Soldier Canyon Mine, Soldier Creek Coal Company
Carbon County, Utah December 1984
SL-051279-063188, U-50722

ACT/007/016

MINING PLAN DECISION DOCUMENT

Soldier Canyon Mine
Soldier Creek Coal Company
Carbon County, Utah

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

Federal Coal Leases SL-051279-063188, U-50722

December 1984

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United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

DEC 2 4 1984

MEMORANDUM

TO: Director, Office of Surface Mining

FROM: Allen D. Klein, Administrator, Western Technical Center

SUBJECT: Recommendation for Approval of Soldier Canyon Mine Mining Plan and Permit Application Carbon County, Utah. Federal Leases: SL-051279-063188 and U-50722

I. Recommendation

I recommend approval of the Soldier Creek Coal Company's Soldier Canyon mine permit for an underground mining operation. This is a permit to mine for an existing mine. My recommendation is based on the technical analysis (TA) and environmental assessment (EA) of the complete application. The applicant has proposed to continue surface mining on two Federal coal leases SL-051279-063188 and U-50722 during the 5-year permit and 19-year life of mine. The permit included with this memorandum will be in conformance with the applicable Federal regulations, the Utah State Program, and the Mineral Leasing Act, as amended. I also recommend that you advise the Assistant Secretary for Land and Minerals Management, under 30 CFR 746.14 that the Soldier Canyon mine mining plan is ready for approval. I concur that a bond in the amount of $1,090,800.00 is adequate.

My recommendation for approval is based on the complete mining plan and permit application, updated to December 18, 1984. I have determined that this action will not have a significant impact on the human environment.

United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
WASHINGTON, D.C. 20240

MAR 5 1985

Memorandum

To: Assistant Secretary for Land and Minerals Management

From: Director, Office of Surface Mining John D. Ward

Subject: Recommendation for Approval of the Soldier Canyon Mine Mining Plan, Soldier Creek Coal Company, Carbon County, Utah, Federal Leases: SL051279-063188 and U50722.

I am prepared to approve a permit for the Soldier Canyon mine pursuant to the Surface Mining Control and Reclamation Act and subject to approval of the mining plan. My decision to approve Soldier Creek Coal Company's permit is based on: (1) the applicant's complete permit application, (2) public participation, (3) review of the application by the Office of Surface Mining (OSM), (4) review by the State as required by the approved State Program, and (5) compliance with the National Environmental Policy Act. The State permit will be issued subsequent to the Federal permit.

The Secretary may approve a mining plan for Federal lands under the Mineral Leasing Act, as amended, 30 U.S.C. 207(c) and 1273(c). The proposed operation is in compliance with all applicable laws and regulations.

I find that the proposed operations will be in compliance with all applicable laws and regulations, and I recommend the Soldier Canyon mining plan updated through December 18, 1984, be approved.

Approval:

I approve this proposed mining plan:

Assistant Secretary for Land and Minerals Management

3/11/85
Date

II. Background

The proposed Soldier Canyon mine is located in Carbon County, Utah. The estimated 19-year life-of-operation and permit area contains 2,143.81 surface acres, of which 583.81 and 1,560 acres are Federal and private surface, respectively. All of these acres have been leased. This mine operation will not affect any environmentally- sensitive areas. The proposed majority of the underground operations will utilize room-and-pillar mining methods. The Rock Canyon and Gilson coal seams will be mined to yield a peak production rate of 0.82 million tons per year. All surface mine operations are scheduled to cease around the year 2003.

Sunedco Coal Company, operator of the Sage Point-Dugout Canyon mine and owner of water rights in Soldier Creek, is concerned with the potential interruption of streamflow in Soldier Creek due to Soldier Creek Coal Company's mining operations beneath the creek. According to Soldier Creek Coal Company, water inflow (approximately 20 gallons per minute) into the mine beneath the creek is resulting from a drill hole and a ventilation shaft which penetrated an alluvium strata located above the coal seams. The rest of the mine beneath Soldier Creek is dry. Soldier Creek Coal Company has implemented a subsidence mitigation plan that should prevent material damage to Soldier Creek. Based on OSM observations and review of available data, it appears that Soldier Creek Coal Company's mining operations are not affecting the flow in Soldier Creek. Sunedco Coal Company's water rights should not be affected by Soldier Creek Coal Company's mining operations beneath Soldier Creek.

The Fish and Wildlife Service, Endangered Species Office has received a memorandum dated July 25, 1984, from OSM as required under the Windy Gap Policy, indicating a negative depletion of water to the Colorado River Basin as a result of mining operations at the Soldier Canyon mine. The Endangered Species Office concurred with OSM's finding of no depletion of water to the Colorado River Basin and no contribution would be required. (See memorandum dated September 7, 1984.)

While no public hearings have been held specifically for Soldier Creek Coal Company's permanent program application, recent hearings have been held regarding coal development in central Utah, of which the Soldier Canyon mine is a part. These hearings were held in order to receive public input for the following documents:

Draft Environmental Impact Statement: "Uintah Southwestern Utah Coal Region, Round II Coal Leases", 1983. Bureau of Land Management; and,

Final Environmental Statement: "Development of Coal Resources in Central Utah", 1979. U.S. Geological Survey.

