

PERMIT APPLICATION APPROVAL PACKAGE

Sunnyside Mines Kaiser Coal Corporation Carbon County, Utah



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

**Federal Coal Leases SL-062966, SL-063303,
SL-068754, U-010140, U-32083**

January 1986

KNUTSON, BRIGHTWELL & REEVES, P.C.
ATTORNEYS AT LAW
1200 HUDSON'S BAY CENTRE
1600 STOUT STREET
DENVER, COLORADO 80202-3133

ACT/007/007

RODNEY D. KNUTSON
THOMAS P. BRIGHTWELL
GEORGE E. REEVES
KENNETH R. OLDHAM
HOWARD R. HERTZBERG

TELEPHONE
(303) 825-6000

RECEIVED
JUN 08 1989

June 6, 1989

DIVISION OF
OIL, GAS & MINING

Dr. Dianne R. Nielson
Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, UT 84180-1203

RE: Permit No. ACT/007/007
Sunnyside Reclamation & Salvage, Inc.
Sunnyside Mine, Carbon County, UT

Dear Dr. Nielson:

The Permit forwarded with your letter of May 26, 1989 has now been executed on behalf of Sunnyside Reclamation & Salvage, Inc. by James T. Cooper, President. A fully executed copy of the Permit is returned herewith to the Division's records.

Sincerely yours,



Enclosure

cc: Mr. James T. Cooper (w/copy of enclosure)
Denise A. Dragoo (w/copy of enclosure)

FEDERAL
(February 1985)

Permit Number ACT/007/007, 1/86

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
(801) 538-5340

RECEIVED
JUN 08 1989

DIVISION OF
OIL, GAS & MINING

This permit, ACT/007/007, which incorporates the Office of Surface Mining (OSM) Permit UT-0014, 1/86, is issued for the state of Utah by the Utah Division of Oil, Gas and Mining (DOG M) to:

Sunnyside Reclamation and Salvage, Inc.
1200 Hudson's Bay Centre
1600 Stout Street
Denver, Colorado 80202-3133

for the Sunnyside Mine. Sunnyside Reclamation and Salvage, Inc. is the lessee of federal coal leases SL 062966-063383, U 010140, U 32083, SL 068754, and/or the lessee/owner of certain fee-owned parcels listed in the Legal Description following Section 2. The permit is not valid until DOGM has received a copy of this permit signed and dated by the permittee.

Sec. 1 STATUTES AND REGULATIONS - This permit is issued pursuant to the Utah Coal Mining and Reclamation Act of 1979, Utah Code Annotated (UCA) 40-10-1 et seq, hereafter referred to as UCMRA.

Sec. 2 The permittee is authorized to conduct surface coal mining and reclamation operations on the following described lands (as shown on ownership map) within the permit area at the Sunnyside Mines situated in the state of Utah, Carbon County, and located:

Fee Land

Township 14 South, Range 14 East, SLB&M, Utah

Sec. 6: N1/2, S1/2 SW1/4, S1/2 SE1/4, NW1/4 SE1/4

Sec. 7: NW1/4, SW1/4 NE1/4, E1/2 SW1/4, S1/2 SE1/4, NW1/4 SE1/4

Sec. 17: NE1/4, SE1/4 NW1/4, SW1/4, S1/2 SE1/4

Sec. 18: E1/2, S1/2 SW1/4, NE1/4 SW1/4, NW1/4 SW1/4, SW1/4 NW1/4 less the following described area:

Beginning at the NW corner of SW1/4 NW1/4 of Section 18, Township 14 South, Range 14 East:

thence S 45° 05' E, 1,577.42 ft;
thence S 39° 25' W, 1,759.22 ft;
thence N 2,472.87 ft to point of beginning.

Sec. 19 and 20: All
Sec. 21: W1/2
Sec. 28 and 29: All
Sec. 30: NE1/4, NE1/4 NW1/4, NW1/4 SE1/4
Sec. 31: S1/2 NE1/4, NE1/4 NE1/4
Sec. 32 and 33: All
Sec. 34: W1/2

Township 15 South, Range 14, East, SLB&M, Utah

Sec. 3: W1/2
Sec. 4: All
Sec. 5: NE1/4, N1/2 SE1/4, SE1/4 SE1/4, W1/2, SW1/4 SE1/4
Sec. 6: S1/2 SE1/4, SE1/4 SW1/4, portions of N1/2 SE1/4
and NE1/4 SW1/4, South of the D&RGW Railroad right-of-way.
Sec. 7: N1/2 NE1/4, N3/4 NW1/4
Sec. 8: NE1/4 NE1/4, N1/2 NW1/4, NW1/4 NE1/4
Sec. 9: All
Sec. 10: W1/2, SE1/4
Sec. 15: W1/2, N1/2 NE1/4
Sec. 16: E1/2, NW1/4, E1/2 SW1/4
Sec. 17: E1/2 NE1/4

Federal Leases

Federal Coal Leases numbers Salt Lake 062966-063383-Utah 010140, Utah 32083 and SL-068754. Areas within both the leases and the permit area are described as follows:

Township 14 South, Range 13 East, SLB&M, Utah

Sec. 1: SE1/4, SE1/4 SW1/4
Sec. 12: NW1/4, NE1/4, SE1/4, NE1/4 SW1/4 less the following described area:

Beginning at a point which bears S 1,320 ft from the NW corner of Section 12:
thence S, 1,320 ft;
thence S 89° 55' 30" E, 1,327.01 ft;
thence S, 1,320 ft;
thence S 89° 53' 15" E, 1,327.22 ft;
thence S, 1,320 ft;
thence S 89° 51' E, 1,327.43 ft;
thence N 45° 05' 07" W, 5,623.40 ft to the place of beginning.

Sec. 13: Portions of: NE1/4 NE1/4, E1/2 SE1/4, SW1/4 SE1/4, SE1/4 SW1/4, NE1/4 SW1/4, NW1/4 SW1/4, SW1/4 NW1/4 which are shown on Plate II-2 of the Mining and Reclamation Plan (MRP).

Sec. 24: S1/2 SE1/4, Portions of: N1/2 NE1/4, SE1/4 NE1/4, N1/2 SE1/4 and NE1/4 SW1/4 which are shown on Plate II-2 of the MRP.

Sec. 14: Portions of: NE1/4 which is shown on Plate II-2 of the MRP.

Sec. 11: Portions of: SW1/4 SE1/4 which is shown on Plate II-2 of the MRP.

Sec. 25: NE1/4 NE1/4

Township 14 South, Range 14 East, SLB&M, Utah

Sec. 6: N1/2 SW1/4

Sec. 7: W1/2 SW1/4

Sec. 8: SW1/4, SW1/4 SE1/4

Sec. 17: W1/2 NW1/4, NE1/4 NW1/4, N1/2 SE1/4

Sec. 18: E1/2 NW1/4, NW1/4 NW1/4

Sec. 30: NW1/4 NW1/4, SE1/4 NW1/4, NE1/4 SW1/4, S1/2 SE1/4, NE1/4 SE1/4

Sec. 31: NW1/4 NE1/4

Carbon County Lease

Salt Lake Meridian, Utah

Township 14 South, Range 14 East

Sec. 21: SE1/4

Sec. 27: SW1/4, SW1/4 NW1/4

Sec. 34: E1/2

Township 15 South, Range 14 East

Sec. 3: E1/2

Sec. 10: NE1/4

This legal description is for the permit boundary (as shown on the permit area map) of the Sunnyside Mines. The permittee is authorized to conduct surface and reclamation operations connected with mining on the foregoing described property subject to the conditions of the leases, the approved mining plan, and OSM permit UT-0014, 1/86, to be issued January 6, 1986, including all conditions and all other applicable conditions, laws and regulations.

Sec. 3 This permit is issued for a term of five (5) years commencing from January 20, 1986 and expiring on January 20, 1991, except that this permit will terminate if the permittee has not begun the surface coal mining and reclamation operations covered herein within three (3) years of the date of issuance.

- Sec. 4 The permit rights may not be transferred, assigned or sold without the approval of the Director, DOGM. Request for transfer, assignment or sale of permit rights must be done in accordance with applicable regulations including but not limited to 30 CFR 740.13(e) and UMC 788.17-.19.
- Sec. 5 The permittee shall allow the authorized representative of the DOGM, including but not limited to inspectors, and representatives of the Office of Surface Mining, without advance notice or a search warrant, upon presentation of appropriate credentials, and without delay to:
- A. have the rights of entry provided for in 30 CFR 840.12, UMC 840.12, 30 CFR 842.13 and UMC 842.13; and,
 - B. be accompanied by private persons for the purpose of conducting an inspection in accordance with UMC 842.12 and 30 CFR 842, when the inspection is in response to an alleged violation reported by the private person.
- Sec. 6 The permittee shall conduct surface 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 performance bond.
- Sec. 7 The permittee shall minimize any adverse impact to the environment or public health and safety 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 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 lessee 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 DOGM and OSM in approving alternative methods of compliance with the performance standards of the Act, the approved Utah State Program and the Federal Lands Program.
- Sec. 10 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 The permittee shall comply with the provisions of the Water Pollution Control Act (33 USC 1151 et seq,) and the Clean Air Act (42 USC 7401 et seq), UCA 26-11-1 et seq, and UCA 26-13-1 et seq.
- Sec. 12 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. 13 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 (RA). The state RA, after coordination with OSM, shall inform the operator of necessary actions required.
- Sec. 14 APPEALS - The lessee 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 Minerals Management Service; 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. In addition, the lessee shall have the right to appeal as provided for under UMC 787.
- Sec. 15 SPECIAL CONDITIONS - In addition to the general obligations and of performance set out in the leases, OSM permit UT-0014, 1/86 and this permit, the permittee shall comply with the special conditions of OSM permit UT-0014, 1/86 and the conditions appended hereto as Attachment A.

The above conditions (Secs. 1-15) are also imposed upon the permittee's agents and employees. The failure or refusal of any of these persons to comply with these conditions shall be deemed a failure of the permittee to comply with the terms of this permit and the lease. The permittee shall require his agents, contractors and subcontractors involved in activities concerning this permit to include these conditions in the contracts between and among them. These conditions may be revised or amended, in writing, by the mutual consent of the grantor and the permittee at any time to adjust to changed conditions or to correct an oversight. The grantor may amend these conditions at any time without the consent of the permittee in order to make them consistent with any new federal or state statutes and any new regulations.

THE STATE OF UTAH

By: James R. Nelson
Date: May 26/1989

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

James T. Cooper
Authorized Representative of
the Permittee
Date: June 6, 1989

APPROVED AS TO FORM:

By: Paul W. Roberts
Assistant Attorney General

Date: May 26, 1989

orig. memo file
cc letter -
L. Braxton
RECEIVED

JAN 15 1986

DIVISION OF OIL
GAS & MINING

07 JAN 1986

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. Martin P. Holmes, Manager
Permits and Regulatory Compliance
Kaiser Coal Corporation
102 S. Tejon Street, Suite 800
Box 2679
Colorado Springs, Colorado 80901-2679

Dear Mr. Holmes:

Enclosed is the Sunnyside mines permit with conditions. This permit became effective January 7, 1986. The Office of Surface Mining Reclamation and Enforcement (OSMRE) has accepted the bond in the amount of \$2,820,732.00, payable to both the State of Utah and the United States of America.

Please review the permit to be sure you understand the requirements and conditions. Pursuant to 30 CFR 775.11, Kaiser Coal Corporation will have 30 days from the date of notice of the permit decision to appeal the Deputy Director's decision on the application.

Enclosed is a copy of the newspaper notice we are sending to the Sun Advocate, Carbon County, Utah, to be published as soon as possible. When published, this notice will constitute official notification of our action. Any person with an interest which is or may be adversely affected may request a hearing on the reasons for the final decision within 30 days from the date that notice is published.

The Assistant Secretary for Land and Minerals Management approved the mining plan on January 2, 1986. The enclosed permit has been determined to be consistent with this plan.

If you have any questions, please feel free to call me or Rick Lawton at (303) 844-2451.

Sincerely,

(sgd) Allen D. Klein

Allen D. Klein
Administrator
Western Technical Center

Enclosure

cc: Mr. Jacobson, Office
Bureau of Land Management (BLM)

Mr. [Name] Notice
Bureau of Land Management, (BLM)

Dr. Frances Nielson ✓
Utah Division of Oil, Gas and Mining

Mr. Robert Hagen
Albuquerque Field Office
Office of Surface Mining Reclamation and Enforcement

0379M/Lawton/eg/1-3

*orig mine file
cc letter
L. Burton
John W.*



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

16 JAN 1986

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. Martin P. Holmes, Manager
Permits and Regulatory Compliance
Kaiser Coal Corporation
102 S. Tejon Street, Suite 800
Box 2679
Colorado Springs, Colorado 80901

RECEIVED

JAN 21 1986

DIVISION OF OIL
GAS & MINING

Dear Mr. Holmes:

Enclosed is the Sunnyside mines revised permit with conditions which supersedes permit UT-0014, issued on January 7, 1986. This permit became effective January 10, 1986. The Office of Surface Mining Reclamation and Enforcement (OSMRE) has accepted the bond in the amount of \$2,820,732.00 payable to both the State of Utah and the United States of America.

Please read the permit to be sure you understand the requirements and conditions. Pursuant to 30 CFR 775.11, Kaiser Coal Corporation will have 30 days from the date of notice of the permit decision to appeal the Director's decision on the application.

Enclosed is a copy of the newspaper notice we are sending to the Sun Advocate, Carbon County, Utah to be published as soon as possible. When published, this notice will constitute official notification of our action. Any person with an interest which is or may be adversely affected may request a hearing on the reasons for the final decision within 30 days from the date that notice is published.

If you have any questions, please feel free to call either me or Richard Holbrook at (303) 844-2451.

Sincerely,

Paul Hufnagel, Acting

Allen D. Klein
Administrator
Western Technical Center

Enclosure

cc: Mr. Jackson Moffit
Bureau of Land Management, (MMS)

Mr. Gene Nodine
Bureau of Land Management

Dr. Dianne Nielson ✓
Utah Division of Oil, Gas and Mining

Mr. Robert Hagen
Albuquerque Field Office
Office of Surface Mining Reclamation and Enforcement

CONTENTS

KAISER COAL COMPANY
SUNNYSIDE MINES

1. Memorandum from the Administrator, Western Technical Center, to the Director, Office of Surface Mining Reclamation and Enforcement (OSMRE).

Memorandum from the Director, OSMRE, to the Assistant Secretary for Land and Minerals Management.
2. Maps.
3. Chronology of Events.
4. Findings and Technical Analysis.
5. National Environmental Policy Act Compliance Documents.
6. Letters of Concurrence and Consultation:
 - a. U.S. Fish and Wildlife Service
 - b. Bureau of Land Management, Branch of Solid Minerals
 - c. Bureau of Land Management, surface management agency
 - d. State Historic Preservation Officer
7. Federal Permit with Conditions.
8. Technical Analysis, State Findings and Cumulative Hydrologic Impact Assessment
9. Notification.



United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

WASHINGTON, D.C. 20240

Memorandum

To: Assistant Secretary for Land
and Minerals Management

From: Director, Office of Surface Mining
Reclamation and Enforcement

Subject: Recommendation for Approval of the Sunnyside Mines Mining Plan,
Kaiser Coal Corporation, Sunnyside Mines, Carbon County, Utah,
Federal Lease Numbers SL-062966, SL-063383, SL-068754, U-010140,
U-32083

I recommend your approval of the Sunnyside mines mining plan pursuant to the Mineral Leasing Act (MLA). The Office of Surface Mining Reclamation and Enforcement (OSMRE) has reviewed the permit application package (PAP), and the Administrator of the Western Technical Center has informed me that he is prepared to issue a permit for the Sunnyside mines pursuant to your approval of the mining plan. My recommendation to approve the Kaiser Coal Company's mining plan is based on: (1) the applicant's complete PAP, including the operation and reclamation plan required by the Surface Mining Control and Reclamation Act (SMCRA), (2) OSMRE's proposed permit conditions, (3) public participation, (4) review of the operation and reclamation plan portions of the PAP by OSMRE, (5) review by the Utah Division of Oil, Gas and Mining, as required by the approved Utah State Program, (6) compliance with the National Environmental Policy Act, (7) documentation assuring compliance with applicable requirements of other Federal laws other than SMCRA, regulations, and executive orders, and (8) comments and recommendations or concurrences of other Federal agencies, including the findings and recommendations of the Bureau of Land Management with respect to the resource recovery and protection plan and other requirements of the lease and the MLA.

The Sunnyside mines mining plan was initially approved under the interim regulatory program on May 11, 1978. Approval of this mining plan will supersede the previous mining plan approval.

The Secretary may approve a mining plan for Federal lands under 30 U.S.C. 207(c) and 1273(c). I find that the proposed operations will be in compliance with all applicable laws and regulations, and I recommend approval of the Sunnyside mines mining plan updated through December 3, 1985.

Approval:

I approve this mining plan:

Assistant Secretary for Land and Minerals
Management

Date



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

DEC 11 1985

MEMORANDUM

TO: Director, Office of Surface Mining Reclamation and Enforcement

FROM: *Mel Shreeve, Acting*
Allen D. Klein, Administrator, Western Technical Center

SUBJECT: Proposed Permit Approval and Recommendation for Mining Plan Approval for Kaiser Coal Corporation's Sunnyside Mines, Carbon County, Utah, Federal Leases: SL-062966, SL-063383, SL-068754, U-010140, U-32083

I. Recommendation

I am prepared to approve with conditions the permit and recommend approval with conditions of the mining plan for the Kaiser Coal Corporation's Sunnyside mines. My proposed decision and my recommendation are based on the complete permit application package (PAP), updated to December 3, 1985, an environmental assessment of the PAP, a technical analysis, and the administrative record.

I am prepared to approve a permit for an existing underground mine being permitted for the first time under the Utah permanent program. The Sunnyside mines were permitted under Utah's interim program. The applicant has proposed to continue mining operations utilizing underground mining methods on Federal coal leases SL-062966, SL-063383, SL-068754, U-010140, U-32083, during the five-year permit term and 25 year life-of-mine. The Federal permit with conditions included with this memorandum will be in conformance with the applicable Federal regulations, the Utah State program, and the Mineral Leasing Act, as amended.

The Utah Division of Oil, Gas and Mining (DOGGM) and the Office of Surface Mining Reclamation and Enforcement (OSMRE), identified elements of the applicant's proposal which require conditions to comply with State and Federal law. The proposed State permit ACT/007/007 and the conditions are incorporated into the proposed Federal permit UT-0014. The State regulatory authority will issue a permit concurrently with the Federal permit. I concur with the Utah DOGM that a bond in the amount of \$2,820,732.00 is adequate.

The mining plan recommended for approval is a mining plan for an existing underground mine being permitted for the first time under the Utah permanent program. Approval of this mining plan will authorize mining of approximately 33,000,000 tons of Federal coal within the approved mining plan area covering 2,022 acres within Federal leases SL-062966, SL-063383, SL-068754, U-010140, and U-32083, as shown on the maps included with this memorandum. During the review of the PAP, certain elements of the applicant's proposal were identified that require special conditions to comply with Federal law. Those special conditions are incorporated into the proposed permit.

The first special condition protects cultural resources that may be affected by subsidence in the unsurveyed areas above the mine workings. The second condition, requested by BLM, requires that portal seals be inspected and approved by BLM, Branch of Solid Minerals.

The PAP, including the operation and reclamation plan, was reviewed by the OSMRE for compliance with SMCRA, the Federal Lands Program, and all other requirements of applicable Federal laws. The resource recovery and protection plan was reviewed by the Bureau of Land Management for compliance with the Mineral Leasing Act of 1920, as amended, and 43 CFR Part 3480.

The proposed permit included with this memorandum will be in conformance with the Surface Mining Control and Reclamation Act of 1977 (SMCRA).

I recommend that you advise the Assistant Secretary for Land and Minerals Management, under 30 CFR Part 746, that the Kaiser Coal Corporation's Sunnyside mines mining plan is ready for approval.

I have determined that this action will not have a significant impact on the human environment.

II. Background

The Sunnyside mines are located in Carbon County, Utah, approximately 20 miles east of Price and have been operating since the 1890's. The permit area contains approximately 14,385 acres, of which 2,022 acres are leased Federal coal. The PAP indicated that mining operations for the life of the Sunnyside mines would cease around the year 2010 and would affect approximately 14,385 acres, of which 2,022 acres are leased Federal coal lands. I am prepared to approve the permit for a 5-year term, and am recommending approval of the mining plan for the area to be mined over the life of the Sunnyside mines based on the technical analysis, environmental assessment and the adequacy of the data and information provided by Kaiser Coal Corporation in the PAP.

The underground mining operations principally will utilize longwall and room and pillar mining methods. The Upper and Lower Sunnyside coal seams will be mined at a production rate of approximately 2 million tons per year. This mining operation will not affect any environmentally-sensitive areas.

During review of the PAP, the following issue was identified. Four slurry ponds that contain waste coal fines from the coal preparation plant exist within the permit area. All were constructed before 1977. Two of the ponds have embankments that do not meet the permanent program performance standards for coal processing waste embankments. The applicant has stated that they will not use the West Slurry Cell until the embankment is reconstructed to meet the standards. The Utah DOGM has added a condition to the permit that does not allow the applicant to use the second pond, the East Slurry Cell, until it is also reconstructed to meet the permanent program performance standards. Additionally, several existing diversions and collection ditches do not meet the applicable performance standards. The applicant has submitted acceptable designs for the reconstruction of these ditches within 6 months of permit approval so that they will meet the permanent program performance standards.

The public was notified of the availability of the PAP for review by publication of newspaper notices for four consecutive weeks ending April 15, 1981. No public comments on the PAP were received after the public notice was published.

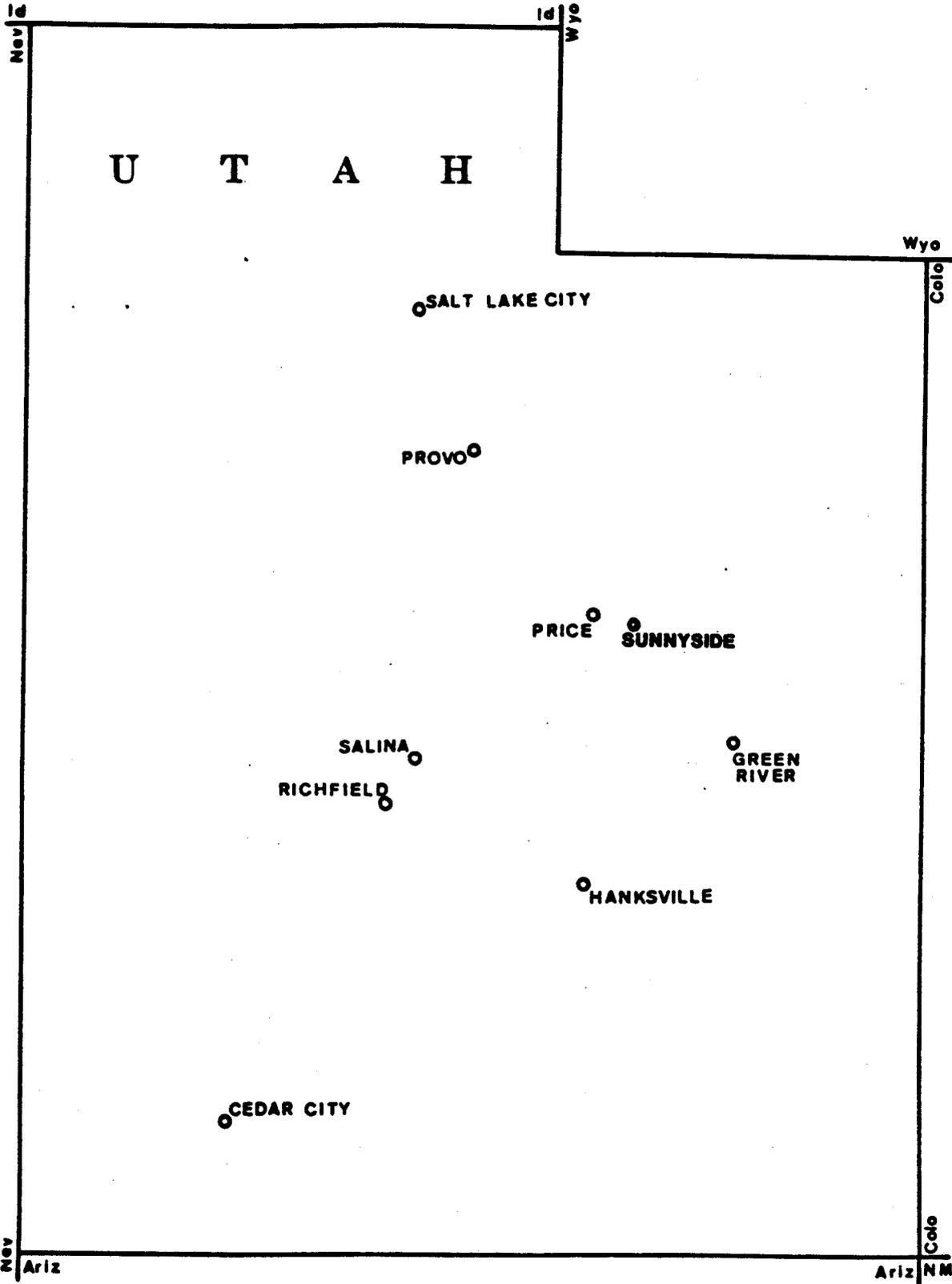
The Sunnyside mines PAP was reviewed by the Utah DOGM using the approved Utah State Program and the Federal Lands Program (30 CFR Chapter VII, Subchapter D). The Mineral Leasing Act portion of the plan was also reviewed for compliance with the applicable portions of 43 CFR 3480. A technical analysis for this PAP was prepared by the Utah DOGM and was included in the documentation provided by the Utah DOGM to OSMRE. The environmental assessment of the proposed action and alternatives was prepared by OSMRE. These documents, other documents prepared by the Utah DOGM, the company's PAP, and other correspondence developed during the completeness and technical reviews are part of OSMRE's administrative record. The Utah DOGM and OSMRE jointly developed proposed conditions to the State permit to assure compliance with State and Federal regulations.

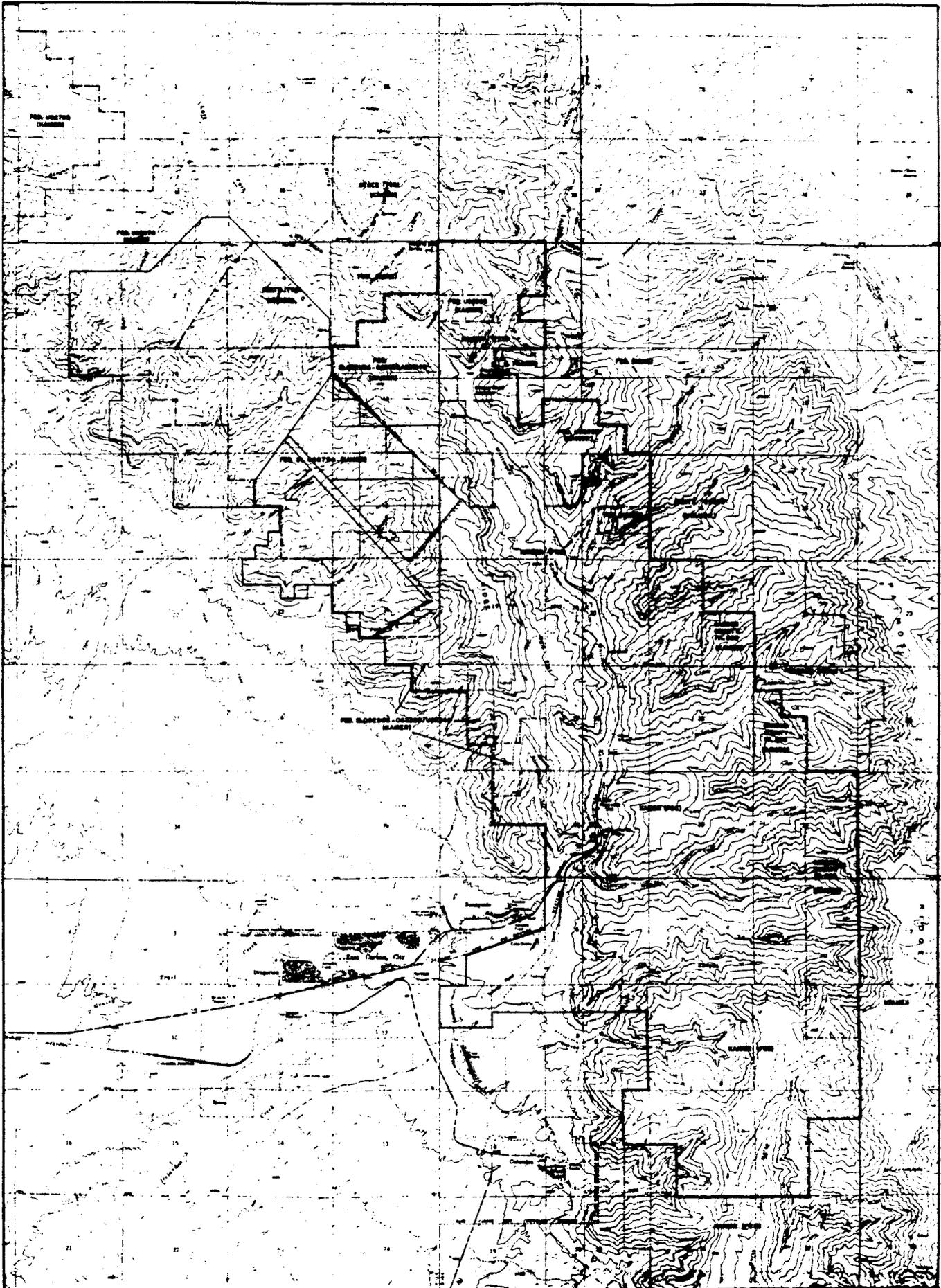
A chronology of events related to the processing of the PAP is included with this memorandum.

Written concurrence was provided by Bureau of Land Management, Branch of Solid Minerals in a letter dated November 25, 1985; U.S. Fish and Wildlife Service in a letter dated November 4, 1985; the State Historic Preservation Officer; and the Bureau of Land Management, Moab District Office in a letter dated February 3, 1984.

The Federal permit for the Sunnyside mines, Permit Number UT-0014, upon approval will contain two special conditions of approval. Special condition 1 covers unanticipated cultural resource discoveries in the unsurveyed areas of the mine where subsidence may affect those resources. Special condition 2 requires inspection and approval of portal seals by BLM.

The information in the PAP, as well as other information identified in the decision document included with this memorandum and made available to the applicant, has been reviewed by the Utah DOGM staff in coordination with the OSMRE Project Leader. Other information included: the 1979 USGS Central Utah Coal Final Environmental Statement; the 1983 BLM Uinta-Southwestern Utah Final Environmental Impact Statement, Round Two; and OSMRE's administrative record.





