse and beneficial, of the applicant's proposal discussed in this statement.

Action could also be deferred until the plan is modified to include one or more of the alternatives discussed below in subsection E. These alternatives if implemented would reduce or avoid some environmental impacts of the proposed action.

C. PREVENT DEVELOPMENT OF THE LEASE

1. Reject the Mining and Reclamation Plan

The Secretary may reject a proposed plan that does not meet the prescriptions of applicable law and regulations under his authority, including the potential for environmental impact that could be reduced or avoided by adoption of a significantly different course of action by the applicant. Except when a mine plan does not comply with existing regulations, the Secretary cannot under present circumstances reject the proposed plans to the extent that a de facto cancellation of a lease results unless he seeks and obtains additional authority from the Congress. Viability of this option is dependent upon timely legislative action; the option of rejecting the proposed plans pending legislation remains available.

If the Secretary were to reject the mining and reclamation plan, the lease would not be mined, and impacts previously discussed would be deferred until an acceptable plan was approved. The lease would continue in its present condition, subject to modification by natural processes and by the continuation of other existing activities and uses--and to further modification by the surface owner to meet other uses. However, the development of alternative sources of energy, such as other coal mines in the county, or a reduction of national energy consumption, could result. The applicant could correct the deficiencies in the plan and resubmit a modified mining and reclamation plan for approval. The result would be similar to that described in the alternative "Defer Federal Action."

2. Seek Legislation to Cancel the Lease

The Secretary has very limited authority with respect to cancellation of an existing Federal coal lease. One such authority is prescribed in the lease terms entitled "Proceedings in Case of Default."

A second authority was mandated by provisions of sec. 6 of the Federal Coal Leasing Amendments Act of 1975 (P.L. 94-377) which was subsequently written into regulations as 43 CFR 3520.2. The authority relates to failure of the lessee to meet the requirements for diligent development of the lease as defined by the Act.

The authority to cancel on other grounds would require congressional authorization for such action as well as for the requisite funds for compensation to the lessees. The Administration has not requested such legislation, and the Congress has not initiated such legislation related

to the matters considered in this statement. The possibility of such actions is a matter for further consideration by the Administration and the Congress in the light of this environmental statement and other relevant nonenvironmental concerns.

To the extent that future coal production from this lease was curtailed or halted, alternative sources of energy would be required to meet anticipated needs and demands. The time required to replace the coal production potential could range from a few to several years. If this lease were cancelled through congressional authorization, all physical, biologic, and socioeconomic impacts stemming from the proposed mine would be avoided. Conversely, if development eventually were authorized, environmental impacts as discussed previously in this statement would occur, although impacts would be deferred in time and perhaps reduced because of changes in technology or requirements imposed at that time.

3. Exchange the Existing Lease

If the Secretary determines it to be in the public interest, he may initiate a proposal to the lessee for exchange of the existing Federal lease involved in this proposal for lease of other tracts of Federal coal or tracts of Federal sodium, phosphate, potash, or sulfur of comparable value, or for a grant of various future rights.

The Department of the Interior considers that the public interest would be so served if the Secretary finds that the benefits of production from the lease would not outweigh the adverse effects, or threat of damage of destruction to agricultural production potential, or scenic, biological, geologic, historic or other public interest values from lease operations. In exercising his discretion to exchange mineral leasing values in the public interest, the Secretary shall consider, but is not limited to, consideration of these elements of the public interest: recreational use; archeological or historic values; threatened or endangered species; proximity or residential or urban areas; study for potential inclusion in the wilderness or wild and scenic rivers systems; and value for public highways, airports, and rights-of-way.

Should the Secretary initiate such a proposal, the lessee is under no obligation to enter into such negotiations and may refuse to consider it.

If such a proposal is made and is rejected by the lessee, or if negotiations are entered and not agreeably concluded by the parties, and if the operations described in this statement are not otherwise prevented, such operations would eventually proceed and result in the impacts identified therein.

If an exchange proposal is made, accepted, and agreeably concluded for coal that is contiguous or very near to the existing lease, the proposed plan would have to be revised, resubmitted, and assessed. If

the new plan encompasses the same methodology to be used in coal development, many of the impacts described herein would likely be very similar to those resulting from the new proposal, with a relatively short-term delay (several years) in their initiation. If a wholly different methodology is proposed for development of the replacement lease (e.g., underground versus surface mining), it could be substantially different from those described in this statement, and cannot be forecast at this time.

Presumably the unacceptable impacts or effects prompting the exchange would be avoided or substantially reduced in development of the replacement lease and found to be in the public interest. The existing lease would be relinquished, would not be mined, and would continue in its present condition as discussed below.

If an agreeable exchange were made for coal located elsewhere, or for a different mineral commodity located elsewhere, the relinquished lease would continue in its present condition, subject to modification by natural processes, by the continuation of other existing uses and activity, and to further modification by the surface owner to meet other uses. Potentially, the coal reserves relinquished would be withdrawn from development and this source of energy foregone. Direct financial benefits to the public may change in an exchange of leases.

The impact of exploration and development of the replacement lease under these circumstances will be translocated in space and time. They will relate to time and location, physical environment at the new site, mineral commodity involved, development technology proposed and approved, and other factors, none of which can be quantified or evaluated until the replacement lease is identified. The environmental impact of potential development of the replacement lease rights to be granted would be evaluated and considered in the exchange process, and while they may be greater or less than those described in this statement, they must be ultimately judged by the Secretary to be more environmentally acceptable than development of the relinquished lease, and to be in the public interest. Costs to the Department in identifying and evaluating one or more replacement tracts to be offered in the exchange could be substantial, and very likely be significantly more than the lessee's cost in establishing the fair market value of the tract to be relinquished.

4. Suspend Operations

The full development of existing leases could be delayed by suspension of operations. If such action were taken, there would be no additional incremental environmental impact on the area, and it would continue in its present condition, subject to further modification by natural processes, the continuation of existing mining activity, and such future uses of the surface as the owners may decide.

The authority of the Secretary of the Interior to suspend operations on existing leases has already been utilized on other Federal leases.

Suspension of operations of this existing lease, for reasonable periods, with proper grounds, could be imposed. The Secretary cannot, under present circumstances, suspend operations to the extent that a de facto cancellation of a lease results unless he seeks and obtains additional authority from Congress. Viability of this option is dependent upon timely legislative action; the option of suspending operations pending legislation remains available. Impacts of the alternative would be similar to those described under "Cancel the Lease."

5. Federal Reacquisition of Leased Rights

The outstanding leasehold interests could be acquired by the Secretary. The ability to acquire the leasehold interests is not granted by the existing relevant statutes and would require Congressional authorization for such action as well as for the requisite funds for compensation of the lessees. To date, the Administration has not requested such action, and the Congress has not initiated or considered such legislation; the possibility thereof is thus conjectural at best. The major effects of such Congressional authorization would be similar to those of cancellation of the leases as previously discussed.

D. RESTRICT DEVELOPMENT ON THE LEASE

The subject leases convey the right to develop, produce, and market the Federal coal resource thereon if all other terms and conditions have been met by the lessee. In general, the Secretary does not possess the authority to arbitrarily restrict development either as to location or rate. Various measures that may tend to restrict development may be taken by the Secretary at any time in the interest of conservation of the resources or in the protection of various specific environmental values in accordance with existing laws and regulations; for example, the National Historic Preservation Act of 1966, the Endangered Species Act of 1973, etc.

Thus, under present conditions, a general effort to restrict or regulate development of the existing lease for reasons other than failure to comply with existing laws and regulations would constitute a selective application of the "prevent development" alternative already discussed; that decision, as it related to impacts, possible litigation, and the need for authorizing legislation, would be relevant in this instance.

In addition, application of this alternative might not permit maximum recovery of the coal resources and would thus be contrary to principles of conservation embodied in the legislation which authorizes the leasing of these lands for the purposes described. It is entirely possible that such selective mining would leave isolated blocks of coal that might never be recovered owing to the high costs of mining such remnant areas at a later date.

E. REQUIRE MODIFICATION OF THE MINING PLAN

1. Company-Proposed Alternatives

a. Railroad routes

Figure 11 shows alternative railroad routes E, F, and G. Area requirements for construction are given in table 3. Alternative route E would terminate about the same distance from the Fish Creek minesite as proposed route H (fig. 2), but would be farther from the Dugout Canyon minesite. Route F would terminate several miles farther from both minesites than route H. Steep slopes caused by dissection of the pediment would prevent extending routes E and F to the proposed central yard site. No alternatives to the proposed location of the central yard site (fig. 2) are indicated in the mining plans. Presumably, an additional conveyor belt or a trucking system would be used to move coal from the proposed central yard site to loading points on alternative rail spurs E and F.

Route E parallels Soldier Creek Road and thus would tend to concentrate road and rail traffic in a single corridor and not encroach on undisturbed areas, as compared with the other routes. Route F begins at the same point as the proposed railroad route H (fig. 2) and parallels Rock Creek for most of its length. Route G originates at the same point as route E near Wellington, but branches from E to join the northern part of route H. All the rail routes are located on similar soils, and variations in soil impacts would relate primarily to amount of area disturbed by construction (table 3).

TABLE 3.--Summary of alternative transportation and utility routes

[See figure 11]

Facility	Right-of-way or site (acres)	Surface disturbance (acres)
Railroad spur, route E-----	142	142
Railroad spur, route F-----	99	99
Railroad spur, route G-----	155	155
Powerline, near or parallel to rail spur E-----	76	8
Powerline, near or parallel to rail spur F-----	73	8

Impacts of the various routes on vegetation would be similar and directly proportional to the length. Routes E and G, which are

located on agricultural lands in some places, therefore would have somewhat greater impact.