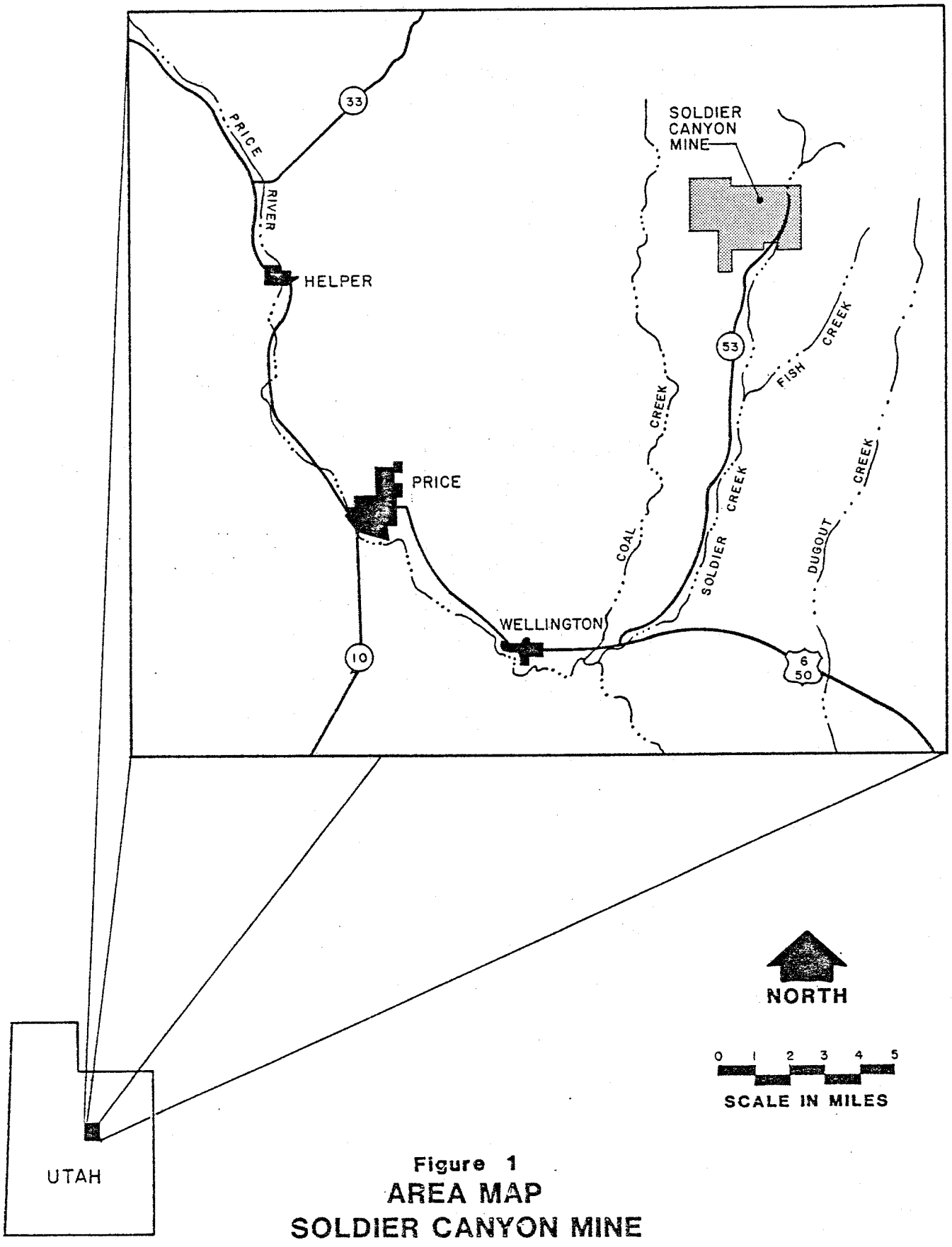

Figure 1
AREA MAP
SOLDIER CANYON MINE

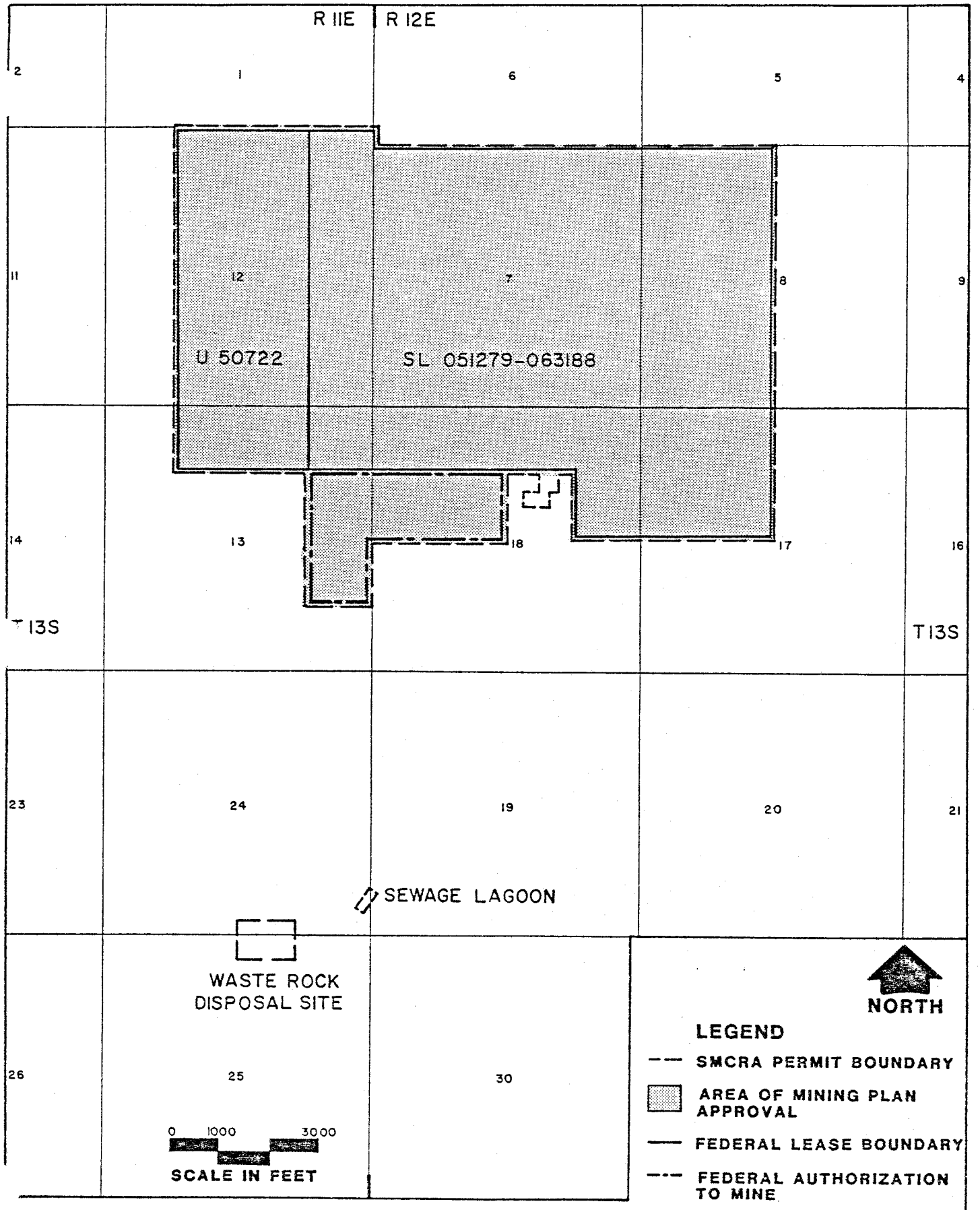

Figure 2
SOLDIER CANYON MINE

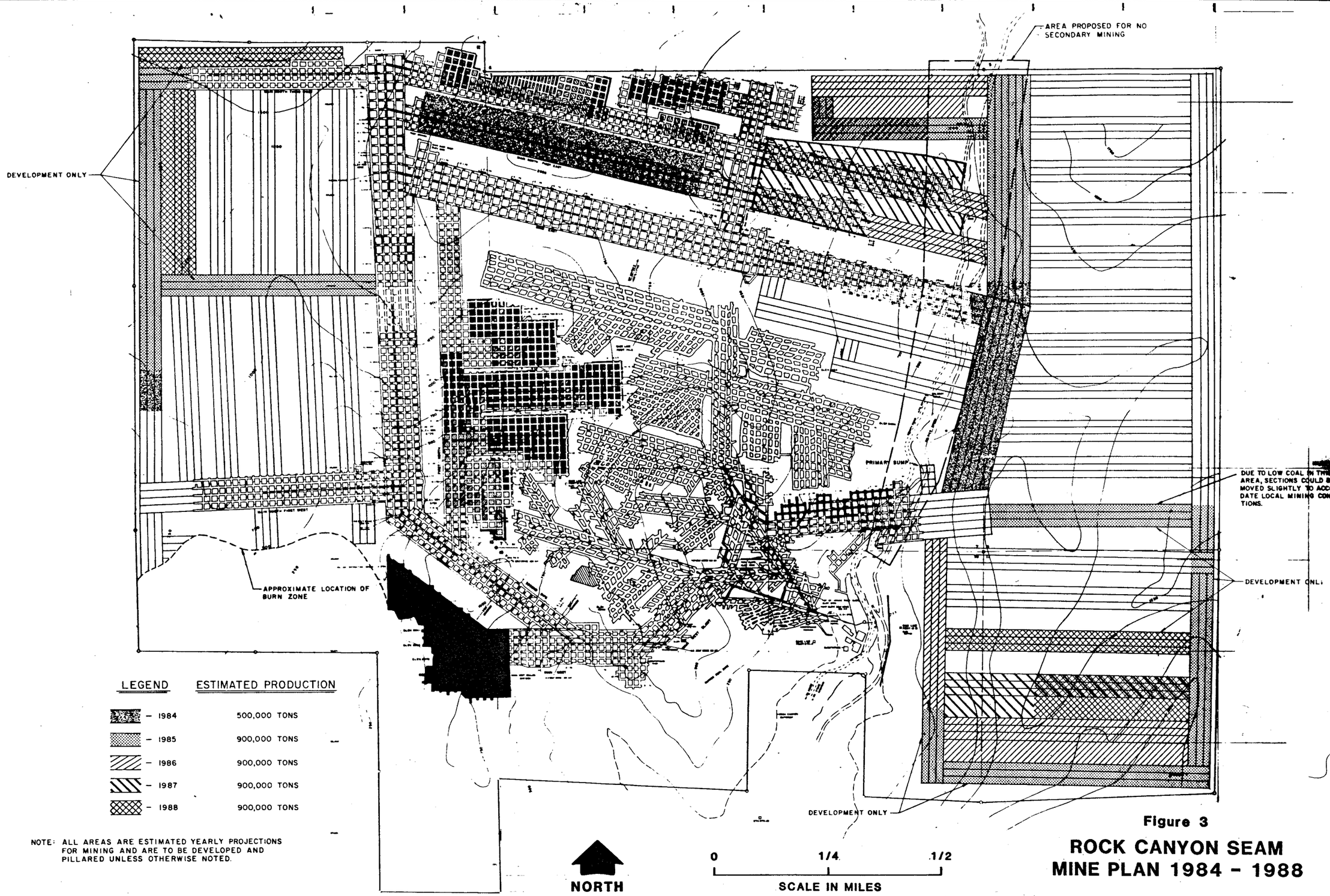

Figure 3

ROCK CANYON SEAM MINE PLAN 1984 - 1988

SOLDIER CANYON MINE

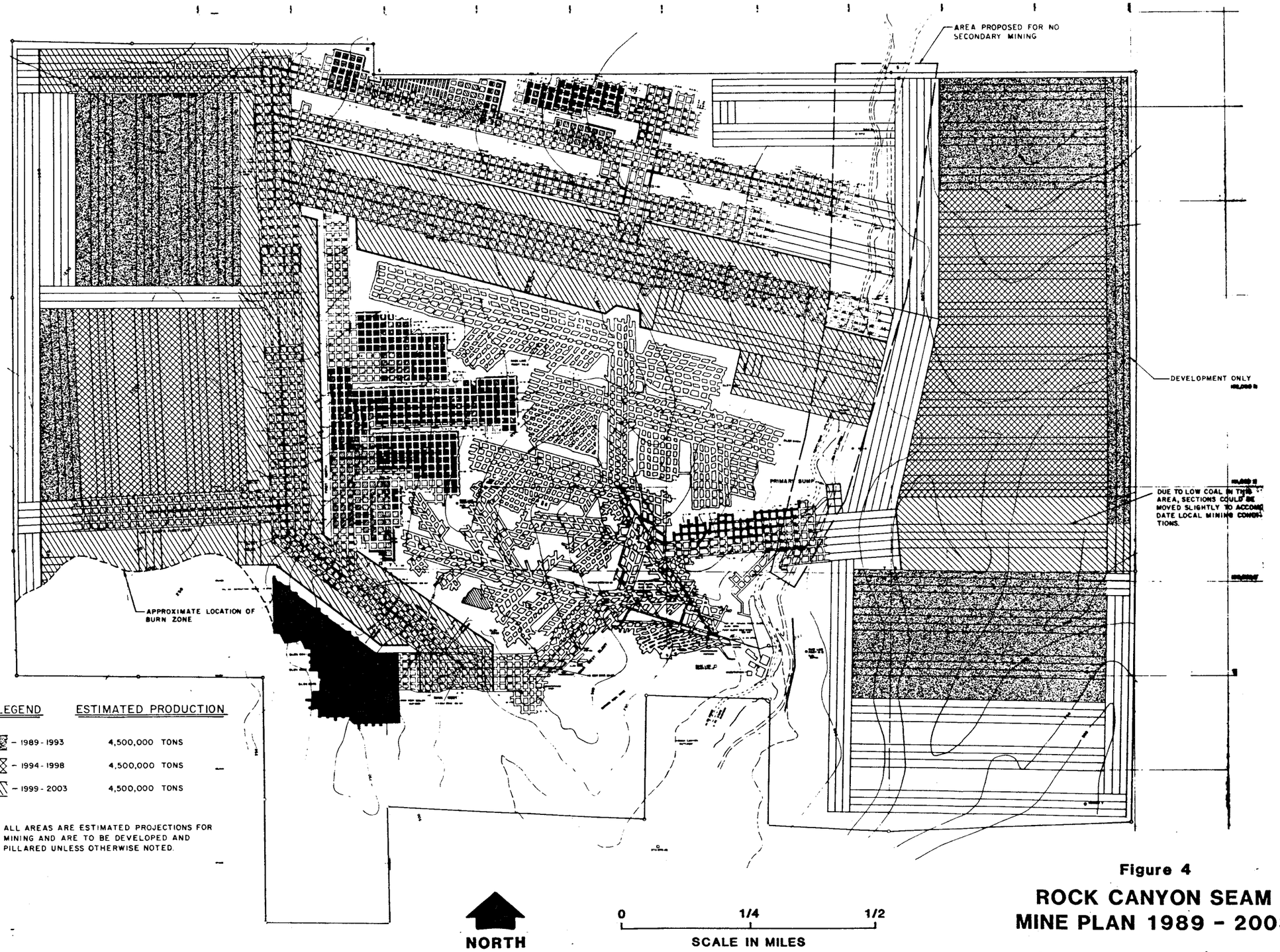

Figure 4

ROCK CANYON SEAM MINE PLAN 1989 - 2003

SOLDIER CANYON MINE

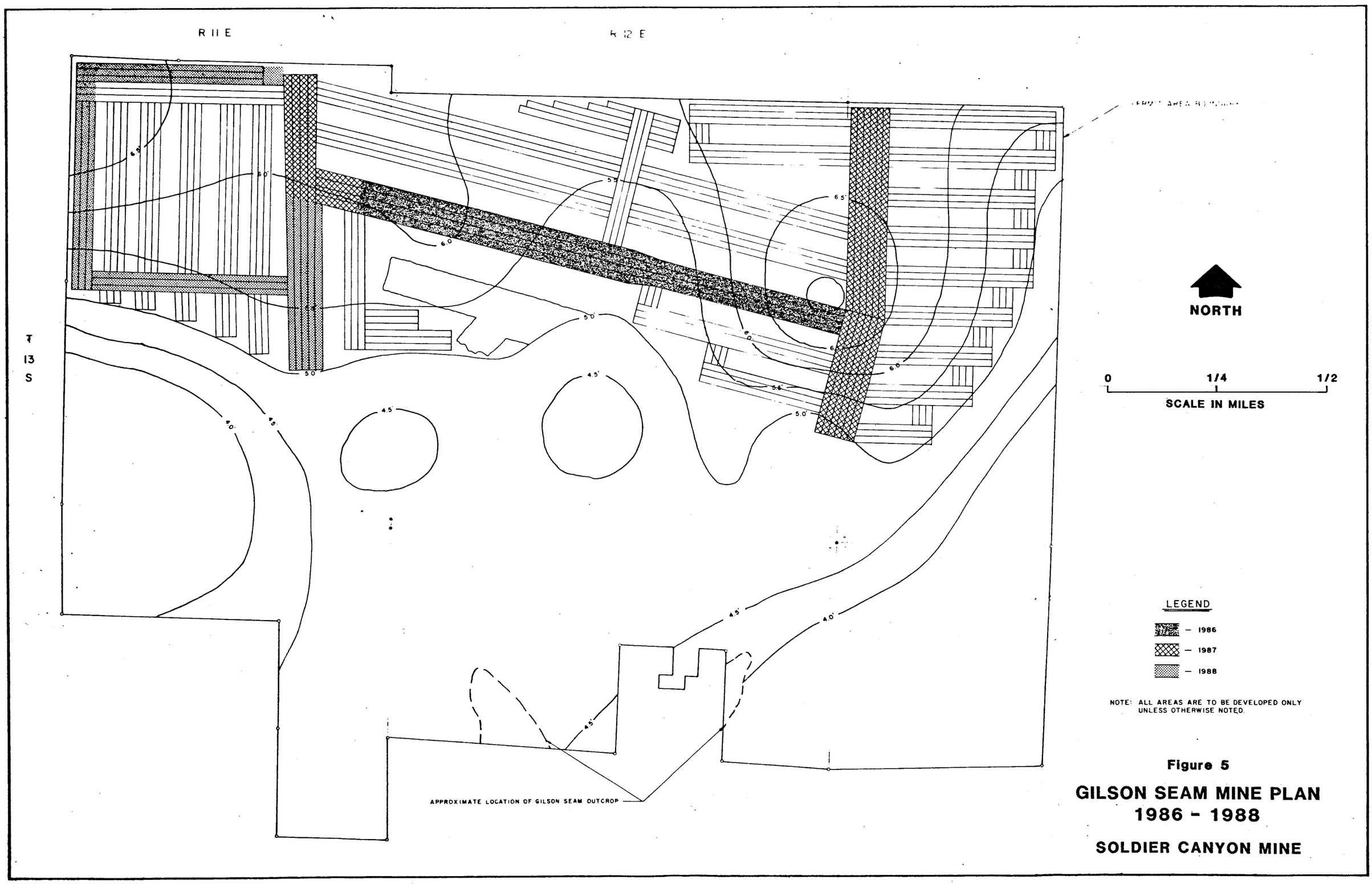

Figure 5

GILSON SEAM MINE PLAN
1986 - 1988

SOLDIER CANYON MINE

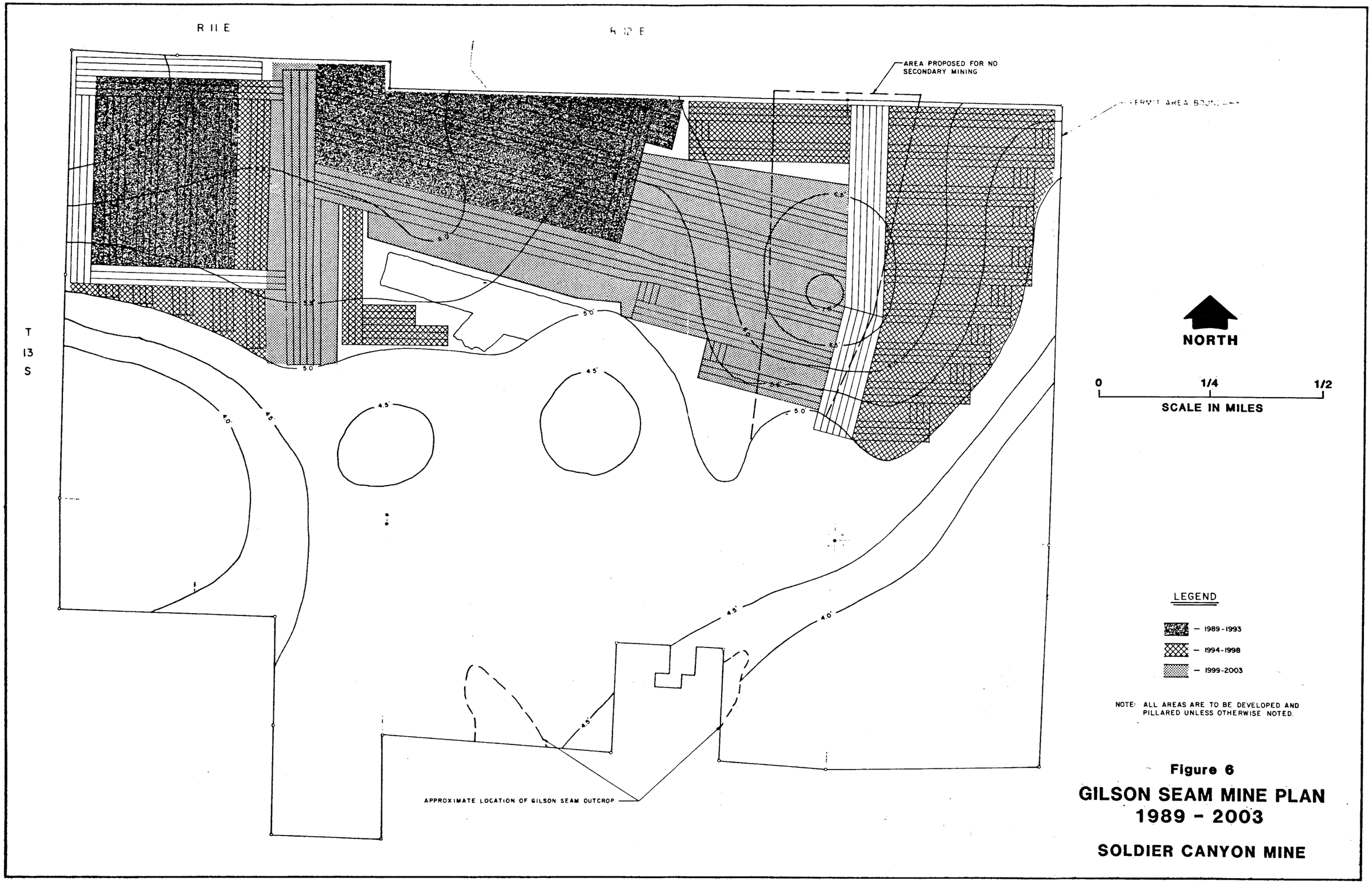

Figure 6

GILSON SEAM MINE PLAN
1989 - 2003

SOLDIER CANYON MINE

MINING PLAN ... TION

MINE ID UT-0023

Mine Name Soldier Canyon mine New/Existing Existing State Utah County Carbon

Operator Soldier Creek Coal Company Controlled By California Portland Cement Corp.

Mining Method: Underground-Room and Pillar Federal Lease Nos.: SL-051279-063188, U-50722

(Legals on attached map)

Ownership Data:

Surface Resources (Acres)	Existing Mining Plan Area	Proposed Mining Plan Area	Total Life of Mine Area
Federal	583.81	583.81	583.81
State	-	-	-
Private	1560	1560	1560
TOTAL	2143.81	2143.81	2143.81

Coal Ownership (Acres)			
Federal	2108.31	2108.31	2108.31
State	-	-	-
Private	-	-	-
TOTAL	2108.31	2108.31	2108.31

Coal Resource Data	Federal	State	Private	Total
Total Reserves	46,894,000 Tons	-	-	46,894,000 Tons
Total Recoverable Reserves	21,361,000 Tons	-	-	21,361,000 Tons

Recoverable Reserve Data

	Name	Thickness	Ash	Sulfur	Moisture	BTU/Pound
Seam	Gilson	4-6.5 Feet	9.65 %	0.46 %	3.26 %	12,546
Seam	Rock Canyon	5-12 Feet	11.20 %	0.60 %	7.00 %	11,500
Seam	Sunnyside	Average 3.5 Feet	8.76 %	0.53 %	3.64 %	12,528 (Not planned to be mined)
Seam						

Average annual production 820,000 Tons Percent recovery 40 %

Mine life 19 years Date-Production begins - Reaches annual rate 22.5 M Ends 2003

Reserves recoverable by (1) Surface mining - (2) Underground Mining 21.4 M Tons

Reserves lost thru management decision 60 %

Coal market California Portland Cement plant.

CHRONOLOGY OF EVENTS

Soldier Creek Coal Company
Soldier Canyon Mine
Application for Mining Plan and Permit Approval

DATE	EVENT
February 1, 1978:	Soldier Creek Coal Company (SCCC) was granted a 30 CFR 211 permit from the U.S. Geological Survey (USGS).
May 23, 1981:	SCCC submitted permit application and mining plan, under the approved Utah Program, to the Office of Surface Mining Reclamation and Enforcement (OSM).
May 23, 1981:	SCCC filed application in County Courthouse.
May 29, 1981:	USGS provided comments on the permit application to OSM.
September 4, 1981:	OSM provided comments on the permit application, generated during its administrative completeness review (ACR) for National Environmental Policy Act (NEPA), to Utah Division of Oil, Gas and Mining (UDOGM).
July 7, 1982:	SCCC submited additional material in an addendum to the permit application in response to ACR.
March 4, 1983:	UDOGM notified SCCC in a second ACR that their permit application was incomplete.
August 31, 1983:	SCCC submitted a partial response to the March 4, 1983, ACR to UDOGM and OSM.
October 11, 1983:	SCCC submitted the remaining responses to the March 4, 1983, ACR to UDOGM and OSM.
November 9,1983:	OSM announced that SCCC's permit application and mining plan was complete and commenced its TA and EA.

DATE	EVENT
December 14, 1983:	OSM notified SCCC of deficiencies discovered in the Soldier Canyon mine permit application and mining plan in the course of preparation of the TA.
January 27, 1984:	SCCC responded to OSM concerning the December 14, 1983 deficiencies.
March 8, 1984:	OSM notified SCCC of additional deficiencies discovered in January 27, 1984 revision to the permit application and mining plan.
March 30, 1984:	SCCC supplied supplemental information to UDOGM and OSM.
April 27, 1984:	SCCC supplied supplemental information to UDOGM and OSM.
May 29, 1984:	SCCC supplied supplemental information to UDOGM and OSM.
June 13, 1984:	SCCC published fourth consecutive weekly notice in the Sun-Advocate (Price, Utah) that its complete permit application and mining plan has been filed.
August 1, 1984:	SCCC supplied supplemental information to UDOGM and OSM.
August 17, 1984:	SCCC supplied supplemental information to UDOGM and OSM.
September 20, 1984:	OSM prepared draft TA and EA.
October 2, 1984:	SCCC supplied supplemental information to UDOGM and OSM.
November 1, 1984:	OSM submited the draft TA for the Soldier Canyon mine to UDOGM for their review and comments.
November 14, 1984:	SCCC supplied supplemental information to UDOGM and OSM (BLM Right-of-way grant).
November 27, 1984:	OSM notified SCCC of deficiencies discovered in the Soldier Canyon mine permit application and mining plan in the course of preparation of the final TA.

DATE	EVENT
December 14, 1984:	SCCC responded to OSM concerning the November 27, 1984 deficiencies.
December 18, 1984:	UDOGM submited its comments regarding the draft TA for the Soldier Canyon mine to OSM.
December 18, 1984:	OSM prepared Final EA and FONSI.
December 21, 1985:	OSM recommends approval of mining plan.

FINDINGS

Soldier Creek Coal Company
Soldier Canyon Mine

Application for Mining Plan

I. The Office of Surface Mining (OSM) has determined that the permit application submitted on May 23, 1981, and updated through December 18, 1984, and the permit is accurate and complete and complies with the requirements of the approved Utah State Program, the Surface Mining Control and Reclamation Act (SMCRA), and the Federal Lands Program. [UMC 786.19]

II. OSM has reviewed the permit application and mining plan, and prepared the technical analysis (TA). OSM has prepared the environmental assessment (EA) and based on this has made the following findings:

1. The applicant proposes acceptable practices for the reclamation of disturbed lands. These practices have been shown to be effective in the short-term; there are no long-term reclamation records utilizing native species in the Western United States. Nevertheless, the OSM staff has determined that reclamation, as required by the Act, can be feasibly accomplished under the mining plan.

   OSM has determined that reclamation is technologically and economically feasible under SMCRA Section 522. [UMC 786.19 (b); TA, Chapters XIV, XV and XX]

2. The probable cumulative hydrologic impact assessment (PCHIA) of all existing and anticipated mining by surface coal mines in the general area indicates there is an anticipated increase in the annual loads for total dissolved solids (TDS). The maximum TDS load will occur in the mid 1990's but discharge from Soldier Canyon mine will not exceed the NPDES effluent limitation of 1.0 ton per day. The information available indicates that no material damage on existing water users will occur.

   All the portal facilities for the existing and proposed mining operations are located within the Soldier Creek drainage. There is potential for subsidence in the Soldier Creek drainage and directly beneath the creek. However, underground operations will include the retention of support pillars beneath and within 100 feet on both sides of Soldier Creek. The support pillars have been adequately designed to prevent subsidence beneath Soldier Creek. Springs will be monitored and water rights will be replaced if necessary. No material damage from subsidence is anticipated.

The surface and underground operations in the permit have been designed to prevent material damage to the hydrologic balance within and outside the permit area. [UMC 786.19(c); TA, pages 14 through 21 and Attachment 1 (CHIA Summary); PAP, Chapter 7; and National Environmental Policy Act (NEPA) document, pages 8 and 9.]

The surface mine operations proposed under the application have been designed to prevent damage to the hydrologic balance in associated off-site areas. [UMC 786.19(c); TA, pp. 15-17; mining plan or permit application Chapter VII; National Environmental Policy Act (NEPA) compliance document, CHIA pp. 6-2 and 6-3]

3. After reviewing the description of the proposed permit area, OSM determines this area is:

   a. Not included within an area designated unsuitable for surface coal mining operations. [UMC 786.19(d)(1)]

   b. Not within an area under study for designating lands unsuitable for surface coal mining operations. (See Bureau of Land Management correspondence dated March 19, 1984) [UMC 786.19(d)(2)]

   c. Not on any lands subject to the prohibitions or limitations of UMC 761.11(a) (national parks, etc.), 761.11(f) (public buildings, etc.), and 761.11(g) (cemeteries). [UMC 786.19(d)(3); TA, Chapter IV, pp. 12]

   d. Within 100 feet of the outside right-of-way of Utah Highway 53 public road. [UMC 786.19(d)(4); TA, Chapter XXIII, page 30] The applicant has received formal permission from the Carbon County Commissioners to mine within 100 feet of the right-of-way of a public road.

   e. Not within 300 feet of any occupied dwelling. [UMC 786.19(d)(5); DOA response, March 30, 1984, pp.2-10A]

   f. Not unsuitable in accordance with 522(b) of SMCRA.

4. OSM's issuance of a permit and the Secretarial decision on the Mineral Leasing Act plan will be in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800). [UMC 786.19(e); TA, Chapter VI, page 13; State Historic Preservation Officer concurrence letter dated October 4, 1984]

5. The applicant has the legal right to enter and begin surface mining activities in the permit area. [UMC 782.15; PAP, Chapter II, pp. 2-10,]

6. The applicant has submitted proof and OSM's records indicate that prior violations of applicable law and regulations have been corrected. [UMC 786.19(i); personal communication with Frank Atencio, OSM Reclamation Specialist, in OSM Albuquerque Field Office, and Joe Helfrich, UDOGM, on November 14, 1984]

7. OSM's records confirm that all fees for the Abandoned Mine Reclamation Fund have been paid. [UMC 786.19(h); personal communication with John Sender, OSM Fee Compliance Officer, in OSM Albuquerque Field Office on November 13, 1984]

8. OSM and UDOGM records show that the applicant does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act. However, UDOGM is currently reviewing their records to determine the potential of a pattern of violations related to disposal of waste rock. The proposed operations at Soldier Canyon mine includes a waste rock disposal site within the permit area which will provide for proper disposal. [UMC 786.19(i); personal communication with Joe Helfrich, UDOGM, on December 13, 1984; PAP, Volume 4, Waste Rock Disposal Plan]

9. Surface coal mining and reclamation operations to be performed under the permit will not be inconsistent with the Sage Point - Dugout Canyon underground mine in the immediate vicinity of the Soldier Canyon mine. [UMC 786.19(j)]

10. The applicant has provided evidence and OSM has found there are no prime farmlands in the permit area and area for life-of-mine. [UMC 786.19(1); See Soil Conservation Service letter dated July 20, 1983; PAP, page 20]

11. Negative alluvial valley floor (AVF) determinations have been made for the drainages in the proposed permit area and area for life-of-mine. These determinations were made on the basis of the lack of sufficient unconsolidated stream laid deposits to allow subirrigation or flood irrigation agricultural activities to occur. The Soldier Creek valley in the vicinity of the mine is broken and rough and the soils are rocky, making the area additionally unsuitable for subirrigation or flood irrigation agricultural activities. An AVF has been identified 5 miles south of the Soldier Canyon mine, however, OSM has determined that material damage will not occur from the Soldier Canyon mine. [UMC 786.19(1); TA, Chapter X, page 17]

12. As applicable, the permittee shall comply with 30 CFR 701.11(d) and Subchapter B or K for compliance, modification, or abandonment of existing structures.

13. The proposed postmining land use of the permit area has been approved by UDOGM, BLM, and OSM. [UMC 786.19(m)]

14. UDOGM and OSM have made all specific approvals required by the Act, the approved Utah State Program and the Federal Lands Program. [UMC 786.19(n)]

15. The proposed operation will not affect the continued existence of threatened or endangered species or result in the destruction or adverse modification of their critical habitats. [UMC 786.19(n); TA, Chapter XV, page 23, and Chapter XVI, page 26; U.S. Fish and Wildlife Service memorandum dated September 7, 1984]

16. Procedures for public participation have complied with requirements of the Act, the approved Utah State Program, the Federal Lands Program, and Council on Environmental Quality regulations (40 CFR Part 1500 et seq.). [30 CFR 740.13(c)(3); Chronology of Events].

17. The applicant has complied with all other requirements of applicable Federal laws and either have or have applied for permits from Environmental Protection Agency, Mine Safety and Health Administration, Utah Department of Health, and Utah Department of Natural Resources. [30 CFR 746.13(g)]

Administrator
Western Technical Center

Headquarters Reviewing Officer

FINDING OF NO SIGNIFICANT IMPACT

Soldier Creek Coal Company
Soldier Canyon Mine

The technical analysis (TA) and environmental assessment (EA), prepared by OSM and the State of Utah, subsequent to this "Finding of No Significant Impact" statement, identifies certain environmental impacts that would result from the Federal approval of the mining plan for Soldier Creek Coal Company's Soldier Canyon mine. The 5-year permit application, submitted to the State under its approved permanent program, proposes a total permit area of 2,143.8 acres, of which 2,113.8 acres were previously permitted under the interim program and 30 acres were not previously permitted. The permit area encompasses all portions of two Federal leases.

The regional impacts of coal mining in the Uintah basin are addressed in the Bureau of Land Management's "Uintah Southwestern Utah Coal Region, Round II Coal Leases" environmental impact statement.

OSM has determined that impacts to the Soldier Canyon mine area would result from mining Soldier Canyon mine. However, OSM finds that the impacts would not be significant.

Impacts identified by OSM would be mitigated by those appropriate environmental protection measures detailed in the mining plan and proposed conditions attached to the permit.

Based upon the evaluation of impacts given in the TA and EA, I find that no significant impacts to the human environment would result from the proposed mine. Therefore, an environmental impact statement is not required.

Allen D. Klein

Administrator
Western Technical Center

12/24/84
Date

ENVIRONMENTAL ASSESSMENT

SOLDIER CREEK COAL COMPANY

SOLDIER CANYON MINE

INTRODUCTION

Soldier Canyon mine is located on the southern edge of the Book Cliffs in central Utah, about 12 miles north of Wellington and 15 miles northeast of Price, in Carbon County (Figure 1). The proposed life-of-mine and the Surface Mining Control and Reclamation Act (SMCRA) permit areas are the same and include 2143.81 acres (including a proposed 30-acre waste rock disposal area), located within: T. 13 S., R. 11 E., S. L. Meridian, Sections 12, 13, 24, 25, and T. 13 S., R. 12 E., Sections 7, 8, 17, and 18. Two Federal coal leases (SL-051279-063188, 1548.31 acres, and U-50722, 400 acres) are included in the permit area and comprise the area of mining plan approval (Figure 2).

Mining began at the Canyon mine in 1940 by Premium Coal Company. The mine was purchased in 1974 by Soldier Creek Coal Company, which changed the mine's name to the Soldier Canyon mine. Limited production began in 1976 following renovation of the mine. Mining will remove coal from the Rock Canyon and Gilson seams. The Sunnyside seam is present within the permit area but is considered to be too thin to mine.

The regional impacts of coal mining in the Uintah Basin are addressed in the Uintah Southwestern Utah Coal Region, Round II Coal Leases, draft environmental impact statement (1983) prepared by the Bureau of Land Management and in the Development of Coal Resources in Central Utah, final environmental statement (1979) prepared by the U.S. Geological Survey.