 KAISER STEEL	SHEET NO. _____ OF _____	DATE _____ SCALE 1" = 2000'	1-22-28 SUBSURFACE OWNERSHIP	SUNNYSIDE MINES COAL PLATE II-2 MAR 5 1988 D4-0100
	REVISIONS	DATE	PERMIT BOUNDARY _____ FEE AND OR LEASE BOUNDARY _____	
	1 _____ 2 _____ 3 _____ 4 _____	DATE _____ SCALE _____	MAR 5 1988	
	5 _____ 6 _____ 7 _____ 8 _____	DATE _____ SCALE _____	MAR 5 1988	

CHRONOLOGY OF EVENTS
KAISER COAL CORPORATION'S
SUNNYSIDE MINES
Mining Plan and Permit Approval

DATE	EVENT
March 23, 1981	Kaiser Steel Corporation (KSC) submitted their mining permit application for Sunnyside mines.
March 25, 1981	Public notified of availability of application.
September 4, 1981	OSMRE sent ACR comments to Utah Division of Oil, Gas and Mining (UDOGM).
June 21, 1982	UDOGM transmitted additional information to OSMRE for the mining permit application for KSC's Sunnyside mines.
June 21, 1983	UDOGM submits ACR comments to Kaiser Steel Corporation.
September 2, 1983	KSC submits four volume response to ACR.
November 8, 1983	UDOGM submits a list of completeness deficiencies to the applicant.
November 22, 1983	UDOGM determines the permit application package (PAP) to be apparently complete.
January 31, 1984	Draft technical analysis forwarded to OSMRE.
May 21, 1984	Applicant submits consolidated mine and reclamation plan.
July 26, 1984	Draft final technical analysis completed by contractor and forwarded to Utah DOGM. Several deficiencies identified.

DATE	EVENT
August 15, 1984 November 5, 1984	Deficiency comments forwarded to applicant.
December 3, 1984	Response received by UDOGM.
May 20, 1985	OSMRE received rewritten draft technical analysis.
June 11, 1985	OSMRE sent comment letter to UDOGM on draft TA.
July 3, 1985- July 24, 1985	Kaiser Coal Corporation (KCC) published notice that they had become operator of Sunnyside mines.
October 17, 1985	OSMRE received final technical analysis (TA).
October 22, 1985	KCC submitted updated maps for PAP.
October 30, 1985	OSMRE sent comment letter to UDOGM on final TA.
November 8, 1985	OSMRE received revisions to PAP from KCC.
November 12, 1985	OSMRE received revised final TA from UDOGM.
November 18, 1985	OSMRE received clarification of PAP from KCC.
November 22, 1985	OSMRE requested revision of revised final TA from UDOGM.
December 3, 1985	OSMRE received revisions to PAP from KCC.
December 3, 1985	OSMRE received final revision of final TA from UDOGM.
December, 1985	OSMRE recommends approval of mining plan.

Office of Surface Mining Reclamation and Enforcement Findings
for

Permit Application and Mining Plan Approval

Sunnyside Mines

- I. The Office of Surface Mining Reclamation and Enforcement (OSMRE) has reviewed the permit application package (PAP), updated through December 3, 1985, including the operation and reclamation plan portion of the permit application, and finds that the permit application is accurate and complete and that it complies with the Surface Mining Control and Reclamation Act of 1977 (SMCRA), the Utah State Program, the Federal Lands Program and all other requirements of applicable Federal laws. [Utah Board and Division of Oil, Gas and Mining Coal Mining and Reclamation Permanent Program Regulations Pertaining to Surface Effects of Underground Coal Mining Activities (UMC) 786.19(a)]
- II. The Utah Division of Oil, Gas and Mining (DOGGM) has reviewed the permit application and has prepared a technical analysis (TA) and Findings Document. OSMRE has reviewed the permit application package, Utah DOGM's TA, and the Findings Document and has prepared an environmental assessment (EA). Based on these documents, OSMRE makes 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, OSMRE finds that the applicant has demonstrated that surface coal mining and reclamation activities, as required by SMCRA and the Utah State Program can be feasibly accomplished under the mining and reclamation activities plan contained in the application. [UMC 786.19(b)] (See TA, page 42; PAP, Chapter III; EA, page 10)
 2. The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance, as described in UMC 784.14(c) has been made by Utah DOGM, and the operations proposed under the application have been designed to prevent damage to the hydrologic balance outside the proposed permit area. The probable cumulative hydrologic impact assessment of all existing and anticipated coal mining operations in the cumulative impact area indicates the following:

First Five Year Permit Term

The rate of dewatering will remain significantly less than the estimated recharge rate during the first five-year permit term. Moreover, overburden thickness will be sufficient (1,500-2,000 feet) to minimize surface manifestations of subsidence. The subsurface propagation of fractures may produce changes in ground-water flow that could affect localized aquifers and springs. Future monitoring will provide data applicable to documenting changes in the ground-water system.

Surface disturbance and the addition of mine water have degraded water quality in Grassy Trail Creek and Icelander Creek. Sediment control measures have served to reduce contaminants and stabilize water quality at acceptable levels.

The alluvial valley floor (AVF) will be positively impacted during the first five-year permit term by additional flow from increased mine water discharge.

Future Mining

Increased rates of dewatering may, in the future, result in depletion of ground-water storage. Depletion of storage may terminate certain spring flow and base flow recharge to streams. Upon cessation of mining, mine water discharge to Grassy Trail Creek will be discontinued. However, this affect is considered temporary because mine flooding will probably result in reestablishment of the preexisting ground-water system that provided base flow recharge to Grassy Trail Creek.

Drainage from future surface disturbance will be managed through appropriate sediment controls. Future mine discharge will be directed through existing sediment ponds.

At the termination of mining, the AVF will experience decreased flow. The duration and extent of this impact cannot be accurately assessed at this time. However, flow rates may be partially to fully restored when the ground-water system is reestablished.

The operational design proposed for the Sunnyside mines is herein determined to be consistent with preventing damage to the hydrologic balance outside the permit area. [UMC 786.19(c); See CHIA, page 21; EA, pages 10-14]

3. After reviewing the description of the proposed permit area, OSMRE determines this area is:
 - a. Not included within an area designated unsuitable for underground coal mining activities under UMC 764, or 30 CFR 769. [UMC 786.19(d)(1)] (See State Findings Document; PAP, Section 2.1.)
 - b. Not within an area under study for designation as unsuitable for underground coal mining activities in an administrative proceeding begun under UMC 764, or 30 CFR 769. [UMC 786.19(d)]
 - c. Not unsuitable for mining in accordance with section 522(b) pursuant to section 522(a)(2) of SMCRA. [See EA, pages 16-17; TEA, page 47]
 - d. Not unsuitable for mining in accordance with section 522(b) pursuant to standards set forth in section 522(a)(3) of SMCRA. [See EA, pages 16-17]

- e. Not on any Federal lands within the boundaries of any national forest. [UMC 786.19(d)(3)] (PAP, plate II-1.)
 - f. Not on any lands within the boundaries of the National Park System, the National Wildlife Refuge Systems, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System, including study rivers designated under section 5(a) of the Wild and Scenic Rivers Act, and National Recreation Areas designated by Act of Congress. [UMC 786.19(d)(3)] (See State Findings Document; PAP, Section 2.5.)
 - g. Within 100 feet of the outside right-of-way line of a public road. This operation was in place prior to August 3, 1977. [UMC 786.19(d)]
 - h. Not within 300 feet of any occupied dwelling. [UMC 786.19(d)(5)] (See State Findings Document; PAP, Section 2.5.)
 - i. Not within 300 feet of any public building, school, church, community, or institutional building, public park, or within one hundred feet of a cemetery. [UMC 786.19(d)(3)] (See State Findings Document; PAP, Section 2.5.)
- 4. OSMRE's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800). [UMC 786.19(e)] (See TEA; State Historic Preservation Officer concurrence letter)
 - 5. The applicant has the legal right to enter and begin surface mining activities in the permit area. [UMC 786.19(f)] (See Findings Document; PAP, Section 2.4.)
 - 6. The applicant has submitted proof and OSMRE's records indicate that prior violations of applicable law and regulations have been corrected. [UMC 786.19(g)] (State Findings; PAP, Section 2; correspondence from OSMRE Compliance Branch, dated December 11, 1985)

7. OSMRE's records confirm that all fees for the Abandoned Mine Reclamation Fund have been paid. [UMC 786.19(h)]
(See correspondence from OSMRE Compliance Branch, dated December 11, 1985)
8. OSMRE records show that the applicant does not control and has not controlled mining operations with a demonstrated pattern of willful violations of SMCRA 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 SMCRA. [UMC 786.19(i)]
(See correspondence from OSMRE Compliance Branch, dated December 11, 1985)
9. Underground coal mining and reclamation operations to be performed under the permit will not be inconsistent with such operations anticipated to be performed in areas adjacent to the proposed permit area. [UMC 786.19(j)] (See State Findings Document, page 2.)
10. The applicant will submit the performance bond or other equivalent guarantee required under UMC Parts 800-806 and the Utah State program, prior to the issuance of the permit. [UMC 786.19(k)]
11. Positive alluvial valley floor determinations have been made for the Grassy Trail Creek area below the facilities area. The determination was made on the basis of developed agriculture and irrigation. The irrigation is heavily dependent on mine drainage inputs to the system. Mining is having a positive effect on the alluvial valley floor. Surface disturbance will not occur on the AVF. [UMC 786.19(l)] (See TA, pages 34; PAP, Section 7.3.)
12. The applicant has provided evidence and Utah DOGM and OSMRE have found there are no prime farmlands in the permit area and area for life of mine. [UMC 786.19(m)] (See State Findings Document, page 21.)
13. The proposed postmining land use of the permit area has been approved by Utah DOGM, BLM, and OSMRE. [UMC 786.19(n)] (See letter of concurrence from BLM dated February 3, 1984; TA, page 49.)
14. Utah DOGM and OSMRE have made all specific approvals required by SMCRA, the approved Utah State Program and the Federal Lands Program. [UMC 786.19(o)] (See State findings, page 3)
15. The proposed activities 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(p)]
(See Section 9.4 of the PAP; U.S. Fish and Wildlife letter, dated November 4, 1985.)

16. The applicant has satisfied the applicable requirements of 30 CFR Part 785. [30 CFR 773.15(c)(8)] (See State Findings 2; PAP, Chapters VII, VIII.)
17. The proposed surface coal mining and reclamation operations will not adversely affect a private family burial ground. [30 CFR 773.15(c)(11)] (PAP, chapter V.)
18. Not all existing structures comply with UMC 700.11(e) and the applicable performance standards of 30 CFR Chapter VII, Subchapter B or UMC Subchapter K. A condition on the State permit disallows use of the East Slurry Cell until it is reconstructed to meet the performance standards for embankment stability. The West Slurry Cell will not be used by the applicant until it is stabilized during construction of the Coarse Refuse Dump. The applicant has submitted designs to bring drainage ditches into compliance with the applicable performance standards. No significant harm to the environment or public health or safety will result from use of the remaining structures that do meet the applicable performance standards. [UMC 786.21] (See TA, pages 13, 14, 15, 18, 21, 31)


Administrator, Western Technical Center

Dec 11, 1985
Date

FINDING OF NO SIGNIFICANT IMPACT
Kaiser Coal Corporation's
Sunnyside Mines

The technical analysis (TA) prepared by the State of Utah and the environmental assessment (EA) prepared by the Office of Surface Mining Reclamation and Enforcement (OSMRE) identify certain environmental impacts that would result from the Federal approval of the mining plan and permit for Kaiser Coal Corporation's Sunnyside mines. The 5-year permit application, submitted to the State under its approved permanent program, proposes a total permit area of 14,385 acres, all of which were previously permitted under the interim program. The permit area encompasses all or portions of five Federal leases.

The regional impacts of coal mining in the Price River basin are addressed in the Bureau of Land Management's Uinta-Southeastern Utah Coal Region Environmental Impact Statement, 1983.

OSMRE has determined that impacts to the Sunnyside mines area would result from mining. However, OSMRE finds that impacts would not be significant.

Impacts identified by OSMRE and the State would be mitigated by those appropriate environmental protection measures detailed in the mining plan and proposed condition 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.


Administrator
Western Technical Center

Dec 11, 1985
Date

ENVIRONMENTAL ASSESSMENT
Kaiser Coal Corporation
Sunnyside Mines
December 1985

1. Introduction

The Sunnyside Mines complex is located in the Book Cliffs coal field in central Utah, approximately 20 miles southeast of Price, in Carbon County. The life-of-mine area encompasses 14,385 acres and is located within: portions of T. 15 S., R. 14 E; T. 14 S., R. 14 E; and T. 14 S., R. 13 E. all from SLM. In this area approximately 2022 acres are Federal coal leased to Kaiser Coal Corporation. The Federal coal leases are SL-062966, SL-063383, U-010140, U-32083, and portions of SL-068754. The majority of the remaining coal is owned by Kaiser Coal Corporation with Carbon County as the owner of a small portion.

The permit area includes 14,385 acres in all or portions of Sections 3-10, 15-17, T. 15 S., R. 14 E; all or portions of Sections 6-8, 17-21, 27-34, T. 14 S., R. 17 E; and all or portions of Sections 1, 11-14, 24 and 25 of T. 14 S., R. 13 E. The mining plan area consists of 2022 acres of Federal coal in portions of Sections 6, 8, 17, 30 and 31 of T. 14 S., R 17. E: and portions of Sections 1, 11-14, 24 and 25 of T. 14 S., R. 13 E. The Sunnyside mines consist of 3 mines, the No. 1 from which most future production will come, the No. 2 and No. 3. Kaiser Steel Corporation operated the mines from 1950 to April 1985 when Kaiser Coal Corporation became the operator. Coal production will occur from the Upper and Lower Sunnyside seams at a rate of 2 million tons per year for twenty five years.

2. Description of the Existing Environment

Topography and Geology

The southwest-facing Book Cliffs are rugged and deeply dissected by box canyons of intermittent streams, which also cut the pediments that slope gently away from the foot of the cliffs toward the Price River. The major drainage in the area is Grassy Trail Creek in Whitmore Canyon which flows from north to south through the permit area and turns west at the escarpment. Icелander Creek flows roughly parallel to Grassy Trail Creek but drains only the escarpment face and associated pediments. The proposed B Canyon mine is named for a box canyon immediately north of the facilities area which is located at the point where Grassy Trail Creek leaves Whitmore Canyon. C Canyon is the next box canyon north of B Canyon. Altitudes range from 6400 feet at the lower tailings pond near the base of the cliffs to more than 9000 feet at the top of the ridge. Large boulders and smaller debris of sandstone from rock slides and rock falls are strewn along the sides of the cliff-rimmed canyons and the pediments beyond the canyon mouths.

These pediments are erosional surfaces on bedrock that have relief and are partly veneered by alluvium. They slope gently away from the escarpment. All proposed access and utility routes cross the pediment and the intermittent streams that drain southwestward.

The Castlegate Sandstone and other thick sandstone beds of the Upper Cretaceous Mesaverde Group (fig. 1) form cliffs and account for the rugged topography. Above this section in the lease area, the Price River, North Horn, Colton, and Green River Formations are also exposed. The Mancos Shale underlies the Mesaverde Group at the base of the cliffs. The regional strike is parallel to the face of the Book Cliffs and dips are 7° to 10° to the northeast, away from the cliff face. Doelling (1972, p. 383, and figure 36, p. 384, 385) indicates a northwest-trending fault in the southern part of secs. 10 and 11, T. 14 S., R. 13 E. A parallel fault 0.8 miles southwest is outside the southwest boundary of the property. Displacement on the faults exceeds 100 feet in some places. The only faults within the permit area cross the area where the coal has been removed by past mining operations.

Climate and Air Quality

The climate of the area is varied and strongly influenced by topography. The lower elevations are dry and either middle latitude steppe or desert. The low amounts of annual precipitation are generally caused by the Sierra Nevada and Cascade Ranges, which deplete Pacific storms of their moisture before they reach the area. However, some of the higher terrain of the eastern portion is able to cause enough upslope flow to receive over 20 inches of precipitation, with areas on the lee side receiving less than 8 inches.

Winds are generally light to moderate, with average speeds below 20 mph. Tornadoes are very rare, but strong winds may occur, particularly in mountain passes and canyons.

Temperature and precipitation are spatially and seasonally highly variable with monthly average temperatures ranging at the town of Sunnyside, Utah, NOAA station from the 20's in January to the high 60's in July and yearly precipitation ranging from 8 to 19 inches.

Air quality has not been monitored near the site. The Sunnyside operation is "grandfathered" insofar as air quality standards are concerned. An annual average background level of total suspended particulates (TSP) for rural locations in central and southern Utah of 20 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) has been estimated by AeroVironment (1977). During periods of high wind, short-term TSP standards can be exceeded in rural Utah areas as a result of wind-blown dust. The background visual range was estimated to be 37 miles (60 km) and was based on the background TSP estimate (AeroVironment, 1977). Measurements of atmospheric visibility (visual range or discoloration) are extremely limited in the area.

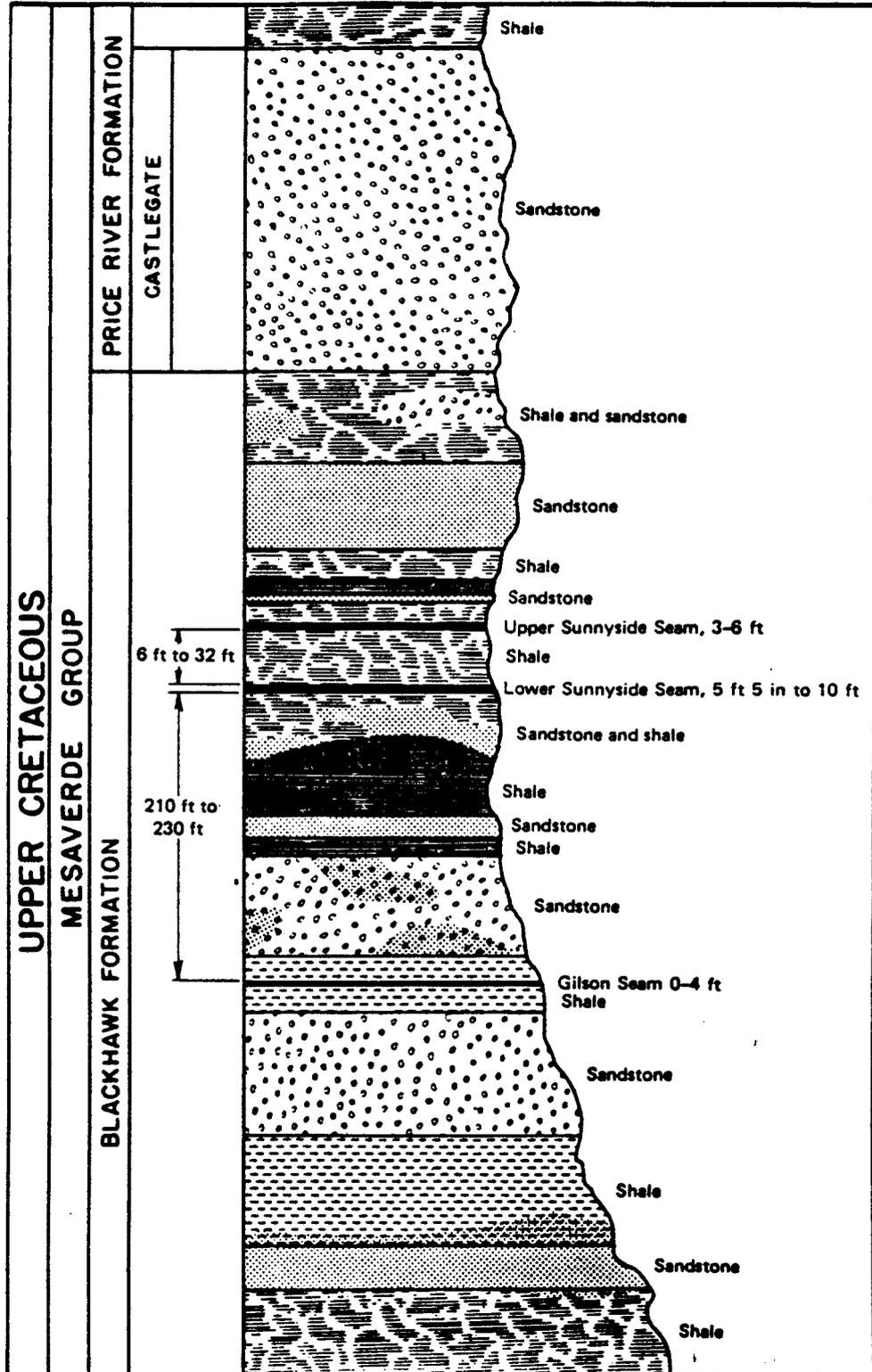


FIGURE 1

Values of visual distance derived from light-scattering measurements from an integrating nephelometer averaged 67 miles for the period September 1970 to March 1971. Average visual range calculated from particle size distribution at Bear Creek and Huntington Canyon in 1974, was approximately 45 miles. Analysis of photographs taken at Clawson, Utah from January to June 1974, indicated 50 mile visibility 49 percent of the time. Visibility was reduced below 5 miles only 12 percent of the time. Visibility measurements at Cedar Mountain, east of Castle Dale averaged 94 miles in November-December 1976, and 54 miles in April 1977.

Vegetation

Chapter IX of the permit application package (PAP) describes the 18 vegetation community types which have been identified within the permit area. These vegetation types include: (1) aspen; (2) Douglas fir; (3) Douglas fir/aspen; (4) Douglas fir/mountain brush; (5) Douglas fir/aspen/mountain brush; (6) Douglas fir/pinyon-juniper; (7) Douglas fir/sagebrush; (8) mountain brush; (9) pinyon-juniper; (10) pinyon-juniper/grass; (11) pinyon-juniper/mountain brush; (12) pinyon-juniper/sagebrush; (13) riparian/bullrush/sedge; (14) riparian/cottonwood grove; (15) riparian willow; (16) sagebrush/grass; (17) sagebrush/mountain brush; and, (18) agriculture/hay field. On these communities, only four (underlined above) have been or will be disturbed by surface facilities of the mine.

A total of 287.36 acres have been disturbed since 1977. These are mountain brush (13.88 acres), pinyon-juniper (13.16 acres); pinyon-juniper/grass (175.42 acres), and sagebrush/grass (84.9 acres).

Wildlife and Fishing

The variety of wildlife species in and near the proposed mine development is large. Vertebrates number nearly 360 species, (Colton and others, 1977) of which the better known species are mule deer, mountain lion (cougar), black bear, coyote, red fox, gray fox, kit fox, bobcat, raptors, chukar partridge, blue and ruffed grouse, mourning doves, and rabbits. Several squirrel, chipmunk, and mice species inhabit the area and whitetailed prairie dogs are near the proposed access routes and mine plant site. These species are prey to badgers, skunks, bobcats, coyotes, foxes and raptors. Several species of lizards, snakes, and other reptiles are throughout the area, but no gamefish are in the vicinity.

The mine is in Utah's 1,169,000-acre deer herd unit 27B winter range. Winter range is the limiting factor on deer population.

Mountain lions range in the vicinity of the proposed mine. These usually solitary and sensitive animals (Seidensticker and others, 1973) establish home areas closely associated with the seasonal distribution of deer, which serve as their primary food source.

Black bears are in the area. Based on Utah harvest figures, unit 27B ranked second highest in the State, with 31 taken during 1967-76. Black bears maintain well-defined home areas that are mostly linear, oriented upslope and downslope (Jonkel and Cowan, 1971) and that are stable from year to year. The availability and distribution of food influences movements (Amstrup and Beecham, 1976).

The black-footed ferret is an endangered species and much of the pediment slope southwest of B Canyon is listed as potential black-footed ferret range because of the presence of prairie dog towns. (Hinckley, 1970, Scott and others, 1977). However, as of 1978, no black-footed ferrets have been identified in or near B Canyon. This is outside the permit area.

A wide variety of perching birds inhabit the area year-round. Raptors use the entire area year-round. They nest on cliffs and ledges or in trees, depending on the species preference. The pediment slope southwest of the Book Cliffs provides hunting fields. Small animals, birds, and reptiles are the food source.

Chukar partridge were introduced in 1951 and live along the base of the Book Cliffs around the mouth of B Canyon. Blue and ruffed grouse may be in the vicinity of the proposed mine, and mourning doves are common spring-summer nesting residents. Probably the most important habitat component for nesting doves is available water and second in importance is nest trees (Caldwell, 1964).

Another important wildlife habitat in the permit area is Grassy Trail Creek and its associated riparian vegetation. The Division of Wildlife (DWR) considers riparian habitat critical to many species of wildlife in this region. A put-and-take rainbow (Class 3) fishery exists in a three-mile stretch of Grassy Trail Creek immediately below Grassy Trail Reservoir. The remainder of Grassy Trail Creek and other streams in the permit area represent lower quality aquatic habitat and are designated as Class 5 or 6 by the DWR (Section 10.3.2.1 of the PAP).

Surface Water Hydrology

Four principal drainages occur within the area. These drainages are termed Grassy Trail Creek, Price River-Lower Basin Grassy Trail Creek, Iceland Creek and Price River-Lower Basin Horse Canyon. Grassy Trail Creek drainage has been further subdivided into Right and Left Fork Grassy Trail Creek and Whitmore Canyon/Grassy Trail Creek.

Grassy Trail Creek is ephemeral at its headwaters, becomes intermittent through the mine permit area due to spring flow and becomes perennial below the mine water discharge point.

Iceland Creek and the Horse Canyon drainage are intermittent. Flows are extremely variable due to variable precipitation.

Grassy Trail Reservoir was created on Grassy Trail Creek to provide water to the towns of Sunnyside and East Carbon City. It is located within the permit area at the confluence of the Left and Right Forks of Grassy Trail Creek.

Alluvial Valley Floors

Grassy Trail Creek below the mouth of Straight Canyon is an alluvial valley floor. Approximately, 1,100 acres are or have been irrigated. Twenty-three percent of the flow in Grassy Trail Creek on an average annual basis is mine water discharge.

Ground-water Hydrology

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

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

The Kenilworth Member, Sunnyside Member and Upper Mudstone Member of the Blackhawk Formation, Castlegate Sandstone, Bluecastle Sandstone Member of the Price River Formation, undifferentiated North Horn/Flagstaff formation, Colton Formation, Green River Formation and Quaternary deposits are potential reservoirs or conduits for ground water. Reservoir lithologies are predominantly sandstone and limestone. Sandstone reservoirs occur as channel and overbank, lenticular and tabular deposits, whereas limestone reservoirs have developed through solution processes and fracturing. Shale, siltstone and cemented sandstone beds act as aquacludes to impede ground-water movement. The Mancos Shale is a regional aquaclude that delimits downward flow. Localized aquacludes include the Aberdeen Member and Lower Mudstone Member of the Blackhawk Formation, Lower Unnamed Member of the Price River Formation and relatively thin impermeable lithologies occurring within overlying units.

Three springs are located within the five-year permit area. The majority of springs occur above 8,000 feet and discharge from the Green River Formation or Quaternary alluvium overlying the Green River Formation. Average flow is estimated to be less than 10 gpm for each spring.

Total mine inflow is approximately 740 gpm from mine shafts (245 gpm), boreholes (300 gpm), paleochannels (10 gpm) and gobs, faults and fractures (185 gpm). The majority of inflow occurs in the No. 1 Mine and is associated with the Manshaft, Twin Shafts, Pole Canyon Shaft and 18th Left Outside Panel. The Manshaft and Twin Shafts penetrate from the Blackhawk Formation to undifferentiated North Horn/Flagstaff formation and extend through the Castlegate Sandstone and Price River Formation. Flow into Manshaft and Twin Shafts totals 160 gpm and is, most likely, derived from either the Bluecastle Sandstone Member and/or permeable lithologies in the undifferentiated North Horn/Flagstaff formation. The Pole Canyon

Shaft penetrates the Blackhawk formation, Castlegate Sandstone, Price River Formation and Colton Formation. Pole Canyon Shaft inflow exceeds 50 gpm and is probably derived from the Colton Formation. The 18th Left Outside Panel collects flow from previously mined areas up dip. This flow may be attributed to wall weeps, roof drips and fractures and presumably, represents aquifer dewatering within and adjacent to the coal seam (i.e., Kenilworth Member, Sunnyside Member, Upper Mudstone Member).

Soils

Two general soil areas prevail: 1) soils on cliff lands and canyons, and 2) soils on pediments. Also associated with these areas are soils derived from stony colluvium at toeslopes and gravelly alluvium along drainageways.

Soils on cliff lands and canyons occur on the steep terrain of the Book Cliffs and have formed primarily from parent materials of sandstone and minor amounts of shale. They are typically medium textured, shallow to moderately deep, and cobbly to stony. They are well drained to excessively drained. On southerly aspects, soils tend to be shallow and rocky. On northerly aspects, soils are cooler, moister, better developed, and more productive. Soils on pediments are derived from alluvial materials on an erosional plain below the Book Cliffs. The area is moderately dissected by intermittent streams. The soils are generally deep, medium textured, relatively light colored, and cobbly to very cobbly. Carbonate accumulates in the subsoil because of low precipitation. Aridity limits soil development and productive potential. Topsoil is generally thin. The soils are well drained, and permeability is moderate. Slopes are commonly 5 to 10 percent, but steeper locally along drainages and small ridges. On the steeper slopes, soils are more cobbly and stony. Erosion hazard by water action, should vegetation be removed, is low to moderate. Wind-erosion potential is moderate.

Land Use

Land uses in the permit area include mining, mineral exploration, livestock grazing, wildlife habitat, recreation, watershed and transportation. Most of these uses have existed since the 1890's and are expected to continue without disruption due to mining.

Cultural Resources

The cultural resources of the Sunnyside mines permit area are complex and an inventory has been provided. The permit area was the site of ranching activities before mining began in the late 19th century. Native American use on the area has been recorded. Disturbance in the facilities area has already occurred. The permit has been conditioned to prevent any future disturbance to cultural resources until site specific inventories can be completed and mitigation implemented, if necessary.

Threatened and Endangered Species

No threatened or endangered species are known to exist within the permit area. One plant, Hedysarum occidentale canone, classified as Category 1 (plants for which sufficient data exist for listing) by the Utah Native Plant Society, was found in a side canyon of the permit area, however, it is located outside the area of potential disturbance.

Socioeconomics

The town of Sunnyside and Carbon County are heavily dependent on the mining industry. Carbon County employment figures indicate approximately one fifth of the work force works directly in the mining industry. The remainder are in farming (ranching), government, trade and related areas such as transportation (railroads).