Of the alternate rail routes, F would destroy the least amount of wildlife habitat, and G destroy the most. Route F might be a better choice for wildlife than proposed route H or the other alternate routes, E or G, because it would occupy the least amount of habitat, make the least intrusion into deer winter range, and follow an already developed corridor up Clark Valley. The advantages of this alternative might be offset, however, by the need for a longer belt conveyor or an intermediate trucking system between the central yard and the railroad loadout point.

b. Powerlines

Figure 11 shows two alternate powerline routes that generally parallel alternate rail routes E and F. Table 3 shows area requirements for construction. Impacts on the soils and vegetation would not be significantly different than those of the proposed line near rail route H (fig. 2 and table 1).

c. Slurry ponds

Figure 11 shows alternate slurry pond sites for disposal of coal wastes from the coal washing plant, and table 4 shows acreages they would cover. None of the alternate sites, A, B, or D, is as favorable as the proposed site C (fig. 2) because of the much greater length of dams and volume of dam fill needed to achieve required pond volume. Impacts on vegetation would be similar at the various sites and directly proportional to the area of the ponds.

The alternate sites would have virtually the same impact as the proposed site on the more sensitive species of wildlife, such as deer and raptors. Those mammals and birds least affected by development, such as small birds and rodents, would be affected only by the difference in area covered.

TABLE 4.--Summary of alternative waste disposal sites

[See figure 11]

Facility	Acres right-of-way				Surface disturbance (acres)
	Federal	State	Fee	Total	
Slurry ponds, sites A 1 and 2---	0	55	138	193	193
Slurry ponds, sites B 1 and 2---	92	74	0	166	166
Slurry ponds, sites D 1-5-----	0	115	262	377	377

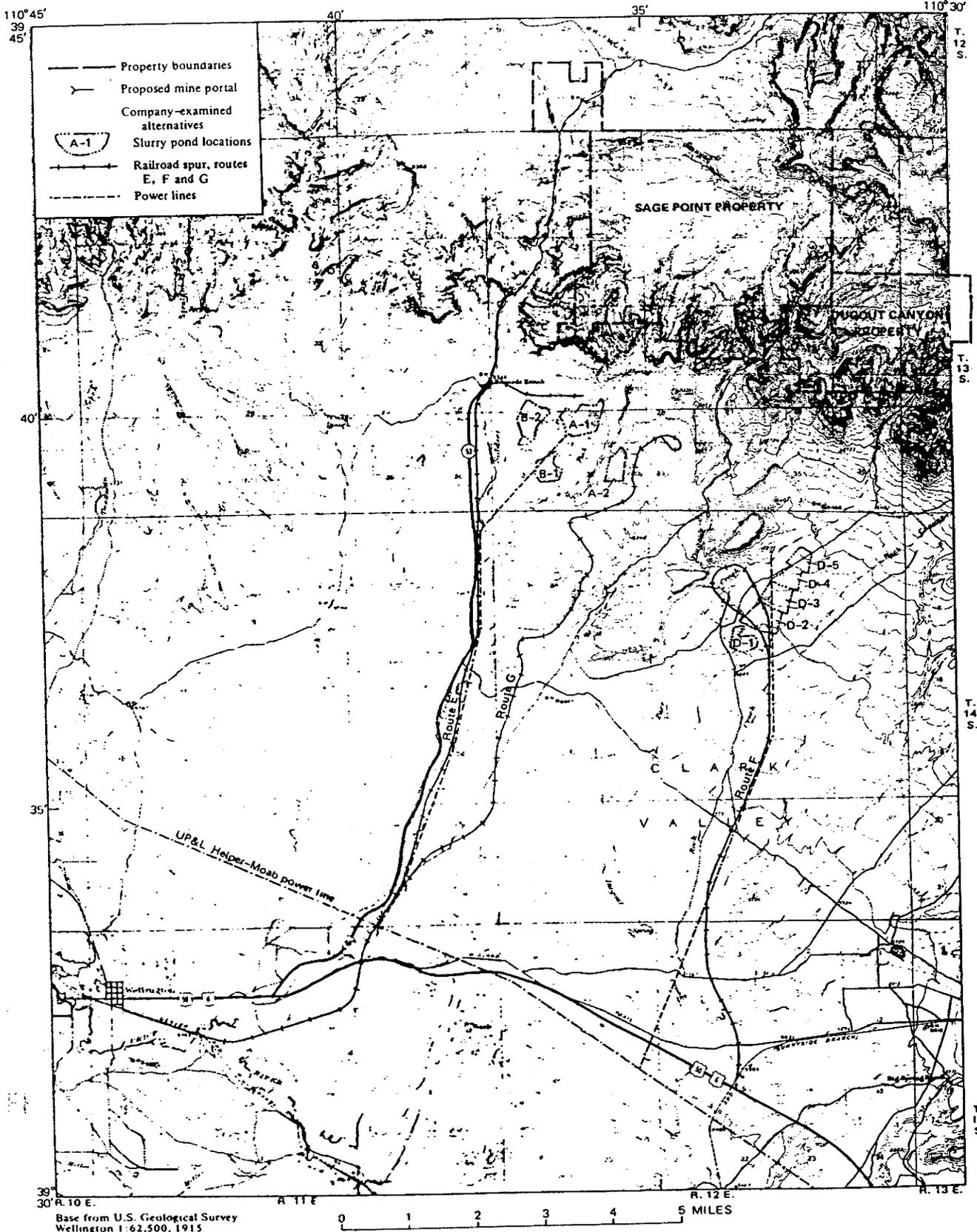


FIGURE 11.--Alternative railroad and powerline routes and coal slurry pond sites for development of the Sage Point and Dugout Canyon coal properties, Carbon County, Utah.

CHAPTER IX

CONSULTATION AND COORDINATION WITH OTHERS

A. FEDERAL AGENCIES

In addition to agencies that cooperated in preparation of this statement, local Soil Conservation Service and National Weather Service personnel were consulted.

B. UTAH STATE AGENCIES

Also consulted for data and analysis were: Geological and Mineralogical Survey, Division of Water Resources, Division of Water Rights, Division of Health, State Engineer, State Climatologist, Division of Wildlife Resources, Division of State Lands, Division of Parks and Recreation, Department of Transportation, Outdoor Recreation Agency, and Institute for the Study of Outdoor Recreation and Tourism, Utah State University, Logan, Utah.

C. COUNTY AND LOCAL GOVERNMENT

The Southeastern Association of Governments and other local government offices were consulted during preparation of the environmental statement.

D. PRIVATE INDIVIDUALS AND ORGANIZATIONS, INDUSTRY AND NONINDUSTRY

Pacific Gas and Electric Company, San Francisco, California
Vaughan Hansen Associates, Salt Lake City, Utah

E. GENERAL CONSULTATION AND COORDINATION

The regional environmental statement, chapter IX, contains a description of the general consultation and coordination efforts involved in preparation of the total environmental statement.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Price Field Office
125 South 600 West
Price, Utah 84501

3482
U-50722
SL-051279-063188
U-07064-027821
UTU-69635
(UT-070)

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00-04-11-08
APR - 7 2000

Mr. Reid Olsen
Vice President and General Manager
Canyon Fuel Company, LLC
Soldier/Dugout Canyon Mines
P. O. Box 1029
Wellington, Utah 84542

Re: Resource Recovery and Protection Plan (R2P2) Soldier Canyon Mine and Dugout Canyon Mine,
Canyon Fuel Company, LLC (CFC), October, 1999

Dear Mr. Olsen:

The Bureau of Land Management (BLM) received CFC's revised R2P2 for the Soldier Canyon and Dugout Canyon Mines. This letter is to notify you that the Bureau of Land Management (BLM) has completed our review of CFC's modification to the R2P2 regarding the Soldier Canyon and Dugout Canyon Mines. The purpose of our review is to determine compliance with The Mineral Leasing Act of 1920, as amended; the regulations at 43CFR 3480; the lease terms and conditions and to ensure that maximum economic recovery (MER) will be achieved.

Our determination of the subject R2P2 is as follows:

- ◆ The reserves as detailed in the R2P2 are noted as CFC mine plan recoverable reserves and not the official designated recoverable coal reserves. BLM guidelines state that recoverable coal reserves contained within a Federal lease is based upon those recoverable coal reserves which diligence is based. These are those recoverable coal reserves determined to exist on the date the lease becomes subject to diligence. Recoverable coal reserves are not reduced by production after the lease is subject to diligence. The official compilation of the recoverable reserve base within the Federal leases of the Soldier Canyon and Dugout Canyon Mines are those BLM has designated as the recoverable coal reserve base tied to diligence. The disposition of the recoverable coal reserve base will be addressed on a lease-specific basis if CFC wishes to amend the recoverable coal reserve base tonnage. BLM's official recoverable reserve base is as follows:

<u>Lease</u>	<u>Tons</u>
SL-051279	5,567,782
U-50722	3,206,247
UTU-69635	12,723,000
U-07064	32,295,000

◆ The actual sequencing and initial date of commencement of mining operations on the U-07064 has changed.

Based upon the above-stated requirements, BLM determination is conditioned with the following stipulation:

Stipulation : CFC shall submit the following information (as requested above):

- An updated mine plan that details mining sequencing and any other changes will be submitted prior to commencement of operations on the Federal lease.

BLM has determined that the information contained in the R2P2 for the Soldier Canyon Mine and Dugout Mine, with stipulation, does comply with the Mineral Leasing Act of 1920, as amended, the regulations at 43 CFR 3480 and the lease terms and stipulations. Thus, approval for the Soldier Canyon Mine and Dugout Mine's R2P2 is granted.

If you have any questions, please contact George Tetreault at the Price Field Office at (435) 636-3604.