Approval of both the SMCRA permit and the mining plan by OSM would provide for mining at Soldier Canyon mine through the year 1989 at a maximum rate of 0.82 million tons per year. Soldier Creek currently ships all coal to a cement plant in California. Soldier Creek Coal Company currently employs 57 people (40 hourly employees and 17 salaried employees) at the Soldier Canyon mine. Employment would increase to 160 during the period of maximum production.

PURPOSE AND NEED OF THE PROPOSED ACTION

Pursuant to 30 CFR 746.14(b), the Secretary of the Interior must approve, disapprove, or conditionally approve the proposed mining plan. Soldier Creek Coal Company submitted an application for a permit supported by a permit application package (PAP) to mine the Gilson and Rock Canyon seams in conformance with the requirements of the SMCRA, the Utah State Program, the Federal Lands Program, and the mineral Leasing Act. This environmental assessment (EA) is written to help the public officials make

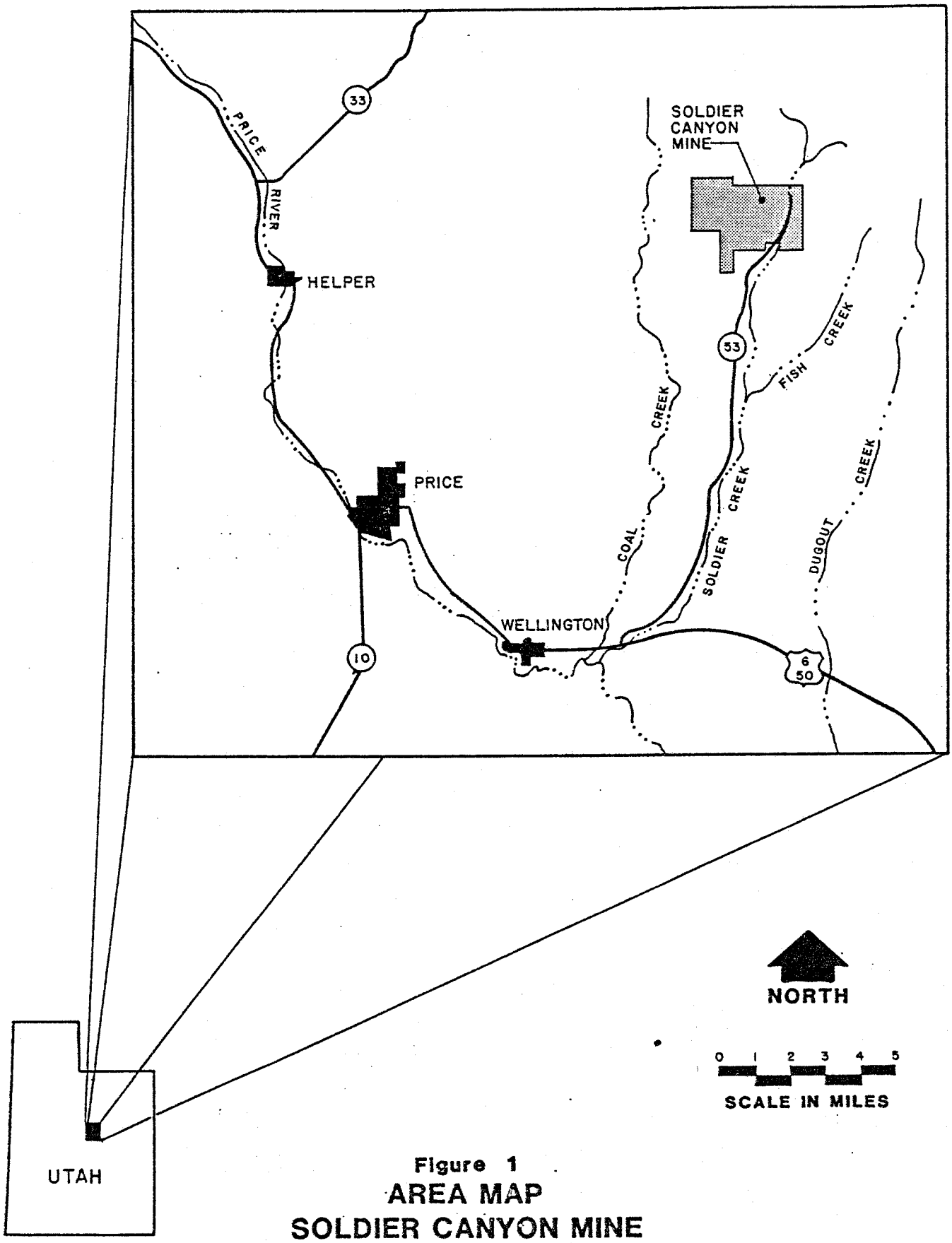

Figure 1
AREA MAP
SOLDIER CANYON MINE

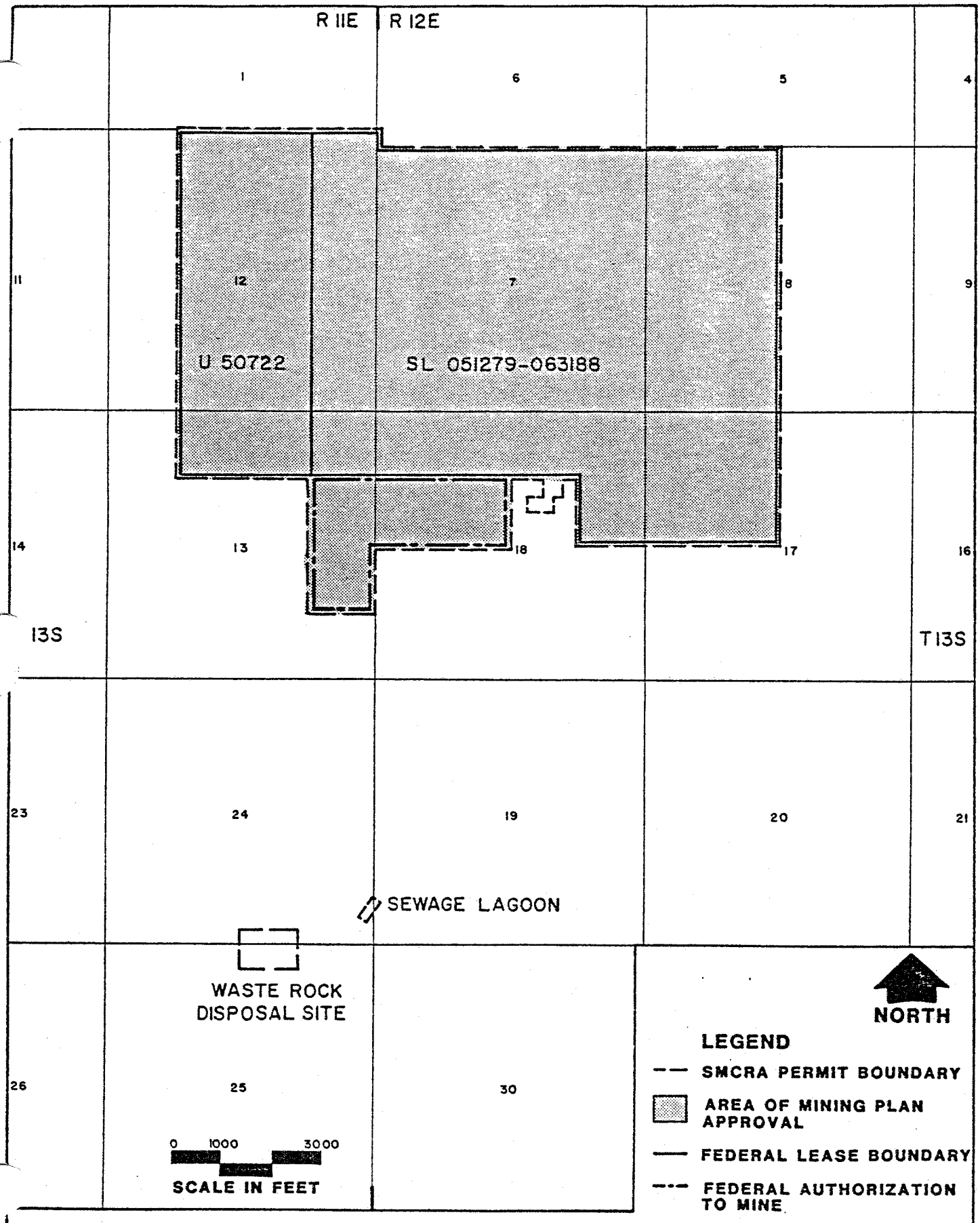

Figure 2

SOLDIER CANYON MINE

decisions that are based on an understanding of the environmental consequences. Frequent cross reference will be made to the accompanying technical analysis (TA) to incorporate material contained therein.

Proposed Action - Approve Soldier Creek Coal Company's SMCRA Permit and Mine Plan With Conditions

This alternative is for the Secretary of the Interior to approve mining in Soldier Creek Coal Company's proposed SMCRA and mine plan area as described in the PAP as updated through December 18, 1984.

During the SMCRA permit term, Soldier Creek Coal Company proposes to continue mining within 2,143.81 acre permit areas for the 5-year life-of-mine. Soldier Creek Coal Company intends to utilize existing facilities and a proposed waste rock disposal area (30 Acres).

The Soldier Creek Coal Company has provided complete and accurate information for the PAP. Therefore, OSM's preferred alternative is to approve the SMCRA permit and mining plan with one standard condition.

ALTERNATIVES

Alternative No. 1: No Action

The Federal mineral leasing laws and existing lease requirements make it necessary for the Secretary of the Interior to respond to applications and approve, disapprove, or conditionally approve mining operations on Federal leases. Therefore, this alternative is not viable and will not be discussed further.

Alternative No. 2: Disapproval of Mine Plan

The disapproval alternative would result in a permanent closure of the existing mine. One of the most noticeable impacts of such a closure would be a permanent loss of about 125 direct and induced secondary job opportunities and associated annual payrolls of $4.0 million in the surrounding region. The greatest losses would be concentrated in Carbon County. Local government revenues and tax bases would also be diminished. There would be a loss of Federal royalties from mining of the coal, all of which is under Federal lease. However, the mine could be reopened at a later date and the coal recovered. Disapproval would also require immediate reclamation of the disturbed areas.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

Topography and Geology

Soldier Canyon mine is located on the southern edge of the Book Cliffs, at elevations ranging from 6,300 feet MSL at the sewage lagoon to 8,000 MSL on the cliff tops above the mine. The Book Cliffs are deeply dissected by box canyons of intermittent streams. Soldier Creek drains the mine plan area. Large sandstone boulders eroded from the cliffs lie on the sides and bottoms of the canyons (U.S. Geological Survey, 1979).

The coal-bearing strata are of the Upper Cretaceous Blackhawk Formation. Three coal seams within the Soldier Canyon permit are: the Sunnyside; Gilson and Rock Canyon. The Sunnyside is too thin to mine. The Castlegate Sandstone and other thick sandstone beds are cliff-forming and account for the rugged topography. The Mancos Shale that underlies the Mesa Verde Group is at the base of the Book Cliffs but is largely covered by debris eroded from above (U.S. Geological Survey, 1979). The formations overlying the coal bearing Blackhawk Formation in the vicinity of the Soldier Canyon mine include in ascending order the Castlegate Sandstone, Upper Price River Formation, North Horn Formation and Flagstaff Formation. Seven springs have been observed to discharge from the top three formations exposed in the area. No geologic structures (faults) have been located in the area (TA, Chapter II, page 8).

Climate and Air Quality

The general climate of the permit area is similar to that of Price, the closest weather recorder, although temperatures at Soldier Canyon mine may be 6 degrees F to 10 degrees F cooler than in Price because of the increase in elevation. Average monthly temperatures in Price range from 25 degrees F in January to 70 degrees to 75 degrees F in July and August. Extreme temperatures of record are -31 degrees F and 108 degrees F. The mean annual precipitation in the vicinity of the Soldier Canyon mine is 12 inches, 6 inches of which fall between May and Septemer. Snow generally falls from January through March. The average frost-free period is approximately 140 days (mid-May to mid-September) (U.S. Geological Survey, 1979).

Air quality has not been monitored near the site but is expected to be similar to that of other rural locations in central and southern Utah. The average background level for total suspended particulates (TSP) is 20 micrograms per cubic meter (ug/m2). The short-term (24 hour) TSP standard may be exceeded in many areas because of windblown dust (TA, Chapter II, page 8).

Surface-Water Resources

Soldier Creek is located in the Price River drainage basin. The confluence of Soldier Creek and the Price River is about 14 miles south of the Soldier Canyon mine, and the Price River flows into the Green River about 45 miles southeast of the Soldier Canyon mine. Other small unnamed ephemeral streams also drain the area.

The headwaters of Soldier Creek are located in the Roan Cliffs and in Whitmore Park which is between the Book Cliffs and the Roan Cliffs. The topography above the base of the Book Cliffs is rugged. Elevations range from above 8,000 feet in Whitmore Park, to 6,700 feet at the portal yard for the Soldier Canyon mine, to about 5,400 feet at the confluence with the Price River. Drainage area for Soldier Creek is about 14,650 acres of which about 11,300 acres are above the portal yard for the Soldier Canyon mine.

Soldier Creek is a perennial stream which flows adjacent to the portal yard of the Soldier Canyon mine. Normal annual stream flow ranges from about 1.0 cubic feet per second (cfs) during low flow periods and 30 cfs during snowmelt periods. Soldier Creek loses water in the reach below the Star Point Sandstone, and the creek is dry during the low flow periods at the confluence with the Price River (TA, Chapter II, pages 8 and 9).

Ground-Water Resources

The ground-water resource of greatest concern in the vicinity of the Soldier Canyon mine is the alluvial ground-water system hydraulically connected with Soldier Creek. Mining beneath Soldier Creek has produced approximately 20 gallons per minute collectively from a mine related drill hole encountered in the mine and from the ventilation shaft that extends through the alluvium. An additional 50 gallons per minute currently enters the mine from diffuse sources from the lenticular sandstones, and coal of the Blackhawk Formation. The lack of faulting in the area does not provide any preferred paths for ground-water movement. Three springs in the area of potential subsidence have been observed discharging from Price River Formation, North Horn Formation and Flagstaff Formation. These water bearing strata generally occur at several hundred feet above the coal seams being mined. No wells exist in the area (TA, Chapter II, page 9).

Soils

The soils in the narrow canyons along the Book Cliffs are formed primarily from sandstone colluvium and bedrock. These soils are very cobbly to stony, medium textured and neutral to moderately alkaline. Depths generally range from 1 to 6 feet. These soils are well drained with rapid runoff (TA, Chapter II, page 9).

OSM has determined that no prime farmlands exist within the permit area (TA, Chapter XVII, page 28).

Vegetation

The Soldier Canyon mine SMCRA permit area includes 6 general vegetation communities: Douglas-fir (52 percent), mountain brush (13 percent), sagebrush-grassland (10 percent), pinyon-juniper (8 percent), riparian woodland (5 percent), and mountain sagebrush (2 percent). The remaining 10 percent of the permit area is unvegetated rock outcrop. No threatened or endangered plant species have been identified in the permit area. No critical habitats for threatened or endangered species occur within the permit area (TA, Chapter II, page 9).

Fish and Wildlife

The vicinity of the Soldier Canyon mine provides habitats for a variety of wildlife. More than 360 species of vertebrates use the area. The mine permit area includes high-priority winter range for mule deer and elk. Mountain lions and black bears also use the area around Soldier Canyon mine. Numerous smaller predators inhabit the area. Golden eagle nest sites have been identified within two miles of the permit boundary.

While the permit area is within the historic range of the American peregrine falcon (Falco peregrinus), black-footed ferret (Mustela nigripes), bald eagle (Haliautus leucocephalus) and within the Colorado River Basin habitat for the Colorado squawfish (Ptychocheilus lucius) and humpback chub (Gila cypha), the U.S. Fish and Wildlife Serivce (USFWS) has determined that Soldier Creek Coal Company's Soldier Canyon mine will not affect these species. (See USFWS memorandum dated September 7, 1984.) No critical habitats for threatened or endangered species occurs within the permit area.

Soldier Creek is the only perennial stream in the permit area. It does not support a fishery due to extreme low flows during the summer (TA, Chapter II, page 10).

Land Use

The lands in the vicinity of Soldier Canyon mine are used for industry, agriculture, recreation and wildlife habitat. Following the cessation of mining the mine permit area will be returned to the premining land uses including rangeland and wildlife habitat (TA, Chapter II, page 10).

Cultural Resources

A few prehistoric resources, in the form of lithic scatters, are recorded by the BLM to be in the permit area. The sparsity of resources could, however, be an indication of the lack of surveys in the area rather than the lack of resources. The

Soldier Creek Coal Company was required to conduct a 10 percent sample inventory of the area over the underground workings and waste rock disposal area (TA, Chapter II, page 10).

Socioeconomics

The current work force at Soldier Canyon mine is approximately 57 employees. Employment is expected to remain fairly constant with a maximum possible employment of 160 in 1990. No expansion of operations which would increase employment requirements is planned.

Employees generally reside in three areas: Price (54 percent), Helper (18 percent) and Wellington (28 percent). The communities benefit both directly and indirectly by the operation of Soldier Canyon mine. The primary benefits are employment opportunities and property tax revenues (TA, Chapter II, page 10).

Transportation

Soldier Canyon mine is approximately 15 miles northeast of Price and 12 miles north of Wellington. Access to the mine is on Utah Highway 53 from U.S. Highways 6 and 50. Mine facilities are adjacent to the road. The mine provides bus service from Price and Wellington for employees in an attempt to reduce traffic on the road. The two primary highways providing access to the Soldier Canyon mine, U.S. 6 and County Road 53, have both been identified as deficient and in need of improvement. Highway U.S. 6 is the major east-west route in the region. U.S. 6 and County Road 53 provide access to Soldier Canyon mine from the local communities. These roads also serve as haul roads for transporting coal from the mine to the railroad siding east of Wellington. Improvements to U.S. 6 near Price have been ongoing for several years. Plans of the Utah Department of Transportation call for the extension of improvements between Price and Wellington and through Wellington over the next 3-5 years. The segment of U.S. 6 through Wellington is to be widened and resurfaced, thereby improving vehicular flow and safety.

County Road 53 also serves as an access road to other areas of coal reserves (for example, the proposed Sage Point-Dugout Canyon mine), Duchesne County to the north, and recreation and agricultural areas (TA, Chapter II, page 10 and Chapter XXIII, pages 30 and 31).

Impacts of the Proposed Action

Soils

Approval of the PAP with conditions will not cause adverse long-term impacts to permit area soils. Soils of the 11.5 acre mine and sewage lagoon areas have already been disturbed by mining operations which began in the early 1900's and have

continued to date. Approximately 30 acres of new disturbance is proposed in the PAP for the waste rock disposal Area. In the areas of disturbance, soil pedogenic development has, or will be lost, including developments in soil structure.This will increase the potential for soil erosion. These long-term impacts, however, will be mitigated by proposed reclamation operations. The proposed reclamation plans will result in the restoration of soil material for both recently and historically disturbed areas; therefore, all disturbed areas will be returned to conditions which will again allow the natural development of the soil resource (See TA, Chapter XIV, pages 22 and 23).

Vegetation

For a description of the plant communities found within the mining plan area see Chapter XV of the accompanying TA. Past mining activities have removed approximately 11.5 acres of native vegetation at the facility and sewage lagoon areas. Approximately 30 acres of additional vegetation impacts are anticipated at the waste rock disposal area. The revegetation plan proposes to restore the total 41.5 acres of disturbance. Approval of the mining plan will not result in long-term adverse impacts on vegetation resources. Approximately one acre of riparian woodlands (a high-value wildlife habitat) has been removed by mining activities. The reclamation plan will satisfactorily restore this community type. Long-term adverse vegetation impacts are not anticipated for the following reasons: (1) adequate revegetation with native plant species is practical as proposed; (2) all disturbed areas will be revegetated; (3) no further mining disturbances are anticipated within the permit area; and (4) field trials will be conducted to test the suitability of the proposed revegetation plan and to revise it as necessary. There are no known threatened or endangered plant species or associated critical habitats present in the mining plan area (TA, Chapter XV, pages 23 through 25).

Surface-Water Hydrology

Soldier Canyon mine is located adjacent to Soldier Creek, a perennial stream in the Price River Basin. The mine is within the buffer zone of Soldier Creek, but analysis of the available data indicates that the coal mining activity is not degrading the quality of water in the stream. Some surface recharge water is intercepted by drill holes from the mine, and this will be discussed under ground-water hydrology.

The Soldier Canyon mine is currently in compliance with all regulations pertaining to the design, construction, maintenance, and reclamation of the runoff and sediment control system. Their current surface-water monitoring program is also in compliance (TA, Chapter VIII, page 14, and Chapter XII, pages 18 and 19).

Ground-Water Hydrology

There is slight possibility that the flow of Soldier Creek could be affected by subsidence associated with the Soldier Creek mine. At the present time approximately 20 gallons per minute is lost from the Soldier Creek alluvial ground-water system into the mine via an old drill hole encountered in the mine and via the ventilation shaft. This is loss of water from the alluvial ground-water system and has a negligible affect on the streamflow in Soldier Creek. Soldier Creek Coal Company has provided an adequate mitigation sequence if subsidence should affect the flow of Soldier Creek.