3. 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. Kaiser Coal Corporation submitted an application for a permit supported by a mining and reclamation plan (MRP) to mine the Upper and Lower Sunnyside seams at the Sunnyside mines in conformance with the requirements of SMCRA, the Utah State Program, the Federal Lands Program, and the Mineral Leasing Act. Frequent reference will be made to the accompanying technical analysis (TA). The purpose of this document is to assist the Secretary of the Interior in making a decision with respect to compliance with the National Environmental Policy Act (NEPA).

4. Alternatives

Alternative No. 1: Approval Without Conditions

The Assistant Secretary for Land and Minerals Management may approve the mining plan and the Administrator may issue a permit in accordance with the recommendations of the Utah DOGM.

Alternative No. 2: Disapproval

The Assistant Secretary for Land and Minerals Management may disapprove the mining plan and the Administrator may disapprove the issuance of the permit. This alternative would have the same effect as taking no action.

Alternative No. 3: Approval With Conditions

The Assistant Secretary for Land and Minerals Management may approve the mining plan and the Administrator may issue a permit with additional special Federal conditions, beyond those attached to the State permit by the Utah DOGM and the requirements of the mining plan and permit approval documents. This is the preferred alternative.

5. Impact Analysis

Impact of Alternative 1: Approval Without Conditions

Land Use

The proposed reclamation plan will return all lands to wildlife habitat and grazing land with the exception of several roads necessary for access to public lands and Grassy Trail Reservoir. This is consistent with the surrounding land uses and the premining use of the land.

Soils

The operations will not cause adverse long-term impacts to permit area soils. The 287 acres disturbed for facilities areas will be reclaimed. These areas were disturbed before 1977 and very little topsoil was salvaged. In these areas of disturbance, soil pedogenic development will be lost, including developments in soil structure, and the potential for soil loss due to erosion will increase. These long-term impacts to soils will be mitigated by the reclamation of the 287 acres of disturbed area.

The areas disturbed by the proposed operations will be reclaimed using a cover of substitute topsoil material for most areas. Substitute topsoil borrow areas have been identified which are sufficient to enable the distribution of substitute topsoil material on all disturbed areas. That topsoil material that was salvaged will be respread upon reclamation.

The proposed topsoil handling plans will result in the restoration of soil development for both recently and historically disturbed areas, therefore, essentially all disturbed areas will be returned to conditions which will again permit the natural development of the soil resource.

Vegetation

Past mining activities have altered and/or removed approximately 287 acres of native vegetation. The life-of-mine operations will not cause significant, long-term adverse vegetation impacts because (1) adequate revegetation with native plants species is practical as proposed; (2) most of the mine-related disturbance has already occurred; (3) essentially all disturbed areas will be revegetated; and (4) a detailed series of field trials will be conducted to test the suitability of the proposed revegetation plan and to revise it as necessary.

Ground Water Hydrology

Dewatering and subsidence related to mining have the greatest potential for impacting ground-water resources in the area.

Dewatering. The volume of water being discharged from the No. 3 Mine and No. 1 Mine (740 gpm) approximates the amount of water that is currently being withdrawn from the ground-water system. The withdrawal value may be compared to an estimated value for recharge within the area and thereby, allow an assessment of dewatering impacts.

Recharge has been estimated to be 3 to 8 percent (Danielson and Sylla 1983), 9 percent (Waddell et al 1983), and 12 percent (Simons, Li & Associates 1984) of the average annual precipitation for areas in the Wasatch Plateau and Book Cliffs coal fields. The recharge calculations using estimated recharge values of 4, 8, and 12 percent of the average annual precipitation above 7,500 feet give recharge rates of 1,360 gpm, 2,720 gpm, and 4,080 gpm, respectively. A comparison of the rate of current mine discharge (740 gpm) to the range of calculated rates of recharge (1,360-4,080 gpm) indicates approximately 20 to 50 percent of the recharge is currently being intercepted by mine operations. If the rate of mine discharge is less than the rate of recharge, then the water being accessed by mine operations constitutes flow through the system rather than depletion of ground-water storage within the system. Hence, the current dewatering associated with Sunnyside operations is considered to not significantly impact piezometric surfaces within the area.

Mining during the first five-year permit term will encompass approximately 385 acres. It is not anticipated that the rate of discharge will exceed the recharge rate during this permit term. However, as mine operations expand in the future to encompass the proposed B canyon (1,190 acres) and future C canyon (2,650 acres) permit areas and additional areas in the No. 1

Mine, No. 2 Mine, and No. 3 Mine (1,450 acres), an increase in discharge is anticipated. At present, data are not available to precisely document increases in mine discharge. An estimate of discharge increase may be derived by multiplying the discharge per acre of present mine workings times the projected area of mine workings.

The calculation indicates discharge will approach the value for recharge as the mine workings encompass an additional 4,000 acres in approximately 20-30 years. As discharge increases and surpasses values for recharge, certain spring flow and base flow recharge to streams may gradually decrease until ground-water storage begins to be depleted. Conceivably, depletion may continue (at increasing rates) until spring flow and/or base flow recharge to streams ceases.

Upon termination of mining operation, ground-water discharge to Grassy Trail Creek will be discontinued and the mine will begin to flood. The potential reduction in surface flow that is associated with the cessation of operations may be evaluated in terms of the lag time required for reestablishment of base flow recharge.

The impact associated with the reduction in surface flow is considered temporary. Mine flooding should reestablish a system of base flow recharge that was operational prior to mining. The time span required for reestablishing base flow recharge may be estimated by dividing the final mine workings volume by the final estimated values for mine discharge.

The maximum lag time for mine flooding may be derived by assuming the workings will remain open (average five foot height) and caving will not occur. Accordingly, for the Sunnyside Mines, the computation provides an upper limit of 26 years for complete mine flooding. It should be noted that complete flooding will, undoubtedly, never be achieved because the hydraulic head generated as flooding expands will also increase until the hydraulic properties of the roof, floor and rib are exceeded and flow through the rocks is initiated.

The proposed ground-water monitoring program for the Sunnyside Mines will, in the future, allow increasing discharge rates to be more precisely characterized and thereby, achieve a more accurate assessment of mining related dewatering impacts.

Subsidence

Subsidence impacts are largely related to extension and expansion of the existing fracture system and upward propagation of new fractures. In as much as vertical and lateral migration of water appears to be partially controlled by fracture conduits, readjustment or realignment on the conduit system will inevitably produce changes in the configuration of ground-water flow. Potential changes include increased flow rates along fractures that have "opened" and diverting flow along new fractures or within permeable lithologies. Subsurface flow diversion may cause the depletion of water in certain localized aquifers and potential loss of flow to springs (three total) that will be undermined. Increased flow rates along fractures would reduce ground-water residence time and potentially improve water quality.

A maximum value of 1.5 feet of surface subsidence has been recorded over the 18th Left Inside Panel, No. 1 Mine (6,000 feet long x 600 feet wide x 6 feet high) beneath approximately 1,000 feet of overburden. The presence of the Castlegate Sandstone in conjunction with overburden thickness (approximately 1,000 feet) is apparently responsible for reduced surface subsidence. Additional mining during the five-year permit term will occur beneath 1,500-2,000 feet of overburden. Consequently, the potential for subsidence related surface impacts (e.g., ponding) to the subsurface and surface hydrologic regimes are not considered significant.

Surface Water

Grassy Trail Creek

The concentration of total dissolved solids (TDS) increases from 250-451 mg/l above to 1,250-2,000 mg/l below the Sunnyside Mines (Waddell 1981). The TDS value for mine water discharge is 1,600 mg/l. Moreover, above the mines, calcium, magnesium and bicarbonate are the predominant ions and below the mines sodium, bicarbonate and sulfate are dominant (Waddell 1981). These increases are attributed to the addition of mine water discharge which is similar to ground water that has been mineralized through contact with the Mancos Shale.

The mine water from the Sunnyside Mines supplies 1,473 tons of dissolved solids per year to Grassy Trail Creek based on an average mine water discharge for the years 1978-1984. The Price River at Woodside carries 291,620 tons of dissolved solids per year based on an average discharge per year (USGS Water Data Reports 1979-83). It is important to mention that the water in Grassy Trail Creek is used for irrigation and based on this assumption, the salt entering the

Price River from mine water is less than the 1,473 tons given above due to loss of water for irrigation in the Sunnyside area. Infiltration and evaporation from irrigation also influences the amount of water and ultimately salt content eventually discharging to the Price River.

The average concentration of TDS for mine water from the Sunnyside Mines is 1,600 mg/l (Sunnyside MRP). The water in Grassy Trail above the mine averages approximately 300-500 mg/l TDS. The average concentration of TDS for Grassy Trail Creek for the combination of mine water and creek water from above the mine varies from 300 mg/l to 1,800 mg/l depending on the flow and season. The Utah Department of Health's standard for TDS for the Sunnyside Mines is 2,200 mg/l for industrial uses and 1,200 mg/l for agricultural uses. The mine water meets the industrial (Class 5) numerical standard for protection of the beneficial uses of water, but on occasion will exceed the agricultural standard.

It should be pointed out that without mine water, none or little irrigation water would be available to the downstream users. Even though the creek water is of marginal quality for irrigation, the quantity makes irrigation feasible in the Sunnyside area. As well as providing irrigation water, Grassy Trail Creek supplemented by mine water supports a put-and-take fishery (Section 10.3.2.1, page 5, PAP).

Wingate (1981) identified the following impacts to Grassy Trail Creek. "(1) Grassy Trail Reservoir has altered the stream's natural flow regime, (2) mine discharge waters have resulted in considerable changes in water quality of the lower stream section and (3) use of coarse refuse coal mine waste materials as road bed fill appears to contribute to aquatic resource deterioration."

Mine water is presently directed to sediment ponds and then released to Grassy Trail Creek at NPDES discharge points #001 and #002. The treatment associated with these ponds improves suspended solids and oil and grease parameter values, but overall total dissolved solids (TDS) values remain in the range of 1,600 mg/l below the #002 discharge point. The #001 mine water pond was installed during 1985 and the #002 mine water pond was installed during 1981. Future impacts from surface facilities and mine water discharge are not anticipated to increase from present levels. The quantity of mine water may increase, causing increased TDS levels downstream and suspended solid values will decrease as sediment controls are implemented in problem areas. The use of coarse refuse as road construction material has been discontinued. A system of ditches and berms is in place to direct runoff to sediment ponds.

Icelander Drainage

The coarse refuse disposal area, the 004 discharge point (includes discharge from the Clear Water Pond), Water Canyon and Fan Canyon all drain to Icelander Creek.

Impacts in terms of surface water degradation have occurred at the #004 discharge point. Data indicate total suspended solids (TSS) values in the range of 1,400 ppm and oil and grease values in the range of less than 1 to 45 mg/l. The values for oil and grease since October of 1982 have been within acceptable limits; therefore, future impacts related to oil and grease contaminants are not anticipated. Icelander Drainage is also affected by water from the Coarse Refuse Spring. Decomposition of the old coal refuse and chemical interactions that occur between ground water and the refuse cause a temperature of 28°C and a TDS value of approximately 5,000 mg/l at the Coarse Refuse Area spring. Total Iron has been recorded as high as 8.10 mg/l at the spring.

Kaiser Coal Corporation mitigated impacts by implementing a more effective means of treating the discharge. Sediment controls are currently in place, so future impacts associated with suspended solids are not anticipated to increase but may potentially decrease as problem areas are identified and treated.

Water Canyon and Fan Canyon empty into the Icelander Drainage after they combine to form Water Canyon. The #005 NPDES mine water discharge point is located in Water Canyon. The discharge pipe is currently buried under sediment in the stream channel and is not presently used. The last discharge from the #2 Mine was February 24, 1982. Water Canyon and Fan Canyon have sediment controls in place and only flow in response to major rainfall events. Mine water discharged from the #005 point does not reach Water Canyon due to infiltration along the stream bottom and the quantity of mine water discharge. Thus, future impacts are not anticipated.

Alluvial Valley Floors

The Utah Supreme Court review of Joseph R. Sharp vs. George C. Whitmore (Decree #3028) indicated the premining flow regime for Grassy Trail Creek was intermittent during most years. Since the addition of mine discharge and construction of Grassy Trail reservoir, flow has been perennial. (See page 2 of TA.)

At present, mine discharge accounts for 23 percent of the average annual flow in Grassy Trail Creek. Accordingly, this proportion would decrease during spring runoff and increase during periods of low flow in the late summer and fall.

Agricultural activities associated with the designated AVF currently benefit from the additional surface flow generated by mining activities. It is anticipated that this relationship will continue until the cessation of mining. At that time, discharge pumping will be discontinued and surface flow will be reduced. As indicated earlier, mine flooding will begin and continue until flow through the rocks is initiated. A ground-water regime similar to that which existed prior to mining will eventually reestablish.

Fish and Wildlife Resources

Operations at the Sunnyside Mines will not cause long-term adverse fish and wildlife impacts because (1) the actual area of surface disturbance includes 287 acres all of which will be reclaimed to wildlife habitat and grazing land; (2) major wildlife displacements and impacts have already been caused by the existing facilities; (3) restoration of premining fish and wildlife habitats is technically and practically feasible; and (4) essentially all disturbed habitats would be revegetated with useful plant species. Continued operation of the existing facility will not cause new or different wildlife impacts.

The U.S. Fish and Wildlife Service (USFWS) has determined that mining activities will not affect the continued existence of endangered or threatened species, or result in impacts to critical supporting habitats.

Large raptors will be protected from electrocutions and nesting disturbances. Key or important habitats will be adequately mitigated with development of equivalent habitats and/or substitute resources.

Topography

After cessation of mining activities, all disturbed areas including the mine portals, coal processing yards, and roads will be regraded and backfilled to a surface configuration resembling the original terrain. Existing haul and access roads will be reclaimed, with the exception of those necessary for access to public lands and Grassy Trail Reservoir within the permit area.

Coal processing wastes and slurry pond embankments will be regraded and the surface of the disturbed areas will be topsoiled and revegetated. All surfaces will be graded to provide drainage and to control erosion and will blend with the original terrain. Noncoal processing wastes will be disposed at three designated sites. The proposed method of disposal and reclamation will not produce an adverse impact on the environment.

Socioeconomics

Approval of this existing operation will not change the impact on the community. This approval will not involve any increase in personnel or production.

Cultural Resources

This action involves permitting of the Sunnyside mines under the permanent regulatory program. The mine is already in place. No new surface disturbance is planned. No new impacts to cultural resources will occur with this action. The applicant has identified significant historic and prehistoric sites within the permit area and has committed to protecting them. Impacts to cultural resources that may be affected by subsidence in areas that are above the mine workings in unsurveyed areas are protected by special conditions in the mining approval.

Federal Lands Review

Under section 522(b) of SMCRA, the Secretary of the Interior must conduct a review of Federal lands to determine, pursuant to the standards set forth in sections 522(a)(2) and 522(a)(3) of SMCRA, whether there are areas on Federal lands that are unsuitable for all or certain types of surface coal mining operations. The Federal lands within the permit area were reviewed by OSM and the results of that review are discussed below.

Section 522(a)(2) of SMCRA requires that reclamation must be technologically and economically feasible. OSM (1) reviewed the operations and reclamation plan portion of the permit application, (2) reviewed and concurs with Utah DOGM's finding that reclamation, as required by the State program approved pursuant to SMCRA, can be accomplished under the reclamation plan contained in the permit application, and (3) reviewed and concurs with Utah DOGM's reclamation cost determined for bond requirement. As a result of this review, OSM determines that the reclamation as proposed in the PAP is technologically and economically feasible.

Section 522(a)(3) of SMCRA states that "* * * a surface area may be designated unsuitable for certain types of surface coal mining operations if such operations will:

(A) be incompatible with existing State or local land use plans or programs; or

(B) affect fragile or historic lands in which such operations could result in significant damage to important historic, cultural, scientific, and esthetic values and natural systems; or

(C) affect renewable resource lands in which such operations could result in a substantial loss or reduction of long-range productivity of water supply or of food or fiber products, and such lands to include aquifers and aquifer recharge areas; or

(D) affect natural hazard lands in which such operations could substantially endanger life and property, such lands to include areas subject to frequent flooding and areas of unstable geology."

OSM reviewed the permit application package and reviewed and concurs with UTAH DOGM's findings and technical analysis. As a result of this review, OSM has made the following determinations:

Land use

There are no State or local land use plans or programs for the permit area.

Fragile and historic lands

The proposed mining and reclamation operations will not result in significant damage to important historic, cultural or scientific resources in the permit area based on the surveys and information contained in the permit application package, information provided by the State Historic Preservation Officer, and Special Condition 1 of the proposed permit.

There are no important fragile lands as defined in 30 CFR 762.5 containing natural, ecologic, scientific esthetic resources, or natural systems in the permit and adjacent areas.

Renewable resource lands

Based on the assessment of cumulative hydrologic impacts and probable hydrologic consequences of the proposed operations, the mining and reclamation operations will not result in a substantial loss or reduction of long-range productivity of the water supply in the area including aquifers and aquifer recharge areas.

The permit area is grazed by cattle and sheep and is a source for forest products. This underground mining operation will not affect those resource uses.

Natural hazard lands

There are no areas of unstable geology in the permit and adjacent areas.

There are no areas subject to frequent flooding in the permit and adjacent areas.

Impact of Alternative 2: Disapproval

Disapproval would result in the loss of approximately 33,000,000 tons of recoverable coal. The impacts described for Alternative 1 would not occur. Additional impacts would occur with this action including loss of 330 jobs, reduced taxes going to governmental entities, and loss of income to residents and service industries in the area.

Impact of Alternative 3: Approval with Conditions

The preferred alternative is approval with two conditions. The impact analysis of the proposed action (Alternative 1) identified certain problems that could and should be mitigated by the addition of one special condition to the mining plan approval and permit document. Unanticipated cultural resources within the areas of the permit that were not surveyed are protected by the condition. The second special condition was added at the request of the Bureau of Land Management, Branch of Solid Minerals and does not relate to environmental impacts.

6. Previous Environmental Impact Statements and Assessments

Environmental studies on the Sunnyside area prepared by Federal agencies include the following:

USGS . 1979. Central Utah Coal Final Environmental Statement.
BLM . 1983. Uinta - Southwestern Utah Coal Region Final
Environmental Impact Statement.

7. Preparers

Rick Lawton, Project Leader
Richard Holbrook, Senior Project Manager

8. Supplemental Report

Utah DOGM's Cumulative Hydrology Impact Assessment follows and is incorporated into this document as an integral part of this environmental assessment.

9. Bibliography

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Waddell, K. M., et al. 1978. Selected hydrologic data, Price River Basin, Utah, water years 1979 and 1980: U.S. Geological Survey, Hydrologic Data Report No. 38, Open-File Report 82-916.

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UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING

CONFIRMATION/REPORT OF TELEPHONE CONVERSATION

T O	Name FOSTER KIRBY	F R O M	Name JIM DYKEMAN
	Office OSMRE, WTC		Office UTAH HISTORICAL SOCIETY
	Location		Location SLC, UT
	Telephone Number		Telephone Number

Purpose of Call:

Cultural resource status on Sunnyside Mines State Historic Preservation Office stated that the cultural resource documentation is complete and, therefore, ~~issues a~~ concurs with OSMRE/DOI approval of the mining plan and permit issuance. Letter to follow.

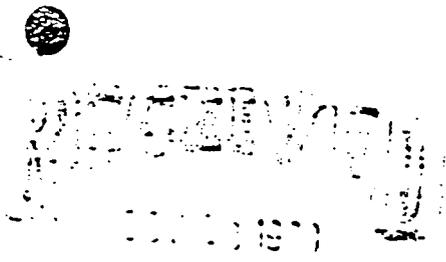
Explanatory Remarks:

12/11/85

(Date)

Foster Kirby

(Signature)



DES *Steve*

SCOTT M. MATHESON
GOVERNOR

STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

DIVISION OF
OIL, GAS & MINING

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

MELVIN T. SMITH, DIRECTOR
300 RIO GRANDE
SALT LAKE CITY, UTAH 84101
TELEPHONE 801 / 533-6755

October 6, 1983

James W. Smith, Jr.
Coordinator of Mined Land
Development
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, Utah 84114

Attn: Steve Cox

RE: Apparent Completeness Review Response, Kaiser Steel
Corporation, Sunnyside Mine, ACT/007/007, Folder #2, Carbon
County, Utah

Dear Mr. Smith:

After review of the material provided, our office notes that a survey report has been included of the Sunnyside historic area. After review of that material, our office would concur with the Division of Oil, Gas & Mining that this study is adequate as background material for determining what known sites are in the project area.

Our office would also be able to assist when specific engineering plans are developed to assist in the determinations of effect and proposed mitigation plans, along with the Division of Oil, Gas & Mining.

Since no formal consultation request concerning eligibility, effect or mitigation as outlined by 36 CFR 800 was indicated by you, this letter represents a response for information concerning location of cultural resources. If you have any questions or concerns, please contact me at 533-7039.

Sincerely,

James L. Dykman
Cultural Resource Advisor

JLD:jrc:0570/7207c



United States Department of the Interior

FISH AND WILDLIFE SERVICE

ENDANGERED SPECIES OFFICE

2078 ADMINISTRATION BLDG.

1745 WEST 1700 SOUTH

SALT LAKE CITY, UTAH 84104

November 4, 1985

0011-0100

NOV 10 1985

11:00 AM

IN REPLY REFER TO

MEMORANDUM

TO: Chief, Mine Plan Review Branch, WTC, Office of Surface Mining,
Denver, Colorado

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

SUBJECT: Species List, Sunnyside Mine, Carbon County, Utah

We have received and reviewed your memorandum of October 3, 1985, concerning your agency's permit request review of the Sunnyside Mine in Carbon County, Utah.

No federally listed or proposed threatened or endangered species occur within the area of the proposed mine area as described in your memorandum.

However, the plant species Hedysarum occidentale var. canone (Canyon sweetvetch) occurs within the area of the Sunnyside mine. This species is currently under review by the U.S. Fish and Wildlife Service for possible future listing as threatened or endangered. While this species is not protected at present under the authority of the Endangered Species Act, we encourage you to consider it in your environmental planning.

Robert H. Roesink



United States Department of the Interior

FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES OFFICE
1406 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138-1197
July 23, 1984

CS
1984 JUL 28 11 8 52

IN REPLY REFER TO:

MEMORANDUM

TO: Utah Task Force Leader, Office of Surface Mining
Denver, Colorado

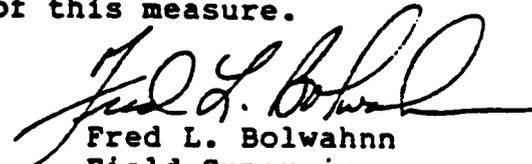
FROM: Field Supervisor, Endangered Species Office
U.S. Fish and Wildlife Service, Salt Lake City, Utah

SUBJECT: Biological Assessment of Canyon Sweet-vetch (Hedysarum occidentale var. canone).

We have reviewed your agency's biological assessment of impacts to the canyon sweet-vetch (Hedysarum occidentale var. canone) by the Kaiser Steel Corporation's Sunnyside Mine, Trail Mountain Coal Company's Trail Mountain Mine, and Beaver Creek Coal Company's Huntington Canyon No. 4 Gordon Creek No. 2 mines. As you have noted the canyon sweet-vetch is not a listed threatened or endangered species but is under review for possible listing in the future if future status surveys deem that listing is appropriate for that species.

We note that the Forest Service has designated the canyon sweet-vetch as a sensitive species is providing protection to this species under authority other than the Endangered Species Act.

We have concluded that the protective measures outlined in your biological assessment should provide adequate conservation for this species in relation to current and future operations of the above listed mines. We appreciate your efforts in providing for the survival and conservation of this measure.


Fred L. Bolwahn
Field Supervisor



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Moab District
P. O. Box 970
Moab, Utah 84532

3400
(U-066)

JAN 29 1985

Memorandum

To: Center Administrator, OSM, Denver

Attention: Louis Hamm

From: **ACTING** District Manager, Moab

Subject: Mine Plan Review, Kaiser Steel's Sunnyside Mines

We have reviewed the changes and additional data for subject mines provided by your cover memo dated January 15, 1985 (OSM Reference #UT-0014-44). Due to land ownership, we do not have any conditions to provide prior to your preparation of a decision on the permit application.

We hereby grant our final concurrence for approval of the permit in so far as protection of surface resources. Any comments in regards to the resource recovery and protection plan will be provided by our State Office.

ACTING *Renneth V. Rhea*

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Moab District

IN REPLY REFER TO:
3400
(U-066)

To : Center Administrator, OSM, Denver
ATTENTION: Louis Hamm
FROM : ~~ACTING~~ District Manager, Moab

Date: FEB 03 1984

SUBJECT: Mine Plan Review, Kaiser Steel's Sunnyside Mines

By your letter of August 5, 1983 you requested our recommendations for approval of subject mine plan and a list of concerns relating to approval, if not previously submitted. Due to land ownership and the present existence of surface facilities, we do not have additional concerns (see our memo of May 28, 1981). None of the proposed permit area was identified as unsuitable in our land use planning. We recommend approval of subject mine plan.

Jan Davis
(Hamm)



United States Department of the Interior

IN REPLY REFER TO

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

3482
SL-062966
U-921

NOV 25 1985

Memorandum

To: Richard Holbrook, OSM Senior Project Manager, State of Utah, Denver

Attn: Rick Lawton

From: Chief, Solid Minerals and Mining Law, BLM State Office,
Salt Lake City, Utah

Subject: Kaiser Coal Corporation, Sunnyside Mines, Carbon County, Utah
Permit Application Package (PAP)

On November 15, 1985, we received a sizable package of maps (13) and pages (137) forwarded with your transmittal letter dated November 13, 1985, and identified as "10/22/85 UT DOGM transmittal of revisions for Mining and Reclamation Plan." The letter also indicated the PAP is in the final stages of preparation for a decision and requested that we prepare a final concurrence letter with any conditions necessary for final action on the mining plan. We have reviewed the maps and pages received on November 15, 1985, and we have determined that the Resource Recovery and Protection Plan (R2P2) or underground mining part of the subject PAP, as now amended, on file in this office is in compliance with 43 CFR 3482.1(c) rules and regulation. The proposed coal recovery procedures will safely obtain maximum recovery of the resource using the technology and mining equipment listed in the plan.

The BLM has one condition that should be considered in the final approval. This new material received on November 15, 1985, listed 29 portals and the method to be used for final sealing when they are no longer needed. Portals P-20 through P-26 and P-29 are shown to be in Federal coal. Underground abandonment plans, including sealing of portals, must include onsite inspections and reviews between management and personnel from BLM, Branch of Solid Minerals, followed by an official submittal for approval by the BLM.

The R2P2 plan, now on file in this office, is adequate for BLM administration of the associated Federal coal leases. We recommend that the R2P2, including the condition outlined above, be approved as an integral part of the subject PAP.

cc: MDO
PRRA
Kaiser Coal Corp.-Steamboat Springs, CO
DOGM

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING

This permit, UT-0014, which incorporates Utah Permit ACT/007/007 is issued for the United States of America by the Office of Surface Mining Reclamation and Enforcement (OSMRE) to

Kaiser Coal Corporation's
Sunnyside Coal Mines
Sunnyside, Utah 84539

for the Sunnyside mines. Kaiser Coal Corporation is the lessee of Federal coal leases Nos. SL-062966, SL-063383, SL-068754, U-010140, and U-32083

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 SMCRA, and the Federal coal lease(s) issued pursuant to the Mineral Leasing Act of 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 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 Federal lands, as well as on such other lands affecting or affected by those operations on Federal lands situated in the State of Utah, Carbon County, and located within:

Township 14 South, Range 14 East, SLM,
All or portions of Sections 6-9, 17-21, 27-34;

Township 14 South, Range 13 East, SLM,
All or portions of Sections 1, 11-14, 24, 25;

Township 15 South, Range 14 East, SLM,
All or portions of Sections 3-10, 15-17;

and to conduct surface coal mining and reclamation operations on the foregoing described property as shown on the attached maps subject to the conditions of the lease and the approved mining plan, and all other applicable conditions, laws, and regulations.

- Sec. 3 This permit will expire on January 7, 1991, 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, OSMRE. 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, and 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 840.12 and 842.13,
 - b. Be accompanied by a private person for the purpose of conducting an inspection in accordance with 30 CFR 842.12 and UMC 842.12, when the inspection is in response to an alleged violation reported by the private person.
- Sec. 6 The permittee shall conduct surface coal mining and reclamation operations only on those lands specifically designated as being within the permit area on the maps submitted in the permit application and approved for the term of the permit and which are subject to the performance 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 by including, but not being 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 the Utah Division of Oil, Gas and Mining and OSMRE, the approved Utah State Program, and the Federal Lands Program.
- 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 SMCRA, the approved Utah State Program and the Federal Lands Program.
- Sec. 12 If during the course of mining operations previously unidentified prehistoric or historic resources are discovered, the permittee shall ensure that the resource(s) is not disturbed and shall notify Utah DOGM and OSMRE. Utah DOGM, after coordination with OSMRE shall inform the permittee of necessary actions required.
- Sec. 13 The operator shall pay all reclamation fees required by 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 an action or decision of any official of OSMRE; (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 Minerals Management Service; 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.

Sec. 15 SPECIAL CONDITIONS - The permittee shall comply with the terms and conditions set out in the lease, Utah State permit ACT/007/007, and this permit. In addition, the permittee shall comply with the special conditions of Utah Permit ACT/007/007 and the special Federal conditions appended hereto as Attachment B. 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 revisions of this permit to ensure compliance with SMCRA and the regulatory program.