Sincerely,

Richard L. Manus

Richard L. Manus
Field Manager

cc: UT-921, SD, Utah
Utah Division of Oil, Gas and Mining
355 West North Temple Street
3 Triad Center Ste.350
Salt Lake City, Utah 84180-1203
Joe Wilcox
Office of Surface Mining
Reclamation and Enforcement
1999 Broadway, Suite 3320
Denver, Colorado 80202-5733

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Price Field Office
125 South 600 West
Price, Utah 84501

3482
(UT-070)

00-07-10-08

Joe Wilcox
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, Colorado 80202

JUL - 7 2000

Dear Mr. Wilcox:

Canyon Fuel Company, LLC (CFC) has requested that Federal lease U-07064-027821 be incorporated into the Dugout Canyon MRP. We have reviewed our Land Management Plans and there is no objection to the designated lease being incorporated into the full R2P2/LMU for the purpose of coal mining.

If you have any questions, please contact George Tetreault at (801) 636-3604.

Sincerely,

Richard L. Manus
Field Manager



State of Utah

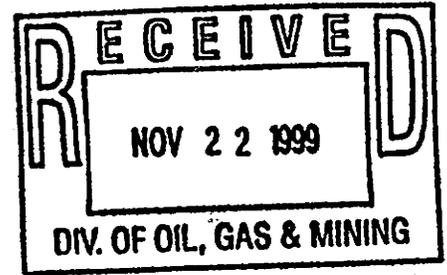
Department of Community and Economic Development
Division of State History
Utah State Historical Society



Michael O. Leavitt
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Director

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(801) 533-3500 FAX: 533-3503 TDD: 533-3502
ushs@history.state.ut.us http://history.utah.org

November 17, 1999



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

Copy to Daron

RE: Proposal to Add a Federal Lease, Canyon Fuel Company, Dugout Canyon Mine
ACT/007/039-SR99A, Folder #2, Carbon County, Utah

In Reply Please Refer to Case No. 96-0301

Dear Mr. Haddock:

The Utah State Historic Preservation Office received the above referenced information on November 8, 1999. The report states that no cultural resources were located in the project area. We, therefore, concur with the report's recommendation of No Historic Properties Affected.

This information is provided on request to assist with Section 106 responsibilities as specified in §36CFR800. If you have questions, please contact me at (801) 533-3555. My email address is: jdykman@history.state.ut.us

As ever,

James H. Dykmann
Compliance Archaeologist

JLD:96-0301 OR



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 28, 2000

Mr. Darron Haddock, Permit Supervisor
Utah Division Oil, Gas, and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: Section 7 Consultation on Proposal to add a Federal Lease, Canyon Fuel Company, LLC,
Dugout Canyon Mine, ACT/007/039-SR99D-3

Dear Mr. Haddock:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter of March 23, 2000. Potential impacts to proposed or listed species from mining activities have been previously addressed in the Service's September 24, 1996 Biological Opinion and Conference Report on Surface Coal Mining and Reclamation Operations under the Surface Coal Mining and Reclamation Act of 1977. As part of the terms and conditions of this BO, the regulatory authority must implement and require compliance with any species-specific protective measures developed by the Service field office and the regulatory authority. No species-specific protective measures are considered necessary for the subject project.

We concur with your "no effect" determination for the Graham beardtongue, bald eagle, and black-footed ferret.

The project proposes continued water use at the current rate of 46.5 acre-feet annually from Dugout and Pace creeks. Any water depletion from the Upper Colorado River Basin is considered to jeopardize the continued existence or adversely modify the critical habitat of the four Colorado River endangered fish species: Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. However, depletions are addressed by existing inter-agency section 7 agreements. In 1998, the Department of the Interior, the states of Wyoming, Colorado, and Utah, and the Western Area Power Administration established the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (RIP). The purpose of the RIP is to recover listed species while providing for new water development in the Upper Colorado River Basin. In accordance with the RIP, the Service assesses impacts of projects that require section 7 consultation and determines how the RIP will serve as a reasonable and prudent alternative.

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UNITED STATES

DEPARTMENT OF THE INTERIOR

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

Canyon Fuel Company, LLC
6955 S. Union Park Cntr
Suite 550, Midvale, UT 84047

for a new mining plan at the Dugout Canyon Mine on Federal lease U-07064-027821 . The approval is subject to the following conditions. Canyon Fuel Company, LLC is hereinafter referred to as the operator.

1. Statutes and Regulations.--This mining plan approval is issued pursuant to Federal lease U-07064-027821; 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 new mining plan at the Dugout Canyon Mine on Federal lease U-07064-027821 and authorizes coal development or mining operations on the Federal lease within the area of mining plan approval. This authorization is not valid beyond:

T. 13 S., R. 12 E., SLM, Utah

Sec. 13, S $\frac{1}{2}$;

Sec. 23, E $\frac{1}{2}$, E $\frac{1}{2}$, W $\frac{1}{2}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$,SW $\frac{1}{4}$;

Sec. 24, all;

Sec. 25, N $\frac{1}{2}$ N $\frac{1}{2}$;

Sec. 26, N $\frac{1}{2}$ NE $\frac{1}{4}$.

T. 13 S., R. 13 E., SLM, Utah

Sec. 18, Lots 3,4, E $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$;

Sec. 19, lots 1-4, E $\frac{1}{2}$ W $\frac{1}{2}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec, 30, lot 1.

These lands encompass 2,416 acres as shown on the map appended hereto as Attachment A.

3. The operator shall conduct coal development and mining operations only as described in the complete permit application package, and approved by the Utah Division of Oil, Gas and Mining, except as otherwise directed in the conditions of this mining plan approval.
4. The operator shall comply with the terms and conditions of the lease, this mining plan approval, and the requirements of the Utah Permit No. ACT/007/039 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.*

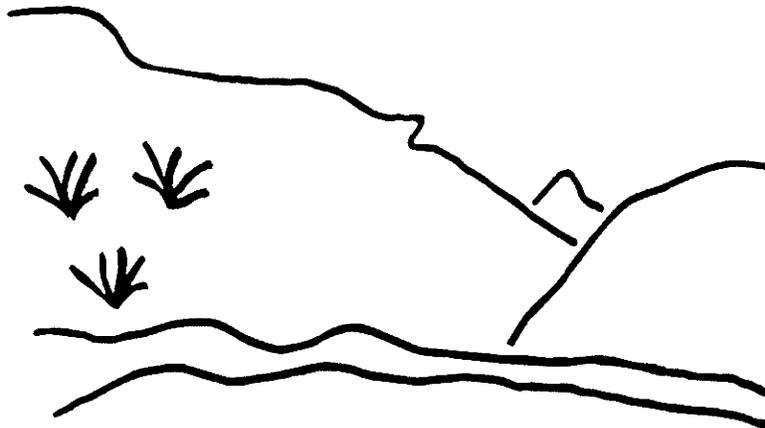


Assistant Secretary
Land and Minerals Management

AUG -2 2000

Date

State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Dugout Canyon Mine
Significant Revision 99D
ACT/007/039 - SR99D
Technical Analysis
March 30, 2000

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INTRODUCTION

INTRODUCTION

The last permit change for this mine was in October 1998: a parcel of BLM land located at the downstream end of the disturbed area was incorporated into the permit to better accommodate a sedimentation pond for the mine pad; water storage tanks were added up the canyon from the main pad area; and coal storage and the electric-power sub-station were expanded.

Proposed significant revision SR99D to the Dugout Canyon Mine MRP was received by the Division on May 21, 1999. The significant revision is for addition of federal lease U07064-027821 to the permit area. Maps also outline an adjacent Utah State Institutional Trust Lands (SITLA) coal tract that is not part of the current significant revision application but that is an area of possible future expansion east of the federal lease: data for this SITLA tract are in the significant revision submittal also, but the Technical Analysis (TA) does not specifically address this SITLA tract.

The Division sent a comprehensive TA to the permittee on November 8, 1999. The permittee's response was received at the Division on January 12, 2000. All deficiencies have been addressed to the satisfaction of the UDOGM reclamation specialists and inspectors.

The Division received a letter from the Fish and Wildlife Service dated March 28, 2000, concurring with the Division's findings on threatened and endangered species. Although water depletions are considered to jeopardize the continued existence of the threatened and endangered fish of the upper Colorado River basin, depletions are addressed by existing inter-agency Section 7 agreements.

Rules or TA Sections not addressed in this TA have been covered in previous TAs, and it has been determined that nothing in significant revision SR99D has affected or changed the analyses and findings pertaining to those Rules or TA Sections.

ADMINISTRATIVE INFORMATION

OWNERSHIP AND CONTROL INFORMATION

Regulatory Reference: R645-301-112

Analysis:

The permittee has proposed changes to the land ownership information to make the text consistent with the maps and to add the owners of land in the areas that would be added to the permit area.

The significant revision would revise the section of the plan discussing interests in contiguous lands. The current plan discusses possible future permitting of the federal coal lease, but this would be eliminated. The significant revision says the permittee does not intend to mine the state coal to the east of the permit boundary (revised boundary) during the current permit term.

Findings:

Information provided in the significant revision is adequate to meet the requirements of this section of the regulations.

VIOLATION INFORMATION

Regulatory Reference: R645-301-113

Analysis:

The lists of violations received by Canyon Fuel Company's operations has been updated. This information needs to be checked with the applicant violator system.

Findings:

Information provided in the significant revision is adequate to satisfy the requirements of this section of the regulations.

RIGHT OF ENTRY

Regulatory Reference: R645-301-114

ADMINISTRATIVE INFORMATION

Analysis:

The right of entry section includes information about the federal coal lease that is being added to the permit area. This lease was approved in 1957 and readjusted effective January 1, 1997. On July 15, 1997, effective March 1, 1996, this lease was approved as part of the Soldier Creek Logical Mining Unit with Canyon Fuel Company as the unit operator. Most of the surface of the federal coal lease is privately owned.