Three springs overlying the mine could be affected by subsidence associated with mining and 4 springs around the mine could potentially be dewatered during mining as a result of dewatering operations in the Soldier Canyon mine. These effects are considered possible but unlikely because of the extreme overburden thickness (approximately 900 feet) between the mine and the springs and the poor hydraulic connection with the overlying water bearing North Horn and Flagstaff Formations. Soldier Creek Coal Company has committed their water rights (.25 cfs) to replace potentially affected Sun Energy Company water rights (not exceeding 8 acre-feet per year or .011 cfs) and to replace potentially affected important wildlife water sources. They have also provided an adequate plan to restore affected water sources. The construction of the waste rock disposal site will not have an effect on ground-water resources because the underlying Mancos Shale is not a water-bearing strata (TA, Chapter IX, pages 16 and 17 and Chapter XII, pages 19 and 20).

Fish and Wildlife Resources

Approval of the mining and reclamation plan will not cause long-term adverse fish and wildlife impacts. Reasons for this conclusion include: (1) the actual area of mining disturbance is very small (approximately 41 acres) and all the disturbance will be reclaimed to wildlife habitat; (2) major wildlife displacements and impacts have already been caused by the existing facilities; (3) restoration of pre-mining wildlife habitats is technically and practically feasible; and (4) essentially all disturbed habitats would be revegetated with plant species which are of use to wildlife. Continued operations of the existing facility and development of the waste rock disposal site will not cause new or different wildlife impacts. The only perennial stream in the mine permit area does not support a fishery because of highly seasonal flow conditions unrelated to mining activities. Mining activities will not affect the continued existence of endangered or threatened species or result in impacts to critical supporting habitats. (See USFWS Memorandum dated September 7, 1984). Large raptors will be protected from accidental electrocutions and nesting disturbances. Golden eagle nest sites have been identified in several areas within 2 miles of the Soldier Canyon permit

boundary. The mining operations are not expected to affect nesting activities because none of the nest sites is within a mile of the mine operation facilities and only one site is within a mile of the mine access road. Impact to key or important habitats will be adequately mitigated with the development of equivalent habitats and/or substitute resources (TA, Chapter XVI, pages 26 through 28).

Overburden

The Soldier Creek Coal Company proposed to use overburden material to backfill highwalls, portals, and flatten out existing steep slopes. The Soldier Creek Coal Company has provided results from tests and calculations which will demonstrate compliance with slope stability and factors of safety for the backfilled areas. Underground development wastes will be disposed of within the mine and waste rock disposal area (TA, Chapter VII, page 14 and Chapter XX, page 29 and TA, Volume III).

Subsidence

A limited number of renewable resources and structures have been identified in the permit area: springs, Soldier Creek, Mountain Fuel Corp. gas pipeline, and County road 53. No other structures or renewable resource lands have been identified in the proposed mining area.

Controlled subsidence is expected to ocur over the mine workings outside Soldier Creek valley. The maximum predicted subsidence is expected to range from 3.6 feet over shallow cover (less than 900 feet) to 1.6 feet over thick cover(more than 900 feet). No impacts to springs is anticipated due to the thick layers of Castlegate sandstone which serves as a bridge over the mined-out areas.

No subsidence is expected to occur within Soldier Creek valley. Support pillars will be left in place within 100 to 500 feet of either side of Soldier Creek, dependent upon the thickness of the overburden. The pillar design and stability has been demonstrate to have a safety factor of 4.2. In the unlikely event subsidence occurs or an unknown geologic structural is encountered that affects Soldier Creek, the company has committed to mitigate impacts to the creek by sealing the source of flow from within the mine, pump water back into Soldier Creek, and possibly line the creek channel. Soldier Creek Coal Company has also committed to replace any potentially affected water rights (TA, Chapter XXVI, pages 32 and 33).

Socioeconomics

Coal mining has occurred in the region since before the turn of the century and the predecessor of Soldier Canyon, the Premium Coal Company began operations at the Soldier Canyon minesite in 1935.

Continuation and expansion of mining operations at Soldier Creek's facility would result in limited direct and indirect impacts of both a beneficial and adverse nature over the life-of-mine. Beneficial impacts include maintenance of existing direct and secondary employment opportunities and additional jobs in the future. At the projected peak of 160 operating employees (about year 1990), the Soldier Canyon mine would generate 105 secondary service sector jobs. Total peak employment associated with the proposed action would, therefore, equal 255 jobs, a 104 percent increase over current levels. Higher employment levels translate into increased sales for local business and higher personal earnings in the region. Public sector revenues, such as retail sales tax collections would increase. Additional employment would also help lower the region's high unemployment (19 percent in the third quarter 1983). Based on average earnings in the mining sector and in the secondary service sectors, the current direct and induced contribution to local earnings is approximately $4.0 million. At peak production and employment, the total contribution to local personal earnings would be nearly $6.0 million (1983 dollars).

Peak employment (about year 1990) at the Soldier Canyon mine would be approximately 160 persons. Given current economic conditions and the large unemployed labor pool, most of the existing and future jobs are expected to be filled by current residents of Carbon County. Thus, very few, (i.e., less than 20 percent) of the jobs and associated population are expected to be filled by in-migrants. Recent population projections from the Utah State Planning Coordinator's Office estimate Carbon County's population to increase from 24,600 in 1982, to 35,200 in 1990 and 37,650 by the year 2000. Thus, the 660 persons associated with the Soldier Canyon mine represent 2.7 percent of the total 1982 population and 1.9 percent of the estimated 1990 population.

Based on the residency pattern of current employees and Price's role as the regional service center, virtually all of the growth would occur in Wellington, Price and Helper. Increased demands on other elements of the socioeconomic environment, such as housing and public services, would accompany increased local population and employment. Public sector revenues and expenditures would also increase. However, whereas these communities had been experiencing some problems in providing adequate infrastructure and service capacity in the latter half of the 1970's and early 1980's, the combined effects of a reduced rate of population growth, the initiation and completion of several major capital facilities improvement programs and substantial additions to the local housing stock have significantly improved the region's ability to accommodate additional growth. Given the relatively small population impact associated with the Soldier Canyon mine and the expectation that many employees can be hired from the existing local labor force, these impacts are not considered significant.

Indirect, unavoidable, adverse impacts associated with the proposed action would occur in the following resource areas:

- increased consumptive use of water and increased sewage effluent discharges;
- increased recreation participation and pressures on local hunting, fishing and camping resources; and
- additional vehicular traffic on the local highway network with resulting impacts on air quality, highway deterioration, congestion and reduced human safety.

Overall, these impacts are not considered to be significant.

Cultural Resources

Literature research conducted by the Soldier Creek Coal Company and the results of previous studies conducted in the vicinity of the permit area indicate a high probability that the permit area contains prehistoric and/or historic sites. Literature searches conducted in 1980 and 1983 by the Soldier Creek Coal Company through the Utah Division of State History and the Bureau of Land Management (PAP Volume III Chapter 5 and DOA response) revealed that 11 prehistoric sites have been recorded in the vicinity of the permit area. Investigations conducted in the nearby Sage Point-Dugout Canyon mine permit area resulted in the identification of 9 historic and 23 prehistoric sites of which 12 have been recommended as eligible for nomination to the National Register of Historic Places (NRHP). The study concluded that Soldier Creek was a prehistoric avenue of movement and that sites tend to be located along major creeks and tributaries and the pinyon-juniper ecosystem of the lower foothills.

The Soldier Creek Coal Company states that the Soldier Canyon permit area was the site of historic coal mining activities as early as 1906 and that the mine was operated by the Premium Coal Company from 1935 through 1972 (PAP Volume I, page 1-1). However, any historic sites which may have existed in the current facilities areas were most likely destroyed during the more recent site renovation efforts (DOA response).

In response to OSM requirements, the Soldier Creek Coal Company has conducted a survey of a 210-acre area specified by OSM as having a high potential for containing cultural resource sites (Berry, 1984). Only one historic and one pre-existing isolated find, considered ineligible for nomination to the NRHP, were located during this study. The inventory was designed to assess the potential effects of subsidence on sensitive cultural types suchs as rock art, rock shelters, and prehistoric or historic structures, and the negative results of the inventory adequately demonstrates that subsidence within the permit area will pose little or no threat to sensitive site types. The waste rock disposal area was also inventoried during the study.

Historic site 42 CB 437, consisting of rock alignments and a check dam, was recorded on the western edge of the survey area. The site is recommended as ineligible for nomination to the NRHP (DOA response, August, 1984).

One rock shelter, lacking evidence of prehistoric or historic use, was noted in the permit area. If the subsidence monitoring program indicates that the rock shelter will or may be damaged by subsidence, OSM, UDOGM, and/or the SHPO may request test excavation to determine the presence or absence of subsurface evidence of historic or prehistoric occupation.

OSM has received Utah State Historic Preservation Officer (SHPO) concurrence with a Determination of No Effect/No Adverse Effect for the project on the basis of the Soldier Creek Coal Company's inventory and the inclusion of the standard condition regarding emergency discoveries of cultural sites (See letter dated October 4, 1984.). Should additional ground surface disturbance be proposed in the future, an intensive pedestrian inventory will be conducted to locate and record cultural sites.

Transportation

County Road 53 is paved as far as the Soldier Canyon mine. According to local officials, Road 53 is in need of resurfacing and bridge replacement work. There are no plans for accomplishing these improvements due to the lack of funds. The needs will increase as Soldier Canyon increases production and Sage Point-Dugout Canyon mine starts operations. It is not known whether any efforts will be made by the County or the Sage Point proponent to improve Road 53 at that time (TA, Chapter XXIII, pages 30 and 31).

LONG-TERM IMPACTS

Long-term impacts that would occur if the mine plan is approved with conditions are: maximum recovery of coal (21.4 million tons); continued employment of approximately 150 employees total plus indirect secondary employment, eventually increasing to approximately 160 employees; possible subsidence on some parts of the permit area; generation of fugitive dust; minor adverse effects to wildlife due to the presence of men and machinery in the area; and potential loss of some springs or seeps in the area.

IMPACTS OF ALTERNATIVE NO. 2

Disapproval would result in the permanent closure of the existing mine which has been in operation since 1976. One of the more noticeable impacts of the closure would be the loss of approximately 165 direct and indirect secondary job opportunities and associated annual payrolls of $4.0 million in the region. Local government revenues and tax bases would also be diminished. The losses would be concentrated in Carbon County.

Local government revenues and tax bases would also be diminished. The losses would be concentrated in Carbon County.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING

CONFIRMATION/REPORT OF TELEPHONE CONVERSATION

TO		FROM	
	Name James Munson		**Name** Mark Humphrey
	Office U.S. Fish and Wildlife Service		**Office** OSM-WTC
	Location Salt Lake City, Utah		**Location** Denver, Colorado
	Telephone Number ~~(801)~~ FTS 588-5649		**Telephone Number** FTS 564-3806

Purpose of Call:

Confirm U.S. Fish and Wildlife Service's concurence with OSM's recommendation to approve Soldier Creek Coal Company's Soldier Canyon mine permit application with conditions.

Explanatory Remarks:

Mr. Munson confirmed US FWS's concurence with OSM's recommendation for approval of the Soldier Canyon mine permit application with conditions. A memorandum has been prepared by FWS and was mailed 12/20/84 indicating their concurence.

12/21/84
(Date)

Mark R. Humphrey
(Signature)

NH 7/17/84
RHS 9114184

United States Department of the Interior

FISH AND WILDLIFE SERVICE
AREA OFFICE COLORADO—UTAH
1311 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138-1197

IN REPLY REFER TO:

September 7, 1984

MEMORANDUM

TO: Robert Schueneman, Chief, Technical Support Branch, Office of Surface Mining, Denver, Colorado

FROM: Field Supervisor, Endangered Species Office, U.S. Fish and Wildlife Service, Salt Lake City, Utah

SUBJECT: Biological Assessment, Soldier Canyon Mine, Carbon County, Utah

This responds to your memorandum of July 25, 1984 concerning Section 7 consultation on the subject mine. It was your determination that the permitting of the existing mine would not affect the peregrine falcon (Falco peregrinus), black-footed ferret (Mustela nigripes), bald eagle (Haliaeetus leucocephalus), Colorado squawfish (Ptychocheilus lucius) or humpback chub (Gila cypha).

The Endangered Species Office, U.S. Fish and Wildlife Service, concurs with the determination because of the following reasons.

Terrestrial Species

All surface disturbance from the proposed action has already occurred. Since no further surface disturbance is proposed there would be no effect on bald eagle roost trees, peregrine falcon potential nest sites or prairie dog towns.

Aquatic Species

Water evaporation from coal brought to the surface and operation of a ventilation system cause the loss of 52.2 acre-feet per year from the Colorado River system. The Soldier Creek Coal Company is now discharging 113 acre-feet per year into Soldier Creek. This water comes from a ground water source that would otherwise move into a deep water system to unknown, distant discharge points. The operation of this mine will then augment the flow of

Soldier Creek by at least 61 acre-feet per year. Upon completion of mining, the discharge would cease along with the evaporative losses. Since no depletion of water will occur the Colorado squawfish and humpback chub would not be affected.

Fred L. Bolwahnn
Field Supervisor

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
UTAH STATE OFFICE
324 SOUTH STATE, SUITE 301
SALT LAKE CITY, UTAH 84111-2303

IN REPLY REFER TO
3482
SL-051297
(U-921)

December 17, 1984

Memorandum

To: Utah Senior Project Manager, OSM, Denver

Attn: Mark Humphrey

From: Chief, Mining Law and Solid Minerals, BLM-SO, Salt Lake City

Subject: Soldier Creek Coal Company, Soldier Canyon Mine, Carbon County, Utah, Permit Application Package (PAP)

The Resource Recovery and Protection Plan (R_2P_2) or underground mining part of the subject PAP was considered adequate for BLM administration of the associated Federal coal leases. Our memorandum dated May 2, 1984, stated that the R_2P_2 on file in this office conforms with 43 CFR 3482.1(c) rules and regulations, and that the proposed coal recovery procedures will safely obtain maximum recovery of the coal resource within the plan area using current technology and available mining equipment. Since that time we have received the following information and data:

1. Maps and pages forwarded with your letter dated May 8, 1984, and identified as "04/27/84 submittal of revisions for mining and reclamation plan in response to OSM 03/08/84 draft DOA."

2. Maps and pages forwarded with your letter dated June 11, 1984, and identified as "05/29/84 submittal of revisions for mining and reclamation plan in response to 05/18/84 Salt Lake City meeting."

3. One volume forwarded with your letter dated August 9, 1984, and identified as "additions to the January 1984 submittal; documents, maps."

We have reviewed the supplemental information and data listed above and have determined there are no conflicts with the planned coal recovery procedures or with future recovery of coal resources.

We concur with the Soldier Canyom mine R_2P_2 plan on file in this office as amended and recommend that it be included as an integral part of the subject PAP.

J. Th. Moffitt

cc: Soldier Creek Coal
USOGM
DM-MDO
PRRA

Date Time

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Moab District

OSM-WTR

1984 NOV 13 AM 8:57

IN REPLY REFER TO:
3450
(U-066)

To : Center Administrator, OSM, Denver
Attn: Mark Humphrey
From : District Manager, Moab

Date: NOV 9 1984

Subject : Soldier Creek Coal Company; Final Concurrence

Your transmittal dated November 2, 1984 provided additional vegetation information for the Soldier Canyon Mine and asked for our final concurrence with the mine permit application. Since our previous memo of final concurrence dated July 6, 1984, additional revisions to the plan have been submitted consisting primarily of a waste rock disposal area proposal. By our memo dated November 7, 1984, we provided our response to that proposal. By this memo we grant our final concurrence with the permit application as it currently exists without any additional conditions.

Kenneth V Rhea

OSC-1541-2

SCOTT M. MATHESON
GOVERNOR

STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

MELVIN T. SMITH, DIRECTOR
300 RIO GRANDE
SALT LAKE CITY, UTAH 84101-1182
TELEPHONE 801/533-5755

October 4, 1984

Rex L. Wilson
Chief Archeologist
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1020 15th Street
Denver, Colorado 80202

RE: Soldier Creek Coal Company's Soldier Canyon Mine

In Reply Refer to Case No. G703

Dear Mr. Wilson:

The Utah Preservation Office has received for consideration your letter of September 24, 1984, concerning Soldier Creek Coal Company's Soldier Canyon Mine. After review of the material provided about the project, and site 42Cb437, the Utah Preservation Office would concur with your determination that the site is not eligible for the National Register, and that the project as proposed, with enclosed conditions, would have no effect on cultural resources. This determination is made as outlined by 36 CFR 800.

The above is provided on request as information or assistance. We make no regulatory requirement, since that responsibility rests with the federal agency official. However, if you have questions or need additional assistance, please let us know. Contact Jim Dykman at 533-7039.

Sincerely,

Wilson G. Martin
Deputy State Historic
Preservation Officer

JLD:jrc:G703/0918V

State History Board: Milton C. Abrams, Chairman • Thomas G. Alexander • Philip A. Bullen • J. Elton Dorman • Elizabeth Griffith
Wayne K. Hinton • Dean L. May • David S. Monson • William D. Owens • Helen Z. Papanikolas • Anang A. Yang

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING

This permit, UT-0023, 12/84 which incorporates Utah Permit ACT/007/018, is issued for the United States of America by the Office of Surface Mining (OSM) to:

Soldier Creek Coal Company
P.O. Box I
Price, Utah 84501

for the Soldier Canyon mine. Soldier Creek Coal Company is the lessee of Federal coal leases SL-051279-063188 and U-50722.

Sec. 1 STATUTES AND REGULATIONS - This permit is issued pursuant to the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. 1201 et seq., hereafter referred to as the Act, and the Federal coal leases issued pursuant to the Mineral Leasing Act of February 15, 1920, as amended, 30 U.S.C. 181 et seq., the Federal Coal Leasing Amendments Act of 1976, as amended 30 U.S.C. 201 et seq. and in the case of acquired lands, the Mineral Leasing Act for Acquired Lands of September 7, 1947, as amended, 30 U.S.C. 351 et seq. This permit is also subject to all regulations of the Secretary of the Interior including, but not limited to, 30 CFR Chapter VII and 43 CFR Part 3400, and to all regulations of the Secretary of Energy promulgated pursuant to Section 302 of the Department of Energy Organization Act of 1977, 42 U.S.C. 7152, which are now in force or, except as expressly limited herein, hereafter in force, and all such regulations are made a part hereof.

Sec. 2 The permittee is authorized to conduct surface coal mining and reclamation operations on the following described Federal lands (as shown on ownership map) as well as on such other lands within UT-0023 affecting or affected by those operations on Federal lands within the Soldier Canyon mine permit area situated in the State of Utah, Carbon County, and located within:

Township 13 South, Range 11 East, Salt Lake Meridian;

Section 12: E1/2, E1/2W1/2;
Section 13: N1/2NE1/4, NE1/4NW1/4, SE1/4NE1/4, NE1/4SE1/4;
Section 24: S1/2S1/2SW1/4SE1/4;
Section 25: N1/2NW1/4NE1/4.

Township 13 South, Range 12 East, Salt Lake Meridian;

Section 7:	All;
Section 8:	W1/2;
Section 17:	NW1/4;
Section 18:	Lots 1 & 2 (W1/2NW1/4), E1/2NE1/4, NW1/4NE1/4, E1/2NW1/4, Portions of the N1/2SW1/4NE1/4

and to conduct underground coal mining and reclamation operations on the foregoing described property subject to the conditions of the leases, the approved mining plan, and Utah State permit ACT/007/018, issued concurrently with the Federal permit (UT-0023, 12/84), including all conditions, and all other applicable conditions, laws and regulations.

Sec. 3 This permit is issued for a term of 5 years from the date of issuance, except that this permit will terminate if the permittee has not begun the surface coal mining and reclamation operations covered herein within 3 years of the date of permit issuance.

Sec. 4 The permit rights may not be transferred, assigned, or sold without the approval of the Director, OSM. Request for transfer, assignment, or sale of permit rights must be done in accordance with 30 CFR 740.13(e) and UMC 788.18.

Sec. 5 The permittee shall allow the authorized representatives of the Secretary, the Utah Division of Oil, Gas and Mining including, but not limited to, inspectors and fee compliance officers, without advance notice or a search warrant, upon presentation of appropriate credentials, and without delay to:

a. Have the rights of entry provided for in 30 CFR 842.13 and UMC 782.15; and,

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

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

Sec. 7 The permittee shall minimize any adverse impact to the environment or public health and safety resulting from noncompliance with any term or condition of this permit, including, but not limited to:

a. Accelerated monitoring to determine the nature and extent of noncompliance and the results of the noncompliance;

b. Immediate implementation of measures necessary to comply; and

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

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

Sec. 9 The permittee shall conduct its operations:

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

b. Utilizing methods specified as conditions of the permit by Utah Division of Oil, Gas and Mining and OSM in approving alternative methods of compliance with the performance standards of the Act and the Federal Lands Program, UMC 786.19(m), and Subchapter K.

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

Sec. 11 Upon expiration, this permit may be renewed for areas within the boundaries of the existing permit in accordance with the Act, the approved Utah State Program and the Federal Lands Program.

Sec. 12 If during the course of mining operations previously unidentified cultural resources are discovered, the applicant shall ensure that the site(s) is not disturbed and shall notify the State regulatory authority and OSM. The State RA, after coordination with OSM, shall inform the operator of necessary actions required.

Sec. 13 The operator shall pay all reclamation fees requied under 30 CFR, Chapter VII, Subchapter R, for coal produced under this permit.

Sec. 14 APPEALS - The permittee shall have the right to appeal: (a) under 30 CFR 775 from actions or decisions of any official of OSM; (b) under 43 CFR 3000.4 from an action or decision of any official of the Bureau of Land Management; (c) under 30 CFR 290 from an action, order, or decision of any official of the BLM Branch of Solid Minerals; or (d) under applicable regulations from any action or decision of any other official of the Department of the Interior arising in connection with this permit. The appeal period commences with the date of publication of the notice of decision in the newspaper.