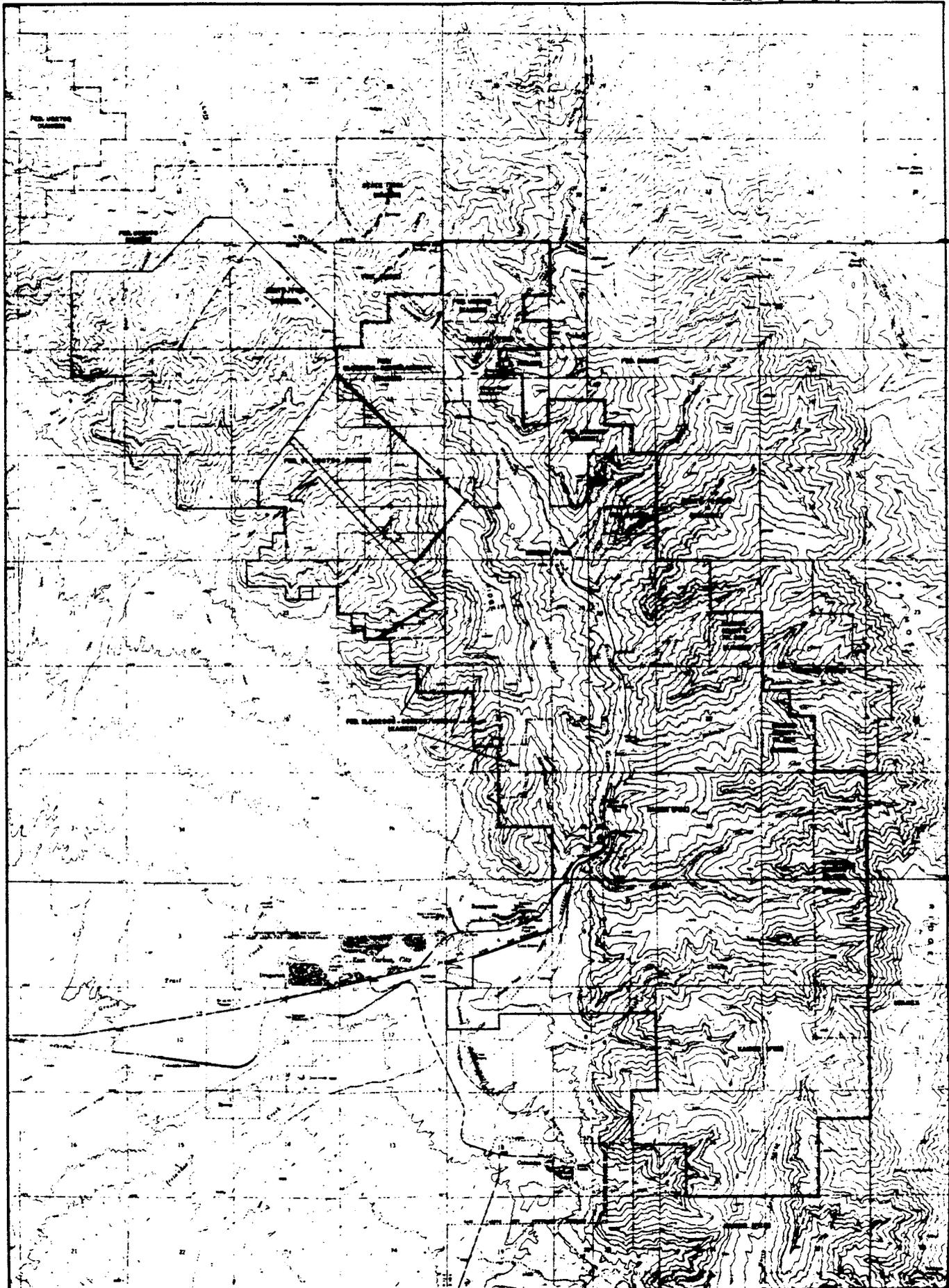
OFFICE OF SURFACE MINING

By:



Administrator, Western Technical Center

1/7/86
Date



	SHEET NO. _____ OF _____ DATE _____	SCALE 1" = 2000' DATE MAR 5 1986	SUBSURFACE OWNERSHIP POINT BOUNDARY _____ PER AND OR LEASE BOUNDARY _____ MAR 5 1986	SUNNYSIDE MINES COAL PLATE II-2 04-0100
	REVISIONS: _____ BY _____ DATE _____	DRAWN BY _____ CHECKED BY _____	PROJECT NO. _____ LOCATION _____	DRAWING NO. _____
	APPROVED BY _____ TITLE _____	PROJECT MANAGER _____ DATE _____	FIELD NO. _____ LOCATION _____	DRAWING NO. _____
	APPROVED BY _____ TITLE _____	PROJECT MANAGER _____ DATE _____	FIELD NO. _____ LOCATION _____	DRAWING NO. _____

ATTACHMENT B

SPECIAL CONDITIONS

- Special Condition 1. At such time as OSMRE, in consultation with the Utah Division of Oil, Gas and Mining and the State Historic Preservation Officer (SHPO), determines that subsidence within the permit area may adversely affect known or unrecorded cultural resources, additional cultural resource studies may be required. This determination will be based on new subsidence or new cultural resource information.
- Special Condition 2. All underground workings abandonment plans, including sealing of portals, shall include on-site inspections and approvals by personnel of the Bureau of Land Management, Branch of Solid Minerals.



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

November 7, 1985

OSM-VTC
1985 NOV 12 AM 9:10
WESTERN TECHNICAL CENTER

FEDERAL EXPRESS
(037 769 572)

Mr. Allen D. Klein, Administrator
Western Technical Center
Office of Surface Mining
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202

Dear Mr. *Allen* Klein:

RE: Revised Final Technical Analysis, Kaiser Coal Corporation,
Sunnyside Mines, ACT/007/007, #2, Carbon County, Utah

Please find enclosed a revised Final Technical Analysis (TA) for the Sunnyside Mines. We have addressed the concerns noted in your October 30, 1985 letter in the body of the TA.

If you should have any questions on this matter or the revised TA, please contact me as soon as possible so the processing of this permit will not be delayed.

Best regards,

Dianne R. Nielson
Director

JJW/btb
Enclosures
cc: Marty Holmes
Doug Pearce
Lowell Braxton
Technical Review Team
9294R-40

MINE PLAN INFORMATION

Mine Name: Sunnyside Mines State ID: ACT/U07/007

Operator: Kaiser Coal Corporation County: Carbon

Controlled By: Kaiser Coal Corporation

Contact Person(s): Charles McGlothlin Position: President-Coal Group

Telephone: (303) 475-7005

New/Existing: Existing Mining Method: Longwall

Federal Lease No(s): (1) Salt Lake-062966-063383-Utah-010140; (2) U-32083; (3) SL-068754

Legal Description(s): See attached sheets.

State Lease No(s): None

Legal Description(s): _____

Other Leases (identify): Carbon County

Legal Description(s): See legal notice.

Ownership Data:

<u>Surface Resources (acres)</u>	<u>Existing Permit Area</u>	<u>Proposed Permit Area</u>	<u>Total Life Of Mine Area</u>
Kaiser Steel		13,031.8	13,031.8
Federal		991.5	991.5
State		- 0 -	- 0 -
Private		360.0	360.0
Other		1.7	1.7
TOTAL		14,385.0	14,385.0

Coal Ownership (acres):

Federal		2,022.0	2,022.0
State		- 0 -	- 0 -
Private		10,128.0	10,128.0
Other		1,160.0	1,160.0
TOTAL		13,310.0	13,310.0

LEASE DESCRIPTION

Kaiser Coal Corporation
Sunnyside Mines
ACT/G07/007, Carbon County, Utah

November 8, 1985

Fee Land

(1) Deed dated February 28, 1951 through which Book Cliffs Corporation, a Nevada corporation, conveyed and warranted to Kaiser Steel Corporation, a Nevada corporation, title to tracts of land in Carbon County, Utah. It was recorded by the County Recorder of Carbon County, Utah, in Book 15D, pages 80 to 93 inclusive. Fee land included in the deed and within the permit area is described as follows:

Township 14 South, Range 14 East, SLB&M, Utah

Sec. 6: N1/2, S1/2 SW1/4, S1/2 SE1/4, NW1/4 SE1/4
Sec. 7: NW1/4, SW1/4 NE1/4, E1/2 SW1/4, S1/2 SE1/4, NW1/4 SE1/4
Sec. 17: NE1/4, SE1/4 NW1/4, SW1/4, S1/2 SE1/4
Sec. 18: E1/2, S1/2 SW1/4, NE1/4 SW1/4, NW1/4 SW1/4, SW1/4 NW1/4
less the following described area:

Beginning at the NW corner of SW1/4 NW1/4 of Section 18, Township 14 South, Range 14 East:

thence S 45° 05' E, 1,577.42 ft;
thence S 39° 25' W, 1,759.22 ft;
thence N 2,472.87 ft to point of beginning.

Sec. 19 and 20: All
Sec. 21: W1/2
Sec. 28 and 29: All
Sec. 30: NE1/4, NE1/4 NW1/4, NW1/4 SE1/4
Sec. 31: S1/2 NE1/4, NE1/4 NE1/4
Sec. 32 and 33: All
Sec. 34: W1/2

Township 15 South, Range 14, East, SLB&M, Utah

Sec. 3: W1/2
Sec. 4: All
Sec. 5: NE1/4, N1/2 SE1/4, SE1/4 SE1/4
Sec. 8: NE1/4 NE1/4
Sec. 9: All
Sec. 10: W1/2, SE1/4
Sec. 15: W1/2, N1/2 NE1/4
Sec. 16: E1/2, NW1/4, E1/2 SW1/4
Sec. 17: E1/2 NE1/4

Federal Leases

Federal Coal Leases numbers Salt Lake 062966-063383-Utah 010140, Utah 32083 and SL-068754. Areas within both the leases and the permit area are described as follows:

Township 14 South, Range 13 East, SLB&M, Utah

Sec. 1: SE1/4

Sec. 12: NE1/4, N1/2, NW1/4, SE1/4, NW1/4, SE1/4 SE1/4, N1/2 SE1/4, SW1/4 NW1/4, NE1/4 SW1/4, SW1/4 SE1/4 less the following described area:

Beginning at a point which bears S 1,320 ft from the NW corner of Section 12:

thence S, 1,320 ft;
thence S 89° 55' 30" E, 1,327.01 ft;
thence S, 1,320 ft;
thence S 89° 53' 15" E, 1,327.22 ft;
thence S, 1,320 ft;
thence S 89° 51' E, 1,327.43 ft;
thence N 45° 05' 07" W, 5,623.40 ft to the place of beginning.

Sec. 13: Portions of: NE1/4 NE1/4, E1/2 SE1/4, SW1/4 SE1/4, SE1/4 SW1/4, NE1/4 SW1/4, NW1/4 SW1/4, SW1/4, NW1/4 which are described as follows:

Beginning at a point which bears 2,850 ft S 89° 51' E from the SW corner of Section 13:

thence N 42° 30' W, 4,215 ft;
thence N 610 ft;
thence S 42° 30' E, 3,730 ft;
thence N 47° 30' E, 100 ft;
thence S 42° 30' E, 1,450 ft;
thence N 89° 50' W, 710 ft to the point of beginning.

Beginning at the SE corner of Section 13:

thence N 1,487.13 ft;
thence S 39° 25' W, 1,920.39 ft;
thence S 89° 50' E, 1,219.36 ft to the point of beginning.

Less the following described area:

Beginning at a point which bears S 1,320 ft from the NE corner of Section 13:

thence N 89° 51' W, 1,327.76 ft;
thence N 1,320 ft;
thence S 45° 05' 33" E, 1,874 ft to the point of beginning.

Sec. 24: S1/2 SE1/4, Portions of: N1/2 NE1/4, SE1/4 NE1/4, N1/2 SE1/4 and NE1/4 SW1/4 which are described as follows:

Beginning at the NE corner of Section 24:

thence S 0° 07' W, 1,814.87 ft;
thence S 57° 11' W, 430 ft;
thence N 38° 23' W, 1,165 ft;
thence N 42° 26' W, 860.51 ft;
thence N 39° 5' E, 709.31 ft;
thence S 89° 50' E, 1,219.36 ft;
thence S 45.54 ft to the place of beginning.

Beginning at a point which bears N 0° 02' E, 1,294.59 ft from the SE corner of said Section 24:

thence N 0° 02' E, 1,294.59 ft;
thence N 0° 07' E, 830.41 ft;
thence S 57° 11' W, 3,905.58 ft;
thence S 89° E, 3,280.00 ft to the place of beginning and containing 80 acres more or less.

Beginning at a point which bears N 89° 50' W 1,720 ft from the NE corner of Section 24:

thence N 89° 50' W, 750 ft;
thence S 42° 30' E, 2,900 ft;
thence N 57° 11' E, 100 ft;
thence N 38° 23' W, 1,165 ft;
thence N 42° 26' W, 860.51 ft;
thence N 39° 25' E, 350 ft;
thence N 42° 30' W, 400 ft to the point of beginning.

Sec. 14: Portions of: NW1/4 which is described as follows:

Beginning at a point which bears 1,915 ft N 89° 41' W from the NE corner of Section 14:

thence S 42° 30' E, 2,090 ft;
thence S 600 ft;
thence N 42° 30' W, 1,400 ft;
thence S 48° 00' W, 1,525 ft;
thence S 175 ft;
thence N 89° 41' W, 315 ft;
thence N 300 ft;
thence N 48° 00' E, 1,775 ft;
thence N 42° 30' W, 1,125 ft;
thence S 89° 41' E, 500 ft to the point of beginning.

Sec. 11: Portions SW1/4 SE1/4 which is described as follows:

Beginning at a point which bears 1,915 ft N 89° 41' W from the SE corner of Section 11:

thence N 40° 30' W, 1,150 ft;
thence S 48° 00' W, 380 ft;
thence S 42° 30' E, 780 ft;
thence S 89° 41' E, 520 ft to the point of beginning.

Sec. 25: NE1/2 NE1/4

Township 14 South, Range 14 East, SLB&M, Utah

- Sec. 6: NW1/2 SW1/4
- Sec. 7: W1/2 SW1/4
- Sec. 8: SW1/4, SW1/4 SE1/4
- Sec. 17: W1/2 NW1/4, NE1/4 NW1/4, N1/2 SE1/4
- Sec. 18: E1/2 NW1/4, NW1/4 NW1/4
- Sec. 30: NW1/4 NW1/4, SE1/4 NW1/4, NE1/4 SW1/4, S1/2 SE1/4, NE1/4 SE1/4
- Sec. 31: NW1/4 NE1/4

Carbon County Lease

Coal lease, dated August 18, 1975, granted by Carbon County of the state of Utah, the lessor, to Kaiser Steel Corporation, the lessee. The lease embraces the following described lands in Carbon County, Utah, all of which are within the permit area:

Salt Lake Meridian, Utah

Township 14 South, Range 14 East

- Sec. 21: SE1/4
- Sec. 27: SW1/4, SW1/4 NW1/4
- Sec. 34: E1/2

Township 15 South, Range 14 East

- Sec. 3: E1/2
- Sec. 10: NE1/4

0247R

FINDINGS DOCUMENT

Kaiser Coal Corporation
Sunnyside Mines
ACT/007/007, Carbon County, Utah

November 7, 1985

1. The plan and the permit application are accurate and complete and all requirements of the Surface Mining Control and Reclamation Act (the "Act"), and the approved Utah State Program have been complied with (UMC 786.19[a]).
2. The applicant proposes acceptable practices for the reclamation of disturbed lands. These practices have been shown to be effective in the short-term; there are no long-term reclamation records utilizing native species in the western United States. Nevertheless, the Utah Division of Oil, Gas and Mining (DOG M) staff has determined that reclamation, as required by the Act, can be feasibly accomplished under the Mining and Reclamation Plan (MRP) (see Technical Analysis [TA], Section UMC 817.111-.117) (UMC 786.19[b]).
3. The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance has been made by the regulatory authority. The mining operation proposed under the application has been designed to prevent damage to the hydrologic balance in the permit area and in the associated off-site areas (UMC 786.19[c]). (See Cumulative Hydrologic Impact Analysis [CHIA] Section, attached to this Findings Document.)
4. The proposed permit area is:
 - A. not included within an area designated unsuitable for underground coal mining operations (MRP, Section 2.1; see attached memo from Bureau of Land Management [BLM] dated February 3, 1984;
 - B. not within an area under study for designated lands unsuitable for underground coal mining operations;
 - C. not on any lands subject to the prohibitions or limitations of 30 CFR 761.11(a) (national parks, etc.), 761.11(f) (public buildings, etc.) and 761.11(g) (cemeteries) (MRP, Section 2.5);
 - D. within 100 feet of the outside right-of-way line of a public road, however, the mine was in operation prior to August 3, 1977 (UMC 761.11);
 - E. not within 300 feet of any occupied dwelling (MRP, Section 2.5) (UMC 786.19[d]).

5. DOGM's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) (UMC 786.19[e]). See letter from State Historic Preservation Officer (SHPO) dated October 6, 1983, attached to TA.
6. The applicant has the legal right to enter and begin underground activities in the permit area through three federal leases, and one fee lease (see MRP, Section 2.4) (UMC 786.19[f]).
7. The applicant has shown that prior violations of applicable laws and regulations have been corrected or are being corrected (see August 20, 1985 letter from Ron Daniels, attached) (UMC 785.19[g]).
8. Kaiser Coal Corporation is not delinquent in payment of fees for the Abandoned Mine Reclamation Fund for its active mining operation (UMC 786.19[h]) (personal communication, Frank Atencio, OSM, Albuquerque, June 21, 1985).
9. The applicant does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (UMC 786.19[i]) (attached letter from Ron Daniels dated August 20, 1985).
10. Underground coal mining and reclamation operations to be performed under the permit will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the proposed permit area (UMC 786.19[j]). The Sunnyside Mines property is centrally located in the Book Cliffs coal field. Kaiser's property is bordered on the northwest by Sunedco's proposed Sage Point-Dugout Mines and on the south by Kaiser Coal Corporation's Geneva Mine. Neither operation is currently active.
11. A detailed analysis of the proposed bond had been made. The bond estimate is attached to the TA. The DOGM has made appropriate adjustments to reflect costs which would be incurred by the State, if it was required to contract the final reclamation activities for the mine site. The bond shall be posted (UMC 786.19[k]) with DOGM prior to final permit issuance.
12. No lands designated as prime farmlands occur on the permit area (Figure IV-1, letter from Soil Conservation Service [SCS] to Marcia Wolfe, Kaiser, dated March 16, 1981). The applicant has satisfied the requirements of UMC 785.19, Alluvial Valley Floors.
13. The proposed postmining land-use of the permit area has been approved by the regulatory authority (see TA, Section UMC 817.133) (UMC 786.19[n]).

14. The regulatory authority has made all specific approvals required by the Act, and the approved State Program (UMC 786.19[n]).
15. The proposed operation will not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats (MRP, Section 9.4, Section 10.3.3.1; letter from U. S. Fish & Wildlife Service dated July 23, 1984) (UMC 785.19[o]).
16. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (UMC 741.21[a][2][ii]).
17. All existing structures subject to the requirements of Utah Code Annotated 40-10 comply with UMC 700.11(e) and the applicable performance standards of UMC Subchapter K. No significant harm to the environment or public health or safety will result from the use of the structures.

Prior to the permit taking effect, the applicant must sign the permit committing to compliance with the special stipulations in the permit and post the performance bond for reclamation activities.

L.C. Beaton For John Whitehead
DOGM Lead Reviewer

James P. Beaton
Administrator, Mineral Resource
Development and Reclamation Program

Samuel E. May
Associate Director, Mining

Dianne R. Nelson 11-8-85
Director

RECEIVED

NOV 07 1984

DIVISION OF OIL
GAS & MINING

November 5, 1984

3482
SL-061956
U-921

To: Mary
11/7/84
Copy to:
Steve C.
Return to Mary

Memorandum

To: Walter Swain, OSH Senior Project Manager
for the State of Utah, Denver

Attn: Louis Hamm

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

Subject: Kaiser Steel Corporation Sunnyside Mines
Carbon County, Utah, Permit Application Package (PAP)

The Resource Recovery and Protection Plan (R₂P₂) or underground mining part of the subject PAP was considered adequate for BLM administration of the associated Federal coal leases. Our memorandum dated May 7, 1984, stated that the R₂P₂ on file in this office is in compliance with 43 CFR 3482.1(c) rules and regulations, and that the proposed coal recovery procedures will safely obtain maximum recovery of the resource using current technology and available mining equipment. Since that time we have received the following information and data:

1. Eight large volumes forwarded with your letter dated May 31, 1984, and identified as "application for an underground permit." Permit dated May 16, 1984.
2. A map and pages forwarded with your letter dated August 24, 1984, and identified as "07/23/84 submittal of revision for mining and reclamation plan, permit amendment on Grassy Trail stream crossing."
3. A map forwarded with your letter dated August 24, 1984, and identified as "08/08/84 submittal of revision for mining and reclamation plan--map for twin shaft mine water discharge pond."

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.

Within the limits of our authority we concur with the Sunnyside mine R.P.₂ plan on file in this office as amended and recommend that it be included as an integral part of the subject PAP.

Orig. Sgd: J. Gordon Whitney

cc: Kaiser
BLN-MEO
✓ DOGH

UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Moab District

FILE ACT/007/007, #2

copy to STELL
Mark
IN REPLY REFER TO:
3400
(U-066)

To : Center Administrator, OSM, Denver
ATTENTION: Louis Hamm
FROM : ~~ACTING~~ District Manager, Moab

Date: FEB 03 1984

SUBJECT: Mine Plan Review, Kaiser Steel's Sunnyside Mines

By your letter of August 5, 1983 you requested our recommendations for approval of subject mine plan and a list of concerns relating to approval, if not previously submitted. Due to land ownership and the present existence of surface facilities, we do not have additional concerns (see our memo of May 28, 1981). None of the proposed permit area was identified as unsuitable in our land use planning. We recommend approval of subject mine plan.

Jim Davis
(Actual)



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

August 20, 1985

Dr. Ed Kelley, Director
Mining and Minerals Division
Energy and Minerals Department
525 Camino de los Marquez
Santa Fe, New Mexico 87501

Dear Dr. Kelley:

Re: Report on the Compliance Status of Perma Mining Corporation

You inquired by letter on July 24, 1985 as to the compliance status of the above-mentioned company by asking for a check on the status of the company's violations listed in your letter. This is the response to your inquiry.

The list which was provided with your letter is both accurate and complete. Additionally, neither Perma Mining Corporation nor Kaiser Coal Corporation have any Notices of Violation (NOVs) or Cessation Orders (COs) which are not corrected or in the process of being corrected. Any NOVs or COs that are outstanding are in the process of administrative or judicial review. Also, there are no finalized civil penalties which are outstanding and overdue in the name of Kaiser Coal Corporation or Perma Mining Corporation.

Finally, Kaiser Coal Corporation does not have a demonstrated pattern of willful violations in the state of Utah.

If you have any questions on this response, please let me know.

Best regards,

Dianne R. Nielson
Director

jb
02700-31

BCC: J. C. Helfrich
B. Barela - Folder #7
R. Elorreaga

STIPULATIONS DOCUMENT

Kaiser Coal Corporation
Sunnyside Mines
ACT/007/007, Carbon County, Utah

November 7, 1985

Stipulation 817.43-(1)-JW

1. The applicant shall assure that during construction of outlet protection measures, shown on Plate III-35 of the MRP, that the edges of fabric liner are secured by burying with at least eight inches of soil.

Stipulation 817.44-(1, 2)-JW

1. The applicant shall not retain culverts shown as RC2-4 and RC3-1 on Plate III-28 of the mine plan as permanent culverts after mining unless these culverts are replaced at the termination of mining with adequately sized culverts as determined and approved by the regulatory authority.
2. The applicant shall install a well-graded riprap with a median size of 12 inches in the #2 Canyon channel in those areas which cross the reclaimed area during final reclamation or utilize other such measures approved by the regulatory authority to achieve a stable postmining channel configuration.

Stipulation 817.47-(1)-JW

1. The applicant shall install, no later than June 15, 1986, the proposed wire basket rock gabions at the outlets from the hoisthouse and manshaft sediment ponds.

Stipulation 817.91-.93-(1)-PGL

1. The applicant may not use the ESC until the Division approves the embankment configuration that meets the partial pool steady seepage saturation condition minimum safety factor of 1.5 and the seismic safety factor of at least 1.2.

Stipulation 817.116-.117-(1, 2, 3)-LK

1. The applicant shall not disturb the approved pinyon-juniper/grass reference area currently shown on Plate IX-1 until a revised Plate IX-1 showing the location of the proposed new reference area and vegetation sampling data are submitted to and approved by the Division.

2. The success standard for productivity on reclaimed areas shall be achievement of at least 90 percent of the productivity of the corresponding reference area for the last two years of the liability period, using statistically adequate samples at 80 percent confidence with a 10 percent change in the mean.
3. Kaiser Coal Corporation will monitor all permanently reclaimed areas as per the following schedule:

year 1: reconnaissance survey to determine initial species establishment and woody plant density;

years 2, 3, 5, and 7: sample for cover, woody plant density and determine diversity;

If year 3 equals at least 90 percent of and year 5 equals or exceeds the success standard for cover and woody plant density, year 7 monitoring may be waived.

Productivity monitoring is optional for years 1-8. However, no harvest methods (i.e., clipping) shall be used.

The results of monitoring permanently reclaimed areas shall be submitted to the Division by December 31 of each year monitoring is performed.

Stipulation 817.160-.166-(1)-PGL

1. The right-of-way from the BLM for the Water Canyon Road must be submitted to the Division within 30 days of permit approval (Section 8 is owned by the USA) (UMC 782.150).

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Kaiser Coal Corporation
Sunnyside Mines
ACT/007/007, Carbon County, Utah

November 7, 1985

I. Introduction

The purpose of this report is to provide a Cumulative Hydrologic Impact Assessment (CHIA) for Kaiser Coal Corporation's Sunnyside Mines located in Carbon County, Utah. The assessment encompasses the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance and whether the operations proposed under the application have been designed to prevent damage to the hydrologic balance outside the proposed mine plan area. This report complies with federal legislation passed under the Surface Mining Control and Reclamation Act (SMCRA) and subsequent Utah and federal regulatory programs under UMC 786.19(c) and 30 CFR 784.14(f), respectively.

Kaiser Coal Corporation's Sunnyside Mines are located within the Book Cliffs Coal Field approximately 25 miles east of Price, Utah (Figure 1). The Book Cliffs form a rugged, southerly facing escarpment that delineates the Uinta Basin to the north from the San Rafael Swell to the south. Elevations along the Book Cliffs range from approximately 5,000 to 9,000 feet.

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

Precipitation varies from 20 inches at higher elevations to 5 inches at lower elevations. The Book Cliffs area may be classified as mid-latitude steppe to desert.

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

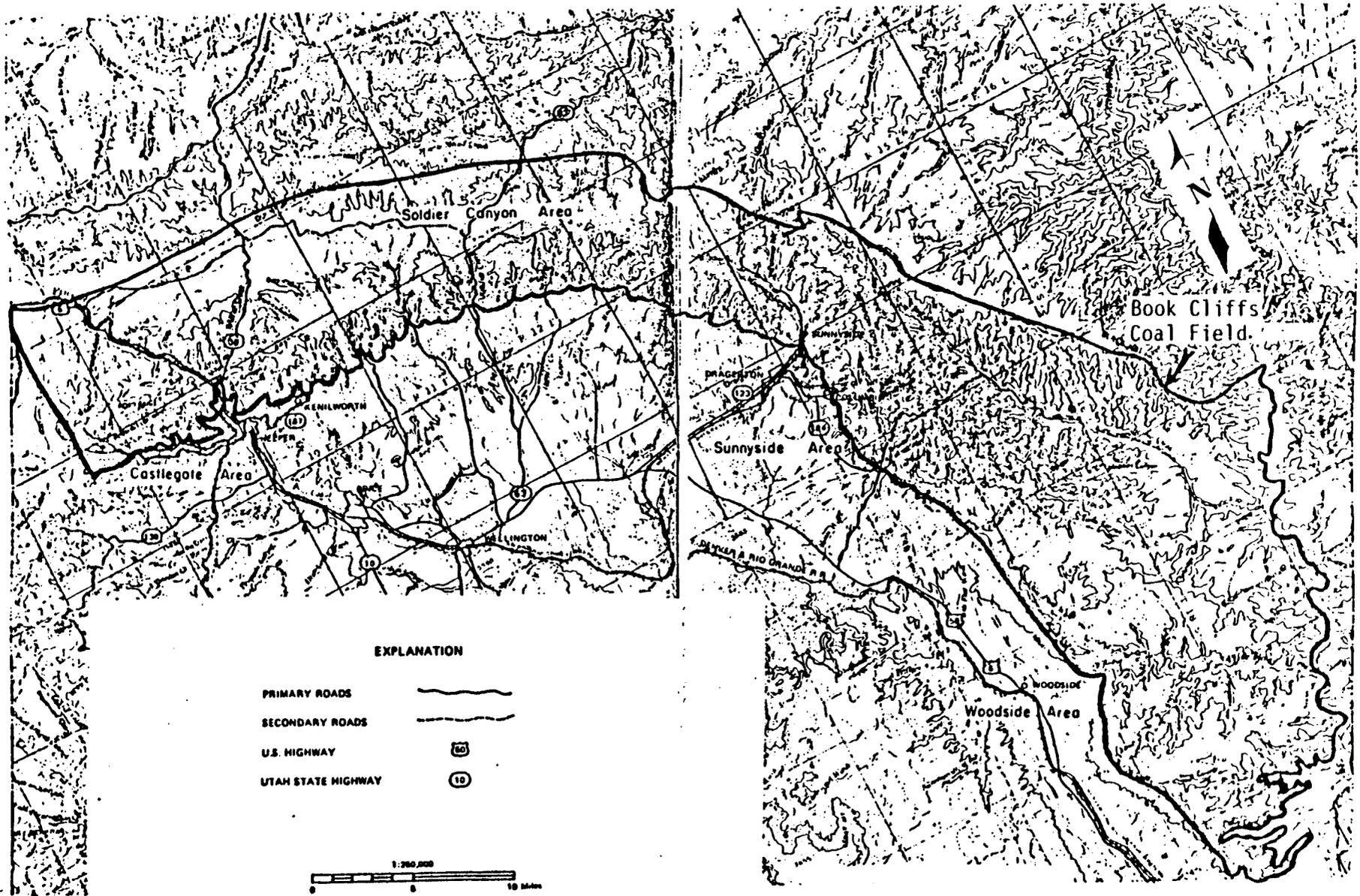


Figure 1. Book Cliffs Coal Field.

From: Doelling 1972.

Surface runoff from the Book Cliffs area flows into the Price River drainage basin of east-central Utah. The Price River originates near Scofield Reservoir and flows southeasterly into the Green River, north of the town of Green River, Utah. Water quality is good in the mountainous headwater tributaries, but deteriorates rapidly as flow traverses the Mancos Shale. The shale lithology typically has low permeability, is easily eroded and contains large quantities of soluble salts that are a major contributor to poor water quality. Depending upon the duration of contact, water quality degrades downstream to where total dissolved solids (TDS) levels of 3,000 milligrams per liter (mg/l) are not uncommon. The predominant ion leached from the Mancos Shale is sulfate (SO₄) with values over 1,000 mg/l common in the lower reaches of the Price River.

II. Cumulative Impact Area (CIA)

Figure 2 delineates the CIA for current and projected Sunnyside Mine operations. The CIA is defined by surface drainages and the ground-water basin which mimics surface topography. The CIA includes the Whitmore Canyon drainage basin, intermittent drainages south of the divide separating Rock Canyon and Bear Canyon and the upper drainage basin of the North Fork Horse Canyon. The western boundary is designated by 110° 30' W longitude, whereas the southern boundary is limited by the Kaiser-U. S. Steel property line and its westward extension to 110° 30' W longitude. The CIA encompasses approximately 64,000 acres. Other anticipated mining external to the CIA include the Sage Point-Dugout Canyon Mine and the inactive Geneva Mine located to the east and south, respectively. Impacts associated with mining external to the CIA occur in separate surface and subsurface drainage basins and, therefore, do not apply to this assessment.