Part of the proposed addition to the permit area is federal, state, and private land, both surface and mineral, for which the permittee does not have right of entry; however, no coal mining is proposed for these areas. These areas are to be used as subsidence buffer zones.

Findings:

Information provided in the proposal is adequate to satisfy the requirements of this section of the regulations.

UNSUITABILITY CLAIMS

Regulatory Reference: R645-301-115

Analysis:

The permittee is not aware of any unsuitability designation or proposal to designate the area unsuitable for mining. No operations would be conducted within 300 feet of an occupied dwelling, and the current mining and reclamation plan contains approval for mining within 100 feet of a public road.

The proposed addition to the permit area contains a few unimproved roads, mostly on private land. The current mining and reclamation plan contains commitments to repair material damage to these roads to a condition acceptable to both the private land owner and the permittee.

Findings:

Information provided in the proposal is adequate to meet the requirements of this section of the regulations.

PERMIT TERM, INSURANCE, PROOF OF PUBLICATION, AND FACILITIES USED IN COMMON

Regulatory Reference: R645-301-116 and -117

ADMINISTRATIVE INFORMATION

Analysis:

The permittee has submitted a copy of the proof of publication for insertion into Appendix 1-2. This is the only change proposed for this section of the plan.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

ENVIRONMENTAL RESOURCE INFORMATION

ENVIRONMENTAL RESOURCE INFORMATION

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

GENERAL

Regulatory Reference: 30 CFR Sec. 783.12; R645-301-411, -301-521, -301-721.

Analysis:

A description of the pre-mining environmental resources within the proposed permit area and adjacent areas that may be affected or impacted by the proposed underground mining activities is included in Sections 411, 521, and 720 of the current MRP; Section 411 has been modified to include information on surface ownership and land use in federal lease U07064-027821.

Findings:

General resource information is adequate to meet the requirements of this section of the regulations. No additional information is needed for approval of the significant revision.

PERMIT AREA

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

Analysis:

Addition of federal lease U07064-027821 to the Dugout Canyon Mine will not require additional surface disturbance. Lands subject to disturbance from surface coal mining operations over the estimated life of the Dugout Canyon Mine are described and identified in the current MRP. Federal lease U07064-027821 and the SITLA tract, which is an area of possible future permit expansion, are described and shown on maps in the significant revision.

Findings:

Permit area resource information is adequate to meet the requirements of this section of the regulations. No additional information is needed for approval of the significant revision.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.12; R645-301-411.

Analysis:

The significant revision includes no new cultural resources information. The current mining and reclamation plan for the Soldier Canyon Mine contains a 1980 cultural resources inventory that included the proposed addition to the permit area. Not all of the area was examined for cultural resources. Instead, the survey concentrated on those areas where prehistoric or historic activities were most probably concentrated, particularly in the canyons.

The cultural resource survey located one isolated artifact and one historical site. The historical site is the Pace Canyon Mine, and it was determined to not be eligible for listing in the National Register of Historic Places.

The information in the Soldier Canyon plan is adequate and is available to the Division, and the significant revision references the Soldier Canyon plan.

Findings:

Information provided in the proposal is adequate to meet the requirements of this section of the regulations.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.18; R645-301-724.

Analysis:

Climatological resource information is covered in the current MRP. No additional information is needed for approval of the significant revision.

Findings:

No additional climatological resource information is needed for approval of the significant revision.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.19; R645-301-320.

Analysis:

Vegetation in the proposed addition to the permit area is very similar to that in the current permit area. The permittee has added one new vegetation community designation to Plate 3-1. This community

ENVIRONMENTAL RESOURCE INFORMATION

Revised: March 30, 2000

is called deciduous streambank vegetation and limited riparian vegetation. According to the text, heavy grazing and erosion in Pace Creek and Rock Creek Canyons have resulted in sections of the stream banks having little or no deciduous and/or riparian vegetation.

Because the permittee is not proposing additional disturbance, the information in the significant revision and the current plan is acceptable.

Findings:

Information provided in the significant revision is adequate to meet the requirements of this section of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21; R645-301-322.

Analysis:**Wildlife Information**

The permittee has revised Plate 3-2 to include the proposed addition to the permit area. This plate shows one eagle nest in the proposed addition, and the plate has been updated to include results from the 1998 raptor survey. Plate 3-2 also shows high priority yearlong elk habitat and critical deer summer range in the new area. High priority winter ranges are to the south of the proposed addition. According to the text, the access roads in Pace Creek and Rock Creek Canyons cross areas used by deer as winter range, but traffic is sporadic during the winter and heavier in the summer and fall.

This section includes updated information about the wildlife habitat mitigation project undertaken near Dugout Creek above the mine. The number of willows planted and to be planted along the creek may be less than the 4000 originally planned because there is a limited amount of appropriate habitat in which to plant the willows.

Threatened and Endangered Species

The existing mining and reclamation plan contains information about threatened, endangered, and sensitive species. According to Section 322.200, no threatened or endangered plant or wildlife species were discovered in recent inventories by Wildlife Resources, the Forest Service, and other qualified personnel. Appendix 3-1 contains a letter from Robert Thompson, Forest Service botanist, indicating the area contains no threatened or endangered plant species.

A June 24, 1995, survey for canyon sweetvetch found this sensitive species along Dugout Creek approximately one-half mile below the gate. The Division is aware of a fairly extensive population in the permit area in Fish Creek Canyon, and it could occur in other parts of the permit area and proposed addition.

ENVIRONMENTAL RESOURCE INFORMATION

Section 322.200 says two listed species, the bald eagle and black-footed ferret, could potentially inhabit the area. There have been no confirmed sightings of black-footed ferrets in Carbon County in several years, but bald eagles probably occur within the permit area during the winter.

Dugout Creek is within the drainage of the Green River, which is habitat for certain threatened and endangered fish of the upper Colorado River basin. Through effects on water quantity and quality, the mine could potentially adversely affect these species.

As required by R645-301-358.100, the permittee must promptly report to the Division any state or federally listed endangered or threatened species within the permit area of which it becomes aware. Seasonal or migrating bald eagles are expected and would not need to be reported.

Findings:

Information provided in the proposal is adequate to meet the requirements of this section of the regulations.

SOILS RESOURCE INFORMATION

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

Analysis:

Soils resource information is covered in the current MRP. There is to be no additional surface disturbance and no additional soils resource information is needed for approval of the significant revision.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.22; R645-301-411.

Analysis:

Plate 4-1 and Exhibit 8 of Appendix 4-2 have been updated to show grazing allotments and logging areas in the proposed addition to the permit area. Exhibit 8 shows one area of proposed logging in the Fish Creek area, but it shows no additional timbering in the proposed addition to the permit area.

ENVIRONMENTAL RESOURCE INFORMATION

The significant revision shows the number of livestock allowed in the various federal allotments, but the number varies in some non-federal areas because it is private land.

The permittee proposes no other changes to this section of the mining and reclamation plan. The current plan says there are no cemeteries, public parks, or units of the National System of Trails or the Wild and Scenic Rivers System located within the permit boundary, and it is assumed this statement is still valid for the proposed addition.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

ALLUVIAL VALLEY FLOORS

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

Analysis:

Alluvial valley floor information is covered in Chapter 9 the current MRP. No additional information is needed for approval of the significant revision.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

PRIME FARMLAND

Regulatory Reference: 30 CFR Sec. 785.16, 823; R645-301-221, -302-270.

Analysis:

Prime farmland information is covered in the current MRP. No additional information is needed for approval of the significant revision.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

GEOLOGIC RESOURCE INFORMATION

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

Analysis:

Changes, mostly minor, have been made to the text on pages 6-2, 6-4, 6-15 through 6-19, and 6-21 of Chapter 6. Plates 6-1, 6-4, 6-5, 6-6 (Confidential Folder), and 6-7 (Confidential Folder) include federal lease U07064-027821 within the proposed permit boundary; they also include the adjacent SITLA coal tract that is not part of the current significant revision application but which is an area of possible future expansion east of the federal lease. Plate 6-4 is an isopach map of the Rock Canyon seam overburden thickness and Plate 6-5 is an isopach map of the Rock Canyon to Gilson seam interburden thickness. Plates 6-6 and 6-7 in the Confidential binder are isopach thickness maps of, respectively, the Rock Canyon and Gilson seams. Plates 6-3A and 6-3B, also submitted with the significant revision, are geologic cross sections of the federal lease and SITLA tract.

The geologic map and 6 cross sections in the permit significant revision are based on drill hole data and mapping of surface geology. Fourteen additional drill-hole logs have been submitted with the significant revision, so Appendix 6-1 now contains drill-hole logs for twenty-nine of the holes that have been bored in and adjacent to the permit area: the bore holes are listed on in Section 622. Collar or ground elevations are included in Appendix 6-1. Drill hole locations and elevations are shown on Plate 6-1.

Some bore holes have been logged from the surface to total depth, for others only the coal seams and adjacent strata have been logged. Together, the logs describe lithologic characteristics and thickness of each stratum from the surface to below the coal seams. Ground water occurrence was not marked on these logs at the time the holes were bored (Section 624.300).

The five coal seams identified in the Dugout Mine area are, from top to bottom:

- Sunnyside
- Rock Canyon
- Fish Creek
- Gilson
- Kenilworth.

Only the Rock Canyon and Gilson seams are to be mined under the Dugout Canyon Mine permit (Section 623).

Geologic cross sections D - D', E - E', and F - F' (Plates 6-3A and 6-3B) have been submitted with the significant revision. They show the interval from the Sunnyside coal zone to below the Gilson coal zone in federal lease U07064-027821 and the SITLA coal tract. Together, cross sections A - A' through F - F' show relative positions and thickness of the Sunnyside, Rock Canyon, and Gilson coal seams (and of rider seams associated with the Rock Canyon and Gilson seams) in the proposed permit and adjacent areas.