Sec. 15 SPECIAL CONDITIONS - In addition to the general obligations and of performance set out in the lease(s), Utah State permit ACT/007/018 (to be issued subsequent to this permit) and this permit, the permittee shall comply with the special conditions of Utah State permit ACT/007/018. These conditions are also imposed upon the permittee's agents and employees. The failure or refusal of any of these persons to comply with these conditions shall be deemed a failure of the permittee to comply with the terms of this permit and the lease. The permittee shall require his agents, contractors, and subcontractors involved in activities concerning this permit to include these conditions in the contracts between and among them. In accordance with 30 CFR Part 774 (1983) these conditions may be revised or amended, in writing, by the mutual consent of the grantor and the permittee at any time to adjust to changed conditions or to correct an oversight. The grantor may, by order, require reasonable revision of this permit to ensure compliance with the Act and the regulatory program.

THE UNITED STATES OF AMERICA

By: Allen D. Klein
Administrator, Western Technical Center

5/31/85
Date

TECHNICAL ANALYSIS

FOR THE

SOLDIER CREEK COAL COMPANY

SOLDIER CANYON MINE

DECEMBER, 1984

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I. INTRODUCTION

Soldier Creek Coal Company, a division of California Portland Cement, submitted a permit application package (PAP) to the Utah Division of Oil, Gas and Mining (UDOGM) and to the Office of Surface Mining (OSM) on May 23, 1981, in order to bring its Soldier Canyon mine into compliance with the permanent Utah State Coal Program for the next 5 years of mining. This original submittal, in conjunction with the applicant's responses to the apparent completeness review (ACR) (received August 31, September 9, and October 11, 1983) and determination of adequacy (DOA) (received January 27, March 30, and April 27, 1984), comprise the PAP for the Soldier Canyon mine. The following technical analysis (TA) evaluates this PAP (UT-0023) for compliance with the Surface Mining Control and Reclamation Act (SMCRA) of 1977. The responses to the ACR's and DOA's have been compiled into three volumes and are collectively referred to as the PAP in this document.

Soldier Canyon mine is located on the southern edge of the Book Cliffs in central Utah, about 15 miles northeast of Price, Carbon County, Utah (Figure 1). The life-of-mine and SMCRA permit areas are the same and include 2,143.81 acres (including the the 30-acre waste rock disposal area), located within:

> Township 13 South, Range 11 East, Salt Lake Meridian, Sections 12, 13, 24, and 25; and Township 13 South, Range 12 East, Salt Lake Meridian, Sections 7, 8, 17, and 18.

Two Federal coal leases (SL-051279-063188 and U-50722) are included in the permit area and the mining plan area.

In addition to providing the application requirements for the Utah Regulatory Program, the PAP includes information required for the Secretary of the Interior to make a decision on Soldier Creek Coal Company's mining plan for the Soldier Canyon mine. The proposed SMCRA permit area (identical to life-of-mine area), and the proposed mining plan area (identical to the resource recovery and protection plan area) are shown in Figure 2. The 5-year and life-of-mine progressions of mining within the proposed SMCRA permit area for the Rock Canyon and Gilson coal seams are shown in Figures 3 through 6. Unless otherwise indicated, all sections of this TA were reviewed using the Utah Regulatory Program as referenced.

Mining began at the Canyon mine in 1940 by Premium Coal Company. The mine was purchased in 1974 by Soldier Creek Coal Company and the mine's name changed. Limited production began in 1976 following renovation of the mine. Mining will remove coal from the Rock Canyon and Gilson seams. The Sunnyside seam is present within the permit area but is considered to be too thin to mine.

Approval of the SMCRA permit by OSM and UDOGM and the mining plan by the Secretary of the Interior would provide for mining at Soldier Canyon mine through the year 2003 at a maximum rate of 0.82 million tons per year. Soldier Creek Coal Company currently ships all coal to a cement plant in California. Soldier Creek Coal Company currently employs approximately 57 people at the Soldier Canyon mine. Employment would increase to 160 during the period of maximum production.

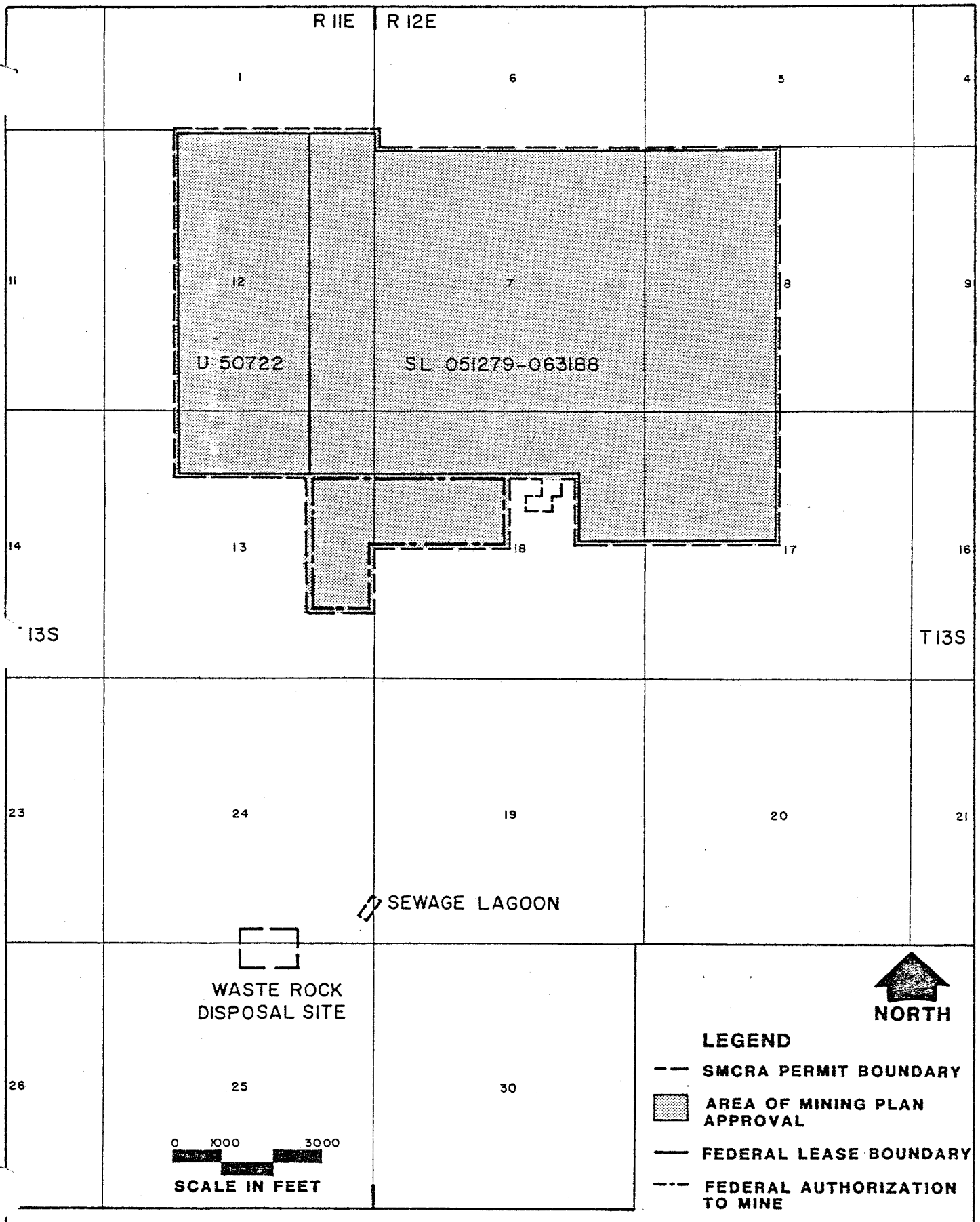

Figure 1

SOLDIER CANYON MINE

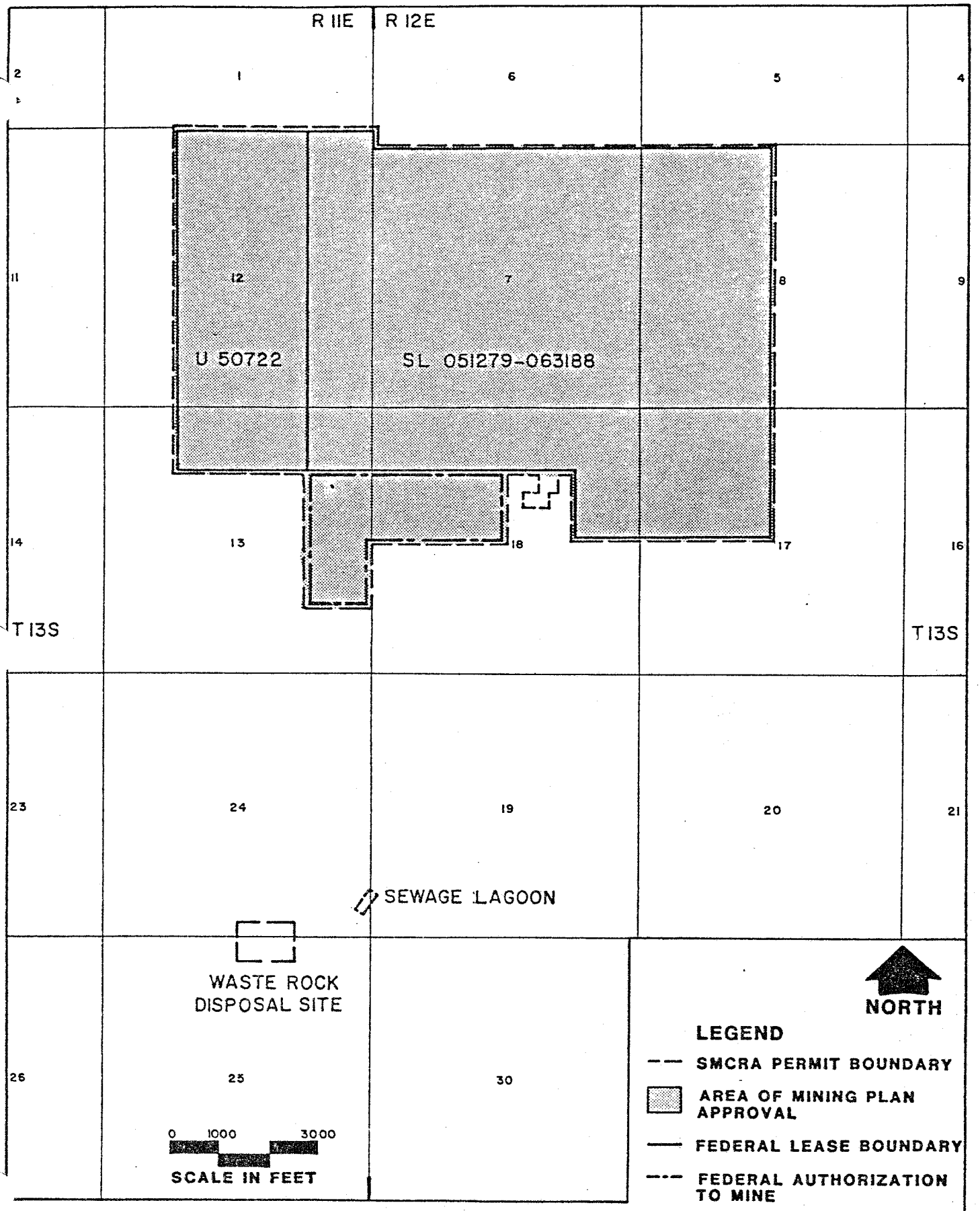

Figure 2

SOLDIER CANYON MINE

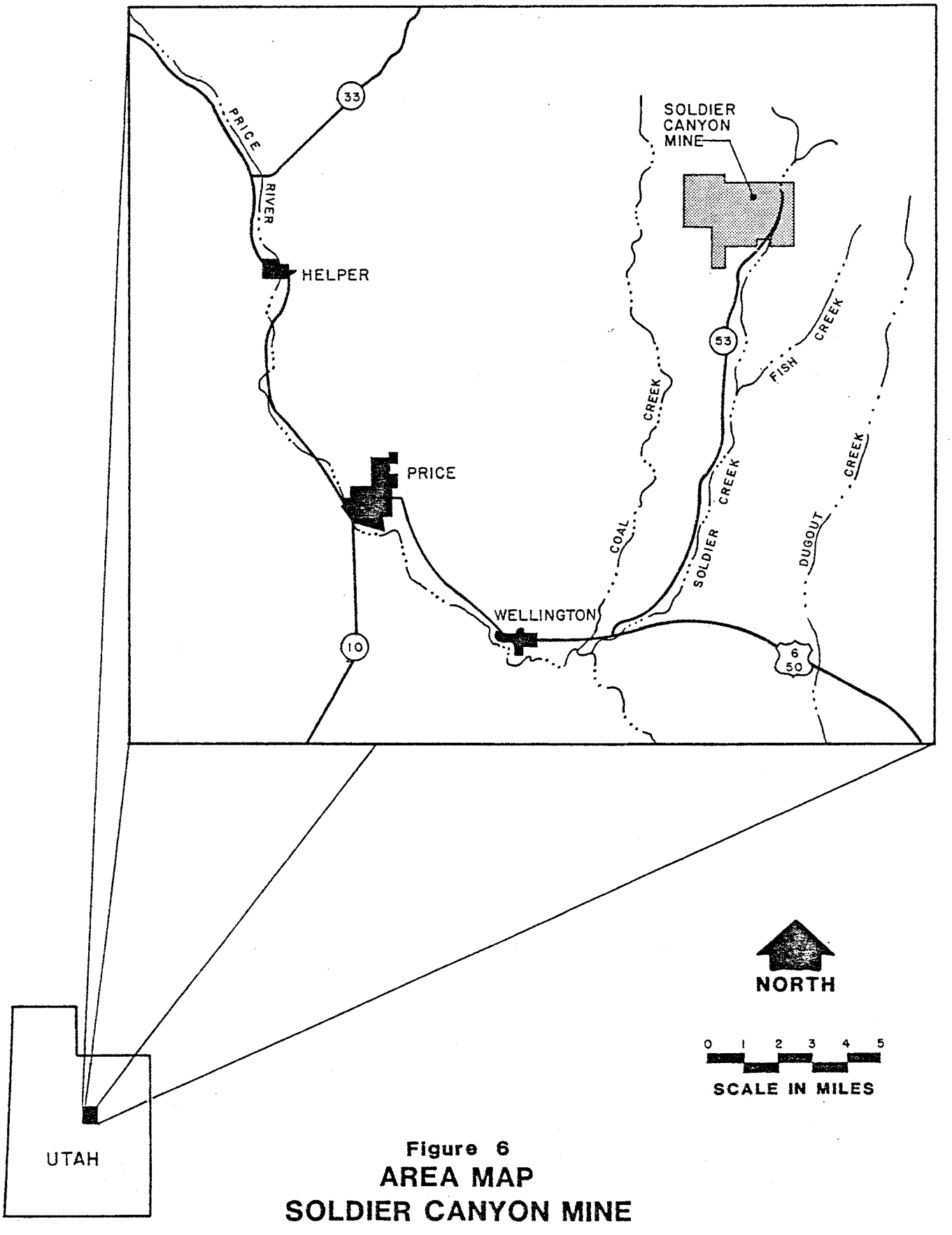

Figure 6
AREA MAP
SOLDIER CANYON MINE

II. DESCRIPTION OF THE EXISTING ENVIRONMENT

Topography and Geology

Soldier Canyon mine is located on the southern edge of the Book Cliffs, at elevations ranging from 6,300 feet MSL at the sewage lagoon to 8,000 MSL on the cliff tops above the mine. The Book Cliffs are deeply dissected by box canyons of intermittent streams. Soldier Creek drains the mine plan area. Large sandstone boulders that eroded from the cliffs lie on the sides and bottoms of the canyons (U.S. Geological Survey, 1979. Environmental Impact Statement, Development of Coal Resources in Central Utah).

The coal-bearing strata are of the Upper Cretaceous Blackhawk Formation. Three coal seams within the Soldier Canyon mine permit are: the Sunnyside, Gilson and Rock Canyon. The Sunnyside coal seam is too thin to mine. The Castlegate Sandstone and other thick sandstone beds are cliff-forming and account for the rugged topography. The Mancos Shale that underlies the Mesa Verde Group is at the base of the Book Cliffs but is largely covered by debris eroded from above (U.S. Geological Survey, 1979. Environmental Impact Statement, Development of Coal Resources in Central Utah). The Mancos Shale is present in the vicinity of the waste rock disposal area. The Formations overlying the coal bearing Blackhawk Formation in the vicinity of the Soldier Canyon mine include in ascending order the Castlegate Sandstone, Upper Price River Formation, North Horn Formation and Flagstaff Formation. Seven springs discharge from the top three formations exposed in the area. The Mancos Shale is not considered to be a water-bearing strata. No geologic structures (faults) have been located in the area.

Climate and Air Quality

The general climate of the permit area is similar to that of Price, the closest weather recorder, although temperatures at Soldier Canyon mine may be 6 degrees to 10 degrees F cooler than in Price because of the increase in elevation. Average monthly temperatures in Price range from 25 degrees F in January to 70 degrees to 75 degrees F in July and August. Extreme temperatures of record are -31 degrees and 108 degrees F. The mean annual precipitation in the vicinity of the Soldier Canyon mine is 12 inches, 6 inches of which fall between May and September. Snow generally falls from January through March. The average frost-free period is approximately 140 days (mid-May to mid-September) (U.S. Geological Survey, 1979. Environmental Impact Statement, Development of Coal Resources in Central Utah). Air quality has not been monitored near the site but is expected to be similar to that of other rural locations in central and southern Utah. The average background level for total suspended particulates (TSP) is 20 micrograms per cubic meter (ug/m2). The short-term (24 hour) TSP standard may be exceeded in many areas because of windblown dust (U.S. Geological Survey, 1979. Environmental Impact Statement, Development of Coal Resources in Central Utah).

Surface-Water Resources

Soldier Creek is located in the Price River drainage basin. The confluence of Soldier Creek and the Price River is about 14 miles south of the Soldier Canyon mine. The Price River flows into the Green River about 45 miles southeast of the Soldier Canyon mine.

The headwaters of Soldier Creek are located in the Roan Cliffs and in Whitmore Park which is between the Book Cliffs and the Roan Cliffs. The topography above the base of the Book Cliffs is rugged. Elevations range from above 8,000 feet in Whitmore Park, to 6,700 feet at the portal yard for the Soldier Canyon mine to about 5,400 feet at the confluence with the Price River. The total drainage area for Soldier Creek is about 22.9 square miles of which about 17.7 square miles are upstream of the portal yard for the Soldier Canyon mine.

Soldier Creek is a perennial stream flowing adjacent to the portal yard for the Soldier Canyon mine. Normal annual stream flow ranges from about 1.0 cubic feet per second (cfs) during low flow periods and 30 cfs during snowmelt periods. Soldier Creek loses water (fall/winter) in the reach below the Star Point Sandstone. The creek is dry during the low flow periods at the confluence with the Price River.

Ground-Water Resources

The ground-water resource of greatest concern in the vicinity of the Soldier Canyon mine is the alluvial ground-water system hydraulically connected with Soldier Creek. Mining beneath Soldier Creek has produced approximately 20 gallons per minute collectively from a drill hole encountered in the mine and from the ventilation shaft that extends through the alluvium. The CHIA for the Soldier Canyon mine has concluded that the water loss from the drill hole and ventilation shaft does not affect the streamflow of Soldier Creek in a detectable amount. An additional 50 gallons per minute currently enters the mine from diffuse sources from the lenticular sandstones, shales, and coal of the Blackhawk Formation. The lack of faulting in the area does not provide any preferred paths for ground-water movement. Seven springs in the area have been observed, discharging from the Price River Formation, the North Horn Formation and the Flagstaff Formation. These water-bearing strata generally occur at several hundred feet above the coal seams being mined. No wells exist in the area.

Soils

The soils in the narrow canyons along the Book Cliffs are formed primarily from sandstone colluvium and bedrock. These soils are very cobbly to stony, medium textured and neutral to moderately alkaline. Depths generally range from 1 to 6 feet. These soils are well drained with rapid runoff.

OSM has determined that no prime farmlands exist within the permit area.

Vegetation

The Soldier Canyon mine SMCRA permit area includes 6 general vegetation communities: Douglas-fir (52 percent), mountain brush (13 percent), sagebrush-grassland (10 percent), pinyon-juniper (8 percent), riparian woodland (5 percent), and mountain sagebrush (2 percent). The remaining 10 percent of the permit area is unvegetated. No threatened or endangered plant species have been identified in the permit area. No critical habitats for threatened or endangered species occur within the permit area.

Fish and Wildlife

The vicinity of the Soldier Canyon mine provides habitats for a variety of wildlife. More than 360 species of vertebrates use the area. The mine permit area includes high-priority winter range for mule deer and elk. Mountain lions and black bears also use the area around Soldier Canyon mine. Numerous smaller predators inhabit the area. Golden eagle nest sites have been identified within two miles of the permit boundary.

There are no known occurrences of threatened or endangered fish or wildlife in the permit area. While the permit area is within the historic range of the American peregrine falcon and bald eagle, neither species has been reported in the permit area. No critical habitats for threatened or endangered species occur within the permit area.

Soldier Creek is the only perennial stream in the permit area. It does not support a fishery because of extreme low flows during the summer.