III. Scope of Mining

Mining at the Sunnyside properties was initiated during the late 1890's. Total coal production has exceeded 55 million tons. Kaiser Steel Corporation acquired the Sunnyside properties in 1950 and operated the mines until April 1985. Since that time, the mine has been operated by Kaiser Coal Corporation.

Kaiser Coal Corporation's Sunnyside operations include, from south to north, the No. 2 Mine, No. 3 Mine and No. 1 Mine (Figure 2). The three mines are adjacent to each other and workings currently encompass the southern three-quarters of the permit area. Future mining is projected to occur towards the northwest and will include separate permits for the B Canyon and C Canyon areas.

Revised December 2, 1985

Mine workings are approximately 6.5 miles in length and extend a maximum of 2.5 miles down-dip to the east. The first five year permit area encompasses 14,300 acres. Mining, during the first five year permit term, will occur in the Upper Sunnyside coal seam in the No. 3 Mine and Lower Sunnyside coal seam in the No. 1 Mine and No. 2 Mine. Sixty-five to eighty percent of the coal will be produced by longwall mining methods. The remaining production will be from continuous miner entry development and pillaring in areas unsuitable for longwall methods.

Revised December 2, 1985

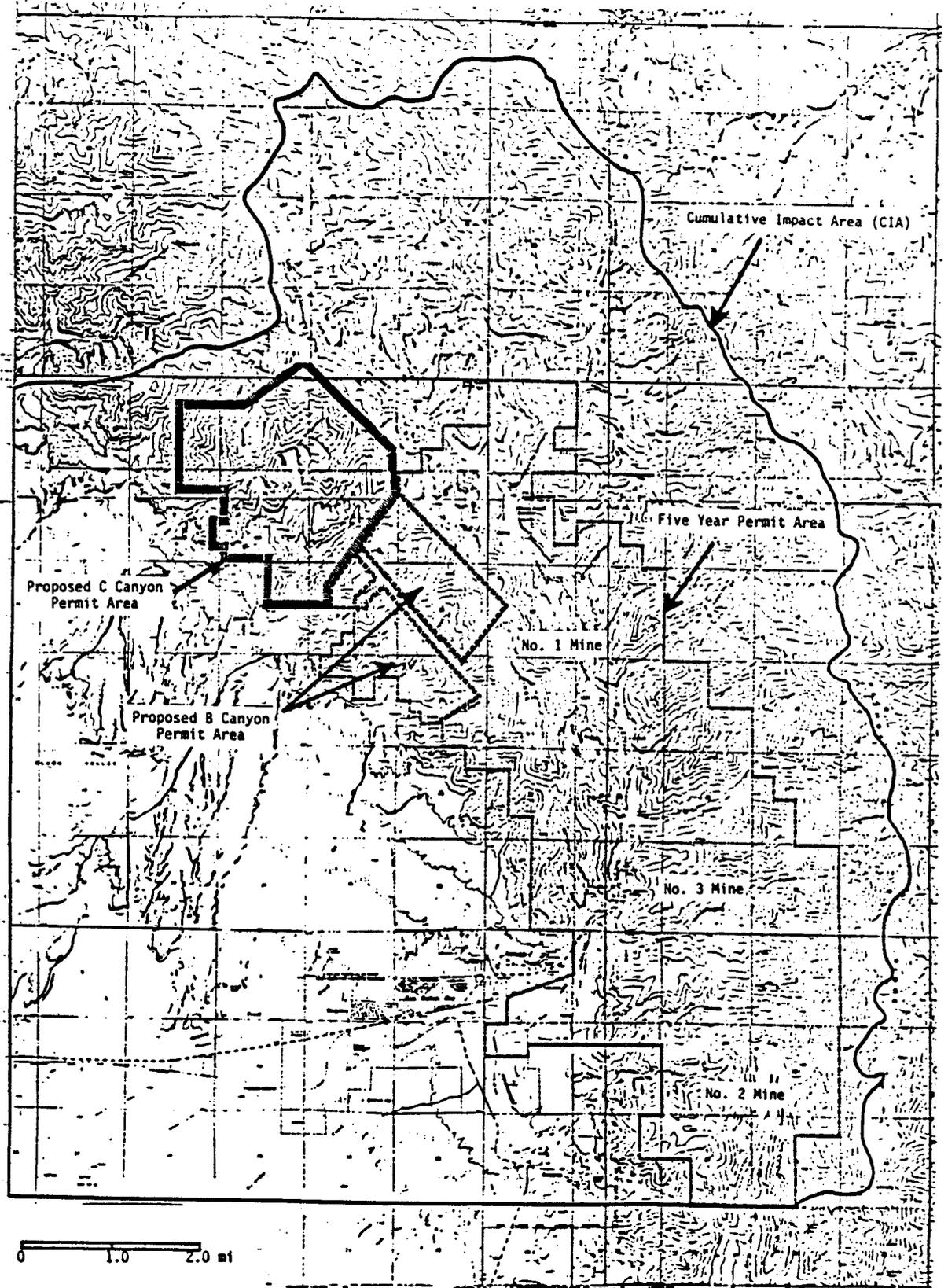


Figure 2. Cumulative Impact Area (CIA)

Production during the five year permit term will occur sequentially as given below.

No. 1 Mine

1985, 19th Left Inside Panel
1986, 19th Left Outside Panel
1987, 20th Left Outside Panel
1988-1989, 21st Outside Panel

No. 3 Mine

1985, 17th Left Panel

No. 2 Mine

1985, 17th Left No. 2 Panel

Overburden thickness ranges from approximately 1,200 feet to 2,000 feet above the panels to be mined.

IV. Study Area

A. Geology

The Sunnyside Mines area is characterized by cliffs, narrow canyons, and pediments. Stratigraphic units outcropping within the area include, from oldest to youngest, the Mancos Shale, Blackhawk Formation, Castlegate Sandstone, Price River Formation, undifferentiated North Horn/Flagstaff formation, Colton Formation, Green River Formation and Quaternary deposits. Lithologic descriptions and unit thicknesses are given in Figure 3.

Rocks in the Sunnyside area generally strike northwest and dip to the northeast at angles of 5 to 12 degrees. The predominant fault trend is northwest-southeast, roughly paralleling strike. Fault displacement is generally less than 100 feet.

Principal coal accumulations occur within the Blackhawk Formation. Five coal seams have been identified and are termed, in ascending order, the Kenilworth, Gilson, Rock Canyon, Lower Sunnyside and Upper Sunnyside beds. The Lower and Upper Sunnyside beds have the greatest economic potential and are the focus of current and future Kaiser extraction operations.

B. Topography and Precipitation

Topography ranges from less than 5,800 feet to over 10,000 feet in the western and eastern portions of the CIA, respectively.

System	Series	Stratigraphic Unit	Thickness Feet	Description			
<u>Quaternary</u>	Holocene	Quaternary deposits	Variable	Surficial stream terrace and channel, alluvial fan, landslide and talus and moraine deposits.			
	Pleistocene						
<u>Tertiary</u>	Eocene	Green River Formation	100	Greenish-gray and white claystone and shale, also contains fine-grained and thin-bedded sandstone. Shales often dark brown containing carbonaceous matter. Full thickness not exposed.			
		Colton Formation	250-1,000	Brown to dark red lenticular sandstone, shale and siltstone.			
	Paleocene	Undifferentiated North Horn/Flagstaff Formation	1,200-1,800	Flagstaff consists of blue-gray to reddish-brown limestone. North Horn predominately gray to gray-green calcareous and silty shale, tan to yellow-gray fine-grained sandstone and minor conglomerate.			
<u>Upper Cretaceous</u>	Maestrichtian	Price River Formation Bluecastle Sandstone Member Lower Unnamed Member	500	Yellow-gray to white, medium-grained sandstone and shaley sandstone with gray to olive-green shale. Contains carbonaceous shale with minor coal.			
	Campanian				Castlegate Sandstone	180	White to gray, fine- to medium-grained, argillaceous massive resistant sandstone with subordinate shale.
		Blackhawk Formation Upper Mudstone Member Sunnyside Member Lower Mudstone Member Kenilworth Member Aberdeen Member	700	Cyclical littoral and lagoonal deposits. Littoral deposits mainly thick-bedded to massive cliff-forming yellow-gray fine- to medium-grained sandstone, individual beds separated by gray shale. Lagoonal facies consist of thin- to thick-bedded yellow-gray sandstones, shaley sandstones, shale and coal. Coal beds form basis of Book Cliffs coal field.			
					Santonian	4,000	Gray marine shale, locally heavily charged with carbonaceous material, slightly calcareous and gypsiferous, nonresistant forming flat desert surface and rounded hills and badlands.
					Coniacian		

Figure 3. Stratigraphy of the Sunnyside Mines Area (modified from Doelling 1972 and Osterwald et al 1981).

The western portion of the CIA, from 110°30'W longitude to the crest of West Ridge and south of the drainage divide between Grassy Trail Creek and Icелander Creek above Horse Canyon is characterized by southeast draining ephemeral streams that originate above 8,500 feet and progressively traverse nonmarine and marine Cretaceous rocks and alluvial fan deposits. Precipitation in the western portion of the CIA varies from 20 to less than 8 inches. However, a realistic approximation for average annual precipitation is 10 inches per year. Slopes associated with alluvial fans are approximately three to four percent, whereas slopes along the Book Cliffs escarpment between 7,000 and 8,800 feet average 22 percent.

The eastern portion of the CIA is characterized by a north-south perennial stream system with northeast-southwest trending tributaries. Headwaters originate above 10,000 feet and progressively traverse Tertiary and Cretaceous age rocks. Precipitation is less variable than in the western portion of the CIA and the average annual value is 20 inches or more. Slopes associated with the north-south system of perennial streams are approximately three to four percent below 7,500 feet. Slopes for northeast-southwest trending tributaries are approximately 32 percent above 7,500 feet.

There is a strong north-south slope effect on vegetation because of the narrow canyons. North facing slopes are dominated by Douglas fir or mountainbrush communities while south-facing slopes are typically dominated by pinyon-juniper and sagebrush. These vegetation types are intermixed with grassland vegetation at lower elevations.

Riparian vegetation is located in the moist areas of the narrow canyon floors and along Grassy Trail Creek. This vegetation type is dominated by willows and sagebrush with an overstory of narrowleaf cottonwood and box elder.

V. Hydrologic Resources

A. Ground Water

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

Snowmelt at higher elevations provides most of the ground-water recharge, particularly where permeable lithologies such as fractured or solution limestone are exposed at the surface. Vertical migration of ground water occurs through permeable rock units and/or along zones of faulting and fracturing. Lateral migration initiates when ground water encounters impermeable rocks and continues until

either the land surface is intersected (and spring discharge occurs) or other permeable lithologies or zones are encountered that allow further vertical flow.

The Kenilworth Member, Sunnyside Member and Upper Mudstone Member of the Blackhawk Formation, Castlegate Sandstone, Bluecastle Sandstone Member of the Price River Formation, undifferentiated North Horn/Flagstaff formation, Colton Formation, Green River Formation and Quaternary deposits are potential reservoirs or conduits for ground water in the CIA. Reservoir lithologies are predominantly sandstone and limestone. Sandstone reservoirs occur as channel and overbank, lenticular and tabular deposits, whereas limestone reservoirs have developed through solution processes and fracturing. Shale, siltstone and cemented sandstone beds act as aquacludes to impede ground-water movement. The Mancos Shale is a regional aquaclude that delimits downward flow within the CIA. Localized aquacludes include the Aberdeen Member and Lower Mudstone Member of the Blackhawk Formation, Lower Unnamed Member of the Price River Formation and relatively thin impermeable lithologies occurring within overlying units.

Thirty-six springs or areas of multiple springs occur within the CIA (Figure 4). Three springs are located within the five-year permit area. The majority of springs occur above 8,000 feet and discharge from the Green River Formation or Quaternary alluvium overlying the Green River Formation. Four springs occur in the southwest portion of the CIA and are associated with Quaternary alluvium overlying the Mancos Shale. Average flow is estimated to be less than 10 gpm for each spring.

Total mine inflow is approximately 740 gpm from mine shafts (245 gpm), boreholes (300 gpm), paleochannels (10 gpm) and gobs, faults and fractures (185 gpm). The majority of inflow occurs in the No. 1 Mine and is associated with the Manshaft, Twin Shafts, Pole Canyon Shaft and 18th Left Outside Panel (Figure 4). The Manshaft and Twin Shafts penetrate from the Blackhawk Formation to undifferentiated North Horn/Flagstaff formation and extend through the Castlegate Sandstone and Price River Formation. Flow into Manshaft and Twin Shafts totals 160 gpm and is, most likely, derived from either the Bluecastle Sandstone Member and/or permeable lithologies in the undifferentiated North Horn/Flagstaff formation. The Pole Canyon Shaft penetrates the Blackhawk Formation, Castlegate Sandstone, Price River Formation and Colton Formation. Pole Canyon Shaft inflow exceeds 50 gpm and is probably derived from the Colton Formation. The 18th Left Outside Panel collects flow from previously mined areas up dip. This flow may be attributed to wall weeps, roof drips and fractures and presumably, represents aquifer dewatering within and adjacent to the coal seam (i.e., Kenilworth Member, Sunnyside Member, Upper Mudstone Member).

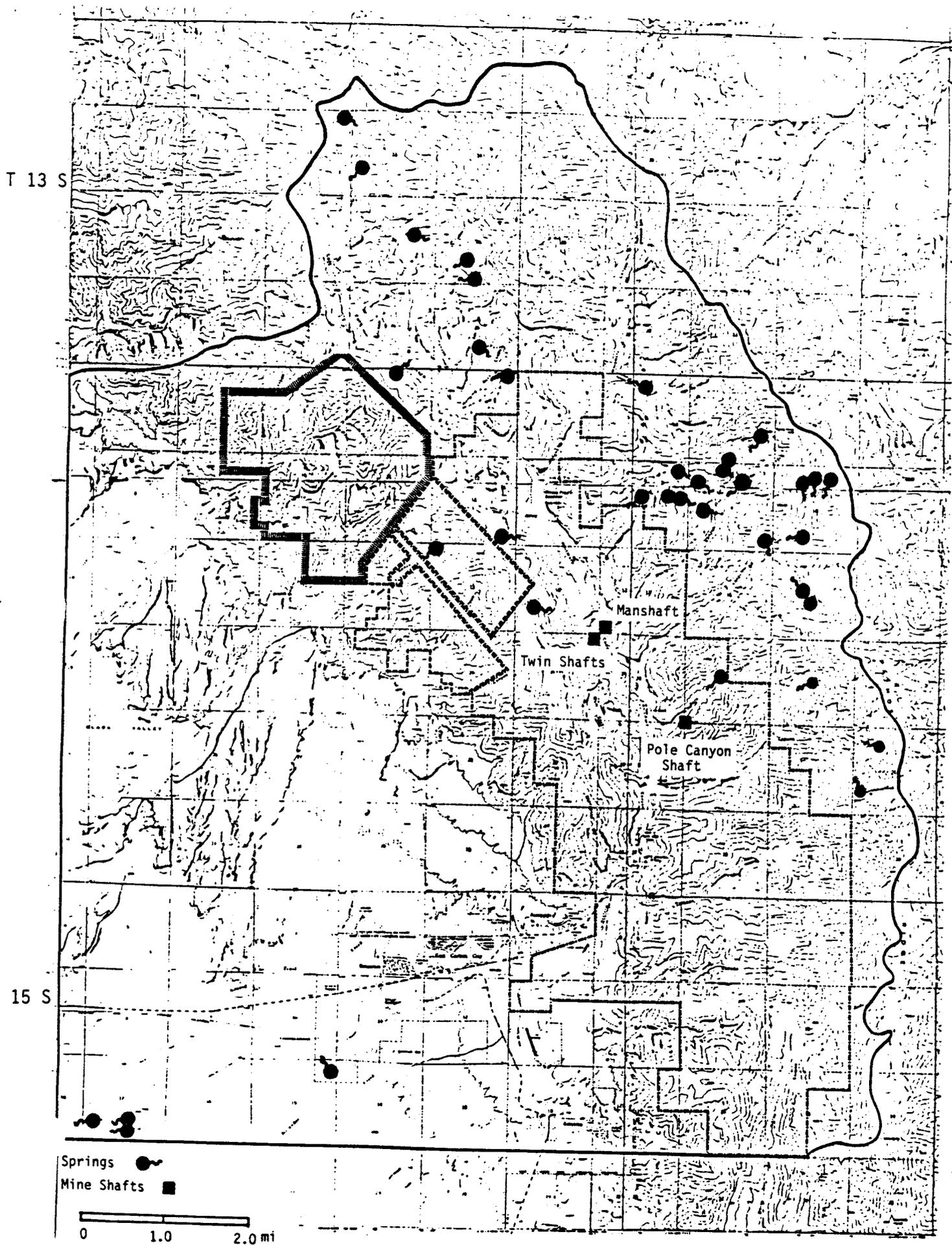


Figure 4. Location of Springs and Significant Mine Shaft Inflows.

B. Surface Water

Four principal drainages occur within the CIA. These drainages are termed Grassy Trail Creek, Price River-Lower Basin Grassy Trail Creek, Icelander Creek and Price River-Lower Basin Horse Canyon (Figure 5). Grassy Trail Creek drainage has been further subdivided into Right and Left Fork Grassy Trail Creek and Whitmore Canyon/Grassy Trail Creek.

Grassy Trail Creek

Right and Left Fork

Right and Left Fork Grassy Trail Creek are characterized by steep gradients, narrow canyons and gravel streambeds with silt and sand where gradients are reduced. Base flow is sustained by springs at approximately 8,500 feet.

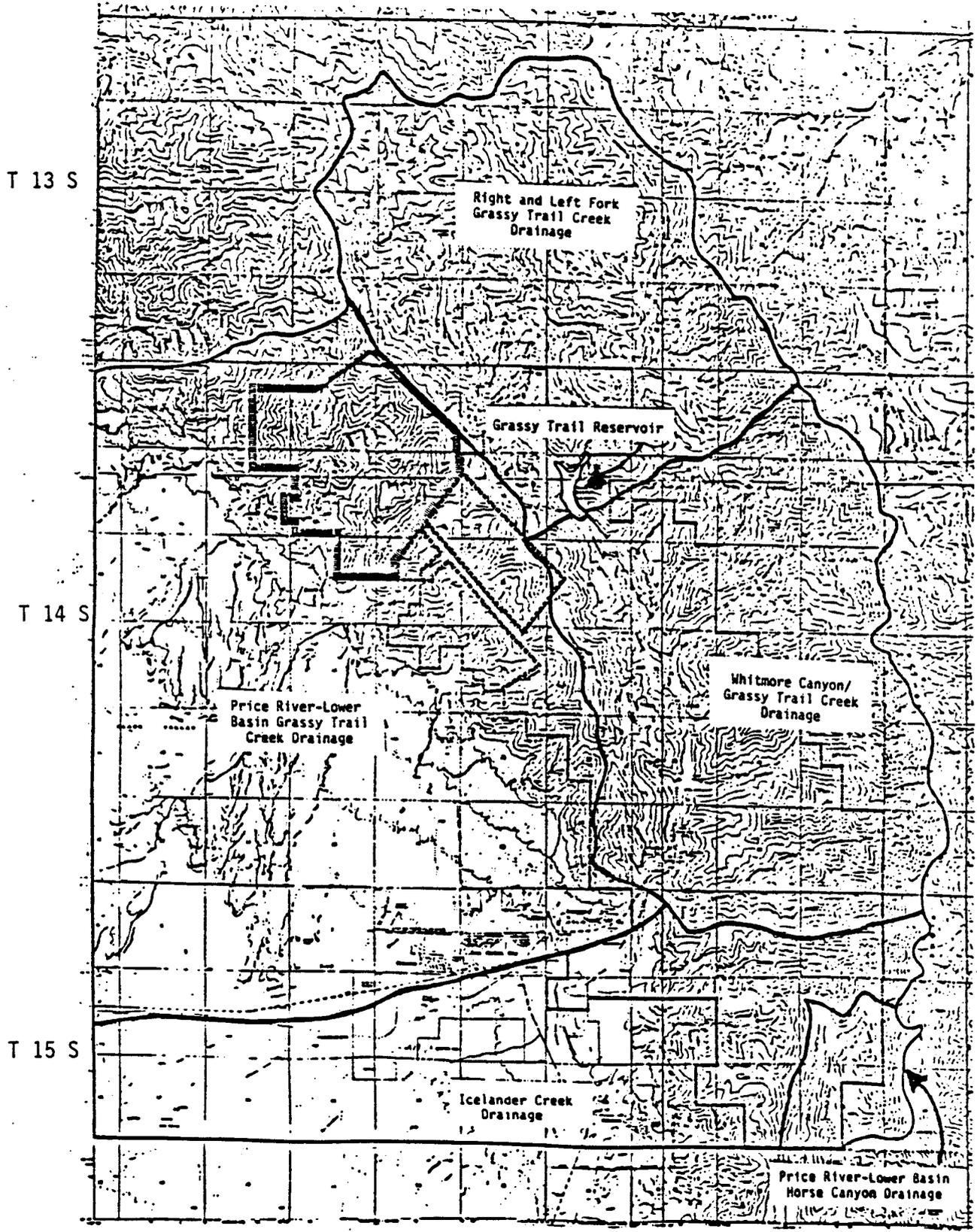
Mining will be confined to areas beneath and adjacent to West Ridge. A subsidence barrier has been established to protect Grassy Trail Reservoir and Right and Left Fork Grassy Trail Creek. Excepting the reservoir, surface disturbance is limited to preexisting Class III access roads located along the Right Fork and Left Fork of Whitmore Canyon.

Whitmore Canyon

Grassy Trail Creek, from the permit boundary to the reservoir, is characterized by a low gradient (three to four percent), a relatively broad canyon (30 to 100 yards wide) and a bedrock streambed that is sporadically overlain by boulders, gravel, sand and mud. Grassy Trail Reservoir impounds upper Grassy Trail Creek flow and thus, has reduced the flooding potential associated with thunderstorm events. Flow records since 1979 for Grassy Trail Creek below the reservoir have ranged from 10 cfs to 100 cfs.

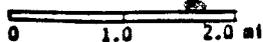
Slaughter Canyon, Number Two Canyon, Pasture Canyon, Pole Canyon, Bear Canyon and Water Canyon are tributaries to Grassy Trail Creek. These secondary drainages are characterized by steep gradients (greater than 25 percent), narrow canyons and gravel streambeds with sand and silt where gradients are reduced. Tributary flow is intermittent and in response to precipitation events.

Mining has occurred beneath most of Grassy Trail Creek and portions of the six tributaries. During the first five year permit term mining will extend northeast to encompass additional areas beneath Grassy Trail Creek, Number Two Canyon (Left Fork), Bear Canyon and Water Canyon. Future mine development will continue to the north and northeast and progressively encompass additional areas beneath Grassy Trail Creek and the five tributaries entering from the east.



— Drainage Area Boundary

Figure 5. Surface Water Drainage Area.



Most of the mining related surface disturbance is located along Grassy Trail Creek and includes the office and shop complex, loadout and preparation plant facilities, shafts, power substations and a variety of access and haul roads.

Price River-Lower Basin Grassy Trail Creek

The area west of West Ridge is characterized by low gradient (3 to 4 percent), ephemeral drainages with headwaters in short, steep gradient (greater than 20 percent) canyons.

Mining has occurred beneath West Ridge from Slaughter Canyon to Right Fork A Canyon and will encompass additional areas beneath West Ridge as mining extends towards the north into the B Canyon and C Canyon permit areas.

Surface disturbance is limited to ventilation portals in Fan Canyon and B Canyon and Class III access roads. Future disturbance will include a two tiered pad for coal loadout in C Canyon and a Class I haul road from C Canyon to State Highway 123. The haul road and highway will intersect approximately four miles west of East Carbon City.

Icelander Creek

Icelander Creek originates in Water Canyon and Fan Canyon south of the mine complex and is characterized by low (3 to 4 percent) to moderate (10 percent) gradients that traverse alluvial fan deposits and outcropping Mancos Shale. Springs associated with alluvial fan deposits and the Coarse Refuse Area contribute flow to Icelander Creek. Approximately four miles below the Coarse Refuse Area, stream flow infiltrates into underlying sediments and Icelander Creek becomes dry.

Mining has occurred beneath Water Canyon and Fan Canyon and, in the future, will occur beneath the upper portion of Water Canyon. Surface disturbance is confined to the Coarse Refuse Area, ventilation portals in Water Canyon and Fan Canyon and Class III access roads.

Price River-Lower Basin Horse Canyon

A limited portion of the Horse Canyon drainage occurs within the CIA (Figure 5). The area is characterized by relatively steep gradients and intermittent flow.

Mining has occurred beneath most of the area and will occur in a small portion of the No. 2 Mine (12th Right Panel) during the first five year permit term. Surface disturbance related to mining has not occurred and will not occur in the Horse Canyon drainage area.

C. Alluvial Valley Floors

Grassy Trail Creek, from the mouth of Straight Canyon to 110°W longitude, has been determined to be an Alluvial Valley Floor (AVF). The positive determination was based on the presence of unconsolidated streamlaid deposits holding streams and sufficient water to support agricultural activities as evidenced by the existence of flood (and sprinkler) irrigation or its historical use. Approximately 1,100 acres either are or have been irrigated.

The designated AVF is adjacent to the permit area and located within the dissected portions of alluvial fan deposits that characterize the eastern portion of the CIA.

The majority of mine discharge (740 gpm) is directed to Grassy Trail Creek and irrigation systems located along the creek. Over half of the acreage reported in alfalfa is irrigated with mine discharge.

VI. Potential Hydrologic Impacts

A. Ground Water

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

Dewatering. The volume of water being discharged from the No. 3 Mine and No. 1 Mine (740 gpm) approximates the amount of water that is currently being withdrawn from the ground-water system. The withdrawal value may be compared to an estimated value for recharge within the CIA and thereby, allow an assessment of dewatering impacts.

Approximately 33,000 acres of the total area within the CIA are above 7,500 feet where average annual precipitation is approximately 20 inches (Figure 6). Topography above 7,500 feet is less steep than the canyon areas below and outcropping rocks include the relatively permeable lithologies within the undifferentiated North Horn/Flagstaff formation, Colton Formation, Green River Formation and Quaternary deposits.

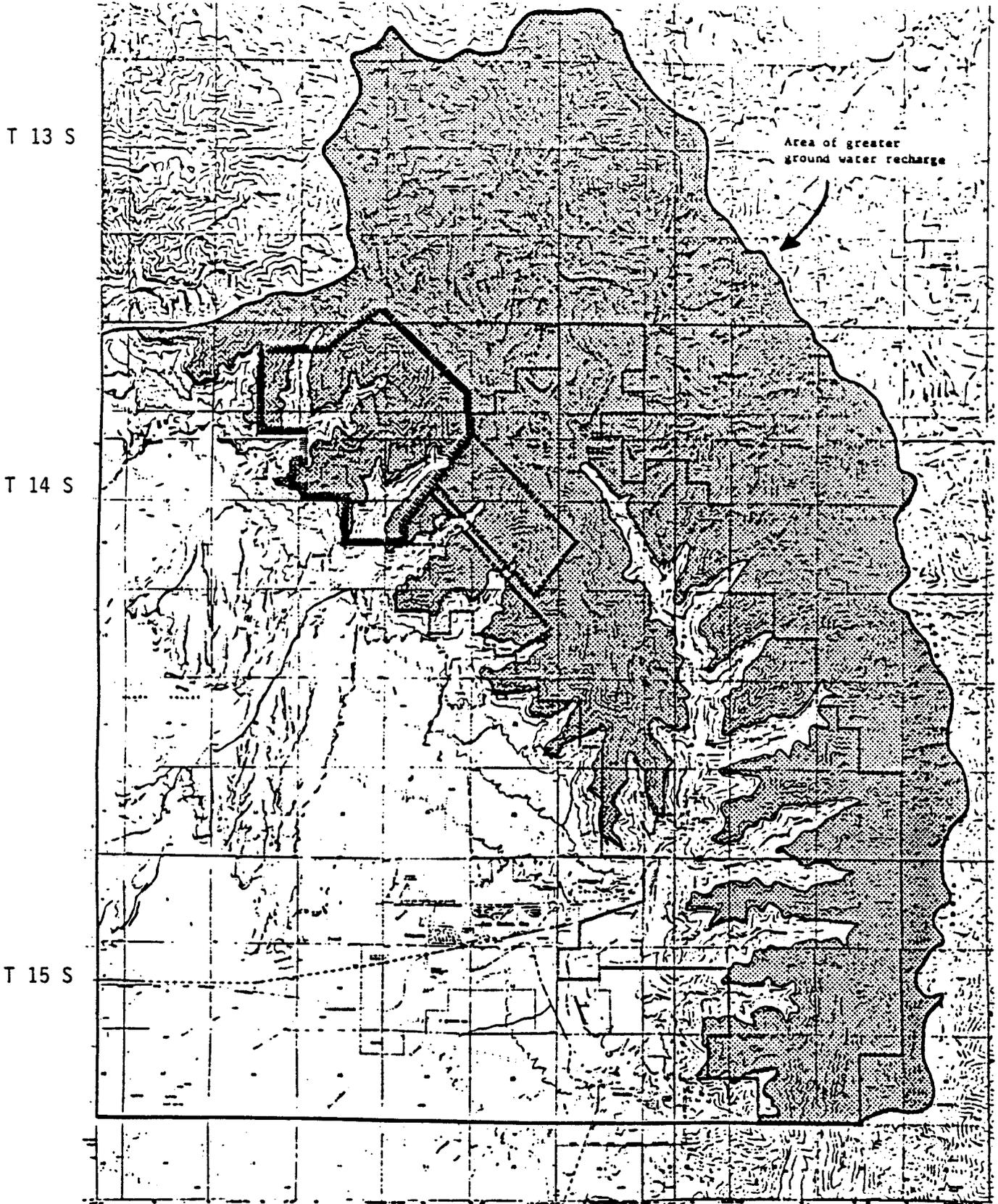


Figure 6. Area of Relatively Greater Recharge (above 7,500 feet).