ENVIRONMENTAL RESOURCE INFORMATION

Revised: March 30, 2000

The Gilson and Rock Canyon seams are sufficiently developed to allow for economic mining of one or the other in much of the proposed permit area; however, multiple seam mining will be limited to the vicinity of Dugout Canyon. The Gilson seam is generally not of mineable thickness west of Dugout Canyon. East of Dugout Canyon the sulfur content of the Rock Canyon coal increases and renders it unmarketable. In addition, interburden between the two seams thins east of the canyon, making multiple seam mining difficult, dangerous, and uneconomical. The mine entry is in the Rock Canyon Seam, and a rock-slope is planned for access down to the Gilson Seam (Plate 5-7).

Coal in the Rock Canyon seam ranges from 5 to 8 feet in thickness, except for a want in the north-central part, where coal thins to under 3 feet. Plate 6-7 indicates the Gilson seam is up to sixteen feet thick in federal lease U07064-027821; however, this is near the outcrop and recovery of this thickest coal may not be practical. Most Gilson coal in the federal lease is between 6 to 10 feet thick. The R2P2 for the logical mining unit that includes Soldier Canyon and Dugout Canyon Mines and federal lease U-07064-027821 is in the Confidential binder.

Maximum subsidence can be projected as 4.2 to 7.0 feet, based on 6 feet being the minimum and 10 feet being the maximum thicknesses to be mined (R2P2) and on the assumption that the surface will subside up to 70% of the thickness of the extracted coal. Where the Rock Canyon coal seam is mineable, overburden thickness ranges from 500 feet in the south to over 2,400 feet in the north, and subsidence is not expected where overburden is more than 1,200 feet thick (Sections 627 and 728.300). Overburden consists of the upper Blackhawk Formation, the Castlegate Sandstone, and the Price River, North Horn, and Flagstaff Formations, which are described in Section 624.100. Gilson to Rock Canyon interburden thickness is 30 to 80 feet over the proposed permit area (Plate 6-5).

Analysis reports on coal, floor, and roof samples from the Rock Canyon and Gilson seams are in Appendix 6-2 (Confidential binder). No new data have been submitted with the significant revision submittal, just a new title page for Appendix 6-2.

The current MRP includes a description of the areal and structural geology of the proposed permit and adjacent areas, including federal lease U07064-027821 and the SITLA tract. The description is based on maps and plans required as resource information for the plan, detailed site specific information, and geologic literature and practices. It shows how areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water. Section 624.100 contains descriptions of the stratigraphy and lithology, a discussion of geologic structure, and a very brief but adequate description of the nature, depth, and thickness of the coal seams and the interburden between the Sunnyside, Rock Canyon, and Gilson seams.

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

At this time the Division does not require the collection, analysis, and description of additional geologic information to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards. The permittee has made no request the Division to waive in whole or in part the requirements of the bore hole information or analysis required of this section. The permittee has requested that the information in Appendices 6-1 and 6-2 be kept confidential.

Findings:

Information on geologic resources 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**

Information on sampling and analysis is covered in the current MRP. No additional hydrologic resource information is needed for approval of the significant revision.

Ground-water Information

Locations of monitoring points are shown on Plate 7-1. Ground-water monitoring protocols are given in Table 7-4 and in Section 731.200 of the significant revision. For baseline parameters, reference is made to UDOGM technical directive Tech 004 (Tech 004).

Water-monitoring data, some going back as far as 1976, that potentially met the minimum requirements of SMCRA and the Utah Coal Mining Rules was done at only 13 (6 springs and 7 in-mine locations) of the 97 sites listed in the initial PAP. On average only 3 samples were analyzed for those 13 sites, so determination of baseline seasonal quality was minimal for specific sites; however, overall baseline ground-water quality and quantity information was considered sufficient to characterize baseline ground-water conditions for the permit area.

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

Springs SC-65, SP-20 (same as S-30), SC-14, and SC-100 were to have been monitored for operational water quality and quantity beginning the third-quarter of 1998. The permittee selected these springs because they were considered reasonably accessible and representative of conditions within their respective formations (Section 731.200); however, there is actually little historic data for these springs and it is necessary to rely on data from the Soldier Canyon Mine and surrounding springs to extrapolate baseline information. Because of the dearth of baseline water-quality and -quantity data, the operator was asked to commit to 2 years of quarterly water-quality and -quantity monitoring. At a minimum the operational parameters listed in Table 7-4 of the MRP, at these four springs rather than measuring field parameters only (UDOGM TA dated October 16, 1998).

Table 7-4 of the significant revision clarifies that monitoring for operational water-quality parameters was begun in the 3rd quarter of 1999 and will continue for 2 years, after which monitoring will be for the field measurements (flow, pH, specific conductance, and temperature) listed in Table 7-4. This varies from the recommended schedule in Tech-004 but conforms with the amended (amended following the procedure of Tech-004) monitoring plan that was approved for the adjacent Soldier Canyon Mine. Third quarter 1999 data have been received by DOGM.

The significant revision adds springs SC-116, 200, 203, 227, 259, and 260 to the operational monitoring list: 200, 203, 259, and 260 are in the SITLA tract. Baseline data are scarce in the vicinity of the Dugout Canyon Mine, so quarterly water samples from these six springs are to be analyzed for the baseline parameters specified in Tech 004 for 3 years: this 3-year monitoring period began with the 1st quarter 1999. After the initial 3-year period, these springs will be monitored quarterly for field parameters only. Data for March and June 1999 are tabulated with the ground-water information in Appendix 7-2 (the table does not include spaces for Cu, NH₃, and cations and anions, and it is not clear whether Mn is total or dissolved), and data for the 3rd quarter 1999 have been received by DOGM (all baseline parameters).

Surface-water Information

Locations of monitoring points are shown on Plate 7-1. Surface-water monitoring protocols are given in Table 7-5 and in Section 731.200 of the significant revision, and the operational surface water quality parameters to be monitored at the Dugout Canyon Mine are also listed in Table 7-5. The parameters correspond with the operational parameters in Table 5 of Tech-004 except that total alkalinity and hardness are not included.

Monitoring is currently done at DC-1, DC-2, and DC-3. Under the proposed significant revision, monitoring will be done at PC-1a and PC-2 on Pace Creek to evaluate surface-water conditions upgradient and downgradient of the significant revision area and the SITLA tract, and at RC-1 in Rock Canyon to obtain baseline data for future mine expansion into the SITLA tract.

Data from 1978 and 1979 for PC-1 and 1978 to 1980 for PC-1a are in the revised Appendix 7-7: some of these samples were adequately analyzed for baseline parameters. Baseline data will be obtained at PC-1a, PC-2, and RC-1 for 3 years prior to initiating operational monitoring (page 7-58). Baseline

data for March and June 1999 are tabulated with the surface-water information in Appendix 7-7 of the significant revision (the table does not include spaces for Cu, NH₃, and cations and anions, and it is not clear whether Mn is total or dissolved). Baseline data for the 3rd quarter 1999 have been received by DOGM. Rock Canyon was dry both quarters while flow in Pace Canyon appears to be seasonal and to originate from springs in the Flagstaff and North Horn Formations.

Baseline Cumulative Impact Area Information

A Cumulative Hydrologic Impact Assessment (CHIA) has previously been prepared for the Soldier Canyon and Dugout Canyon Mines. The Cumulative Impact Area (CIA) for that CHIA included federal lease U07064-027821 and the surrounding area. Two small corners of the subsidence buffer zone around the federal lease are outside that of the CIA; however, those two remote areas will not be impacted by mining nor contribute to cumulative impacts outside the proposed Dugout Canyon Mine permit area. No additional hydrologic and geologic information is needed from the permittee for a CHIA.

Modeling

No modeling techniques, interpolations, or statistical techniques have been used in preparation of the current MRP or the significant revision.

Alternative Water Source Information

The significant revision contains no alternative water source information.

Probable Hydrologic Consequences Determination

A PHC determination prepared by Mayo and Associates in 1996 is in Appendix 7-3. Information on geology, hydrology, and hydrogeology and data on discharge, sediment, and other surface and ground water parameters were compiled from previous studies, and seventeen ground- and surface-water samples were collected in 1995 for chemical and isotopic analyses. In spite of the seemingly large data base, most analyses lacked information on seasonal variation and on the basic parameters required by the Coal Mining Rules and SMCRA. The PHC determination in Section 728 of the MRP is based on the Mayo and Associates PHC and additional data collected in 1996 and 1997. Potential impacts covered in the PHC in Section 728 are:

- Ground water and surface-water availability;
- Contamination from acid- and toxic-forming materials;
- Sediment yield;
- Acidity, total suspended solids, and total dissolved solids;
- Flooding or streamflow alteration;
- Ground-water and surface-water availability;
- Potential hydrocarbon contamination;
- Road salting; and
- Coal haulage.

The area covered by Mayo's PHC (Appendix 7-3) included Pace Creek. The PHC in Section 728 has been revised to include Pace Creek. (The SITLA lease was not included in either PHC, so future expansion into Rock Canyon may require a revised PHC.)

Potential adverse effects to the hydrologic balance from the proposed mining operations are: both decreased and increased stream flows and spring discharges due to capture of surface or ground water by mine-related subsidence, bedrock fracturing, and aquifer dewatering (p. 7-46); increased stream flows due to increased discharge of ground water from the Blackhawk Formation through the mine workings; and increased ground-water recharge from overlying ground water systems. It appears that the Soldier Canyon Mine has not decreased groundwater discharge in overlying or underlying groundwater systems. It is unlikely that coal mining will effect the discharges of any spring as a result of mining in the Dugout Canyon permit and adjacent areas (p. 7-47 and Appendix 7-3).