Land Use

The lands in the vicinity of Soldier Canyon mine are used for industry, agriculture, recreation and wildlife habitat. The mine's permit area will be returned to rangeland, wildlife habitat and recreation uses following the cessation of mining. Mining at the Soldier Canyon mine began in 1940 by the Premium Coal Company.

Cultural Resources

A few prehistoric resources, in the form of lithic scatters, are recorded by the BLM to be in the permit area. The sparsity of resources could, however, be an indication of the lack of surveys in the area rather than the lack of resources. Because numerous archaeological and historic sites have been recorded in the vicinity of the permit area, the applicant was required to conduct a 10 percent sample inventory of the area over the underground workings and an inventory of the waste rock disposal sites.

Socioeconomics

The current work force at the Soldier Canyon mine is approximately 57 employees and is expected to peak at 160 employees in year 1990.

Employees reside in three areas: Price (54 percent), Helper (18 percent) and Wellington (28 percent). The communities benefit both directly and indirectly by the operation of Soldier Canyon mine through employment opportunities at the mine and in support services, and property tax revenues.

Transportation

Soldier Canyon mine is approximately 15 miles northeast of Price and 12 miles north of Wellington. Access to the mine is on Utah Highway 53 from U.S. Highways 6 and 50. Mine facilities are adjacent to the road. The company provides bus service for employees from Price and Wellington to the mine. Two public BLM roads are used for access to the sewage lagoon and the proposed waste rock disposal area.

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Socioeconomics

The current work force at the Soldier Canyon mine is approximately 57. Employment is expected to remain fairly constant with a maximum probable employment of 160 in year 1990.

Employees reside in three areas: Price (54 percent), Helper (18 percent) and Wellington (28 percent). The communities benefit both directly and indirectly by the operation of Soldier Canyon mine through employment opportunities at the mine and in support services, and property tax revenues.

Transportation

Soldier Canyon mine is approximately 15 miles northeast of Price and 12 miles north of Wellington. Access to the mine is on Utah Highway 53 from U.S. Highways 6 and 50. Mine facilities are adjacent to the road. The company provides bus service for employees from Price and Wellington to the mine. Two public BLM roads are used for access to the sewage lagoon and the proposed waste rock disposal area.

III. SUMMARY OF THE OPERATIONS AND RECLAMATION PLAN

Production from the mine began in 1940 by Premium Coal Company. Soldier Creek Coal Company took control of the mine in 1974 and spent two years renovating the mine and the yard. Most of the surface facilities associated with the mining operations are located in the Soldier Creek valley at the mine mouth. Two clay lined sewage lagoons are located approximately 2 miles southeast of the main facility area. A ventilation fan portal is located 1,100 feet up canyon from the main mine yard.

Coal is mined from the Rock Canyon and Gilson seams by the room and pillar method. Both full and partial extraction methods are used, depending on roof and surface characteristics.

Coal is conveyed from the mine to a 600-ton surge bin. From there it is trucked down the valley to a loadout (approximately 17 miles south of the mine) without further processing or preparation. The coal is shipped to California for use in a cement plant owned by Soldier Creek Coal Company's parent company, California Portland Cement.

Three work shifts per day operate the mine with a current employment of 57 people. Maximum employment will reach 160. Current annual production is approximately 590,000 tons. Maximum production projected for about year 1990 will be approximately 820,000 tons annually.

All culinary water is purchased and delivered to the mine site twice daily. A total of 6,000 gallons per day is brought in. A holding tank at the mine site has a capacity of 60,000 gallons. Wastewater is piped to the clay lined sewage lagoons down the valley. The lagoons can process more than 3,200 gallons of wastewater per day.

The road to Soldier Canyon mine, Utah Highway 53, is paved and all transportation to the mine occurs over it.

Currently 11.5 acres of the permit area are disturbed. Another 30 acres are proposed for disturbance as a mine waste rock disposal site.

At the time of abandonment, the mine's structures will be dismantled and disposed of either in the mine or in an approved landfill. Backfill will be placed against the highwall. The disturbed areas will be graded and topsoil distributed. Revegetation will be conducted during the next autumn. Shrubs will also be planted. A monitoring program will be conducted to determine reclamation success.

IV. LEGAL, FINANCIAL AND COMPLIANCE INFORMATION - UMC 782.13, 782.14, 782.15, 782.16, 782.17, 782.18, 782.19, 782.20, AND 782.21

UMC 782.13 Identification of Interests

Information required by this rule is provided in the original submittal (Chapter II, pp. 2-1 through 2-3) and the DOA response (Chapter I). The applicant is in compliance with 782.13.

UMC 782.14 Compliance Information

Compliance information is provided in the original submittal (Chapter II, pp. 2-3) and the DOA response (Chapter II, pp. 2-8). The applicant is in compliance with UMC 782.14.

UMC 782.15 Right-of-Entry and Operation Information

Information on the applicant's right to enter and operate its coal mine is found in the original submittal (Chapter I, pp. 2-3), the DOA response (Chapter II, pp. 2-9) and through personal communications with Jackson Moffitt (April 6 and May 4, 1984) and Leon Berggren (May 7, 1984) of the BLM. The applicant is in compliance with UMC 782.15.

UMC 782.16 Relationship to Areas Designated Unsuitable for Mining

Information on the relationship of Soldier Canyon mine to areas designated unsuitable for mining is located in the original submittal (Chapter II, pp. 2-4) and the DOA response (Chapter II, pp. 2-10, 2-10a). None of the permit area is designated as unsuitable for mining. Listings of the applicant's other licenses and permits can be found in the original submittal (Chapter II, pp. 2-5) and the DOA response (Chapter II, pp. 2-12). The applicant is in compliance with UMC 782.16.

UMC 782.17 Permit Term Information

Permit term information is located in DOA response (Chapter II, pp. 2-11). The applicant is requesting a 5-year permit, although mining is anticipated through 2003. The applicant is in compliance with UMC 782.17.

UMC 782.18 Personal Injury and Property Insurance Information

The applicant has provided proof of adequate, current insurance in the DOA response (Chapter II, pp. 2-11). The applicant is in compliance with UMC 782.18.

UMC 782.19 Identification of Other Licenses and Permits

The applicant has identified its other licenses and permits in the original submittal and the DOA response (Chapter II, pp. 2-12). The applicant is in compliance with UMC 782.19.

UMC 782.20 Identification of Location of Public Office for Filing of Application

The applicant has filed the application with the Carbon County Recorder's Office in Price, Utah (DOA response, Chapter II, pp. 2-14). The applicant is in compliance with UMC 782.20.

UMC 782.21 Newspaper Advertisement and Proof of Publication

The applicant has provided in the DOA response (Chapter II, pp. 2-14a, 2-14b) a newspaper advertisement which it ran May 16, 1984, through June 13, 1984. The advertisement and applicant are in compliance with UMC 782.21.

V. LAND USE - UMC 783.22, 784.15, AND 817.133

Information on current land use is located in the DOA response (Chapter IV). The Soldier Canyon mine is in an area that has been classified by Carbon County as "Critical Environmental." The proposed postmining land use for the mine facility and portal area is rangeland, wildlife habitat, and recreation. According to Carbon County planner, Harold R. Marston, the postmining land use proposed by Soldier Creek Coal Company is acceptable to the county (letter dated March 19, 1984).

Two roads providing access to the sewage lagoon and waste rock disposal site existed prior to use by Soldier Creek Coal Company. These roads will remain after completion of mining and reclamation operations per request of the BLM (memorandums dated June 11, 1984 and November 23, 1984). The sewage lagoon and waste rock disposal sites will also return to their premining uses of livestock grazing and wildlife habitat.

The proposed postmining land use is in compliance with UMC 817.133.

VI. CULTURAL AND HISTORIC RESOURCES - UMC 761.11(a)(3), 783.12(b) and 784.17

Cultural and historic resources information is presented in Chapter 5, Volume III of the original submittal, and the DOA responses.

The 10 percent inventory (210-acres) sample of the area over the underground workings and the waste rock disposal site resulted in the recording of one prehistoric isolated find, one historic site, and one historic isolated find. The prehistoric isolated find consists of a Desert side-notched projectile point, indicating transient use of the permit area after approximately A.D. 1150. Historic site 42 CB-437 consists of a rock alignment and check dam of unknown age and function. The historic isolated find consists of purple glass fragments. All are considered ineligible for nomination to the National Register of Historic Places (NRHP).

One rock shelter, lacking evidence of prehistoric or historic uses, was noted in the permit area. If the subsidence monitoring program indicates that the rock shelter will or may be damaged by subsidence, OSM, UDOGM, and/or the State Historic Preservation Officer (SHPO) may request test excavation to determine the presence or absence of subsurface evidence of historic or prehistoric occupation. On the basis of the information submitted by the

applicant, OSM will request SHPO to make a finding on this site. SHPO's finding is an essential part of mining plan approvals. The proposed operation is in compliance with the requirements of UMC 761.11(a)(3), 783.12(b) and 784.17.

In accordance with the Programmatic Memorandum of Agreement regarding the Federal Coal Management Program, Section 12 of the SMCRA permit requires the permittee to notify the state regulatory authority and OSM, should any previously unidentified cultural resources be discovered.

VII. GEOLOGY - UMC 783.13 AND 783.14

The description of geology can be found primarily in the original submittal Volume 1, Chapter VI and Chapter VII in the Vaughn Hansen Associates, 1980 report. The stratigraphic sequence described in these reports includes the basal Mancos Shale Formation (a non-water bearing bed present in the waste rock area) overlain by the coal bearing Blackhawk Formation, Price River Formation, North Horn Formation and the Flagstaff Formation. Additional information concerning site specific geology of the materials beneath the Soldier Creek Valley is located in the Modification to the April 1981 Mining and Reclamation Plan, 1982. Interburden and isopach maps for the Sunnyside, Rock Canyon and Gilson Seams are presented in Volume III of the DOA response.

The geologic information provided in the PAP as described above defines the geologic stratigraphy down to the lowest aquifer that may be affected by mining (i.e., water-bearing strata overlying the Mancos Shale). The description of geology is sufficient to support the description of ground-water resources to the standards of UMC 783.15 (See Chapter IX). Therefore, the PAP is in compliance with UMC 783.13 and 783.14 concerning the geology in the vicinity of the Soldier Canyon mine.

VIII. HYDROLOGIC BALANCE: SURFACE WATER - UMC 783.16 AND 817.52; 784.16, 817.45, 817.46, 817.49, AND 817.56; 817.45 AND 817.46; 784.22, 817.43, 817.44, AND 817.47.

<u>UMC 784.16 Surface-Water Information and UMC 817.52 Hydrologic Balance: Surface-Water Monitoring</u>

The surface-water monitoring plan was presented in Table 7.1 of the original permit application package and modified in the DOA response (pp. 7-10 and 7-11). The monitoring plan is sufficient to show seasonal variations, and it is therefore complete with respect to UMC 784.16 and 817.52.

Maps showing the location of surface water, constructed and natural drains, and ponds were found in Map E010, E011, E012, D141, C143, C144, C147, C178, C149, and C150. Therefore, the permit application is complete with respect to UMC 783.24(g) (Maps: General Requirements) and UMC 783.25(g) and (k) (Cross-Sections, Maps, and Plans).

UMC 784.16 Reclamation Plan. Ponds, Impoundments, Banks Dams, and Embankments and UMC 817.45, 817.46, 817.49, and 817.56 as They Relate to Sedimentation Ponds.

Two sedimentation ponds are used to control runoff and sediment: one for the portal area and one for the waste-rock disposal area. Approval for the sedimentation pond for the portal area was originally given by OSM and DOGM (letter dated November 23, 1979). The sedimentation pond for the waste-rock disposal area has not been built yet. Neither pond will be permanent. The designs and specifications for both ponds were evaluated by OSM for compliance with the applicable regulations. Information used in the review was obtained from the "Soldier Canyon Runoff Control Plan" (Vaughn Hansen Associates, July, 1979), Chapter VII of the permit application package, a submittal from Soldier Creek Coal Company dated May 11, 1983, and a DOA response dated August, 1984 (pages 13-6 through 13-9 and drawing C153). Postmining sediment control is discussed in the March, 1984 DOA response (Page 2-15 and Figure D-010 and E-014). All sections are complete with respect to UMC 784.16(b). Both ponds are in compliance with UMC 817.45 (Hydrologic Balance: Sediment Control Measures), 817.46 (Hydrologic Balance: Sedimentation Ponds), and 817.49 (Hydrologic Balance: Permanent and Temporary Impoundments), 817.56 (Hydrologic Balance: Postmining Rehabilitation of Sedimentation Ponds, Diversions, Impoundments, and Treatment Facilities).

Runoff from the ventilation pad and the sewage lagoon are treated without sedimentation ponds. The size of the disturbed areas is small (less than 2 acres each). Runoff from the ventilation shaft pad is filtered through straw bales before leaving the area, and runoff from the clay lined sewage lagoon area is trapped in the lagoon. Therefore, these two areas are in compliance with UMC 817.42 (Hydrologic Balance: Water Quality Standards and Effluent Limitations) and UMC 817.45 (Hydrologic Balance: Sediment Control Measures).

The portal yard sedimentation pond is adjacent to Soldier Creek; therefore, OSM assessed compliance with UMC 817.57 (Hydrologic Balance: Stream Buffer Zones). The embankment for the sedimentation pond is stable and will not be eroded by flood flows in Soldier Creek with magnitudes less than the 25-year, 6-hour storm peak discharge; the surface-water records show that water-quality and quantity is not being adversely affected; and the pond will be removed after mining. Therefore, a variance for operation within 100-feet of a perennial stream is given and the applicant is in compliance with the UMC 817.57.

UMC 784.22 Diversions and UMC 817.43, 817.44, 817.47, and 817.57 as They Relate to Diversions.

Designs and specifications for the diversions for the portal yard have been done in a previous report and are incorporated by reference ("Soldier Canyon mine Runoff Control Plan", Vaughn Hansen Associates, July, 1979). Additional information is presented on Maps E010, E011, C143, C144, C147 through C150, and C153. Other information is incorporated in Chapter VII and Sections 13.4 and 13.9 of the permit application package. Information provided for diversions is complete, and the designs and specifications were checked by OSM and were found to be in compliance with UMC 817.43 (Hydrologic Balance: Diversions and Conveyance of Overland Flow, Shallow Ground Water Flow, and Ephemeral Streams), 817.44 (Hydrologic Balance: Stream Channel Diversions), 817.47 (Hydrologic Balance: Discharge Structures), and 817.57 (Hydrologic Balance: Stream Buffer Zones).

In summary, the applicant is in compliance with UMC 817.42, 817.43, 817.44, 817.45, 817.46, 817.47, 817.49, 817.56, and 817.57.

IX. HYDROLOGIC BALANCE: GROUND WATER - UMC 783.13 AND 783.15

The ground-water resources in the permit and adjacent area of the Soldier Canyon mine can be found in the following parts of the PAP:

1. Original submittal, Volume I Chapter VII, Vaughn Hansen Associates, 1980 report, pp. 37-45.

2. Modification to the April 1981 Mining and Reclamation Plan (July 1982).

3. DOA Response, Volume III Chapter 7 (p. 1-26).

The most important ground-water resource that may be affected by the Soldier Canyon mine is the alluvial ground-water system along the Soldier Creek valley. This ground-water system is analyzed in the Modification to the April 1981 Mining and Reclamation Plan (July, 1982). Permeability tests were conducted in the Soldier Creek valley as part of the analysis to predict the effect of undermining Soldier Creek and installing a fan ventilation shaft. The estimates of ground-water inflow were proven reasonable during the development of the fan shaft; the predicted inflows of 60 gallons per minute actually occurred at 7-8 gallons per minute during installation of the ventilation shaft.

No wells were available to obtain ground-water information for the permit or adjacent area of the Soldier Canyon mine. The extreme overburden depths over the coal and the precipitous canyons made it very difficult, expensive and impractical to install wells. The description of ground-water resources rather relies on observations: of ground-water discharge at springs, of ground-water inflow to the mine, of ground-water hydraulics and of gradient obtained from the adjacent Sage Point-Dugout Canyon mine, and of baseflow discharge rates measured in the area by the U.S. Geological Survey.

The presentation of the sources of information described above, together with a ground-water model simulation of estimated aquifer conditions is considered acceptable to describe the ground-water resources in the area. Therefore, the PAP is in compliance with UMC 783.13 and 783.15.

X. ALLUVIAL VALLEY FLOORS - UMC 785.19 AND 822

Information concerning alluvial valley floors (AVF's) in the permit and adjacent area of the Soldier Canyon mine can be found in the DOA Response (Chapter 7, part 7.3). The valley of Soldier Creek immediately adjacent to the Soldier Canyon mine does not contain sufficient unconsolidated stream laid deposits to allow subirrigation or flood irrigation agricultural activities to occur. The Soldier Creek valley in the vicinity of the mine is broken and rough and the soils are rocky, making the area additionally unsuitable for subirrigation or flood irrigation agricultural activities. Therefore, the valley of Soldier Creek immediately adjacent to the Soldier Canyon mine is not considered to be an AVF.

Downstream of the Soldier Canyon mine sewage lagoon (approximately 5 miles downstream of the mine), the valley widens considerably making the valley more suitable for flood irrigation activities. OSM has determined that the Soldier Creek valley downstream of the Soldier Canyon mine sewage lagoon is an AVF. The AVF decision was made in relation to the recent permitting action associated with the Sage Point-Dugout Canyon mines.

The potential for the Soldier Canyon mine to affect the water being supplied to the downstream AVF centers on potential changes in the quality or quantity of streamflow in Soldier Creek. Changes in water quality resulting from the Soldier Canyon mine are not considered likely because water quality of mine effluent has been suitable for irrigation use, off-site sedimentation is limited by control structures, and the clay lined sewage lagoon is lined with clay. Concern has been raised in an April 29, 1981, letter by Eureka Energy Company (operator of the proposed Sage Point-Dugout mine at the time) over the potential for subsidence fractures resulting from mining works under Soldier Creek to intercept flow in the stream. Chapter XII of this document discusses the potential for the Soldier Canyon mine to intercept water from Soldier Creek and concludes that there is a low probability that the mine will subside and deplete the stream. Furthermore, Soldier Creek Coal Company commits to several potential mitigating measures that provide for: the return of water encountered in the mine to Soldier Creek; the sealing of the portion of the mine or geologic formation that is transmitting the water from the stream; grouting of the portion of the stream channel that is losing water to the mine; or replacing the water losses with Soldier Creek Coal Company's own water rights. These mitigating measures are considered adequate to reduce losses of water associated with mining. Soldier Creek Coal Company has also provided adequate monitoring of springs, Soldier Creek, and ground-water inflow to the mine in order to document any loss of flow to downstream AVFs (see Chapter XII, Part UMC 817.52).

Operations at the Soldier Canyon mine will not affect the ground-water system associated with the downstream AVFs. The coal seam to be mined is stratigraphically higher then the AVFs, and thich shale layers between the coal seam and downstream valley bottoms will preclude any hydrologic connection.

In conclusion the PAP is in compliance with UMC 785.19 and UMC 822.

XI. WATER RIGHTS AND REPLACEMENT - UMC 783.17 AND 817.54

The information concerning water rights and replacement can be found in the response to the DOA Chapter 7 p. 7-6 through 7-9. The probable hydrologic consequences (see Chapter 12 of this TA Part UMC 784.14) of the Soldier Canyon mine include potential losses to streamflow in Soldier Creek or losses of flow to springs. Soldier Creek Coal Company has committed their water rights to replace mining related water losses to other water users (DOA Chapter 7 p. 7-8 and 7-9). Soldier Creek's water right of .25 cfs is considered sufficient to replace all potential water losses. A plan also has been provided that will be implemented if Soldier Creek Coal Company affects Soldier Creek or a perennial spring or seep. The mitigating plan includes:

1. Pumping all water from the mine to restore flow to Soldier Creek.

2. Assessing the geologic conditions associated with the losses of water.

3. Grouting the geologic formation, sealing the portion of the mine where the ground-water inflow occurs or lining the portion of the stream channel that is experiencing the stream losses.

4. Installing water retention devices to replace springs.

The commitment of water rights together with the mitigation plan is considered adequate for the PAP to be in compliance with UMC 783.17. No transfer of wells will occur as part of the Soldier Canyon mining operation, so UMC 817.54 does not apply.

XII. PROBABLE HYDROLOGIC CONSEQUENCES OF MINING

Surface Water UMC 784.14, 817.41, 817.42, and 817.48

UMC 784.14 Reclamation Plan: Protection of the Hydrologic Balance and 817.41, 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations, and 817.48 Hydrologic Balance: Acid-Forming and Toxic-Forming Materials

Information describing measures to minimize the potential disturbance to the hydrologic balance are presented in Chapters IV and VII of the permit application package and subsequent modifications thereof. This information is determined to be complete with respect to surface water.

Water from the bath house is transported via a pipeline to a clay lined sewage lagoon about 2 miles south of the portal yard. All necessary permits have been obtained, and no problems have been identified with the lagoons.

Discharges from the sedimentation pond and the mine are required to meet the effluent limitation established by their NPDES permit (National Pollutant Discharge Elimination System). The NPDES self-monitoring reports show that all effluent concentrations are within established limits, but the total dissolved solids (TDS) load occasionally exceeds one ton per day. The TDS load does not exceed EPA's technical review criteria for significant noncompliance with the NPDES permit. Therefore, no mitigation is needed.

Coal and roof/floor acidity, alkalinity, and toxicity are discussed in Chapter VI of the original submittal, and no acid, alkaline, or toxic-forming materials were identified.