0 1.0 2.0 mi

Recharge has been estimated to be 3 to 8 percent (Danielson and Sylla 1983), 9 percent (Waddell et al 1983) and 12 percent (Simons, Li & Associates 1984) of the average annual precipitation for areas in the Wasatch Plateau and Book Cliffs coal fields. The recharge rate for areas above 7,500 feet may be derived as shown below.

$$\frac{(\text{percent recharge}) \times (\text{average annual precipitation}) \times (\text{area})}{\text{time}} = \text{recharge rate}$$

Calculations using estimated recharge values of 4, 8 and 12 percent of the average annual precipitation above 7,500 feet give recharge rates of 1,360 gpm, 2,720 gpm and 4,080 gpm, respectively. A comparison of the rate of current mine discharge (740 gpm) to the range of calculated rates of recharge (1,360-4,080 gpm) indicates approximately 20 to 50 percent of the recharge is currently being intercepted by mine operations. If the rate of mine discharge is less than the rate of recharge, then the water being accessed by mine operations constitutes flow through the system rather than depletion of ground-water storage within the system. Hence, the current dewatering associated with Sunnyside operations is considered to not significantly impact piezometric surfaces within the CIA.

Mining during the first five-year permit term will encompass approximately 385 acres. It is not anticipated that the rate of discharge will exceed the recharge rate during this permit term. However, as mine operations expand in the future to encompass the proposed B Canyon (1,910 acres) and C Canyon (2,650 acres) permit areas and additional areas in the No. 1 Mine, No. 2 Mine and No. 3 Mine (1,450 acres), an increase in discharge is anticipated. At present, data are not available to precisely document increases in mine discharge. An estimate of discharge increase may be derived by multiplying the discharge per acre of present mine workings times the projected area of mine workings as shown below.

$$\frac{\text{present discharge rate}}{\text{present area of workings}} \times \text{projected area of workings} = \text{estimated discharge increase}$$

The above calculation indicates discharge will approach the value for recharge as the mine workings encompass an additional 4,000 acres in approximately 20-30 years. As discharge increases and surpasses values for recharge, certain spring flow and base flow recharge to streams may gradually decrease until ground-water storage begins to be depleted. Conceivably, depletion may continue (at increasing rates) until spring flow and/or base flow recharge to streams ceases. Figure 7 depicts potential long-term mining impacts to the ground-water regime.

Lithologic Key

Qd - Quaternary deposits Tc - Colton Formation TKnf - Undifferentiated North Horn/Flagstaff formation
 Kp - Price River Formation Kc - Castlegate Sandstone Kb - Blackhawk Formation Km - Mancos Formation

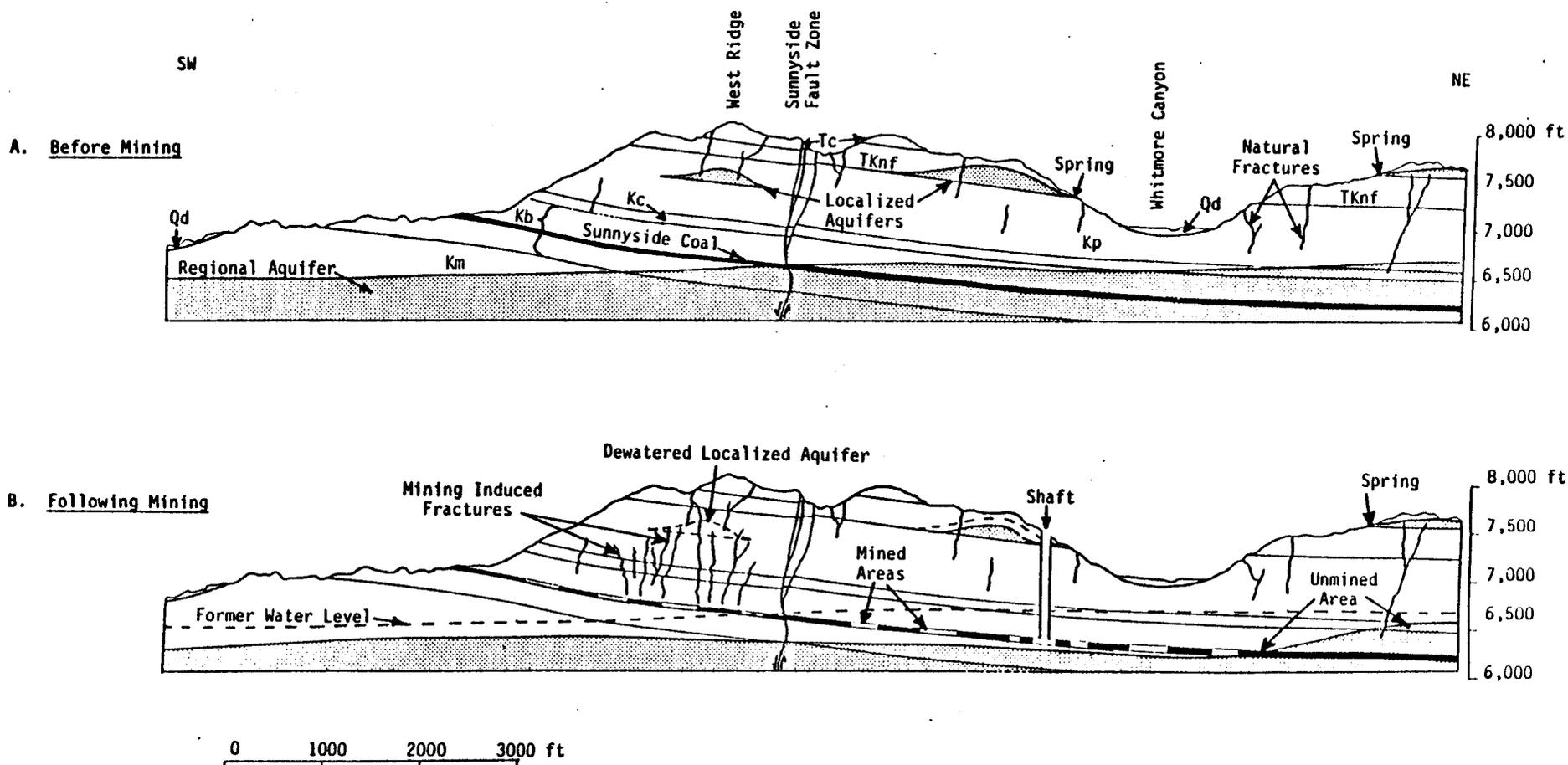


Figure 7. Conceptual Representation of the Potential Long-Term Mining Impacts to the Ground-Water Regime (modified from Osterwald 1981 and Lines et al 1984).

Upon termination of mining operations, ground-water discharge to Grassy Trail Creek will be discontinued and the mine will begin to flood. The potential reduction in surface flow that is associated with the cessation of operations may be evaluated in terms of the lag time required for reestablishment of base flow recharge.

The impact associated with the reduction in surface flow is considered temporary. Mine flooding will conceivably reestablish a system of base flow recharge that was operational prior to mining. The time span required for reestablishing base flow recharge may be estimated by dividing the final mine workings volume by the final estimated values for mine discharge.

$$\frac{\text{final volume of mine workings}}{\text{final rate of mine discharge}} = \text{flooding time}$$

The maximum lag time for mine flooding may be derived by assuming the workings will remain open (average five foot height) and caving will not occur. Accordingly, for the Sunnyside Mines, the computation provides an upper limit of 26 years for complete mine flooding. It should be noted that complete flooding will, undoubtedly, never be achieved because the hydraulic head generated as flooding expands will also increase until the hydraulic properties of the roof, floor and rib are exceeded and flow through the rocks is initiated.

The proposed ground-water monitoring program for the Sunnyside Mines will, in the future, allow increasing discharge rates to be more precisely characterized and thereby, achieve a more accurate assessment of mining related dewatering impacts.

Subsidence. Subsidence impacts are largely related to extension and expansion of the existing fracture system and upward propagation of new fractures. Inasmuch as vertical and lateral migration of water appears to be partially controlled by fracture conduits, readjustment or realignment in the conduit system will inevitably produce changes in the configuration of ground-water flow. Potential changes include increased flow rates along fractures that have "opened" and diverting flow along new fractures or within permeable lithologies. Subsurface flow diversion may cause the depletion of water in certain localized aquifers and potential loss of flow to springs that will be undermined (three total). Increased flow rates along fractures would reduce ground-water residence time and potentially improve water quality.

A maximum value of 1.5 feet of surface subsidence has been recorded over the 18th Left Inside Panel, No. 1 Mine (6,000 feet x 600 feet) beneath approximately 1,000 feet of overburden. The presence of the Castlegate Sandstone in conjunction with overburden thickness (approximately 1,000 feet) is apparently responsible for reduced surface subsidence. Additional mining during the five-year permit term will occur beneath 1,500-2,000 feet of overburden. Consequently, the potential for subsidence related surface impacts (e.g., ponding) to the subsurface and surface hydrologic regimes are not considered significant.

B. Surface Water

Grassy Trail Creek

The concentration of total dissolved solids (TDS) increase from 250-451 mg/l above to 1,250-2,000 mg/l below the Sunnyside Mines (Waddell 1981). The TDS value for mine water discharge is 1,600 mg/l. Moreover, above the mines, calcium, magnesium and bicarbonate are the predominant ions and below the mines sodium, bicarbonate and sulfate are dominant (Waddell 1981). These increases are attributed to the addition of mine water discharge which is similar to ground water that has been mineralized through contact with the Mancos Shale.

The mine water from the Sunnyside Mines supplies 1,473 tons of dissolved solids per year to Grassy Trail Creek based on an average mine water discharge for the years 1978-1984. The Price River at Woodside carries 291,620 tons of dissolved solids per year based on an average discharge per year (USGS Water Data Reports 1979-83). It is important to mention that the water in Grassy Trail Creek is used for irrigation and based on this assumption, the salt entering the Price River from mine water is less than the 1,473 tons given above due to loss of water for irrigation in the Sunnyside area. Infiltration and evaporation from irrigation also influences the amount of water and ultimately salt content eventually discharging to the Price River.

The average concentration of TDS in mg/l for mine water from the Sunnyside Mines is 1,600 (Sunnyside MRP). The water in Grassy Trail above the mine averages approximately 300-500 mg/l TDS. The average concentration of TDS for Grassy Trail Creek for the combination of mine water and creek water from above the mine varies from 300 mg/l to 1,800 mg/l depending on the flow and season (personal communication, Doug Pearce, Sunnyside Mine). The Utah Department of Health's standard for TDS for the Sunnyside Mines is 2,200 mg/l for industrial uses and 1,200 mg/l for agricultural uses. The mine water meets the industrial (Class 5) numerical standard for protection of the beneficial uses of water, but on occasion will exceed the agricultural standard.

It should be pointed out that without mine water, none or little irrigation water would be available to the downstream users. Even though the creek water is marginal quality for irrigation, the quantity makes irrigation feasible in the Sunnyside area. As well as providing irrigation water, Grassy Trail Creek supplemented by mine water supports a put-and-take fishery (Section 10.3.2.1, page 5, MRP).

Wingate (1981) identified the following impacts to Grassy Trail Creek. "(1) Grassy Trail Reservoir has altered the stream's natural flow regime, (2) mine discharge waters have resulted in considerable changes in water quality of the lower stream section and (3) use of coarse refuse coal mine waste materials as road bed fill appears to contribute to aquatic resource deterioration."

Mine water is presently directed to sediment ponds and then released to Grassy Trail Creek at NPDES discharge points #001 and #002. The treatment associated with these ponds improves suspended solids and oil and grease parameter values, but overall total dissolved solids (TDS) values remain in the range of 1,600 mg/l below the #002 discharge point. The #001 mine water pond was installed during 1985 and the #002 mine water pond was installed during 1981. Future impacts from surface facilities and mine water discharge are not anticipated to increase from present levels. The quantity of mine water may increase, causing increased TDS levels downstream and suspended solid values will decrease as sediment controls are implemented in problem areas.

Icelander Drainage. The coarse refuse disposal area, the 004 discharge point (includes discharge from the Clear Water Pond), Water Canyon and Fan Canyon all drain to Icelander Creek.

Impacts in terms of surface water degradation have occurred at the #004 NPDES discharge point and Coarse Refuse Area spring. The #004 discharge data indicate total suspended solids (TSS) values in the range of 1,400 ppm and oil and grease values in the range of less than 1 to 45 mg/l. The values for oil and grease since October of 1982 have been within acceptable limits, therefore, future impacts related to oil and grease contaminants are not anticipated. Icelander Drainage is also affected by water from the Coarse Refuse Spring. Decomposition of the old coal refuse and chemical interactions that occur between ground water and the refuse cause a temperature of 28°C and a TDS value of approximately 5,000 mg/l at the Coarse Refuse Area spring. Total Iron has been recorded as high as 8.10 mg/l at the spring.

Kaiser Coal Corporation has proposed to mitigate future impacts by (1) determining the source of the Coarse Refuse Spring and attempting to intercept the flow before it contacts the refuse material or (2) implementing a more effective means of treating the

discharge. Sediment controls are currently in place, so future impacts associated with suspended solids are not anticipated to increase but may potentially decrease as problem areas are identified and treated.

Water Canyon and Fan Canyon empty into the Icelander Drainage after they combine to form Water Canyon. The #005 NPDES mine water discharge point is located in Water Canyon. The discharge pipe is currently buried under sediment in the stream channel and is not presently used. The last discharge from the #2 Mine was February 24, 1982. Water Canyon and Fan Canyon have sediment controls in place and only flow in response to major rainfall events. Mine water discharged from the #005 point does not reach Water Canyon due to infiltration along the stream bottom and the quantity of mine water discharge (Doug Pearce, personal communication, May 1985). Thus, future impacts are not anticipated.

Price River-Lower Basin Grassy Trail Creek

Surface disturbance west of West Ridge will be confined to future C Canyon development. Sediment control measures for both the loadout facility and haul road will be implemented in association with the permit approval process to minimize hydrologic impacts.

C. Alluvial Valley Floors

The Utah Supreme Court review of Joseph R. Sharp vs. George C. Whitmore (Decree #3028) indicated the premining flow regime for Grassy Trail Creek was intermittent during most years. Since the addition of mine discharge and construction of Grassy Trail reservoir, flow has been exclusively perennial.

At present, mine discharge accounts for 23 percent of the average annual flow in Grassy Trail Creek. Accordingly, this proportion would decrease during spring runoff and increase during periods of low flow in the late summer and fall.

Agricultural activities associated with the designated AVF currently benefit from the additional surface flow generated by mining activities. It is anticipated that this relationship will continue until the cessation of mining. At that time, discharge pumping will be discontinued and surface flow will be reduced. As indicated earlier, mine flooding will begin and continue until flow through the rocks is initiated. Conceivably, a ground-water regime similar to that which existed prior to mining will eventually reestablish.

VII. Summary

The probable hydrologic impacts are summarized below under the headings entitled First Five Year Permit Term and Future Mining.

First Five Year Permit Term

The rate of dewatering will remain significantly less than the estimated recharge rate during the first five year permit term. Moreover, overburden thickness will be sufficient (1,500-2,000 feet) to restrict surface manifestations of subsidence. The subsurface propagation of fractures may produce changes in ground-water flow that could affect localized aquifers and springs. Future monitoring will provide data applicable to documenting changes in the ground-water system.

Surface disturbance and the addition of mine water have degraded water quality in Grassy Trail Creek and Iceland Creek. Sediment control measures have served to reduce contaminants and stabilize water quality at acceptable levels.

The AVF will be positively impacted during the first five year permit term by additional flow from increased mine water discharge.

Future Mining

Increased rates of dewatering may, in the future, result in depletion of ground-water storage. Depletion of storage may terminate certain spring flow and base flow recharge to streams. Upon cessation of mining, mine water discharge to Grassy Trail Creek will be discontinued. However, this affect is considered temporary because mine flooding will probably result in reestablishment of the preexisting ground-water system that, most likely, provided base flow recharge to Grassy Trail Creek.

Drainage from future surface disturbance will be managed through appropriate sediment controls. Future mine discharge will be directed through existing sediment ponds.

At the termination of mining, the AVF will experience decreased flow. The duration and extent of this impact cannot be accurately assessed at this time. However, flow rates may be partially to fully restored when the ground-water system is reestablished.

The operational design proposed for the Sunnyside Mines is herein determined to be consistent with preventing damage to the hydrologic balance outside the mine plan area.

REFERENCES

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FINAL TECHNICAL ANALYSIS

Kaiser Coal Corporation
Sunnyside Mines
ACT/007/007, Carbon County, Utah

November 7, 1985

Introduction

The Sunnyside Mines project is proposed by the Kaiser Coal Corporation (KCC) of Colorado Springs, Colorado. The project is located 120 miles southeast of Salt Lake City in the Book Cliffs Coal Field. The permit area encompasses 14,300 acres and includes Whitmore Canyon.

Underground mining in the permit area began in the late 1890's and has continued to the present. The expected life of mine is approximately 25 years. Most of the land in the permit area is owned by KCC, the remaining being Bureau of Land Management (BLM) or privately owned land.

Both the Upper and Lower Sunnyside seams are mined. Mine workings during the 80 year operation have advanced over an area approximately 6-1/2 by 2-1/2 miles. Presently, 65 to 80 percent of the coal is produced by longwall mining methods. The remaining production will be from continuous miner room and pillar methods.

About 55 million tons of coal have been produced in the past, and projected production ranges from .8 to 1.0 million tons of coal per year during this permit period. Coal is washed at a preparation plant, conveyed to stockpiles and transported out by unit trains of the Denver & Rio Grande Western Railroad. Coarse refuse is trucked to the disposal area while fine refuse is slurried to slurry ponds for disposal and recovery of water.

At the conclusion of mining, anticipated to be 25 years from now, surface structures will be removed, the disturbed land surface will be recontoured and revegetated. Some roads are proposed to be left for access to grazing and recreational purposes.

Existing Environment

Sandstone cliffs and colluvial slopes dominate the landscape of the mining area. Vegetation communities include sagebrush-grass, mountain brush, riparian, Douglas fir and aspen.

No threatened or endangered species have been found in the permit area.

The permit area lies within the Book Cliffs along the northern extent of the San Rafael Swell. The Book Cliffs form a south-facing escarpment and constitute the boundary between the Canyonlands and Uinta Basin section of the Colorado Plateau Physiographic Province.

Grassy Trail Creek generally flows year round except for periods of extremely low precipitation. The other creeks in the permit area are intermittent.

Floral communities within the permit area which have been previously disturbed include: (1) mountain brush; (2) pinyon-juniper; (3) pinyon-juniper/grass; (4) riparian; and, (5) sagebrush/grass. No threatened or endangered plants are known to exist within the permit area. One plant, Hedysarum occidentale canone, classified as a category one species by the Utah Native Plant Society, was found in a side canyon of the permit area; however, it is removed from potential disturbance.

The predominant land use is grazing, although mining has occurred since 1898. The land is also used for recreation and as wildlife habitat. By 1979, there were approximately 50 miles of underground tunnels covering an area of 15 square miles. Postmining land use will be a return to premining uses. In addition, no prime farmlands have been found within the permit area.

Historical Permitting Sequence

An application for a mining permit was received by the Utah Division of Oil, Gas and Mining (DOGGM) in March 1981. An Apparent Completeness Review (ACR) was sent to the applicant on June 21, 1983. KCC responded to the review with a supplemental submission to the application dated September 21, 1983. A Determination of Completeness (DOC) and Technical Deficiencies (TD) report was sent to KCC on October 17, 1983. KCC responded to the DOC by submitting additional material or replacement material for the ACR Supplement Submission to DOGGM on November 17, 1983.

The Mining and Reclamation Plan (MRP) was determined complete on November 22, 1983. The Draft Technical Analysis (TA) was sent to the Office of Surface Mining (OSM) and KCC on January 31, 1984. It contained additional stipulations. Responses to the stipulations were received on March 6, 1984 and April 19, 1984 and a consolidated MRP was submitted on May 21, 1984. A draft Final TA was compiled by a contractor and sent to the Division on July 26, 1984. A review of the draft Final TA by the Division identified several additional deficiencies. Requests for additional information were sent to KCC on August 15, 1984 and November 5, 1984. A response was received on December 3, 1984. Additional deficiencies were identified in a letter to KCC dated January 15, 1985. Kaiser responded to these deficiencies on March 1, 1985.

Ownership of the Kaiser Steel Corporation changed to a new corporate entity of Kaiser Coal Corporation. Form 10K was filed with the Securities and Exchange Commission denoting this change on April 15, 1985. A second draft TA was compiled and routed to OSM and Kaiser on May 21, 1985. Numerous deficiencies identified in the stipulations were noted. On June 12, 1985, Kaiser Coal responded to the Draft TA deficiencies. The OSM apprised the Division by letter dated June 18, 1985 of items that were stipulated in the Draft TA that must be completed prior to permit approval. By letter of June 27, 1985, the Division apprised Kaiser Coal of the OSM concerns. On July 18, 1985, the Division transmitted a letter to Kaiser outlining deficiencies in the June 12 response submitted by Kaiser.

Starting on July 3 and running for four consecutive weeks, ending July 24, 1985, the applicant published notice in the Sun Advocate newspaper pursuant to the requirements of UMC 786.11 (this was necessitated by the change in ownership to Kaiser Coal Corporation).

Kaiser submitted responses to deficiencies identified in the June 27, 1985 and July 18 letters from the Division on July 26, August 9, September 3, September 25 and October 7, 1985.

UMC 785.19 Alluvial Valley Floors - JW

Existing Environment and Applicant's Proposal

The applicant's description of potential alluvial valley floors (AVFs) is contained in Section 7.3 and on Plate III-29 of the MRP. Grassy Trail Creek is the only potential AVF on the permit area. The lower portion of this creek as it reaches the mouth of Whitmore Canyon does support farming activities in the form of alfalfa and improved grass pasture areas.

Compliance

The Division has determined based on information provided in the MRP that Grassy Trail Creek from approximately five miles east of East Carbon City to the confluence of Grassy Trail Creek with Slaughter Canyon to be an AVF. This finding is based on the following:

1. the area thus designated an AVF is within and adjacent to the permit area;
2. unconsolidated streamlaid deposits holding the stream are present;
3. there is sufficient water to support agricultural activities as evidenced by the existence of flood irrigation.

Based on information provided in Chapter 7 of the MRP, the essential functions of the AVF in question are limited to surface water. The present day stream channel has cut 10 to 25 feet below the farmland. There are no subirrigated farmlands present.

Plate III-29 illustrates the extent of current and historical farming. The MRP notes that much of the farmland shown on Plate III-29 has been abandoned due to lack of water (page 22, Chapter 7, MRP).

The current amount of mine water discharged to Grassy Trail Creek is approximately 1,200 ac/ft per year (page 9, Chapter III, MRP). Over half of the acreage reported in alfalfa is irrigated with mine water. In addition, a significant portion (up to 23 percent) of the flow in Grassy Trail Creek is composed of mine water. If these values are correct, mine closure will result at least initially in a substantial reduction in flow of Grassy Trail Creek. Since the AVF will not be mined through or under, reduction in flow will be the only potential impact.

The applicant has researched historical records to determine the premining flow regime of Grassy Trail Creek. Based on the Supreme Court of Utah review of the Joseph R. Sharp vs. George C. Whitmore (Decree #3028) Grassy Trail Creek frequently dried up during the majority of years (Response to Technical Deficiencies received March 1, 1985).

Cessation of mining activities will, in effect, return Grassy Trail Creek to a hydrologic regime more typical of premining conditions. Historical court records indicate that very limited irrigated farming activities existed prior to the initiation of mining. Moreover, water supplies were previously piped in from Range Creek over Patmos Ridge to the Sunnyside Mines (page 17, Chapter 7, MRP). It is only since the construction of Grassy Trail Reservoir and the addition of mine water that perennial flow has been established in Grassy Trail Creek.

The Division thus makes the finding pursuant to UMC 785.19(c)(3) that the proposed operation will include neither the extraction of coal nor will significant physical disturbance of the surface or ground water regime associated with the AVF occur and that mining activities actually enhance farming activities on the AVF.

The Division thus waives the requirements of UMC 785.19(d) and (e) and UMC 822 which deal with additional technical information, findings, and performance standards required of operations affecting designated alluvial valley floors.

Stipulations

None.

UMC 817.11 Signs and Markers - SC

Existing Environment and Applicant's Proposal

Signs and markers required by the regulations are posted, maintained and will be removed by the operator at the termination of the bond. The signs are of uniform design, can easily be seen and read, and are made of plastic or steel (Section 3.3.5.1).

Identification signs showing the name, business address, and telephone number of the person who conducts underground coal mining activities and the identification number of the current regulatory program permit authorizing underground coal mining activities are posted at each point of access from public roads to areas of surface operations and facilities on permit areas for underground coal mining activities. Plate III-26 shows the location of identification signs.

Permit markers are posted and clearly show the perimeter of all areas affected by surface operations or facilities. The markers are 4 ft X 5/8 inch diameter steel roof bolts or four foot metal fence posts painted blaze orange. Plates III-20 through III-23 show the perimeter of the disturbed areas that the markers denote (Section 3.3.5.1).

Stream buffer zones markers are posted and clearly show the buffer zone along Grassy Trail Creek. Plate III-26 shows the location of buffer zone signs (Section 3.3.5.1).

Blasting signs will be posted prior to blasting at all entrances to areas of the surface operations and facilities in the permit area, from public roads or highways. The signs will say "Warning: Explosives in Use." The immediate areas of blasting activities will be flagged or posted with signs that say "Danger: Blasting Area" (Section 3.3.5.1).

Topsoil stockpile signs will be posted and maintained on all topsoil stockpiles. The signs will say "Topsoil Stockpile, Do Not Disturb" (Section 3.3.5.1).

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.13-.15 Casing and Sealing of Exposed Underground Openings -
RVS

Existing Environment and Applicant's Proposal

The applicant has committed to sealing all portal entries and shaft openings during final abandonment (MRP, Section 3.5.3.1). Seals will be located a minimum of 25 feet from the entryway, recessed into the rib and constructed in a single wall thickness with a "noncombustible material such as concrete blocks, bricks or tile" (MRP, Section 3.5.3.1, page 50 and Plate III-18). Pilasters will be located in the central portion of the seals and water and gas check pipes (two inch diameter) with valves will be installed at the bottom and top of the seals, respectively. Valves will be enclosed by a locked box at the surface (Plate III-18). Concrete structures located between the entryway and seal and concrete surface structures will be demolished and placed inside the entry against the seal. The remaining space will be backfilled with incombustible material. Shafts will be permanently sealed by placing a steel plate across the surface opening and covering the plate with a six inch thick concrete shaft cap (MRP, Section 3.5.3.1 and Plate III-18). Permanent shaft seals will incorporate vent pipes (two inch diameter) extending a minimum of 15 feet above the seal surface. Table III-42 gives a time framework of approximately three weeks for permanent sealing of mine portals and shafts.

The applicant has committed to following the U. S. Geological Survey (USGS) Stipulations Covering Surface Drilling Program for final borehole abandonment (MRP, Section 3.5.3.1 and Table III-4).

Temporary sealing of portal entries, shafts and boreholes is discussed under Section 3.3.5.2 of the MRP. Access to temporarily inactive portal entries will be denied by installing fencing. Signs will be posted warning unauthorized persons that entry into the portal is prohibited. Shafts will also be fenced and boreholes used for ground-water monitoring will be temporarily sealed with a metal cap.

Compliance

The applicant has provided adequate plans for posting signs and limiting access to temporarily inactive mine entries, shafts and boreholes. The applicant is in compliance with UMC 817.14.

The applicant's proposals for permanently sealing boreholes and shafts adequately address the requirements of UMC 817.13 and 817.15 by preventing access to mine workings and precluding toxic drainage from entering surface or ground waters.

Stipulations

None.

UMC 817.21-.25 Topsoil - EH

Existing Environment and Applicant's Proposal

An Order 3 soil survey was completed for the permit area and additional information was developed through a limited on-site study by the Soil Conservation Service (SCS) in 1980 (Chapter VIII, Volume 7 of the MRP). Additional soil sampling was conducted on the surface facilities in 1983 (Chapter VIII, Table VIII-5, of the MRP).

The majority of the soils on the proposed permit area are mollisols, though entisols are common on benches, canyon rims and side slopes. Alfisols, aridisols and entisols are represented by one soil series each. Soils are typically well drained and moderately permeable. The majority of soils formed in residuum and/or colluvium derived from sandstone, siltstone and shale. Depth to bedrock varies widely from shallow to very deep. Soils are typically calcareous and alkaline throughout all or a majority of the soil profile. Moderately to strongly calcareous and mildly to strongly alkaline horizons are common. One series exhibits a slightly acid profile. Coarse fragments in the form of gravels and stones are found in most soil horizons. Coarse fragment contents of the control sections can be as high as 35 to 60 percent (Chapter VIII, Volume 7 of the MRP).

The Sunnyside Mine was in operation before Public Law 95-87 was enacted and the removal and storage of topsoil for reclamation required. Therefore, the majority of the 287 acres of disturbance did not have topsoil stripped and stockpiled. Although, during the construction of additional sedimentation ponds and vegetative test plot sites soil material was removed and stockpiled. Approximately 14,296 yd³ of soil has been stockpiled in five different locations (Chapter 3, page 48) and will not be disturbed until their use at reclamation. In order to meet reclamation requirements, the applicant has proposed to use the in-place fill soil material as a topsoil substitute for all areas except the coal seams, coarse refuse and slurry material (Chapter 3, page 46).

Soil samples of this in-place material have been taken and the results of chemical and physical analyses presented in Table VIII-5.

The operator has committed to cover the coal refuse and portal areas with four feet of nontoxic plant growth medium (page 55, Chapter 3). If the proposed coal refuse test plots indicate that a lesser depth of soil can be used and successfully reclaim the coarse refuse material, then the operator will request a reduction in the four foot depth (page 40, Chapter 3, MRP). The total volume of soil

necessary to cover the areas of coal refuse, slurry and the coal seams in the portal areas is approximately 449,643 yd³. Table III-44 lists a breakdown of each area of reclamation and the volume of soil substitute necessary. Plate III-1 through III-3 outlines the areas 1 through 10 listed in Table III-44.

A large soil borrow area has been located and sampled to a depth of 12 feet, the depth necessary to produce 449,643 yd³ of soil material. Three soil pits on the site were dug and sampled at 12 inch intervals. Results of the analyses are shown in Table 1, Appendix VIII-4.

At the time of reclamation, soil material will be replaced by the use of scrapers, front-end loaders and graders (page 55 and 57, Chapter 3, MRP). Four feet of topsoil substitute material will be placed on the 83 acres of course refuse and portal areas as listed in Table III-44. The topsoil that was removed during the construction of facilities listed on page 48, Chapter 3, will be replaced on the area from which it was removed.

After soil redistribution, the backfilled and regraded areas will be ripped to a depth of 18 to 20 inches. Soil samples of the entire reclaimed area will be taken (approximately three samples per acre) for the purpose of fertilizer recommendation (page 55, Chapter 3, MRP). Fertilizer will be applied at a rate recommended by the interpretation of chemical analyses conducted on these samples.

After the backfilling, grading and fertilization has taken place, the area will be reseeded as per the revegetation plan of the MRP.