Considerable seasonal and climatic variability are noted in the hydrographs of springs in the permit and adjacent areas, but data for both Soldier Creek and springs that overly the Soldier Canyon Mine workings do not show discharge declines that may be attributed to either subsidence or bedrock fracturing (p. 7-46). The Blackhawk groundwater system in the vicinity of mined coal seams is compartmentalized both vertically and horizontally. Coal mining locally dewateres overlying rock layers in the Blackhawk Formation but does not appear to draw additional recharge from overlying or underlying groundwater systems (p. 7-47).

Subsidence is anticipated where overburden is between 600 and 1,200 feet in the main fork of Dugout Creek and 500 to 2,000 feet in the right fork of Dugout Creek. Subsidence is also anticipated in a small area along the bottom of the Pace Creek drainage. The loss of stream-flow to the mine because of subsidence is highly unlikely and losses to bedrock exposed in or beneath soil in the channel would be short lived because of thick mantles of fine-grained soils, the tendency of fractures in fine-grained rocks of the Blackhawk Formation to close relatively rapidly, and the expected rapid filling of fractures that may occur in channel floors (pages 7-45 and 7-46).

Steady-state inflow to the Dugout Canyon mine is expected to be approximately 210 gpm, which is considered by the permittee to be a conservatively high estimate (p. 7-49). After accounting for in-mine consumption, up to 190 gpm (306 acre-feet/yr) could be discharged to Dugout Creek, which would represent an increase of approximately 6% over the average annual flow of 5,100 acre-feet/yr. Estimated maximum discharge from the Dugout Canyon Mine is approximately 400 gpm. If this maximum rate were sustained for a full year there would be a 13% increase in the estimated average annual flow of Dugout Creek (p. 7-50).

Ground-water monitoring is discussed in the Operation Plan section of this TA. The significant revision adds 6 springs to the operational monitoring list, 4 of which (200, 203, 259, and 260) are in the SITLA tract. Baseline data are scarce in the vicinity of the Dugout Canyon Mine, so these springs are to be monitored quarterly for 3 years and water samples analyzed for baseline parameters as specified in UDOGM directive Tech 004. After completion of baseline monitoring, these springs will be monitored quarterly for field parameters.

Surface-water monitoring is discussed in the Operation Plan section of this TA. PC-1a, PC-2, and RC-1 will be monitored for baseline parameters for 3 years prior to switching to operational parameters.

Findings:

The hydrologic resource information provided in the significant revision is considered adequate to meet 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:**Affected Area Boundary Maps**

Plate 5-7 shows the boundaries of all areas proposed to be affected over the estimated total life of the coal mining and reclamation operations. The dates on Plate 5-7 indicate that the permittee hopes to operate the Dugout Canyon Mine until 2009. Plate 5-7 has been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Archeological Site Maps

Maps showing cultural resource sites are in the reports discussing these sites. These maps meet regulatory requirements.

Coal Resource and Geologic Information Maps

Coal resource and geologic information maps have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Cultural Resource Maps

Maps showing cultural resource sites are in the reports discussing these sites. These maps meet regulatory requirements.

Existing Structures and Facilities Maps

Plate 4-1 has been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas. The existing structures include a power line and the new county road to the Dugout Canyon Mine.

ENVIRONMENTAL RESOURCE INFORMATION

Revised: March 30, 2000

Existing Surface Configuration Maps

Plate 5-4, which has not been revised, shows the topography of the disturbed area prior to the Dugout Canyon Mine permit being issued, and also older, pre-SMCRA disturbance.

Mine Workings Maps

Plate 5-1, which shows the Pre-SMCRA mine workings in the Rock Canyon and Gilson seams and the old mine openings, has not been revised. Plate 5-7, which shows the current and projected Dugout Canyon Mine workings, has been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Monitoring Sampling Location Maps

Maps showing monitoring locations for vegetation, wildlife, and water and locations of bore holes have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Permit Area Boundary Maps

Maps showing boundaries of land upon which the permittee has the legal right to enter and begin underground mining activities have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Surface and Subsurface Manmade Features Maps

There are no buildings or other structures within 1,000 feet of the permit area except for roads. Roads are shown on several maps, including Plates 4-1 and 5-7, which have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Surface and Subsurface Ownership Maps

Surface and subsurface ownership maps have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Subsurface Water Resource Maps

Maps and cross-sections showing location and extent of subsurface water within the proposed permit or adjacent areas have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Surface Water Resource Maps

Surface water resource maps maps have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Vegetation Reference Area Maps

The reference areas have not been changed, but the map showing the reference areas has been altered to show vegetation communities in the areas proposed to be added to the permit area.

Well Maps

No oil or gas wells are known to exist within the permit area.

Contour Maps

Plate 5-4 shows the existing topography, Plate 5-2 shows the proposed topography during mining and Plate 5-5 shows the topography after reclamation. The Division has reviewed these plates and determined that they adequately showed the surface configurations. These three plates show the topography around the disturbed area and have not been revised because they are not affected by the significant revision.

Findings:

Information provided in the significant revision is adequate to meet the requirements of this section of the regulations.

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MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR Sec. 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

General

The Gilson and Rock Canyon seams are sufficiently developed to allow for economic mining of one or the other in much of the proposed permit area; however, multiple seam mining will be limited to the vicinity of Dugout Canyon. The Gilson seam is generally not of mineable thickness west of Dugout Canyon. East of Dugout Canyon the sulfur content of the Rock Canyon coal increases and renders it unmarketable. In addition, interburden between the two seams thins east of the canyon, making multiple seam mining difficult, dangerous, and uneconomical. The mine entry is in the Rock Canyon Seam, and a rock-slope is planned for access down to the Gilson Seam (Plate 5-7).

Type and Method of Mining Operations

There are no changes in the type or method of mining other than expansion of mining to the east into the Gilson seam.

Facilities and Structures

There are no new facilities or structures associated with this significant revision.

Findings:

The requirements of this section are only marginally applicable to the significant revision. Information provided is adequate to meet the requirements of this section of the regulations.

EXISTING STRUCTURES

Regulatory Reference: 30 CFR Sec. 784.12; R645-301-526.

Analysis:

Plate 4-1 shows the two existing structures in the permit area: the main access road, owned by the county up to the Dugout Canyon Mine property line, and the power lines. Both structures have been modified since the Dugout Canyon Mine permit was issued. There are several dirt roads, trails, and wheel tracks in the area that are on lands owned by the permittee or the Thayn family and to which

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access is limited. The Division has not required the identification the dirt roads, trails, and wheel tracks that will not be used for mining activities except for monitoring and data collection. Plate 4-1 has been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Findings:

Information provided in the significant revision is adequate to meet the requirements of this section of the regulations.

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR Sec. 784.17; R645-301-411.

Analysis:

The proposed addition to the permit area contains no known significant cultural resources, including sites eligible for listing in the National Register of Historic Places, cemeteries, public parks, or units of the National System of Trails and Wild and Scenic Rivers System. Therefore, no protection plan is needed. The Division has received a letter from the State Historic Preservation Office giving clearance based on no surface disturbance and no significant sites being found.

Findings:

Information provided in the significant revision is adequate to meet the requirements of this section of the regulations. The Division has received concurrence from the State Historic Preservation Office..

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR Sec. 784.18; R645-301-521, -301-526.

Analysis:

Information on relocation or use of public roads is in Section 521 of the current MRP. There is to be no additional surface disturbance and no additional information on relocation or use of public roads is needed for approval of the significant revision.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

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AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR Sec. 784.26, 817.95; R645-301-244.

Analysis:

The significant revision includes a statement that, as of January 1, 1999, the Dugout Canyon mine has a permit to operate at a production rate of five million tons annually. A copy of the revised Air Quality Approval Order is included in the significant revision.

Findings:

Information provided in the significant revision is adequate to meet the requirements of this section of the regulations.

COAL RECOVERY

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

Analysis:

The coal recovery will be in the Resources Recovery and Protection Plan (R2P2) required by the BLM. This plan requires BLM approval.

Findings:

Information provided in the proposed significant revision is considered adequate to meet the requirements of this section. The permittee must follow the R2P2 as approved by the BLM.

SUBSIDENCE CONTROL PLAN

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

Analysis:

Renewable Resources Survey

Renewable resource lands within the permit and adjacent areas are shown on Plate 4-1. This map shows the two existing structures in the permit area: the main access road, owned by the county up to the Dugout Canyon Mine property line, and the power lines. As shown on Plate 4-1, both structures have been modified since the Dugout Canyon Mine permit was issued. Plate 4-1 has also been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

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The area of potential subsidence is currently used for livestock grazing and wildlife habitat, with limited timber production (Section 411.130). Exhibit B in Appendix 4-2 shows areas where timber has been harvested in the past and areas to be potentially logged in the future: none of the areas for future logging are within the significant revision area.

No major transmission lines, pipelines, or agricultural drainage tile fields exist within the area of potential subsidence. Roads within the area of potential subsidence consist of private dirt roads, trails, and wheel tracks that are owned and maintained by the parent company of Soldier Canyon Mine and by private citizens, including the Thayn family. These unimproved roads, which may be used for access to the lease area, may be damaged by subsidence. Damage to roads not owned by the parent company of Soldier Canyon Mine will be repaired to a condition acceptable to both the private land owner and Soldier Canyon Mine. No other structures are known to exist within the area of potential subsidence (Section 525.100).

Hydrologic resources in the area are discussed in Chapter 7 of the MRP. Information regarding baseline groundwater conditions is provided in Section 724.100.

Anticipated Impacts

The current mining and reclamation plan contains a discussion of potential effects of subsidence on wildlife. In Section 332 is a reference to Section 521.100 that appears to be in error. The correct section is 525.100.

The significant revision discusses potential effects on perennial and intermittent streams and says flow interruptions are not anticipated. According to the current plan, it has been demonstrated that topographic lows, such as stream channels, tend to be protected by upwarping of adjacent slopes during subsidence. Therefore, mining-induced surface fracturing should be very limited within stream channel areas, and any fracturing that does occur in channels is likely to fill rapidly as a result of sedimentation.