During the mining and postmining periods, activities have been designed to minimize disturbance to the hydrologic balance. Therefore, the applicant is in compliance with UMC 784.14 (Reclamation Plan: Protection of the Hydrologic Balance), UMC 817.41 (Hydrologic Balance: General Requirements) and 817.42 (Hydrologic Balance: Water-Quality Standards and Effluent Limitations), and 817.48 (Hydrologic Balance: Acid-Forming and Toxic-Forming Materials).

Ground Water UMC 784.14, 817.50, 817.55, and 817.52

UMC 784.14 Reclamation Plan: Protection of the Hydrologic Balance

The information in the PAP in relation to the ground-water aspects of this regulation can be found in:

- The modification to the April 1981 Mining and Reclamation Plan (provides an assessment of undermining Soldier Creek and installing a fan shaft).

- The DOA Response, Chapter 7 pp. 18-23 of R & M Report, p. 7-3a, p. 7-6 and p. 7-14.

The greatest ground-water concern with respect to the Soldier Canyon mine is the undermining of Soldier Creek and the potential for streamflow to be lost into the mine via subsidence fractures through a minimum of 150 feet of overburden material. Eureka Energy Company expressed concern over the potential loss of their water rights owing to the mechanism described above in a letter dated April 29, 1981. Soldier Creek Coal Company has provided protection for Soldier Creek by not retreat mining in areas 100 feet on either side of Soldier Creek. This action is considered adequate to prevent subsidence beneath Soldier Creek.

In the unlikely event that subsidence occurs or that an unknown geologic structural zone is encountered that yields water from Soldier Creek, Soldier Creek Coal Company has committed to: grout and seal that portion of the geologic formation and/or the mine that is encountering the ground water, pump water encountered in the mine from Soldier Creek in the mine back to Soldier Creek and to possibly line the stream channel in the area of the subsidence fractures. Soldier Creek Coal Company has also committed their water rights to replace any potentially affected water rights (DOA Response, Chapter 7, pages 7-8 and 7-9).

During the investigation of the ground-water characteristics of materials beneath Soldier Creek in relation to the stream crossing and the installation of the ventilation shaft, it was predicted that less than 60 gallons per minute would be encountered in the mine. After completion of the ventilation shaft and undermining the stream, only 7-8 gallons per minute were encountered in the mine. OSM staff that have toured the mine have noted that the mine is dry beneath Soldier Creek with the exception of inflow around the ventilation shaft (at 7-8 gallons per minute) and inflow from intercepted drill hole RP-4 (at 11-12 gallons per minute). These two sources of water are the greatest discrete sources of ground-water inflow to the Soldier Canyon mine. The Soldier Canyon mine CHIA recognizes that these two losses of flow from the alluvial aquifer associated with Soldier Creek do not result in a measureable change in streamflow. At the present time, diffuse sources of ground-water inflow to the mine are collected and pumped from the mine at a rate of 70-100 gallons per minute. This ground water is primarily water that would otherwise move into the deep ground-water system to unknown distant discharge points. Therefore, there is a net gain of water to Soldier Creek.

As mentioned in the discussion of mine discharges below (UMC 817.50) it is unlikely that following cessation of mining the Soldier Canyon mine will fill with sufficient head to discharge water at the mine adit which occurs up dip from the mine workings.

Three springs directly overlie the Soldier Canyon mine in areas that will potentially subside (i.e. areas of secondary mining, see Map D-163 in the PAP). One of these springs has a water right associated with it that is owned by Sun Energy Company (i.e., Water right 91-535). These springs are separated from the mine workings by over 750 feet of overburden. It is likely that the springs will not be affected by mine subsidence because of the considerable depth of strata separating them from the mine. The applicant has developed a contigency plan of monitoring and mitigation measures which are discussed in detail under section UMC 817.52.

Within the mine, ground-water losses occur as a result of moisture leaving with the coal and evaporation associated with movement of ventilation air through the mine. The total annual consumption of ground water in the Soldier Canyon mine is 52.2 acre-feet. The additional disturbance associated with the waste rock disposal area will not affect any ground-water resources because the underlying Mancos Shale is not a water-bearing strata.

The PAP is in compliance with UMC 784.14.

UMC 817.50 Hydrologic Balance Underground Mine Entry and Access Discharges

Chapter 7 (p. 7-3a) of the DOA Response discusses the potential for gravity discharges to occur after mining. Using worst case assumptions (i.e. that 2 inches per year of recharge would enter the mine) it is estimated that it would take 48 to 60 years for the mine workings to fill with water. In reality, 2 inches per year of ground-water inflow (i.e. total amount of recharge for the area) would not occur because the annual recharge also moves laterally to local discharge points (rather than all recharge moving vertically down through the mine workings). In addition, water encountered in the mine would move down dip to the north and would discharge from the mine workings into a deep ground-water system with unknown discharge points.

Finally, very few springs are present in the permit area and of the springs that occur all emanate from formations stratigraphically higher than the coal seams (Blackhawk Formation). These higher strata are not in good hydraulic connection with the coal being mined by Soldier Creek Coal Company indicating low hydraulic head probably occurs in the Blackhawk Formation strata.

Only if subsidence fractures intercept these higher water-bearing strata and if the fractures remain open will ground-water inflow to the abandoned mine workings approach the 2 inches per year of vertical recharge. The potentiometric head associated with these higher water-bearing zones would also be needed to discharge water (up gradient) at the mine portals. It is not likely that all of the conditions mentioned would occur because if subsidence fractures developed they would likely seal over time.

It is, therefore, concluded that mine entry discharges will not occur at the Soldier Canyon mine; making, UMC 817.50 not applicable.

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

Soldier Creek Coal Company currently encounters sufficient water in the mine to support all water needed for the mining operation. Approximatley 70-100 gallons per minute are presently discharged to Soldier Creek as excess ground water from the mine. It is not anticipated that a deficit of water will occur in the mine in the future. Therefore, there is no planned diversion of water into any underground mine workings, and UMC 817.55 is not applicable to the Soldier Canyon mine.

UMC 817.52 Hydrologic Balance: Ground-Water Monitoring

The plan for monitoring ground-water resources (including springs and ground-water inflow to the mine) can be found in the response to the DOA Chapter 7 pp. 7-10 through 7-14. The 5 springs included in the monitoring program encompass all springs that may be affected by the Soldier Canyon mine that have water rights or that are important to wildlife. The applicant has committed to follow the parameters for monitoring (at springs and ground-water inflow points in the mine) and the frequency of ground-water monitoring to a standard monitoring scheme that has been utilized by OSM and the Division of Oil, Gas and Mining for this mining region. (DOA responses, March 30, 1984, page 7-12 and December 14, 1984, page 7-14b).

The PAP will be in compliance with UMC 817.52.

XIII. CLIMATOLOGICAL INFORMATION AND AIR RESOURCES

UMC 783.18 Climatological Information and Air Resources

Climatological information is provided in the original submittal (Chapter XI) and the DOA response (Chapter XI) and personal communications with Utah Department of Health staff members.

UMC 784.26 Air Pollution Control Plan

Because mining has been conducted at the Soldier Canyon mine since well before enactment of the Clean Air Act and SMCRA and because Soldier Creek Coal

Company reduced the operations which could result in fugitive dust emissions, the Utah Bureau of Air Quality did not require an air quality control plan. The Bureau conducts annual inspections of the mine site. The applicant is in compliance with UMC 784.26.

Prior to development of the waste rock disposal site, Soldier Creek Coal Company must file a notice of intent with the Utah Bureau of Air Quality which includes a plan for controlling fugitive dust on the site. An engineering review will be conducted and the plan will be approved or denied approval.

XIV - TOPSOIL - UMC 783.21, 784.13(b)(4), 817.21 THROUGH .25

Soil and topsoil information is located in chapter VIII in the original submittal and Chapter XIII in the Earth Fax Engineering Report (Volume III, PAP).

Soils at the Soldier Canyon mine are formed primarily from sandstone colluvium and bedrock. These soils are very cobbly to stony, medium textured and neutral to moderately alkaline. Three soil associations were identified at the portal facilities: Badland - Rockland, Argic Cryoborolls - Pachic Cryoborolls, and Typic Argiborolls - Lithic Argiborolls - Typic Haploborolls (page 8-4, Vol. III, PAP). Four soil series were identified at the proposed waste rock disposal area: Gerst, Styrch, Haverdad and Badlands (pages 1 - 4, Topsoil Resources Protection and Redistribution Plan, Vol. IV, PAP). Depths generally range from 1 to 6 feet. These soils are well drained with rapid runoff. Soil textures are silt loam and loam, pH ranges from 7.8 to 8.3, electroconductivity ranges from 0.2 to 5.2 mmhos/cm and sodium absorption ratios (SAR) ranges from 0.3 to 6.2 (page 3, Chapter 8, Vol.III and Table 1, Topsoil Resources Protection and Redistribution Plan, Vol. IV, PAP).

Development of the Soldier Canyon mine has taken place in two major steps. The first step was the development of the portal area and most of support facilities prior to the enactment of SMCRA in 1977 (Public Law 95-87), and the second step was the development of the fan portal site after the enactment of SMCRA. During the construction of the initial portal and facilities, approximately 11.2 acres were disturbed and no topsoil was salvaged and stockpiled for final reclamation. Topsoil, approximately 310 cubic yards (0.03 acres), was salvaged at the fan portal site and stockpiled on the outer bank of the sediment pond. The stockpile was seeded and a perennial vegetative cover was established. Existing disturbance totals 11.5 acres. The only planned disturbance is the waste rock disposal area, which includes approximately 30 acres to be disturbed. Total surface disturbance at the Soldier Canyon mine will be 41.5 acres.

Soldier Creek Coal Company has proposed to use the soil material in the parking lot and pads as a substitute topsoil material. Samples of this proposed topsoil substitute material were taken for chemical and physical analysis. Results from these analysis, found on Table S-2 (page 5, Ford, Bacon and Davis Report, Chapter 8, Vol. III, PAP), indicate favorable soil characteristics for use in the final reclamation operations.

At the time of final reclamation, approximately 29,300 cubic yards of substitute topsoil and topsoil will be redistributed over the backfilled portal and facilities areas (including the clay lined sewage lagoon area) at depth 18 inches (page 7, Ford, Bacon and Davis Report, Chapter 8, Vol. III, PAP). The subsoil material will be scarified prior to topsoil placement (page 8-10, Vol. III, PAP). Topsoil salvaged at the waste rock area (approximately 46,131 cubic yards) will be redistributed at a depth of 17 inches after final grading and compaction (page 4, Table 2, Topsoil Resources Protection and Redistribution Plan, Vol. IV, PAP). Soldier Creek Coal Company has committed to applying fertilizer based upon the result of soils analysis and the use of 1.5 to 2.0 tons per acre of a straw mulch. Redistribution of topsoil will occur in late summer to prevent unnecessary soil erosion prior to revegetation the following fall.

Soldier Creek Coal Company has provided sufficient information to determine reclamation to be feasible from the soils aspect. Soldier Creek Coal Company is in compliance with this section.

XV. VEGETATION RESOURCES - UMC 783.19, 784.13(b)(5), and 817.111 THROUGH 817.117

Vegetation and revegetation information is located in chapter IX, volumes II & III; chapter VIII, volume III; and chapter XIII, Earth Fox Engineering Report, Volume III of the PAP.

Soldier Canyon mine permit area includes 12 vegetation types: mountain brush, riparian woodland, mountain sagebrush, Douglas fir woodland, mixed sagebrush-grassland, pinyon-juniper woodland, pinyon-juniper-mixed mountain brush, salina wildrye-locoweed-black sagebrush, black sagebrush-salina wildrye-Indian ricegrass, pinyon-juniper-black sagebrush-salina wildrye, big sagebrush-galleta grass, and salina wildrye-four winged saltbush (Chapters II, III, IX, & XIII; PAP). Soldier Creek Coal Company has provided sufficient vegetation baseline data, including species composition, cover, productivity, sampling methodology, and maps.

No threatened or endangered plant species or critical habitats are known to occur in or near the Soldier Canyon mine permit area (U.S. Fish and Wildlife Service memorandum dated September 7, 1984).

The Soldier Canyon mining operation has disturbed 11.5 acres of vegetation. The proposed waste rock disposal area will disturb an additional 30 acres of vegetation. The total disturbance to the vegetation will be 41.5 acres (page 1, Chapter IX, PAP and page 1, Vegetation At The Waste Rock Disposal Site Report, Vol. IV, PAP). The types of plant communities and the quantities that have been and will be affected are presented in the table below.

Summary of Vegetation Losses at the
Soldier Canyon Mine by Vegetation Type

Vegetation Type	Total Acres Disturbed	Percent of Total Disturbance[1]
Mountain sagebrush	0	0
Riparian woodland	1.0	2
Mountain brush	4.7	11
Douglas fir woodland	0	0
Mixed sagebrush-grassland	3.1	7
Pinyon-juniper woodland	2.7	7
Pinyon-juniper-mixed mountain brush	4.2	10
Salina wildrye-locoweed-black sagebrush	2.3	6
Pinyon-juniper-black sagebrush-salina wildrye	8.8	21
Black sagebrush-salina wildrye-Indian ricegrass	4.7	11
Big sagebrush-galleta grass	0	5
Salina wildrye-four-wing saltbush	4.9	12
Mancos Shale slopes	3.1	7
Total	41.5	99

1 Does not add to 100 percent because of rounding.

The PAP is in compliance with UMC 783.19.

Reference areas were initially established in the mine permit area and data were collected. However, too few reference areas were established and the data were determined to be technically inadequate (UDOGM ACR dated March 4, 1983, pp. 4-5). Subsequently, the applicant revised the vegetation and reference area sampling program to include a program that satisfied adequate sample size and random sampling requirements for cover, productivity, shrub density, and species diversity. The applicant has established reference areas and collected the appropriate vegetation data from these areas (Vegetation Information May 29, 1984 and October 2, 1984). The two reference areas include a riparian and an upland vegetation type. The size of the riparian reference area is approximately 1 acre (the size of the riparian reference area is in compliance with the Utah guidelines) and the upland reference area is approximately 2 acres (Vegetation Information, May 29, 1984, p. 2).

The size of the riparian reference area is confined by the limited flood plain. The riparian reference area is in poor condition; however, if protected form livestock use and other disturbances, this site should improve to fair condition prior to comparisons with revegetated areas. This reference area will be monitored on a set schedule to ensure that management techniques are improving the site to fair condition and that the site is maintained in at least fair condition (PAP, Section 9.2.1).

The upland reference area, located in grassland and low brush, will be used to establish revegetation standards for the main mine facilities, the sewage lagoon facilities, and the waste rock disposal site. This approach may require the applicant to achieve higher revegetation standards for the sewage lagoon area, and the waste rock disposal area, due to the more arid conditions at these sites than at the reference area.

Soldier Creek Coal Company has committed to fencing the riparian reference area and monitoring the condition with the goal of improving the condition by protecting the area from grazing and browsing (PAP, Section 9.2.1). If the conditions remain poor, Soldier Creek Coal Company proposes to meet the cover and productivity conditions of the nearby upland reference area. Such an approach is unacceptable, since it would require PAP approval without clear documentation of the vegetation characteristics of the riparian corridor and it would defer establishment of revegetation criteria until the termination of mining. If the present poor cover and productivity conditions of the narrow riparian corridor are due primarily to excessive spring stream scour, then it is unlikely that future revegetation efforts could permanently attain significantly better conditions without substantial modification of the stream and its flood plain to protect planted/seeded areas from high stream flows. Neither of these changes are considered feasible due to the maintenance after the liability period. Use of the upland reference area was considered, however, revegetation efforts in the riparian zone would not necessarily have similar cover and productivity levels to the upland reference area under such extreme flow conditions. The PAP is in compliance with UMC 817.116.

The revegetation plan contains technically adequate and acceptable plans for mulching (proposed rate of one to two tons per acre, DOA response, May 29, 1984, p. 5); fertilizer applications (DOA response, May 29, 1984, p. 5); seed mixtures, rates and methods of application (DOA response; May 29, 1984, pp. 4, 5, 7, 14-15); tree and shrub planting densities (DOA response, May 29, 1984, p. 5); criteria for demonstrating successful revegetation (DOA response, May 29, 1984, p. 8); and a contemporaneous schedule for revegetation (DOA response, April 27, 1984). An acceptable field trial design is presented for testing specific combinations of seed mixture, soil depth, mulching, fertilizer types and application rates, and seeding methods. The field trial results will be used to modify, if necessary, the approaches now described in the PAP. The applicant has committed to revising the seed mixtures and other aspects of the revegetation plan as necessary for as long as it takes to achieve the specified success standards (DOA response, May 29, 1984, p. 12). The proposed reclamation and revegetation plans are in compliance with UMC 784.13(b)(5) and UMC 817.111-817.117.

XVI. FISH AND WILDLIFE RESOURCES - UMC 784.21 AND UMC 847.97

Information regarding fish and wildlife resources and the applicant's fish and wildlife protection plan are located in Chapter X, Volume II; Appendix A and B, Volume II; DOA Responses (January, 1984), Volume III; and DOA Responses (March and April, 1984), Volume I.

Materials submitted during 1981 are referred to as the original submittal in the analysis and subsequent responses to comments are referred to as the DOA responses.

No threatened or endangered fish or wildlife species occur on the proposed permit area and no Federally-designated critical habitats are present (Chapter X, Volume II). The bald eagle, American peregrine falcon, and arctic peregrine falcon occur sporadically in the local area but do not nest in the permit area. Although it receives only sporadic use, the permit area has been designated as having substantial value for the bald eagle and American peregrine falcon by the Utah Division of Wildlife Resources (UDWR) and of limited value for the arctic peregrine falcon (Chapter X, Volume II). The golden eagle is commonly observed in the permit area. A nest site survey conducted by the USFWS in 1981 and 1982 within the permit and adjacent area revealed golden eagle, prairie falcon, and red-tailed hawk nesting activity. The raptor nests are all located more than 0.5 miles away from any present mine-related disturbance. Nest site locations are shown on Map D-153. It is not anticipated that mining activities will affect the remote nest sites. Documentation regarding the status of threatened and endangered species from the USFWS has not been received.

The design and construction of power transmission and distribution lines have been reviewed by the USFWS and have been found acceptable to protect raptors (letter dated October 9, 1981, to UDOGM). Power transmission lines associated with the installation of new mine facilities were also raptor-proofed (letter to OSM from UDOGM August 16, 1982).

Fish and wildlife issues that developed during review of the PAP included the need for: (1) survey of electrical transmission lines to meet raptor protection standards; (2) mitigation of deer road kills; (3) commitment of specific wildlife mitigation measures; (4) inventory of springs and seeps and their wildlife importance; (5) confirmation of fishery status in Soldier Creek; (6) consultation with USFWS on the status of threatened and endangered species in the mine permit area; (7) adequate mapping of key wildlife habitats; and (8) the restoration of riparian habitat. The PAP has provided technically adequate information and/or plans for all of these issues, except for the formal acknowledgement on the status of threatened and endangered species from the USFWS. A summary of each issue is provided.

In response to concerns raised about the status of raptors at the mine area, the USFWS conducted a raptor survey and an evaluation of the electrical transmission lines in 1981 and 1982. The USFWS concluded that the existing lines did not represent a hazard to raptors (letter dated October 9, 1981).

The effects of mine operations on road kills of mule deer during use of critical winter range was an issue raised by UDOGM (letter dated October 10, 1980). The company committed to conducting an employee education program using UDWR materials and posting warning signs to minimize subsequent road kills.

The vagueness of the proposed wildlife mitigation measures and the quantity of wildlife habitat that would be affected by mining operations were issues raised by OSM and UDOGM during PAP reviews. Big game habitat restoration was of special concern. The mining permit area includes critical mule deer winter range and high-priority deer and elk winter range. Mining activities in the Soldier Creek drainage has affected high priority deer and elk winter range, while development of the sewage lagoon has affected critical deer winter range. The total area of wildlife habitat disturbance will be about 41 acres (DOA Response). The PAP stated that all of this area will be restored to wildlife habitat. Wildlife habitat mitigation will be accomplished by restoring vegetation that was present before mining began. Successful revegetation will be determined by comparisons with reference areas.

Regarding the development and commitment to specific wildlife mitigation measures, the PAP contains 10 measures that are considered to constitute adequate wildlife mitigation. These include commitments to (1) revegetate disturbed areas to approximate premining conditions; (2) establish riparian habitat buffer zones; (3) replace lost springs/ seeps with a nearby alternate-water source; (4) conduct a wildlife education program; (5) minimize surface disturbances; (6) reduce highway speed limits; (7) protect critical habitats from disturbances (8) protect Soldier Creek from subsidence and flow reductions; (9) notify UDWR of raptor nests; and (10) restore disturbed wetland/riparian habitat. These commitments are considered appropriate and satisfactory wildlife mitigation that comply with the intent of UMC 784.21 and UMC 817.97.

An inventory of perennial springs and seeps was conducted on the mine permit area. Three springs were found and all are considered important for wildlife. Soldier Creek Coal Company has adequately committed to replacing any lost spring resulting from mine activites.

Data and correspondence from UDWR (letter dated February 29, 1984) confirm that Soldier Creek does not support a fishery. The company has proposed an adequate water monitoring plan to detect any mining effects on stream flow and water quality. The plan should provide protection for other aquatic life. Mine operations will be responsible for consumptive loss of 52 acre-feet of ground water per year.

The Fish and Wildlife Servics (USFWS) has determined that permitting this existing mine would not adversely affect any threatened or endangered species (memorandum dated September 7, 1984).

Mapping of important wildlife resources at suitable scales was a concern identified during the PAP review process. Adequate mapping of key wildlife resources at a scale sufficient for the interpretation of potential impacts was provided. Key resources included high-priority and crucial big game winter ranges, raptor nesting locations, perennial springs and seeps, riparian habitat, and migration corridors.