Compliance

The analytical data presented in Table VIII-5 and Table 1, Appendix VIII-4, along with the applicant's commitment of further soil testing at time of reclamation places them in compliance with UMC 817.21-.25.

Stipulations

None.

UMC 817.41 Hydrologic Balance: General Requirements - JW, RVS

Existing Environment and Applicant's Proposal

Surface Water - JW

The regional surface water hydrology of the permit area and adjacent lands is described in Section 7.2 and following of the MRP. The permit area is drained primarily by Grassy Trail Creek,

the only perennial stream within the permit area. Several intermittent streams intersect Grassy Trail Creek, primarily from the east, within the mine plan area. The Icelfander drainage collects surface flow from part of the southern section of the permit area. This drainage intersects Grassy Trail Creek 11 miles off the permit area.

The MRP characterizes the baseline water quality and quantity of surface waters in and adjacent to the permit area in Table VII2-A, Table VII-5, Appendix VII-2 and Table III-40. Appendix VII-2 contains flow data for Grassy Trail Creek which was generated from the U. S. Geological Survey (USGS) gaging station 0931430 near the mouth of Whitmore Canyon.

The applicant proposes to minimize changes to the prevailing hydrologic balance both in the mine plan and adjacent areas through the use of a combination of structures. Diversion ditches and culverts are proposed to route undisturbed drainage around or through the disturbed area. A disturbed area ditch collection system routes disturbed drainage to one of nine sediment ponds for treatment. Details of the location and design calculations of surface water control structures are contained in Appendix III-1 and Plate III-5 through III-12 in the MRP.

Other measures proposed to minimize changes to the hydrologic balance involve seeding of reclaimed areas, maintaining roads and berms to prevent erosion and stabilizing disturbed land areas through land shaping (MRP, Section 7.2.5).

Reclamation measures for postmining drainage patterns are discussed briefly in Section 3.5.4 and in specific detail in Appendix III-12.

Compliance

Surface Water - JW

Methods proposed during the operational phase of mining are acceptable practices to minimize changes to the surface hydrologic balance in and adjacent to the permit area. Specific descriptions and analyses of the detail design measures proposed are contained in the following sections (UMC 817.42-.57).

The MRP delineates in adequate detail the reclamation techniques which will be used to establish postmining drainage patterns. Analysis of restoration of ephemeral stream channels is discussed in UMC 817.44

The applicant is in compliance with this section.

Stipulations

None.

Ground Water - RVS

Existing Environment and Applicant's Proposal

The applicant provides information about aquifers, springs and mine inflows in Section 7.1 of the MRP. Supplementary ground-water data are given in Plate III-3, Plate VI-1, Table VII-1, Table VII-5, Appendix VII-2, Appendix VII-3, Plate VII-3, Figure VII-3 and Figure VII-4.

The applicant describes the Kenilworth Member, Sunnyside Member, Upper Mudstone Member, Castlegate Sandstone, Bluecastle Sandstone Member, Colton Formation, Green River Formation and Quaternary deposits as "potential water-bearing strata in and near the mine plan area" (Section 7.1.2, pages 2-5). Moreover, the applicant indicates that additional hydrologic data such as transmissivity (permeability) and porosity are lacking for nearly all of the above stratigraphic units. The applicant commits to deriving further ground-water data from surface and underground boreholes. Plate III-3 shows proposed locations for two surface and three underground boreholes. A generalized piezometric surface is given on Plate VI-1.

Plate VII-3 shows 22 springs and four surface seeps as occurring within and adjacent to the permit area. Springs are used by wildlife and for stock watering. Twenty springs are listed as discharging from Quaternary alluvium associated with the Colton Formation or undifferentiated Flagstaff/North Horn formation (Table VII-5). Two springs are given as discharging from the Green River Formation. Three springs, PC-1, WR-1 and WR-2, occur within the permit area (Plate VII-3). Only the area beneath Spring WR-1 has been mined. Plate II-3 indicates mining will not occur beneath the other two springs during this five year permit term (1984-1989).

Generalized flow data for 10 springs are given in Table VII-5. Two of these springs (WR-1 and WR-2) were also sampled to derive water quality information. Values for iron, manganese, oil and grease, pH, total dissolved solids (TDS), total suspended solids (TSS) and sulfate are listed in Appendix VII-2.

Total mine inflow is shown to be 740 gpm on Figure VII-3. Sources of inflow include mine shafts (245 gpm), boreholes (300 gpm), paleochannels (10 gpm) and gobs, faults and fractures (185 gpm). Flow meters are installed in the No. 1 Mine, B Canyon air return entry and No. 3 Mine to record the volume of discharged mine water. A small portion of mine water is accessed for underground

dust suppression and fire control. Excess water is collected in sumps and discharged to surface irrigation, Grassy Trail Creek and the coal preparation plant.

The applicant provides two sets of data for mine water quality. Table VII-1 gives "overall mine water analyses from December 1976 through December 1980" and reports values for TDS, TSS, acidity, alkalinity, As, Fe, Mn, Se, Ag, oil and grease, and pH. Appendix VII-3 compiles monthly data from two monitoring stations (002 and 004) for 1980 through 1982 according to requirements of the applicant's NPDES permit. These data include values for parameters as given above, with the exception of acidity, alkalinity, As, Se and Ag.

Ground Water

Compliance - RVS

Division technical staff inspected, on January 21-22, 1985, the mine workings to provide the applicant with assistance in developing an expanded underground water monitoring plan. The applicant has committed to an inflow monitoring plan that derives data from the following locations (see Plate III-3):

1. Mine No. 2
 - * 12th right

2. Mine No. 3
 - * (X) Drill Hole 25 - MINED PAST AND AREA HAS COLLAPSED
 - * Water Canyon bleeders
 - * 18th right sump

3. Mine No. 1
 - * Pole Canyon Shaft
 - * (X) 18th left outside
 - * 19th left outside
 - * Twin Shafts
 - * Manshaft
 - * (X) 18th left outside
 - * 18th left inside seal
 - * 19th left inside sump

NO WATER COMING OUT
IT'S FLOWING THROUGH GOB TO 19TH LEFT OUTSIDE
NO WATER COMING OUT

The applicant commits to providing two years of additional water data for the three springs within the mine plan area at monthly intervals between May and October (Section 7.1.6, page 9).

Revised December 2, 1985

Monitoring will encompass the parameters given in Table III-23 and baseline data will be generated and submitted prior to mining beneath Spring PC-1 and Spring WR-2. Monitoring frequency will increase and commence when mining comes within 1,500 feet of the water source (Section 7.1.5, page 10).

The applicant commits to acquiring borehole data to further ascertain the occurrence of water above and below the mine workings. Data derived from the drilling program will be submitted by September 1986 (Section 7.1.6, page 10). Two years of water quality data will be submitted for boreholes that encounter water.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.42 Water Quality Standards and Effluent Limitations - JW

Existing Environment and Applicant's Proposal

During the operational phase of the Kaiser Sunnyside Mine, four different sources of effluent will be generated. These are as follows:

1. disturbed area runoff;
2. slurry water from the coal cleaning process;
3. mine water discharges;
4. water discharged from the coarse refuse toe seep.

Disturbed area runoff will be routed to one of nine sediment ponds located on the permit area. Design calculations for each pond are in Appendix III-1. A detailed analysis of sediment ponds is contained in UMC 817.46 of this TA.

Plate III-33(1-7) notes seven small areas which are equipped for sediment control with silt fences, berms and in one case a rock gabion with a silt fence. These areas are small (.36 to 2.78 acres) and remote from a sediment pond. Natural vegetative filters are being established in most of these areas due to a low level of activity associated with each area.

Slurry water from the coal cleaning process is routed to one of two slurry ponds for treatment then to a clear water pond for additional detention prior to discharge. The clear water pond discharge is NPDES discharge point 004 (Section 3.2.9, MRP). A third area, the east slurry cell, is used as an alternate evaporation pond when both of the regular slurry ponds are full.

Two mine water ponds provide treatment for mine water discharges. Water is pumped from underground sump areas to the ponds. The ponds act to settle out suspended solids and provide for separation of oil and grease via skimmers. Detail designs for the Twinshaft Mine Water Pond (NPDES discharge point 001) are found on Plate III-14. Plate III-15 notes the design detail for the mine water pond at the intersection of Pole Canyon and Whitmore Canyon (hereafter referred to as the Whitmore Canyon fan mine water pond). The discharge from this pond is NPDES discharge point 002.

A seep emanating from the base of the coarse refuse disposal area is treated for total iron content with a loose straw and rock gabion and flocculent (Section 3.2.9, MRP).

Compliance

Sedimentation Pond System

The treatment methods proposed for disturbed area runoff which include sediment ponds, silt fences and a silt fence rock gabion in combination for one small area are acceptable measures and comply with the requirements of this section.

The NPDES permit has recently been modified to cover discharges from the sedimentation ponds (Figure III-8, Environmental Protection Agency [EPA] approval letter of August 2, 1985).

Mine Water

Data contained in the MRP and Division water quality files on the Sunnyside Mine suggest that the discharge system for mine water consistently produces water quality values which are within effluent limitations with the exception of oil and grease.

The applicant's NPDES permit #UT 0022942 has a maximum effluent limit for oil and grease of 10 mg/l. Instances where the NPDES limit for oil and grease has been exceeded in 1980 are evident. However, since 1980, no instances of exceeding the oil and grease limit were observed. Therefore, the applicant is currently in compliance on this issue.

Coarse Refuse Seep

In 1982, a seep was observed by Division staff emanating from the toe of the coarse refuse disposal area. Subsequent sampling revealed total iron values which were in excess of the effluent limitations (7.0 mg/l maximum and 3.5 mg/l for an average of daily values). In addition, high sulfate and total dissolved solid values ranging from approximately 1,200 to 3,000 mg/l and 4,400 to 5,700 mg/l, respectively are present.

Near the location of the coarse refuse seep what appears to be a natural seep occurs. Sample data from January 5, 1983 show higher sulfate and TDS values from the natural seep than from the seep at the coarse refuse toe. This suggests that the contact with the Mancos shale which generally occurs in this vicinity is the source of high sulfate and TDS values. Iron values from the natural seep were 0.2 mg/l.

A review of monthly sample data from April 1983 to June 1984 show total iron values at the seep outlet ranging from 11.2 mg/l to 2.68 mg/l. Values of total iron from the seep at the permit boundary (after treatment) ranged from 3.86 mg/l to 0.19 mg/l. One value on May 31, 1984 was 8.10 mg/l, but this was anomalous from the rest of the data and, therefore, was not considered as representative. The data analyzed here suggest that the applicant's treatment method for this seep is adequately meeting effluent requirements. The average value of the data noted above for total iron at the permit boundary, excluding the 8.0 value, is 1.17 mg/l.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.43 Diversions and Conveyance of Overland Flow, Shallow Ground Water Flow and Ephemeral Streams - JW

Existing Environment and Applicant's Proposal

The applicant has proposed a diversion system to intercept and divert runoff from undisturbed areas around and away from disturbed areas. In addition, a disturbed area collection system is proposed to route runoff from disturbed areas to one of the nine sediment ponds. The design details for the undisturbed diversions and disturbed runoff collection system are contained in Appendix III-1 and on Plates III-5 through III-13 in the MRP.

The peak flow methodology described as SCSTR55 was used by the applicant. The method, developed by the Soil Conservation Service, relates time of concentration to peak discharge in cubic feet per second per square mile per inch of runoff.

The time of concentration formula utilized in the MRP calculations is referred to as Kent's formula described in USDA SCS-TP-140 (revised April 1973).

Protection measures for prevention of erosion in disturbed and undisturbed ditches are noted on Plate III-35. The applicant shows velocity calculations for each ditch on the summary of ditch and riprap design calculations near the end of Appendix III-1. Based on velocity calculations for undisturbed diversions, the applicant commits to install protective measures where needed (Section 3.4.3.2, MRP). Plate III-40 depicts outlet protection measures for Culvert C-6 of the Course Refuse Drainage System.

An inspection program for all disturbed area ditches is proposed to assess any erosion problems which may occur. Based on an inspection three times annually, the applicant proposes to install one of the protective measures on Plate III-35 if erosion is evident (Section 3.4.3.2, MRP).

Compliance

The SCSTR55 methodology utilized by the applicant to generate peak flow predictions generally gives higher values than predictions from the Sedimot II and the "PEAK" computer models used by the Division. Utilizing either peak flow prediction, the sizing of ditches and culverts (including road culverts) in the MRP are adequate.

The erosion protection measures proposed on Plate III-35 are acceptable measures to address this problem. One item of concern which must be emphasized is the installation method for fabric liner. The edges of the fabric should be securely buried at least eight inches. This should avoid the problem of the edges being uncovered and eventually causing the fabric installation to wash out (see Stipulation #1).

Division analysis of disturbed and undisturbed ditches verified projected velocities for each ditch. Five ditches indicate projected velocities which will require protection measures as outlined on Plate III-35. These ditches are:

1. Coarse Refuse Toe Ditch (existing)
2. Sunnyside Surface Facilities Ditch D-1 (proposed)
3. West Slurry Cell Ditch #1 (proposed)
4. Sunnyside Surface Facilities Ditch D-4 (existing)
5. Sunnyside Surface Facilities Ditch D-2a (proposed)

The MRP is unclear in designating which ditches will be protected and thus Stipulation #2 identifies the five ditches which require protection.

The inspection program proposed to assess ditch and culvert outlets is a good methodology to maintain compliance. The Division concurs with this procedure.

The rail cut area ditches which drain the coarse refuse pile are routed downslope to the rail cut sediment pond via a concrete culvert system. The outlet velocity from the culvert system is dissipated by a discharge apron of adequately sized riprap stabilized by mortar.

Stipulation 817.43-(1, 2)-JW

1. The applicant shall assure that during construction of outlet protection measures, shown on Plate III-35 of the MRP, that the edges of fabric liner are secured by burying with at least eight inches of soil.
2. The applicant shall, within 180 days of permit approval, install erosion protection measures, outlined on Plate III-35 of the permit application, for the Coarse Refuse Toe Ditch and Sunnyside Surface Facilities Ditch D-4. The applicant shall install erosion protection measures, as outlined on Plate III-35, within 30 days of completion of construction of the West Slurry Cell Ditch #1, Sunnyside Surface Facilities Ditches D-1 and D-2a.

UMC 817.44 Hydrologic Balance: Stream Channel Diversions - JW

Existing Environment and Applicant's Proposal

The applicant does not propose to divert any drainage areas greater than one square mile with the exception of culverts for road crossings. Plate III-28 notes 12 road culverts with drainage areas greater than one mile square. Calculations for each culvert for peak flows from the 10-year and 25-year, 24-hour event are contained in Appendix III-1. Locations of the culverts are shown on Plate III-28.

Plate III-11 shows detail installation measures for culvert RC7-3.

The applicant has included design measures for restoration of ephemeral channels which will cross the reclaimed area upon final reclamation (Appendix III-12). The design incorporates approximation of similar undisturbed drainages in the area.

Compliance

The road culverts with drainage areas greater than one square mile are proposed as permanent culverts (Plate III-28). UMC 817.44(b)(2) requires permanent diversions to pass the 100-year, 24-hour peak runoff.

Using the data inputs in Appendix III-1 for each permanent culvert with a one square mile or larger drainage area the SCS TR55 method and a 100-year, 24-hour storm depth of 2.74 inches (see Richardson 1971 at Price Station) predicted most of the culverts

cannot pass the predicted peak flow. The TR55 methodology used by the applicant produces peak flow predictions which are often exaggerated. Division calculations of 100-year peak runoff values using a unit hydrograph based computer model produced values three to five times smaller than the SCS TR55. The unit hydrograph approach used by the Division in this analysis are felt to be more accurate than the applicant's method. These results indicate that two culverts (RC2-4, RC3-1) cannot adequately pass the 100-year, 24-hour storm.

The Division thus determines that the road culverts with the exception of Culverts RC2-4 and RC3-1 are adequate for permanent use after reclamation. Road culverts RC2-4 and RC3-1 are not approved for permanent use after reclamation.

The applicant's postmining drainage designs (Appendix III-12) for restoration of three ephemeral drainages which will cross the reclaimed area during final reclamation incorporate measures to achieve conditions which approximate premining conditions. Premining data do not exist, thus, comparable channels were utilized to arrive at restored configurations.

The proposal incorporates adequate measures to minimize slope and prevent any potential for headcutting to occur in the restored channels. Based on Division calculations, the #2 Canyon channel will flow at velocities approximating eight feet per second. This velocity necessitates additional stabilization measures. Installation of riprap with a D₅₀ size of 12 inches (EPA 625/3-76-006, October 1978) would provide the stability measures needed for this channel. The calculated velocities for the other two channels are not erosive and thus do not warrant any additional protection measures.

The applicant is in compliance based on the following stipulations.

Stipulation 817.44-(1, 2)-JW

1. The applicant shall not retain culverts shown as RC2-4 and RC3-1 on Plate III-28 of the mine plan as permanent culverts after mining unless these culverts are replaced at the termination of mining with adequately sized culverts as determined and approved by the regulatory authority.
2. The applicant shall install a well-graded riprap with a median size of 12 inches in the #2 Canyon channel in those areas which cross the reclaimed area during final reclamation or utilize other such measures approved by the regulatory authority to achieve a stable postmining channel configuration.

UMC 817.45 Sediment Control Measures - JW

Existing Environment and Applicant's Proposal

In addition to sediment ponds which are discussed under UMC 817.46, the applicant proposes the diverting of undisturbed runoff away from disturbed areas, stabilizing disturbed land through shaping and seeding, regulating channel velocities and maintaining roads and berms (Section 7.2.5, MRP).

Additionally, seven small areas are equipped with sediment control via berms and silt fences. Plate III-34 and Plate III-33 show the installation configuration for silt fences and their proposed locations. Berms and silt fences are utilized as an alternative sediment control measure for small areas of disturbance which are distant from larger active areas.

Erosion protection measures proposed for culvert outlets and ditches are shown on Plate III-35 of the MRP. These measures are discussed under UMC 817.43 and 817.47.

Compliance

The applicant's proposals for sediment control measures for the disturbed areas will result in minimizing to the extent possible additional contributions of sediment to stream flow or to runoff outside the permit area. The methods proposed utilize the best technology currently available to address sediment control. The applicant is in compliance with this section.

Stipulations

None.

UMC 817.46 Hydrologic Balance: Sediment Ponds - JW

Existing Environment and Applicant's Proposal

The MRP describes the sediment ponds proposed for control of runoff from disturbed areas in Section 3.2.9, Appendix III-1 and on Plates III-5 through III-12. Eight sediment ponds have been approved by the Division and constructed by Kaiser. These are as follows:

1. Coarse Refuse Toe Sediment Pond (Plate III-5) (approved March 23, 1983, TM).
2. Railcut Area Sediment Pond (Plate III-6) (approved July 15, 1983, TM).

3. Pasture Sediment Pond (Plate III-7) (approved August 26, 1983, TM).
4. Old Coarse Refuse Road Sediment Pond (Plate III-8) (approved November 15, 1983, TM).
5. Hoist House Area Sediment Pond (Plate III-9) (approved April 26, 1983, TM).
6. #2 Canyon Upper Sediment Pond (Plate III-10) (approved August 26, 1983, TM).
7. #2 Canyon Lower Sediment Pond (Plate III-10) (approved August 26, 1983, TM).
8. Manshaft Area Sediment Pond (Plate III-11) (approved January 9, 1984, JW).

The first four ponds noted discharge into Icelander Drainage. The last four ponds noted discharge into Grassy Trail Creek.

The only remaining sediment pond to be constructed is the Sunnyside Surface Facility Pond. Design calculations for this pond are in Appendix III-1 and on Plate III-12. The applicant has committed to construct this pond within 90 days of permit approval (MRP, Section 3.4.3.2).

The specific operational plan for the sedimentation ponds is described on page 5 of Chapter III. Ponds are designed to contain the 10-year, 24-hour storm event. Water accumulations in ponds are decanted after at least a 24-hour settling time. Water discharged from sediment ponds is to be sampled on an individual basis as the ponds are decanted (Section 3.4.3.3, MRP).

The MRP notes that the maximum sediment level is marked on the vertical standpipe spillway or on a stake. The ponds will be cleaned when sediment accumulations reach the predetermined design levels. Sediment accumulations are to be disposed of in the industrial waste dump or used as borrow material if approved as such by the Division (Section 3.2.9, MRP).

The applicant has committed to quarterly inspection of all ponds to assess structural integrity, erosion, proper function, sediment levels and other hazards. A written record of inspections is to be maintained by the applicant (Section 3.2.9, MRP).

All sediment ponds are scheduled to be removed during final reclamation when no longer needed (page 48, Chapter III; page 19, Chapter VIII).

Compliance

The applicant's design methods accommodate the 10-year, 24-hour runoff volume plus three years of sediment storage capacity. The curve number methodology and Universal Soil Loss Equation (USLE) utilized by the applicant are acceptable methods for the design criteria.

The effectiveness of the sediment ponds will be assessed in the applicant's commitment to monitor ponds when discharging (Section 3.4.3.3, MRP).

Since the ponds are designed to contain the 10-year, 24-hour event plus sediment accumulations, short-circuiting cannot occur.

The plan to mark sediment cleanout levels and dispose of sediment accumulations is in compliance with the regulations.

The spillway devices have been sized to pass the 25-year, 24-hour peak runoff. Given the methodology the applicant used to predict peak flows the discharge devices are probably larger than needed.

Seven of the nine sedimentation ponds have at least one embankment side. Based on Plates III-5 through III-10, the 1v:2h slopes shown for embankments do not comply with UMC 817.46(m). The combined upstream and downstream side slopes of the embankment cannot exceed 1v:5h. The following ponds which are existing structures appear to be out of compliance with this regulation.

1. Coarse Refuse Toe Sediment Pond (Plate III-5)
2. Railcut Area Pond (Plate III-6)
3. Pasture Pond (Plate III-7)
4. Old Coarse Refuse Road Pond (Plate III-8)
5. Hoist House Pond (Plate III-9)
6. Lower #2 Canyon Pond (Plate III-10)

In response to this concern, the applicant contracted an engineering firm to assess the stability of the previously noted ponds. The stability analysis is contained in Appendix III-5 of the MRP. It should be noted that the study is entitled "Kaiser Coal Refuse Pond Embankment Stability Analysis." The study is not for refuse ponds, but the sedimentation ponds in question. Based on the results of the study, all ponds but the Coarse Refuse Toe Sediment

Pond have a static safety factor for the outslope of the embankment which equals or exceeds 1.5. The applicant subsequently submitted revised plans and drawings for the Coarse Refuse Toe Sediment Pond. The revised plans are in compliance with the requirements of UMC 817.46.

Pursuant to UMC 786.21 (Existing Structures), the Division determines that the Railcut Pond, Pasture Pond, Old Course Refuse Road Pond, Hoist House Pond and Lower #2 Canyon Pond, all existing structures, comply with UMC 700.11(e) and the applicable performance standards of UMC Subchapter K. No significant harm to the environment or public health or safety will result from use of these structures.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.47 Hydrologic Balance: Discharge Structures - JW

Existing Environment and Applicant's Proposal

The Sunnyside Mine will have, when the Sunnyside Surface Facilities Sediment Pond and associated collection ditches are completed, 34 culverts associated with the disturbed and undisturbed drainage system, 18 culverts associated with the road system and 12 culvert outlets associated with the sediment, slurry and mine water pond systems. Velocity calculations are contained for all culvert outlet points near the end of Appendix III-1 in a table format.

The applicant has indicated that 13 of the 34 culverts associated with the drainage system and five of the pond outlets will need outlet erosion protection based on velocity calculations (Appendix III-1). The erosion protection measures proposed are shown on Plate III-35. The applicant committed in the June 11, 1985 response to the Draft TA to install culvert outlet protection measures within 180 days of permit approval.

Six of the culverts associated with the disturbed area drainage system appear to have erosive velocities at the outlet based on calculations in the MRP. The applicant indicates that field inspections at this time do not show signs of erosion at these culvert outlets (Section 3.4.3.2, MRP).

Revised December 2, 1985

While field checks to date don't reveal erosion, an inspection program is proposed in Section 3.4.3.2 of the MRP. Each outlet will be checked three times annually (spring, summer and fall). Where erosion problems are noted, protection measures will be installed within 30 days (Section 3.4.3.2, MRP).

Compliance

The applicant's proposed protection measures for culvert outlets as shown on Plate III-35 are acceptable measures. The measures proposed will assure a scour hole does not form at the immediate culvert outlet. The dissipation of outlet velocities will be greatly improved if the bottom portion of the outlet structure is quite rough. The inclusion of three to five inch rocks covered with shot crete or under the wire mesh on the bottom as Plate III-35 suggests will help assure that outlet velocities are dissipated prior to the point where the outlet structure stops and the natural channel starts.

The calculations and erosion protection measures proposed by the applicant for culvert outlets are acceptable. The MRP contains the calculations and identifies which culvert outlets will receive erosion protection measures in the summary table in Appendix III-1 of Chapter 3.

The Hoisthouse and Manshaft sediment pond discharge culverts traverse a steep side slope before discharging into the undisturbed drainage channel. The applicant's proposed outlet culvert protection measure of wire basket gabions filled with rock underlined by a filter blanket with the gabions excavated so that the top of the baskets are flush with the existing streambank and bottom is an acceptable measure to assure the outlet points are protected from erosion. Since outflows from sediment ponds will occur as a result of summertime convective storms installation of these will be needed prior to June 15, 1986 (see Stipulation #1).

The inspection program proposed to monitor disturbed area culvert outlets is a good method to maintain compliance. Calculations indicate that the Pasture Haul Road, SF1, SF2, SF3, SF4 and SF5 culvert outlets will have erosive velocities during the design event. Thus, these culvert outlets must be protected with measures shown on Plate III-35 (see Stipulation #2).

Stipulation 817.47-(1, 2)-JW

1. The applicant shall install, no later than June 15, 1986, the proposed wire basket rock gabions at the outlets from the hoisthouse and manshaft sediment ponds.
2. The applicant shall install, within 180 days of permit approval, erosion protection measures outlined on Plate III-35 of the permit application for the Pasture Haul Road, SF1, SF2, SF3, SF4 and SF5 culvert outlets.

UMC 817.48 Hydrologic Balance: Acid-forming and Toxic-forming
Material - EH

Existing Environment and Applicant's Proposal

Before disposal each geological horizon will be tested for SAR, pH, boron and acid-base potential. If adverse levels of SAR, pH, boron or acid-base potential are found, the rock will be mixed with other waste rock to achieve acceptable levels of acidity or toxicity. Adverse levels in SAR, pH, boron and acid-base potential are defined as, SAR values greater than 10, pH less than 5 or greater than 9, boron greater than 5 ppm and acid base potential less than -5 tons CaCO₃ equivalent per 1,000 tons material. If all the rock to be disposed show unacceptable levels of acidity or toxicity, the rock will be disposed in an area that will be hydrologically isolated from the rest of the mine with solid block seals or it will be disposed in the coarse refuse pile along with the coal processing waste. There is no separate disposal structure for the underground development waste on the surface (MRP, Chapter III, pages 42 and 43).

Prior to disposal of mine development waste material that exhibits acid or toxic drainage characteristics, the operator will submit a map to the Division showing where the material will be placed and the locations of the block seals (MRP, Chapter III, page 42).

A chemical analysis of coarse refuse material is shown in Appendix VI-1 of the MRP. Values for pH, conductivity, sodium adsorption ratio and texture are given.

Compliance

The applicant's proposal for testing and handling of underground development waste is acceptable. The applicant is in compliance with this section.

Stipulations

None.

UMC 817.49 Hydrologic Balance: Permanent and Temporary
Impoundments - JW

Existing Environment and Applicant's Proposal

The MRP describes one permanent impoundment and six temporary impoundments which currently exist on the Sunnyside permit area.

Grassy Trail Reservoir, formed by the Whitmore Canyon Dam, is described in Section 3.2.8 of the MRP. The dam was constructed in 1952 and serves to provide culinary water for the towns of Sunnyside and East Carbon as well as the mine facilities (Section 3.5.3.3, MRP).

The yearly inspection program is outlined on page 4 of Chapter 3 of the MRP, which will report among other items:

1. design, depth and elevation of impounded waters or historical information for the past year on water depths and elevations;
2. existing storage capacity;
3. other aspects affecting stability.

The reservoir is shown on Plate III-1 and in a photograph in Section 3.7.1 of the MRP.

Temporary impoundments existing onsite consist of two mine water ponds, two slurry ponds, one clear water pond associated with the slurry ponds and the east slurry cell.

The mine water ponds currently treat water pumped from the mine workings. The Twinshaft mine water pond is NPDES discharge point 001. The Whitmore Canyon pond is NPDES discharge point 002. These ponds are shown on Plates III-14 and III-15.

The slurry system utilizes the number 1 and number 2 pond to settle out coal fines and passes the water through a dike of coal refuse into the clear water pond prior to discharge. The east slurry cell is used when the number 1 and 2 ponds are filled. Section 3.4.9 describes in more detail the slurry pond system.

Compliance

Based on the MSHA hearing and review; Docket No. West 80-301-R and West 80-483-RM before Judge Jon D. Boltz, April 21, 1981, it has been determined that Grassy Trail Reservoir is not under the jurisdiction of 30 CFR 77.216. Thus, this facility does not require MSHA approval.

The MRP notes that the reservoir is a joint venture between Kaiser Steel and SOHIO, who holds the majority interest. The water supply facilities will remain after mining as the primary users of the water system are the two towns of East Carbon and Sunnyside.

UMC 817.49(g) requires ponds to have slopes no steeper than 2h:lv. Based on a letter dated May 3, 1985 from Kaiser (response to Notice of Violation N85-4-1-4), the embankment slopes on the Twinshaft mine water pond are between 1.5:1 and 1.75:1. Additionally, onsite inspections have shown that erosion and sloughing have begun to occur on the inside side slope.

The applicant has committed in the June 11, 1985 response to the TA to rebuild, within 120 days of permit approval, the twinshaft mine water pond embankments to meet the 2:1 slope requirements.

The MRP states that upon completion of mining activities, slurry ponds will be filled, graded, topsoiled, if needed, and revegetated (page 48, Chapter III).

Table III-38 shows mine water ponds will be regraded and reclaimed during final reclamation.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.50 Hydrologic Balance: Underground Mine Entry and Access Discharges - RVS

Existing Environment and Applicant's Proposal

Rocks in the mine plan and adjacent area strike north to northwest and dip an average of eight degrees to the east-northeast (MRP, Sections 6.3, page 2 and 6.4.2, page 4). Mine water is collected in a system of downdip sumps and currently discharged at an average rate of 740 gpm (Table VII-3 and Section 7.1.4, page 8).

The applicant states, in Section 3.4.3.1 of the MRP, that unplanned discharges from portals will be sampled quarterly for water quality (Table III-23). If necessary, appropriate mitigation to address undesirable water quality will be developed and implemented in consultation with the Division.