As discussed in the current plan, it is anticipated that no substantial damage will occur to rangelands as a result of subsidence. Most wildlife will be unaffected. Potential effects on raptors are discussed in the "Fish and Wildlife Protection" portion of this review.

Subsidence Control Plan

The permittee has relocated several future monitoring stations that will gather data to determine the true angle of draw. This is particularly true with the longwall panels located on the westside of the main entries of the mine. This could optimize the recovery of coal.

Performance Standards for Subsidence Control

Subsidence damage to surface resources is not anticipated. No public buildings or facilities, churches, schools, hospitals, impoundments or other bodies of water with a capacity of 20 acre-feet or more, aquifers or bodies of water that serve as a significant water source for any public water supply system, urbanized areas, cities, towns, or communities are in the area of potential subsidence (Section 525.200).

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The permittee has revised Plate 3-2 to include the proposed addition to the permit area. This plate shows one eagle nest in the proposed addition, and the plate has been updated to include results from the 1998 raptor survey.

Should material damage occur, SOLDIER CANYON MINE will correct any material damage to the extent technologically and economically feasible. In addition, SOLDIER CANYON MINE will notify the Division of any slide, rock fall, or other disturbance caused by subsidence that will affect the environment.

The information provided in the proposed amendment is not considered adequate to determine subsidence that occurred outside the angle of draw. New submittal must justify and determine an accurate angle of draw for future coal leases. This potential information could increase the recoverable tons of coal in future leases.

Notification.

Each owner or resident of property that is above and adjacent to an underground mining block and may be affected by subsidence will be notified by mail at least 6 months prior to mining, or within that 6-month period if approved by the Division. The notification will contain:

- Identification of specific areas in which mining will take place;
- Dates the specific areas will be undermined; and
- The location or locations where the SOLDIER CANYON MINE subsidence control plan may be examined.

Findings:

The information provided in the proposed amendment is considered adequate to determine subsidence and the true angle of draw.

SLIDES AND OTHER DAMAGE

Regulatory Reference: 30 CFR Sec. 817.99; R645-301-515.

Analysis:

The significant revision does not change this section of the MRP. The information and commitments in the current MRP are adequate to meet the requirements of the Coal Mining Rules.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

FISH AND WILDLIFE PROTECTION

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

Analysis:

The current mining and reclamation plan contains monitoring and protection commitments some of which apply to mining in the area proposed to be added. These commitments include consultation with various agencies and evaluation of mine plans at least nine months before undermining any nests to determine what protection, avoidance or mitigation options are available.

The Fish and Wildlife Service provided a list of proposed and listed threatened, endangered species for the nearby West Ridge Mine. The Division analyzed the potential for each species on this list to be affected by the proposed addition to the permit area, and, except for potential effects to the threatened and endangered fish of the upper Colorado River basin (see discussion below), there should be no effects. Species on the list are:

Graham Beardtongue
Bald Eagle
Peregrine Falcon
Black-footed ferret

Razorback Sucker
Humpback Chub
Colorado Pikeminnow
Bonytail Chub

The peregrine falcon is no longer listed, but it is still protected. Raptor surveys have failed to locate peregrine falcon scrapes in the permit area or the proposed addition although they have been found nearby. Because no scrapes will be subsided and because nearby scrapes are more than one mile away from surface disturbances, there should be no effects.

According to Ben Franklin of the Utah Natural Heritage Program, there is a historical collection of Graham beardtongue from the extreme northeastern corner of Carbon County a few hundred feet from the county line. It is an endemic that occurs almost exclusively on the Green River Formation in Uintah and Duchesne counties. There is virtually no likelihood the mine would affect this species.

There have been no confirmed sightings of black-footed ferrets in Carbon County in several years, so there should be no effect on this species.

Although bald eagles are common winter residents, there are no nests or concentrated roosting sites within either the current permit area or the proposed addition.

Through water use, the mine could adversely affect threatened and endangered fish of the upper Colorado River basin. The Fish and Wildlife Service requires mitigation when annual water use exceeds 100 acre-feet. According to the revised Probable Hydrologic Consequences document, the increased acreage will not result in increased water use, which is currently estimated at 46.5 acre-feet per year. Therefore, no mitigation should be required.

The Division received a letter from the Fish and Wildlife Service dated March 28, 2000, concurring with the Division's findings on threatened and endangered species. Although water denletions are considered to ieopardize the continued existence of the threatened and endangered fish of

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the upper Colorado River basin, depletions are addressed by existing inter-agency Section 7 agreements. Therefore, no additional action or mitigation is required at this time. If the mine causes additional depletions, it will be necessary to reassess this determination.

Findings:

Information provided in the proposal is adequate to meet the requirements of this section of the regulations. The Fish and Wildlife Service has concurred with the Division's findings on threatened and endangered species, and the proposal can proceed with no mitigation required.

TOPSOIL AND SUBSOIL

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

Analysis:

Protection of topsoil and subsoil is discussed in the current MRP. The significant revision will not involve disturbance or removal of soils. No additional information on soils is required for approval of the significant revision.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

The existing mining and reclamation plan adequately addresses interim revegetation, and because no surface disturbance is proposed, no revisions are needed.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

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Analysis:

Road Systems

Road systems and other transportation facilities are discussed in Section 527 of the current MRP. No additional information on road systems and other transportation facilities is needed for approval of the significant revision.

Other Transportation Facilities

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Disposal of coal mining waste is discussed in Section 536 of the current MRP. No spoil or processing waste is produced by the Dugout Canyon Mine. No additional information on spoil and waste materials is needed for approval of the significant revision.

Findings:

No additional information on spoil and waste materials is needed for approval of the significant revision; therefore, information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

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, -300-148, -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:

Underground mining and reclamation activities are planned to be conducted to minimize disturbance of the hydrologic balance within the permit and adjacent areas, to prevent material damage to the hydrologic balance outside the permit area, and to support approved postmining land uses in accordance with the terms and conditions of the approved permit and the performance standards of this

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part. The Division has not required additional preventive, remedial, or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented.

The monitoring plan at Dugout Canyon Mine conforms to the amended monitoring plan approved for the adjacent Soldier Canyon Mine, which is also operated by Canyon Fuel Company. The amended Soldier Canyon Mine monitoring plan is based on UDOGM Coal Regulatory Program Directive Tech-004 (Tech-004) and was approved in accordance with the procedure in section 5E of Tech-004. (By defining terms, stating objectives, and identifying responsibilities, Tech-004 is meant to clarify the Division's position on what constitutes an appropriate monitoring program and provides methodology for consistently amending these monitoring programs. Under Tech-004, amendments to monitoring programs will be approved or disapproved on a site specific basis.)

Ground-water Monitoring

Locations of wells and springs to be monitored are shown on Plate 7-1. Operational ground-water quality parameters to be monitored at the Dugout Canyon Mine are listed in Table 7-4 of the significant revision. The parameters correspond with the operational parameters in Table 4 of Tech-004 except that total alkalinity and hardness are not included. Operational ground-water monitoring protocols are given in Table 7-4 and discussed on pages 7-53 through 7-58.

For the initial Dugout Canyon Mine MRP, the permittee selected springs SC-65, SP-20 (same as S-30), SC-14, and SC-100 for operational monitoring because they were considered reasonably accessible and representative of conditions within their respective formations (page 7-54); however, there was actually little historic data for these springs and it was necessary to rely on data from the Soldier Canyon Mine and surrounding springs to determine baseline conditions. Because of the dearth of baseline water-quality and -quantity data, the operator was asked to commit to 2 years of quarterly water-quality and -quantity monitoring at these four springs rather than measuring field parameters only (UDOGM TA dated October 16, 1998).

Springs SC-65, SP-20, SC-14, and SC-100 were to have been monitored for operational water quality and quantity beginning the third-quarter of 1998; however, due to the lack of clarity in the monitoring plan, only field parameters were collected. Table 7-4 of the significant revision clarifies that monitoring for operational water-quality parameters was begun in the 3rd quarter of 1999 and will continue for 2 years, after which monitoring will be for the field measurements (flow, pH, specific conductance, and temperature) listed in Table 7-4. This varies from the recommended schedule in Tech-004 but conforms with the amended (amended following the procedure of Tech-004) monitoring plan that was approved for the adjacent Soldier Canyon Mine. Third quarter 1999 data have been received by DOGM.

The significant revision adds springs SC-116, 200, 203, 227, 259, and 260 to the operational monitoring list: 200, 203, 259, and 260 are in the SITLA tract. Baseline data are scarce in the vicinity of the Dugout Canyon Mine, so quarterly water samples from these springs are to be analyzed for the baseline parameters specified in Tech 004 for 3 years: this 3-year monitoring period began with the 1st quarter 1999. After the initial 3-year period, these springs will be monitored quarterly for field parameters only. Data for March and June 1999 are tabulated with the ground-water information in Appendix 7-2 (the table does not include spaces for Cu, NH₃, and cations and anions, and it is not clear whether Mn is total or dissolved), and data for the 3rd quarter 1999 have been received by DOGM (all

baseline parameters).

In addition to the monitoring just described, tritium and operational water-quality parameters will be determined for all 10 springs at high flow and low flow during the first "wet" year and during the first "dry" year. Also during these "wet" and "dry" years, spring flows will be measured weekly between April 1 and August 31, as conditions permit, with the intent of preparing baseflow hydrographs from the data. "Wet" and "dry" years will be defined based on snow-pack measurements as of March 1 for the Price-San Rafael area, a "wet" year being the first year after permit issuance when the snow pack water content is greater than 110% of normal and a "dry" year being the first year following permit issuance when the snow pack is less than 70% of normal. These "wet" and "dry" years might occur during the initial 2 years of regular quarterly operational monitoring (pages 7-58 and 7-59, Table 7-4).