Concern was expressed about the protection and restoration of disturbed riparian habitat and/or the riparian zones (OSM Determinations of Adequacy dated December 1983, March 1984, and February 1984). The applicant subsequently committed to: (1) restoring disturbed riparian habitat (about 1 acre); (2) establishing a riparian habitat buffer zone 100 feet wide; and (3) contacting the appropriate regulatory agency prior to any future disturbance of riparian habitat. The proposed species mixture, buffer zone width and approach for restoring riparian habitat are appropriate for creating a diverse, self-sustaining, and native community type. The PAP is in compliance with UMC 817.97.

XVII PRIME FARMLAND - UMC 783.27, 785.17 AND 823

The prime farmland information can be found in Chapter VII, page 8-3, Volume I of the PAP. The land in the vicinity of the Soldier Canyon mine, including the valley of Soldier Canyon, has not historically been used for cropland. In addition, the rocky soils and rough topography make farming not possible. A field investigation by OSM staff agrees with the interpretation that prime farmland does not exist in the vicinity of the Soldier Canyon mine. The PAP is therefore, in compliance with UMC 783.27. Regulations UMC 785.17 and 823 do not apply to the Soldier Canyon mine PAP because of the determination that no prime farmland occurs in the area (See Soil Conservation Service letter dated July 20, 1983, PAP, page 20).

XVIII. EXPLOSIVES

UMC 784.23(b)(9)

The applicant has described the storage and use of explosives in Chapter 3, page 3-12 of the PAP. No present or future plans exist for the use of explosives on the surface.

UMC 817.61 through 817.68

As no surface use of explosives is planned the provisions of these paragraphs of the regulations have no direct application. The applicant is in compliance with regulations.

XIX. OPERATION DESCRIPTION

UMC 784.11 and 784.12

Complete description of the mine operation and mine facilities is contained in Chapter 3 pages 3-3 through page 3-12 of the PAP. Existing structures and their uses are also described in Chapter 3 and shown on maps at the end of this chapter, including Map E011. The age, condition and ultimate disposition of the existing coal processing, maintenance, and service facilities are

stated in detail. The construction of the dirt berm below the topsoil stockpile for sedimentation control in the Waste Rock Disposal Area is adequately described and shown on drawing E020. The applicant is in compliance with regulations UMC 784.11 and 784.12.

XX. BACKFILLING AND GRADING

UMC 784.13, 817.101, 817.103, 817.72, 817.73 and 817.74

Backfilling and grading of areas within the permit boundaries for reclamation are shown as both contour maps E014, Sections and details drawing No. D155, C143, C144, C147 and C1150. Backfill material will be used to reduce highwalls and to flatten out slopes of the reclaimed area as described in paragraph 3.5 and on pages 3-19 through 3-21. Underground development wastes are planned to be disposed of within the mine as stated in Chapter 3.4.9 on page 3-15. The applicant has committed to plowing and removing, or otherwise destroying the integrity of the clay lining at the wastewater lagoons during the reclamation phase (PAP, page 3-18a).

The applicant has provided data supporting the construction of terraces on the slopes. Results of stability analyses for the proposed materials and the calculations indicate safety factor of 1.3 (PAP, pages 3-19, 3-28, 3-28a and 3-28b).

The applicant is in compliance with this section.

XXI. COAL PROCESSING WASTE AND NON-COAL WASTE

UMC 784.13(b)(6), 784.16(c) and (d), 784.19, 784.25, 817.71, 817.81, 817.93, 817.181 and 827.11

Coal is transported approximately 10 miles south of the Soldier Canyon mine to coal processing and loadout facilities, operated independent of Soldier Creek Coal Company. The Soldier Creek Coal Company does not produce coal processing waste at the Soldier Canyon mine. Oil and grease wastes are temporarily stored in containers and then hauled from the site and disposed as described in Chapter 3.4.9 on page 3-15. There are no plans to dispose of wastes within the mine permit area. Garbage removal and disposal is contracted with a licensed company. Old machinery is sold for scrap. Past efforts to dispose of non-coal wastes in areas and by methods not approved by UDOGM have resulted in violations of the permit being posted. During 1982 and 1983, there were three Notices of Violation issued against the applicant (12/15/82, 2/21/83, and 10/24/83) in connection with the off-site disposal of noncoal wastes. All violations have since been terminated and abated properly. There are no currently outstanding violations on the disposal of waste rock. As a result Soldier Creek Coal Company has proposed to permit a waste rock disposal site to accommodate the disposal of waste rock material as described in Chapter 13 (PAP). Waste rock from mine development is to be disposed of in the waste rock disposal site as shown on drawings C151, C153, D178, and E017 (PAP). The applicant is in compliance with UMC 784.13(b)(6), 784.16(c) and (d), 784.19, 784.25, 817.71, 817,81, 817.93, 817.181 and 827.11.

XXII. MINE FACILITIES, COAL HANDLING STRUCTURES, AND SUPPORT FACILITIES

UMC 784.11, 784.12, 784.16(a)(2) and (3), and 817.181

The applicant has provided a description of the mining operations, techniques, production and equipment used in Chapter 3 beginning on page 3-4 and shown on Drawing No. C150. Removal of facilities and structures is described in paragraphs 3.5.3.3., 4, and 3.5.6. The design, use, and disposal of the structures is in compliance with the requirements of the regulations.

XXIII. ROADS

UMC 784.18, 784.24 and 817.150 through 817.180

The mine haul road is Utah Highway 53 which has an all-weather paved surface. The road is maintained by Carbon County. Description of the road is found on page 3-8 and the road is shown on maps E011, E010, D141, and E014. No reclamation of the roadway is intended after cessation of mining operations. The applicant is in compliance with the regulations. Two other public roads are or will be used by the applicant: one goes by the sewage lagoon and the other goes through the proposed waste-rock disposal area. Both roads are located mostly on public lands administered by the U.S. Bureau of Land Management (BLM). The road to the waste-rock disposal area crosses some private land, but the applicant has received an easement (letter from SUNEDCO Coal Co., March 19, 1984). Both roads are used by the general public and are considered to be BLM roads (memorandums from BLM, dated March 26, 1984 and November 23, 1984). Use of the road to the sewage lagoon was approved in right-of-way U-50167, and use of the road to the waste-rock disposal area was approved in right-of-way U-53806.

The BLM currently maintains the roads, and they agree to maintain the road to the sewage lagoon after mining (letter from BLM dated July, 1984). Phone conversations indicate that the BLM would like to see the road to the waste-rock disposal area left in place after mining and that the BLM would agree to postmining maintenance.

Since all of the roads are considered to be public roads and the during and postmining maintenance is the responsibility of the county or the BLM, Sections UMC 817.150 through 817.176 are not applicable, and the applicant is in compliance with the regulations.

XXIV. BONDING

A bond of $718,000 was determined to be necessary by OSM. This is based on the following:

Mine Area	$292,000
Sewage Lagoon *1	4,620
New Ventilation Site *2	12,960
Rock Disposal Site	401,000
Maintenance	7,140
Total	$718,000

(rounded off to 3 significant digits)

Additional costs
Contingency:

10% of the above total = $71,800

Escalation:

6.67% compounded annually for five year permit term (rate currently used by DOGM) = $274,000

Supervision:

Costs for supervision were included in the bond estimate for all categories except structure removal which was recalculated by the regulatory authority. It is assumed here that for that phase of the operation, a field engineer will be required for 2 months.

Cost = $31.33/hr X 3 mon. X 20 days/mon. X 8 hr/days = $15,000

Mobilization and Demobilization:

This cost was included by the applicant = $12,000

Grand Total = $1,090,800

*1 $4,574.00 (1983) X escalation 1983 - 1984 of 1.04% - $4,620
*2 $11,723.76 (1982) X escalation 1982 - 1983 of 9.4% and from 1983 - 1984 of 1.04% - $12,960

OSM has found these bonding estimates to be adequate and comply with UMC 805 and 806. The applicant currently has a surety bond for $35,000 held by UDOGM.

XXV. SEALING OF DRILL HOLES AND UNDERGROUND OPENINGS

UMC 817.13, 817.14, 817.15, and 784.13(b)(8)

The applicant has satisfactorily described in Chapter 3, pages 3-17 and 3-18, the methods which he proposes to use for sealing drill holes and mine access holes and has furnished details of the seals on drawing A120. The applicant is in compliance with these regulations.

XXVI. SUBSIDENCE

UMC 817.121, 817.122, 817.124, 817.126, and 784.20

The applicant has provided the required subsidence monitoring plan as described in Chapter 12, pages 12-10 and 12-11. The methods proposed for subsidence control and an assessment of the probable effects of subsidence on streams are described on pages 12-4 through 12-9.

A limited number of renewable resources and structures have been identified in the permit area: springs, Soldier Creek, Mountain Fuel Corp. gas pipeline, and County road 53.

Subsidence surface monuments were established in 1980 by Soldier Creek Coal Company. The company has committed to continue monitoring (resurvey) on an annual basis. Monitoring will be preformed using aerial photogrammetric methods for points over the mine workings and ground survey methods (including visual observations) for points along Soldier Creek.

Subsidence is expected to occur over the mine workings outside Soldier Creek Valley. Soldier Creek Coal Company analyzed the subsidence effects over the mine workings, and the maximum predicted subsidence is expected to range from 3.6 feet over shallow cover (less than 900 feet) to 1.6 feet over thick cover (more than 900 feet). No impacts to springs is anticipated due to the thick layers of the Castlegate Sandstone which will serve as a bridge over the mined-out areas. The company has committed to a contingency plan (PAP, pages 7-8 and 7-9) for the mitigation of impacts to perennial springs or seeps as a result of subsidence.

No subsidence is expected in the Soldier Creek valley. Support pillars will be left in place within 100 to 500 feet of either side of the creek dependent upon the amount of cover (PAP, Figure D-163). The pillar design and stability has been analyzed and demonstrated to have a safety factor of 4.2. In the unlikely event that subsidence occurs or that an unknown geologic structural zone is encountered that yields water from Soldier Creek, Soldier Creek Coal Company has committed to: grout and seal that portion of the geologic formation and/or the mine that is encountering the ground water, pump water encountered in the mine from Soldier Creek in the mine back to Soldier Creek and to possibly line the stream channel in the area of the subsidence fractures. Soldier Creek Coal Company has also committed their water rights to replace any potentially affected water rights (DOA Response, Chapter 7, pages 7-8 and 7-9).

Soldier Creek Coal Company has recieved approval from Carbon County to conduct underground mining and is in compliance with the zoning ordinances. The company has committed to repairing, or replacement of Mountain Fuel's pipeline in the unlikely event it is damaged by subsidence. Soldier Creek Coal Company is in compliance with all requirements under this section.

XXVII. SPECIAL CATEGORIES OF MINING OTHER THAN ALLUVIAL VALLEY FLOORS AND PRIME FARMLAND

UMC 827 and 828

Soldier Creek Coal Company has included all associated support facilities within the permit area. Therefore, UMC 827 is not applicable. Similarly, no in situ processing is proposed at the Soldier Canyon mine and UMC 828 is also not applicable.

XXVIII. MISCELLANEOUS COMPLIANCE

UMC 817.100 Contemporaneous Reclamation

The applicant has provided adequate information on contemporaneous and interim reclamation in DOA response, Vol. II Ch. III, pp. 3-16 - 3-17 and Ch. 13 Earth Fax Engineering report, pp. 5-8. The PAP is in compliance with UMC 817.100.

UMC 817.11 Signs and Markers

The applicant has posted signs and markers around the permit area as required by this regulation (original submittal, Chapter III, p. 3-7). The applicant is in compliance with UMC 817.11.

UMC 784.13(b)(9) Compliance With Clean Air and Clean Water Acts

Because of the length of time that mining has been conducted at the Soldier Canyon mine site and because Soldier Creek Coal Company's operations have reduced potential sources of fugitive dust emissions, the operation has not been required to develop an air quality control plan by the Utah Bureau of Air Quality. The Bureau maintains an inspection program for the mine, however. The applicant is in compliance with the Clean Air Act.

The applicant holds a National Pollutant Discharge Elimination System (NPDES) permit (UT-0023680) from the EPA for a discharge into Soldier Creek. As of May 10, 1984, the applicant has no violations associated with that permit and is considered to be in compliance with the Clean Water Act.

UMC 786.11 Public Notices of Filing of Permit Applications

The applicant has had an advertisement which meets the requirements of this section published in the Price Sun-Advocate May 23, 1984, through June 13, 1984. The applicant is in compliance with UMC 786.11.

Attachment 1

CUMULATIVE HYDROLOGICAL IMPACT ASSESSMENT SUMMARY

Under the Surface Mining Control and Reclamation Act of 1977 (PL 95-87), the regulatory authority is required to prefrom a cumulative hydrologic impact assessment (CHIA) before approving any application to mine. The CHIA assesses the cumulative hydrologic impacts for all anticipated mining in the Soldier Creek drainage, including Soldier Canyon mine.

The Soldier Canyon mine is located about 13 miles north of Wellington, Utah and is the only active mine in the cumulative impact area. The proposed Sage Point - Dugout Canyon mine is also within the cumulative impact area. Sage Point - Dugout Canyon mine has been permitted and is authorized to begin construction. Surface disturbances associated with the Soldier Canyon mine operations occur within the Soldier Creek watershed. Sage Point - Dugout Canyon mine surface disturbances will occur in a tributary to Soldier Creek that enters Soldier Creek downstream from Soldier Canyon mine.

Previous studies have documented that the major hydrologic impacts associated with underground coal mining in the area are related to changes in surface water quality caused by discharge of mine waters with a relatively high total dissolved solids concentration and caused by leaching of available salts from disturbed areas.

The CHIA for Soldier Creek attempts to define the magnitude and duration of changes in the surface-and ground-water quality and surface water quantity related to mining in Soldier Creek drainage basin. Data were obtained from mining and reclamation plans of the existing and proposed mines in the cumulative impact area, from research studies of the area, and from the U.S. Geological Survey gaging station on Soldier Creek. There is sufficient information from mine discharge data and description of the mining plan to define the probable impact on surface-water quality due to mine discharge with a moderate level of confidence. Lack of long-term data and the heavy influence of Mancos shales made predictions of water quality changes from disturbed areas difficult. Therefore, results from a CHIA in a similar area was used, and the level of confidence in the results is low to moderate.

The level of confidence in the results can be raised by providing more long-term hydrologic data. Over time, the water monitoring programs of the mines in the cumulative impact area should provide this additional data.

Results of the analyses indicate that Soldier Canyon mine is currently discharging an average of about 0.5 tons of total dissolved solids (TDS) per day. With the discharge rate increasing as the mining area expands, there is a potential to discharge 0.9 tons per day. Soldier Creek Coal Company recognizes this potential problem and is committed to limiting the volume of discharge so that the discharge TDS load will be less than the NPDES limits of 1.0 tons per day.

TDS loads in the surface water will increase due to leaching of soluble salts associated with surface disturbed lands, coal stockpiles, and runoff from road surfaces. Cumulative TDS load from all disturbed areas in the cumulative impact area will be about 90 tons per year as compared to an average natural TDS load of 1,200 tons per year for Soldier Creek immediately below the Soldier Canyon mine. TDS increases from the anticipated mining will not cause the TDS concrentations to rise above the established or recommended TDS water quality standards for water uses on Soldier Creek. Therfore, mine discharges will not cause material damage.

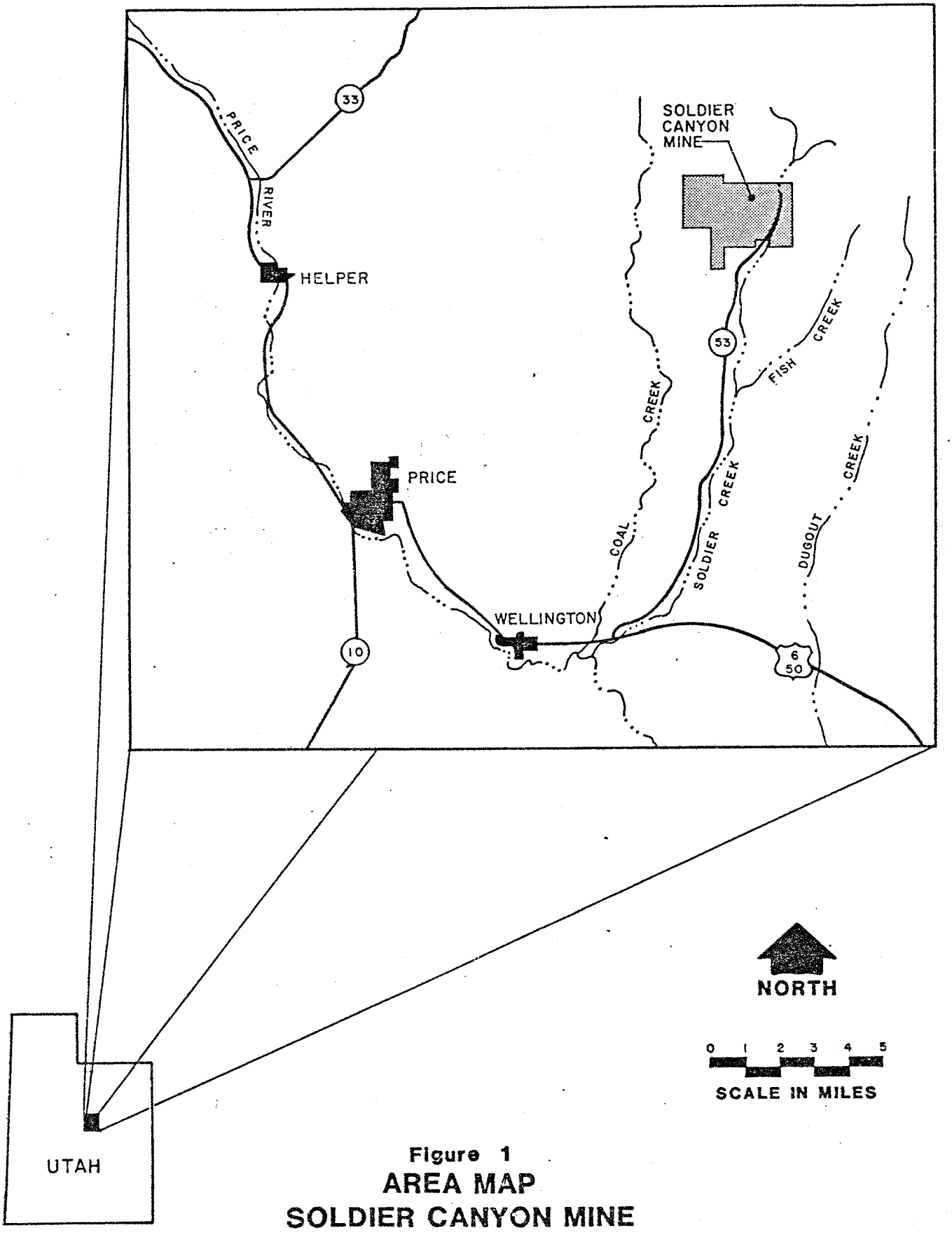

Figure 1
AREA MAP
SOLDIER CANYON MINE

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
NOTICE OF A DECISION AND AVAILABILITY
OF BOTH A TECHNICAL ANALYSIS AND AN
ENVIRONMENTAL ASSESSMENT FOR
SOLDIER CREEK COAL COMPANY'S
PERMANENT PROGRAM PERMIT
SOLDIER CANYON MINE
CARBON COUNTY, UTAH

The United States Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSM), has approved, a 5-year permit for Soldier Creek Coal Company to mine coal at its Soldier Canyon mine.

The Soldier Canyon mine underground coal mine is located in Carbon County, Utah. The mine has been in operation since 1940. The proposed permit area will cover approximately 2,143.81 acres, approximately 11.5 acres of which have been disturbed to date. An additional 30 acres are to be disturbed by future development of the proposed waste rock disposal area. Maximum mine production is at a rate of 0.82 million tons per year of coal over 19 years.

Any person with an interest which is or may be adversely affected by this Federal permit approval action may request an adjudicatory hearing on the final decision within 30 days after publication of this notice, in accordance with Section 514(c) of the Surface Mining Control and Reclamation Act (SMCRA). Any hearing will be governed by provisions of 5 U.S.C. Section 554. A petition for review of the OSM decision should be submitted to:

Hearings Division
Office of Hearings and Appeals
U.S. Department of the Interior
4015 Wilson Boulevard
Arlington, Virginia 22203

Pursuant to 40 CFR Sections 1501.4(c) and 1506.6, notice is hereby given that OSM has completed a technical analysis (TA) for the mining and reclamation plan (mining plan) for the Soldier Canyon mine, Carbon County, Utah. OSM has supplemented this TA with its own environmental assessment (EA). OSM's recommendation to approve the Soldier Canyon mine mining plan and the permit application with conditions is in accordance with Sections 510 and 523 of SMCRA. OSM's analysis is that no significant environmental impacts would result from such approval. For information or clarification concerning the approval of the Soldier Canyon mine plan, please contact Mark Humphrey or Walter Swain at (303) 844-3806, Office of Surface Mining, Denver, Colorado.

Both the TA and the EA are available for public review at the following locations:

Office of Surface Mining Reclamation and Enforcement
Western Technical Center
Brooks Tower
1020 15th Street
Denver, Colorado 80202

Office of Surface Mining Reclamation and Enforcement
Enforcement and Inspection
219 Central Avenue, NW., Room 216
Albuquerque, New Mexico 87102

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