Tech-004 recommends that for springs, water-quality samples be analyzed for baseline parameters every fifth year. Page 7-57 includes a commitment to collect one water sample from each monitored spring, at low flow every fifth year, during the year preceding re-permitting, that will be analyzed for baseline parameters.

Water depth in wells GW-10-A, GW-11-2, and GW-24-1 will be monitored quarterly. Well GW-24-1, completed in the Castlegate Sandstone, is currently monitoring ground-water levels in federal lease U07064-027821.

In September 1998, during Phase I construction of the mine, ground water was discovered discharging from the old Gilson coal-seam workings on the east side of Dugout Canyon. This water had been seeping undetected through the alluvium and into the stream channel. Beginning in the fourth quarter of 1998, this water was to be monitored for operational ground-water parameters at point MD-1 (Table 7-4). Data for October and December 1998 and March and June 1999 are tabulated with the surface-water information in Appendix 7-7 (the table does not include spaces for anions and cations, and it is not clear whether Mn is total or dissolved), and data for the 3rd quarter 1999 have been received by DOGM (all operational parameters).

Surface-water Monitoring

Locations of monitoring points are shown on Plate 7-1. Surface-water monitoring protocols are given in Table 7-5 and on pages 7-58 through 7-62 of the significant revision. Operational surface water quality parameters to be monitored at the Dugout Canyon Mine are also listed in Table 7-5. The parameters correspond with the operational parameters in Table 5 of Tech-004 except that total alkalinity and hardness are not included.

Surface-water monitoring site DC-1 is below the disturbed area and discharge points of the Dugout Canyon Mine, and DC-2, DC-3, DC-4, and DC-5 are above. DC-1, DC-2, and DC-3 are monitored quarterly for operational field and laboratory parameters (Table 7-5). Data are tabulated in Appendix 7-7, baseline data from 1979 to 1981 for DC-1, and operational data from August 1997 for all 3 sites (the table does not include spaces for Cu, NH₃, and cations and anions, and it is not clear whether Mn is total or dissolved). Operational data for the 3rd quarter 1999 have been received by DOGM.

Under the proposed significant revision, additional monitoring will be done at PC-1a and PC-2 on Pace Creek to evaluate surface-water conditions upgradient and downgradient of the significant

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revision area and the SITLA tract, and at RC-1 in Rock Canyon to obtain baseline data for future mine expansion into the SITLA tract. Baseline data will be obtained for 3 years, beginning 1st quarter 1999, prior to initiating operational monitoring (page 7-58). Data for March and June 1999 are tabulated with the surface-water information in Appendix 7-7 of the significant revision (the table does not include spaces for Cu, NH₃, and cations and anions, and it is not clear whether Mn is total or dissolved). Baseline data for the 3rd quarter 1999 have been received by DOGM.

During the first "wet" and "dry" years (defined above), flows at DC-2, DC-3, DC-4, DC-5, PC-1a, PC-2, and RC-1 will be measured weekly between April 1 and August 31, as conditions permit. Also, tritium and operational water quality will be measured for samples collected at DC-4 and DC-5 at high flow and low flow during each year (pages 7-58 and 7-59, Table 7-5). Tritium content will not be determined at DC-2, DC-3, PC-1a, PC-2, and RC-1.

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

Acid and Toxic-forming Materials

Acid- and toxic-forming materials are discussed in Chapter 6. No new information on acid- and toxic-forming materials is in the revised Chapter 6 in the significant revision submittal. No additional information on acid- and toxic-forming materials is needed for approval of the significant revision.

Disposal of coal mining waste is discussed in Section 536 of the current MRP. No spoil or processing waste is produced by the Dugout Canyon Mine. There is to be no additional surface disturbance because of the significant revision and no additional information on spoil and waste materials is needed for approval of the significant revision.

Transfer of Wells

The significant revision contains no plans for boring or construction of wells. Well GW-24-1 (completed in the Castlegate Sandstone) is currently monitoring ground-water levels in federal lease U07064-027821. Before final release of bond, exploration or monitoring wells will be sealed in a safe and environmentally sound manner. Ownership of wells will be transferred only with prior approval of the Division, and conditions of such a transfer will comply with State and local laws. Canyon Fuel Company will remain responsible for the management of transferred wells until bond release (Section 731.400).

Casing and Sealing of Wells

The significant revision contains no plans for boring or construction of wells. Well GW-24-1 (completed in the Castlegate Sandstone) is currently monitoring ground water levels in federal lease U07064-027821. When no longer needed for monitoring or other use approved by the Division and upon a finding of no adverse environmental or health and safety effects, or unless approved for transfer as a water well, each well will be capped, sealed, backfilled, or otherwise properly managed as required

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by the Division. Permanent closure measures will be designed to prevent access to the mine workings by people, livestock, fish and wildlife, machinery and to keep acid or other toxic drainage from entering ground or surface waters (Section 765).

Water Quality Standards and Effluent Limitations

There will be no additional surface disturbance from this significant revision. Discharges of water from disturbed areas will be in compliance with all Utah and federal water-quality laws and regulations and with effluent limitations for coal mining contained in 40 CFR Part 434 (Section 751).

Findings:

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

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

Plate 5-7 shows the boundaries of all areas proposed to be affected over the estimated total life of the coal mining and reclamation operations. The dates on Plate 5-7 indicate that the permittee hopes to operate the Dugout Canyon Mine until 2009. Plate 5-7 has been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Mining Facilities Maps

The current surface facility map is considered accurate.

Surface Facilities

The current surface facility map is not accurate with additions that have been made. A review of the map was made during the August complete inspection.

On page 5-16, the two areas will not be disturbed as stated in the original MRP. These areas will need to be identified on plate 5-2, because the disturbed area has changed. A new calculation of "totaled" disturbed area is needed.

Mine Workings Maps

See the section on Maps, Plans, and Cross Sections of Resource Information

OPERATION PLAN

Monitoring and Sample Location Maps

Maps showing monitoring locations for vegetation, wildlife, and water and locations of bore holes have been revised to include federal lease U07064-027821 and the SITLA tract and adjacent areas.

Findings:

Maps, plans, and cross sections of mining operations in the significant revision are adequate to meet the requirements of this section of the regulations.

RECLAMATION PLAN

HYLOGIC INFORMATION

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

Analysis:

Ground-water Monitoring

Reclamation ground-water monitoring protocols are given along with the operational monitoring protocols in Section 731.200 p. 7-52 through 7-57). Locations of wells and springs to be monitored are on Plate 7-1. Groundwater monitoring of wells and springs will continue during the post-mining period until bond release (p. 7-56).

During the post-mining period, field data and water samples will be collected once each year in September or October, during low-flow season but while the sites are still accessible, at springs SP-20, SC-14, SC-65, SC-100, SC-116, 200, 203, 227, 259, and 260 (p.7-53).

The significant revision contains no change to the reclamation well-monitoring plan. Water levels will be measured in wells GW-10-2, GW-11-2, and GW-24-1, all completed in the Price River Formation or the underlying Castlegate Sandstone, once each year (p.7-56).

Surface-water Monitoring

The surface-water monitoring plan is in Section 731.200, pages 7-57 through 7-59. Surface-water data will be collected under the surface-water monitoring program every year until bond release (p. 7-59). Locations of reclamation monitoring sites DC-1, DC-2, DC-3, PC-1a, and PC-2 are on Plate 7-1.

Transfer of Wells

The significant revision contains no plans for boring or construction of wells. Well GW-24-1 (completed in the Castlegate Sandstone) is currently monitoring ground-water levels in federal lease U07064-027821. Before final release of bond, exploration or monitoring wells will be sealed in a safe and environmentally sound manner. Ownership of wells will be transferred only with prior approval of the Division, and conditions of such a transfer will comply with State and local laws. Canyon Fuel Company will remain responsible for the management of transferred wells until bond release (Section 731.400).

Casing and Sealing of Wells

The significant revision contains no plans for boring or construction of wells. Well GW-24-1 (completed in the Castlegate Sandstone) is currently monitoring ground water levels in federal lease U07064-027821. When no longer needed for monitoring or other use approved by the Division and

RECLAMATION PLAN

upon a finding of no adverse environmental or health and safety effects, or unless approved for transfer as a water well, each well will be capped, sealed, backfilled, or otherwise properly managed as required by the Division. Permanent closure measures will be designed to prevent access to the mine workings by people, livestock, fish and wildlife, machinery and to keep acid or other toxic drainage from entering ground or surface waters (Section 765).

Findings:

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

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

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

A Cumulative Hydrologic Impact Assessment (CHIA) has previously been prepared for the Soldier Canyon and Dugout Canyon Mines. The Cumulative Impact Area (CIA) for that CHIA included federal lease U07064-027821 and the surrounding area. Two small corners of the subsidence buffer zone around the federal lease were not included in that CIA because those two remote areas would not be impacted by mining nor contribute to cumulative impacts outside the proposed Dugout Canyon Mine permit area. With the addition of the SITLA tract and the possible waste-rock disposal site, the CIA has been expanded into the Cow Canyon drainage to include all of the Dugout permit area and SITLA tract, and also expanded to the south to include the waste-rock disposal site. No additional hydrologic and geologic information is needed from the permittee for the CHIA.

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July 21, 2000

Memorandum

To: Joseph O. Wilcox, Federal Lands Coordinator,
WRCC, OSM

From: Lowell Madsen, Assistant Regional Solicitor *John R. King for*

Subject: Mining Plan Decision Document for Dugout Canyon Mine,
Federal Lease U-07064-027821

As requested, I have reviewed the draft mining plan decision document for the Dugout Canyon Mine, Federal Lease U-07064-027821, and find it to be legally sufficient for the purposes for which it is intended.

The draft mining plan decision document is attached.

Attachment