Portals are updip from the workings and located at elevations ranging from 6,800 to 7,200 feet. The Number Two Canyon Portal and Water Canyon Portal are at lower elevations (approximately 6,800 feet) than all other shafts and portals. Portal seals incorporate two inch diameter water check pipes with valves (Plate III-18) to accommodate the flooding of workings and associated build-up of hydraulic head after mine closure.

Unplanned discharges from sealed portals will be sampled quarterly, until bond release, to ensure compliance with state and federal effluent standards (Section 3.4.3.1, page 24). The applicant also commits to providing treatment, if necessary, to achieve compliance with applicable effluent standards.

Compliance

The applicant has provided a program for sampling unplanned portal discharges during and following mining. Moreover, the applicant has committed to developing and implementing mitigation for undesirable water quality associated with these discharges.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.52 Hydrologic Balance: Surface and Ground Water Monitoring - RVS and JW

Existing Environment and Applicant's Proposal

The applicant commits to quarterly water-level monitoring of surface and underground boreholes (MRP, Section 7.1.6, page 10). These data will be submitted annually.

Water discharged from the mine will be monitored for the parameters and according to the schedule given in Table III-23 (Section 3.4.3.3, page 27). These data are submitted quarterly to the Division.

The applicant commits to monitoring the three springs within the mine plan area four times a year for quality and flow (Section 3.4.3.3, page 27). Water quality information will be derived as shown on Table III-23. Temperature, pH, EC and flow will be measured in the field. A yearly report on springs will be submitted.

Inflows greater than three gpm will be monitored quarterly for quantity and quality (Section 3.4.3.3, page 28). Field measurements will include temperature, pH, EC and flow. A map of observed inflows and geologic sources will be submitted annually with the water quality data.

The applicant's surface water monitoring program is described in Section 3.4.3.3 of the MRP. Plate III-1 identifies surface water monitoring points. Stations are monitored monthly for flow and field measurements and either monthly or quarterly according to the operational parameters on Table III-23 of the MRP.

Compliance

The applicant has provided an adequate operational water monitoring plan for springs, mine inflows and boreholes.

It should be noted that the locations of in-mine sampling points will be adjusted to include new points as they are encountered and to delete old points which can no longer be accessed due to mined out sections.

The applicant's surface water monitoring plan complies with the requirements of this section. The stations on the intermittent tributaries to Grassy Trail Creek will enable the impacts from disturbed areas to be isolated. The parameters to be sampled are consistent with Division recommendations.

Stipulations

None.

UMC 817.53 Hydrologic Balance: Transfer of Wells - RVS

Existing Environment and Applicant's Proposal

Boreholes have been completed for coal exploration and will be completed for water monitoring. All boreholes will be plugged following final abandonment (MRP, Section 3.5.3.1 and Table III-4).

Compliance

The applicant does not propose the transfer of boreholes for use as water wells. The applicant is in compliance with this section.

Stipulations

None.

UMC 817.54 Water Rights Replacement - JW

Existing Environment and Applicant's Proposal

The applicant commits to replacing the water supply of an owner of interest in real property who obtains all or part of the water supply which is affected by underground or surface operations (Section 3.4.3.1, MRP).

Additionally, the applicant has included a listing of water rights which could be potentially affected by mining activities (Figure III-3, Chapter III) in order to approximate water use which might be impacted. On page 7 of Chapter 7, the MRP notes that there are no wells in or adjacent to the mine plan area.

Compliance

The applicant's commitment to replace water impacted by mining satisfies the requirements of this regulation. Further, Kaiser owns water rights for a portion of Grassy Trail Creek (see Figure III-3), 2,000 ac/ft annually on Range Creek and 1,000 ac/ft per year of water on the Price River (Section 7.2.3.1, MRP). These can feasibly be used to replace affected water.

Stipulations

None.

UMC 817.55 Discharge of Water Into An Underground Mine - JW

Existing Environment and Applicant's Proposal

No water from surface sources is utilized in the underground mine workings at the Sunnyside Mines. Sufficient water from natural ground water inflows is encountered within the mine for dust suppression, with excess water being pumped to the surface (page 17, Chapter 7, MRP).

Compliance

A review of the surface water drainage plan does not indicate any diversion of water into underground workings. The applicant is in compliance with this section.

Stipulations

None.

UMC 817.56 Postmining Rehabilitation of Sedimentation Ponds, Diversions, Impoundments and Treatment Facilities - JW

Existing Environment and Applicant's Proposal

Section 3.5.3.3 of the MRP describes the disposition of dams, ponds and diversions. The only impoundment proposed to remain after reclamation is Grassy Trail Reservoir. The reservoir supplies culinary water to two municipalities and will continue to do so after mining. The MRP notes that if the reservoir is not transferred to the municipalities using it, that Kaiser will maintain ownership and liability of the reservoir. Culverts and diversions proposed to remain after mining are described in Chapter 3, Appendix III-1 and Appendix III-12.

Compliance

The applicant's commitment to reclaim all ponds and diversions while maintaining the liability for Grassy Trail Reservoir is in compliance with this section. Should the ownership of the reservoir be transferred to the municipalities currently using reservoir water before bond release, Kaiser has committed to renovate, if needed, the dam and reservoir to the specifications for the dam previously approved by the Dam Safety Division of the state of Utah (Section 3.5.3.3, MRP).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.57 Stream Buffer Zones - JW

Existing Environment and Applicant's Proposal

Grassy Trail Creek is the only stream that supports a biological community within the permit area. The Reservoir Road parallels Grassy Trail Creek for several miles and at several locations is less than 100 feet from the stream. The Reservoir Road was built prior to SMCRA, as is the case with most roads within the mine permit area.

Stream buffer zone markers are posted along Grassy Trail Creek. Due to pre-Law disturbances the buffer zone is less than 100 feet in some locations. Plate III-26 shows locations of buffer zone signs.

Compliance

The applicant has encroached upon the 100-foot buffer zone required by UMC 817.57. This encroachment initially occurred prior to enactment of SMCRA and still occurs because of the need to utilize the reservoir road. In the areas of encroachment, the applicant has complied with UMC 817.57(b) by posting signs designating the area as a stream buffer zone.

The Winget report (1980) states that some degradation to Grassy Trail Creek has occurred. This degradation of water quality and stream bed sediment may be due to untreated mine water discharge. It is also possible that some degradation may have resulted from runoff from the Reservoir Road. However, no data exist to determine what the exact source of the degradation was. It cannot be concluded that the Reservoir Road has not adversely affected Grassy Trail Creek. It should be noted that the Reservoir Road is a public road.

Revised December 2, 1985

The applicant has taken prudent measures to control mine water via a pond system. Present data do not suggest degradation is occurring. The surface water monitoring program will detect if any further degradation is occurring.

Based on the above measures which the applicant has taken, the Division authorizes the applicant's activities which presently occur within 100 feet of Grassy Trail Creek.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.59 Coal Recovery - RVS

Existing Environment and Applicant's Proposal

Mining will occur in the Upper Sunnyside coal seam (four to seven feet thick) in the No. 3 Mine and Lower Sunnyside coal seam (5.5-12 feet thick) in the No. 1 Mine and No. 2 Mine (MRP Section 3.3.1.1, page 9). Sixty-five to eighty percent of coal will be produced by longwall mining methods (Section 3.3.1.3, page 10). The remaining production will be from continuous miner entry development and pillaring in areas unsuitable for longwall methods.

Compliance

The applicant proposes to conduct underground activities to maximize the utilization and conservation of coal resource while utilizing current technology to maintain environmental integrity. The applicant is in compliance with this section.

Stipulations

None.

UMC 817.61-.68 Use of Explosives - RVS

Existing Environment and Applicant's Proposal

The applicant states that the "Storage, handling and use of explosives are all in compliance with Mine Safety and Health Administration's (MSHA) rules and regulations" (MRP, Section 3.3.5.4, page 19). Furthermore, the applicant declares that "Explosives are used only sparingly at the Sunnyside operation." Surface blasting is utilized to free blocked shutes and storage bins and clear foundations, walls and rocks. Section 3.3.5.4 of the MRP outlines the applicant's surface blasting plan.

Compliance

The applicant has indicated that surface blasting may occur during this five year permit term. The measures described in Section 3.3.5.4 address the requirements of this section.

Stipulations

None.

UMC 817.71-.74 Disposal of Excess Spoil and Underground Development Waste - PGL

Existing Environment and Applicant's Proposal

The MRP states on page 41 (Chapter III) that "the bulk of underground development waste generated by the mining operation at Sunnyside Mines is disposed of in mined-out areas underground." There is no separate disposal structure for the underground development waste on the surface.

Compliance

The applicant will dispose of underground development waste in mined-out areas underground. There are no plans for disposal of underground development waste on the surface. The percent of the mine void that may be filled will not exceed 0.02 percent of areas mined. Applicant's proposal is in compliance with this section.

Stipulations

None.

UMC 817.81-.85 Coal Processing Waste Banks - PGL

Existing Environment and Applicant's Proposal

The applicant states on page 39 (Chapter III) "Coarse refuse or reject from the preparation plant is disposed of in a waste bank. The refuse is hauled by truck from the refuse loadout at the preparation plant to the coarse refuse pile (Plate III-1) where it is end dumped in piles." The refuse is then spread out in layers 24 inches thick by a large dozer. "The outer slope of the refuse pile is maintained at a 27 degree slope." At 50-foot vertical increments, a 20-foot wide terrace is constructed for water runoff and erosion control. Construction of the pile was started in 1977, therefore, no subdrainage was installed. A 24-inch perforated culvert was placed in the drainage bottom to collect ground water seepage. Rollins, Brown and Gunnell conducted an exploratory

Drilling study in 1984 that provided information indicating that no water table exists in the refuse pile. A geotechnical analysis by Rollins, Brown and Gunnell provided a long-term configuration with a long-term static safety factor of 2.31 (Appendix III-7, MRP).

Surface drainage from the area above the waste bank and from the crest and face of the final structure will be diverted away from the fill into stabilized diversion channels designed to safely pass a 100-year, 24-hour precipitation event (MRP, page 40, Chapter III).

The applicant proposes to cover the coarse refuse disposal site with four feet of nontoxic and noncombustible borrow material (from currently used borrow pits). Vegetation will be planted to minimize surface erosion. Test plots installed in 1980 are being used to determine if less than four feet of soil material could be used to revegetate the refuse pile.

The coarse refuse pile will be inspected quarterly by a qualified, certified engineer or other qualified person to detect hazards that may lead to a potential failure. The results of the inspection will be maintained on site. If a potential hazard exists, the Division will be informed (page 41, Chapter III, MRP).

Compliance

The applicant has provided plans for the design, construction and maintenance of the coal processing waste banks. The applicant has provided construction plans certified by a registered professional engineer. The applicant has committed to inspection of the site by a "qualified registered engineer or other person approved by the Division."

Maintenance of the embankments will consist of grading failure features discovered during inspection (Chapter III, page 41, Volume 1).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.86-.87 Burning and Burned Waste Utilization - PGL

Existing Environment and Applicant's Proposal

The applicant has proposed to extinguish any fires which might occur in the coal refuse pile with methods that meet the requirements of MSHA's rules and regulations (Chapter III, page 18, Volume 1 of the MRP). Specific plans have been provided and provisions have been supplied to ensure that only those persons authorized by the operator will be involved in the extinguishing operations.

A fire extinguishing plan for the slurry impoundment as approved by MSHA is included in the MRP (Figure III-1).

Compliance

The applicant's proposal to extinguish fires in the coal refuse pile is in compliance with the requirements of this section.

Stipulations

None.

UMC 817.88 Coal Processing Waste: Return to Underground Workings - PGL

The requirements of this section do not apply because no coal processing waste is proposed to be returned to underground workings.

UMC 817.89 Disposal of Noncoal Wastes - PGL

Existing Environment and Applicant's Proposal

The applicant proposes to dispose of material removed from sediment ponds in the industrial waste disposal site or use as borrow material (Chapter III, page 43 of the MRP). Noncoal wastes such as grease, oil and timbers are disposed of in the industrial waste disposal site. The site has been approved by the State Board of Health by letter dated June 27, 1980 from the Department of Health, Division of Environmental Health. Nonindustrial wastes such as paper and other domestic solid wastes are disposed of in East Carbon City's landfill (authorization letter, Figure III-7, MRP). Sewage is piped to the town of Sunnyside treatment facilities.

Compliance

The applicant's proposal for disposal of noncoal wastes is in compliance with the requirements of this section.

Stipulations

None.

UMC 817.91-.93 Coal Processing Waste Banks - PGL

Existing Environment and Applicant's Proposal

The applicant has constructed four coal slurry impoundments according to Plates III-1, III-2 and III-3 (Chapter III, page 37, Volume 1): West Slurry Cell (WSC); East Slurry Cell (ESC); Slurry Pond #1 (SP1); and, Slurry Pond #2 (SP2). SP1 and SP2 are depressions without any major embankment structures.

The WSC was the first impoundment to be constructed for the disposal of slurry and refuse material (see Appendix III-5). Plate III-1 states that the WSC was last used in 1975. Coarse refuse material and other waste was used as fill material to block a wash in the pediment material at the mouth of Whitmore Canyon overlooking the Icelander Drainage. Slurry from the preparation plant was transported to the impoundment by ditch for disposal. As the level of the slurry bank increased, additional coarse refuse was added to the top and sides of the impoundment. The present level of the slurry in the impoundment is over 200 feet above the bottom of the wash. Present use of the impoundment is as a disposal area for dried slurry material from SP1 and SP2.

Construction of the ESC on the east side of WSC was completed in 1974. Coarse refuse was placed and compacted in dikes to contain the refuse. After the dikes were completed and covered with soil material, the impoundment was filled with slurry. Disposal of slurry continued until 1983. Presently, the impoundment is used as an overflow for SP1 and SP2.

SP1 and SP2 were constructed in 1978 north of the other slurry cells. These ponds were constructed by excavating a depression in the colluvium on a gentle slope. Material from the depression was spread downslope of the ponds for 50 to 100 feet. SP1 and SP2 are used in rotation. Slurry is introduced into a pond where it settles and is filtered (see Plate III-13). During the use of the first pond, the second pond is decanted and the dried slurry removed by truck to the WSC. After the second pond is cleaned, the cycle is reversed. If both ponds are in the drying and cleaning cycle, the slurry will be diverted to the ESC. Water from SP1 and SP2 (NPDES 004) is used to irrigate alfalfa fields or discharged into Icelander Drainage. Discharge water meets all state and federal water quality standards (see Chapter VIII).

The applicant provided an evaluation of the stability of the embankment structures in Appendix III-5. Testing of the refuse material was conducted (March 1984) in two drill holes, and three trenches were excavated. The material was tested to determine cohesive strength, angle of internal friction and density. No saturated conditions were identified in waste embankments during drilling. Based upon this information, the stability of the embankments was determined. All of the existing slopes meet the requirements of the regulations except for the existing slope above the west side dike extension. The safety factor for this slope in its current configuration was determined to be 1.03. If the slope angle was reduced, the safety factor for the slope could be increased to 1.47 (see Appendix III-5). The final configuration of the slope will have a safety factor of 2.31. The applicant committed to not use the WSC until the west side dike configuration meets a static safety factor of at least 1.5 (page 38, Chapter III).

Evaluation of the ESC embankment under saturated conditions showed a safety factor of 0.5. Actual soil conditions encountered during soil testing in 1984 showed that the embankment was not saturated. Soil conditions encountered during installation of three piezometers, in August 1985, showed that the coarse refuse material in the embankment was not saturated.

All surface drainage from the areas above the slurry ponds is diverted away from the embankments by diversion ditches designed to carry the peak runoff from a 100-year, 24-hour precipitation event (Plate III-24, Appendix III-1). The diversions will be maintained to prevent blockage (postmining map).

Visual inspections by a qualified registered professional engineer will be conducted on a weekly basis to assess the stability of the impoundments and determine the amount of seepage, if any (Chapter III, page 39, Volume I). Records of the inspection findings and recommendations will be maintained at the mine site. If the inspection discloses that potential hazards exist, the Division will be informed promptly of the findings and of the emergency procedures formulated for public protection and remedial action to be taken.

The applicant states on page 39, Chapter III, MRP, that reclamation of the ESC should pose little or no problem due to potentially saturated slurry material. "Past experience has shown that vehicles can travel over the pond surface after the pond has dried for a year. The period of time before reclamation occurs could be shortened by dewatering the slurry with a trench and pump system."

Compliance

The applicant has provided design information on the embankment structures to show that the stability requirements have been met for the final configuration of the structures under unsaturated conditions. This design was certified by a registered professional engineer as required by UMC 817.49(h) as referenced in UMC 817.93(a). Since the ESC acts as an overflow pond for SP1 and SP2 (and has been actively used for over six months, presently), saturated conditions in embankments may occur at some time in the future. The applicant addressed the effects of water saturation on the stability of this embankment and committed to discontinue its use if seeps occur. The west side dike does not currently meet the safety factor requirements of the regulations. The applicant states that this dike will become stable as the current coarse refuse pile level reaches the level of the west dike. The current coarse refuse pile is being specifically constructed to meet MSHA requirements.

A weekly inspection plan by a qualified registered professional engineer has been proposed. The inspection plan will meet the requirements of 30 CFR 77.216-3 as stated in UMC 817.49(f) as referenced in UMC 817.93(a).

UMC 817.93(c) requires that dams or embankments constructed of or impounding waste materials must be designed to dewater 90 percent of the water stored during a design precipitation event within 10 days. The East Slurry Cell is a pre-SMCRA structure designed as a total containment evaporation pond. Based on evaporation rates for the time of year when the design storm would occur it would take about 40 days to evaporate the design storm.

The applicant has provided runoff calculations from the design storm in Appendix III-1 which demonstrate that sufficient capacity is present in the East Slurry Cell to contain 10 design events without overtopping the structure. Therefore, the Division determines that the East Slurry Cell, as an existing structure, meets the requirements of UMC 786.21 and 700.11(e) in order to exempt it from the requirements for 10 day dewatering in UMC 817.93(c).

The applicant addressed the feasibility of reclamation and the feasibility of dewatering the ESC to allow covering of the site with one foot of nontoxic cover material.

The stability analysis for the embankment of the ESC presently does not meet the requirements of UMC 817.93(a)(2) which is 1.5 for the partial pool steady seepage condition. The applicant will be in compliance when the following stipulation is met.

Stipulation 817.91-.93-(1)-PGL

1. The applicant may not use the ESC until the Division approves the embankment configuration that meets the partial pool steady seepage saturation condition minimum safety factor of 1.5 and the seismic safety factor of at least 1.2.

UMC 817.95 Air Resources Protection - SC

Existing Environment and Applicant's Proposal

Most of the region around the Sunnyside Mines permit area has been designated a Class II area for purposes of determination of significant air quality deterioration. Deterioration of the air quality is not expected during the permit period with the exception of short high wind periods when sand and smaller grained particles are picked up outside of the permit area and added to the air in the permit area (Section 11.4).

The Sunnyside Mines is an underground mining operation. The coal is cleaned in a washing plant and no thermal drying of the coal is used. Any effect of the mining operation on air quality would be minimal and would be confined primarily to the surface facilities (see Plate III-1).

Most of the parking areas and roads are paved. The main road through the property, the one most used, is a public road owned and maintained by the county. This road is partially paved. The haul road used by the refuse trucks is paved to the beginning of the disposal area. There are several access roads to portal and/or fan locations which receive limited usage, mainly for inspection purposes. Roads around the main complex are treated with calcium chloride, potassium chloride or sprayed with water to control fugitive dust as required during dry periods. All land that is disturbed shall be reclaimed as contemporaneously as practicable with mining operations (see TA, UMC 817.100) (Section 11.4).

Three units of coal-fired equipment (Section 11.4) are inspected periodically by the Utah State Department of Health, Bureau of Air Quality. However, air quality permits are not needed for old sources according to Monte Keller of the Bureau of Air Quality, Division of Environmental Health, Utah State Board of Health (Section 11.5). There has not been any violation of air quality laws at the Sunnyside Mines to date (Section 11.1).

Compliance

The necessary fugitive dust control measures will be implemented as part of the coal mining and reclamation operations as outlined.

The applicant complies with this section.

Stipulations

None.

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values - SC

Existing Environment and Applicant's Proposal

Habitats within and adjacent to the permit area support a wide variety of wildlife species. Several of these species are designated as economically important or high-interest species. Mule deer, bobcat, black bear, cottontail, beaver, muskrat, waterfowl, raptors and Utah milk snake are representative of those species requiring special consideration because of their legal or economic status.

The lower portions of Whitmore Canyon and the benches and lower slopes west of West Ridge are designated by the Utah Division of Wildlife Resources (DWR) as "high-priority" mule deer winter range. Continued operation of the Sunnyside Mine will likely preclude mule deer use of small portions of winter range in Whitmore Canyon. The duration of this unavoidable impact will be for the life of the mine and until reclamation is successful. The applicant has submitted designs for fencing to prevent livestock access to reclaimed areas while permitting mule deer to enter (Section 10.3.2).

The rimrock cliffs along the eastern boundary of the permit area represent important nesting habitat for cliff-nesting raptor species. Nesting by golden eagle, red-tailed hawk, and prairie falcon has been documented on or in the vicinity of the permit area (Figure X-1). The golden eagle and prairie falcon are species of "high federal interest." Only one identified nest (an inactive golden eagle nest) occurs within one kilometer of the main mine facilities area (Plate X-1).

Another important wildlife habitat in the permit area is Grassy Trail Creek and its associated riparian vegetation. The DWR considers riparian habitat critical to many species of wildlife in this region. A put-and-take rainbow (Class 3) fishery exists in a three-mile stretch of Grassy Trail Creek immediately below Grassy Trail Reservoir. The remainder of Grassy Trail Creek and other streams in the permit area represent lower quality aquatic habitat and are designated as Class 5 or 6 by the DWR (Section 10.3.2.1).

Information presented in Chapter X, Section 10.4 of the MRP indicates that considerable degradation of stream water quality has occurred in Grassy Creek below the point of mine water discharge. This degradation was primarily the result of fine sediments, oil and grease. The applicant has installed sediment ponds which will allow settling of suspended particles and separation of oil and grease (Section 7.2.3.1).

The applicant has purchased the DWR fish and wildlife educational program for coal employees and is using it in its training program for mine personnel. This education series is being presented to educate employees on the potential for wildlife impacts associated with human presence and harassment (Section 10.5).

No threatened or endangered species or critical habitats for these species has been documented for the permit area (Section 10.3.3, TA Section UMC 817.111-.117).

Compliance

No additional surface disturbances are proposed for the current permit term, therefore, the primary impacts to wildlife will result from: (1) the continued loss of habitat previously disturbed by mining activities; (2) continued degradation of Grassy Trail Creek by mine discharge waters; and, (3) the effects of human presence and activities on wildlife in adjacent undisturbed habitats.

To reduce the degradation of water quality in Grassy Trail Creek by mine water discharge, the applicant has installed ponds to treat water before it is released into the creek. A detailed description of the sediment control plan and other water treatment facilities is provided in Chapter VII of the MRP. Various water quality parameters are being monitored by the applicant on a monthly, quarterly and semiannual basis at several points along Grassy Trail Creek to check the effectiveness of water quality control measures. In addition, four signs denoting a 100-foot buffer zone have been placed along undisturbed portions of Grassy Trail Creek in the vicinity of the mine workings (Section 10.5).

The applicant has committed to mitigate damage to springs and seeps, grazing lands, raptor nesting areas, and Grassy Trail Creek from subsidence if it occurs (Section 3.4.8).

A U. S. Fish & Wildlife Service (USFWS) letter (dated October 9, 1981) to DOGM indicates that the transmission line servicing the Sunnyside Mine does not pose a significant electrocution hazard to raptors and does not need to be modified.

The applicant has committed to avoid the use of persistent pesticides in the permit area unless approved by the Division (Section 10.5) and to notify the Division of any future occurrence of threatened or endangered species or golden eagles on the permit area (Section 10.3.3.1).

Following cessation of mining, the applicant will reclaim and revegetate disturbed sites. Plant species selection and planting patterns proposed by the applicant were designated to restore wildlife habitat and livestock grazing as the principal postmining land use (see TA, UMC 817.111-.117).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.99 Slides and Other Damage - EH

Existing Environment and Applicant's Proposal

The applicant has provided for reporting of potential slides to the Division and commits to comply with any remedial measures required by the Division (Chapter III, page 23, Volume 1 of the MRP).

Compliance

The applicant's commitment to report slides and comply with any remedial measures required by the Division is in compliance with this regulation.

Stipulations

None.

UMC 817.100 Contemporaneous Reclamation - SC

Existing Environment and Applicant's Proposal

Contemporaneous reclamation which will occur at the Sunnyside Mine is primarily on the coarse refuse disposal site (Section 3.5.1). Revegetation on the refuse will begin as soon as revegetation test plot data are available and the most efficient and economical techniques and species shown. Contemporaneous reclamation has been conducted at the Slaughter Canyon Portal, storage area and associated access road since these facilities were no longer required for coal production (Section 3.5.1). Areas adjacent to any future disturbances will be revegetated as part of contemporaneous reclamation (Section 3.5.1).

Compliance

The applicant's plans for contemporaneous reclamation complies with this section.

Stipulations

None.

UMC 817.101 Backfilling and Grading Plan - PGL and EH

Existing Environment and Applicant's Proposal

The backfilling and grading plan proposed at the Sunnyside Mine will entail very minor handling of material with the exception of covering of the coal waste material (Chapter III, pages 42-43, Volume 1 of the MRP). The applicant has stated that at several portal and shaft locations small highwalls have been created.

"These highwalls will be regraded to blend with adjacent surroundings" as stated by the applicant. The geotechnical analyses of these highwalls are found in Appendix III-5. The location of highwalls is shown on Plates III-20, III-21, III-22 and III-23. The applicant stated that any coal seam exposed near a portal will be backfilled and graded (page 54, Chapter III, Volume 1).

The applicant has committed to using borrow material to cover the coarse refuse disposal site and the slurry impoundment (Chapter III, pages 42 and 43, Volume 1 of the MRP). The applicant has identified on maps the location of borrow sites.

Compliance

The applicant has given a specific explanation and justification for each road that will not be regraded and reclaimed.

The applicant's proposal has shown that highwalls will be regraded and reclaimed "to closely resemble the general surface configuration of surrounding terrain." Coal seams exposed near a portal will be backfilled and regraded.

Coal refuse and slurry impoundments will be covered using borrow material.

The applicant is in compliance with this section.

Stipulations

None.

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

Existing Environment and Applicant's Proposal

The material classified as being toxic includes the entire coarse refuse disposal site and any other toxic materials found during regrading. Further, the applicant has stated that all mine development waste rock that shows unacceptable levels of acidity or toxicity as described on pages 42 and 43, Chapter 3, will either be disposed of underground in areas that will be hydrologically isolated with solid block seals or disposed of in the coarse refuse disposal site. Before any underground disposal of waste rock is undertaken, the applicant will submit a map indicating the location of the waste material and block seals (pages 42 and 43, Chapter 3).

The applicant has committed to covering the entire refuse disposal site and portals with four feet of nontoxic soil material (page 42, Chapter 8). To do so will require approximately 449,000 yd³. The source of the nontoxic material is a borrow site located within the permit area (Plate III-23, VIII-1). Samples of the borrow material have been taken and the results of chemical and physical analysis will be submitted within 30 days of permit approval. The applicant has further committed to the establishment of vegetative test plots to evaluate the actual depth of nontoxic soil material required to reclaim the coarse refuse pile. If the required depth of cover material can be shown to be less than four feet, the applicant will request a variance to UMC 817.103(a) at that time (page 40, Chapter 3).

Compliance

The applicant is in compliance at this time.

Stipulations

None.

UMC 817.106 Regrading or Stabilizing Rills and Gullies - EH

Existing Environment and Applicant's Proposal

The applicant has provided plans for the repair of rills and gullies which might form when they become greater than nine inches in depth (Chapter III, page 55, Volume 1 of the MRP).

Compliance

The applicant's plans to repair rills and gullies are in compliance with this section of the regulations.

Stipulations

None.

UMC 817.111-.117 Revegetation - SC

Existing Environment and Applicant's Proposal

Chapter IX of the MRP describes the 18 vegetation community types which have been identified within the permit area. These vegetation types include: (1) aspen; (2) Douglas fir; (3) Douglas fir/aspen; (4) Douglas fir/mountain brush; (5) Douglas fir/aspen/mountain brush; (6) Douglas fir/pinyon-juniper; (7) Douglas fir/sagebrush; (8) mountain brush; (9) pinyon-juniper;

(10) pinyon-juniper/grass; (11) pinyon-juniper/mountain brush; (12) pinyon-juniper/sagebrush; (13) riparian/bullrush/sedge; (14) riparian/cottonwood grove; (15) riparian willow; (16) sagebrush/grass; (17) sagebrush/mountain brush; and, (18) agriculture hay field. Of these communities, only four (underlined above) have been or will be disturbed by surface facilities of the mine.

A total of 287.36 acres have been disturbed since SMCRA. These are mountain brush (13.88 acres), pinyon-juniper (13.16 acres); pinyon-juniper/grass (175.42 acres), and sagebrush/grass (84.9 acres).

Undisturbed portions of each community which has been disturbed were sampled for total ground cover, canopy cover, cover by species, tree density and shrub density. Productivity estimates were obtained from the SCS (Figure IX-1 and IX-8). Statistical adequacy was achieved for all parameters with the exception of ground cover in the pinyon-juniper community and shrub density in the pinyon-juniper/grass community. These parameters met minimum sample requirements (Table IX-1). Descriptions of each disturbed community follow:

The mountain brush community is dominated by true mountain mahogany (Cercocarpus montanus) and Saskatoon serviceberry (Amelanchier alnifolia) with respective densities of 520 and 265 stems per acre. Shrub cover was estimated at 26 percent while herbaceous cover was estimated at 10 percent, with Salina wildrye (Elymus salina) comprising the majority of this understory cover. The SCS estimates production at 800 pounds per acre (air dry).

The pinyon-juniper community is dominated (78 percent of the relative vegetation cover) by Utah juniper (Juniperus osteosperma) and pinyon pine (Pinus edulis), with 125 and 132 stems per acre, respectively. A variety of shrubs is found in the understory (over 300 per acre) with true mountain mahogany, curleaff mountain mahogany (Cercocarpus ledifolius), and Stansbury cliffrose (Cowania mexicana) most dominant. Herbaceous cover was estimated at less than two percent. SCS estimated production was 200 pounds per acre.

The pinyon-juniper/grass community is again dominated by Utah juniper and pinyon pine with 149 and 102 stems per acre, respectively. True mountain mahogany is the dominant shrub in the understory while the herbaceous stratum (nine percent cover) is dominated by Indian ricegrass (Oryzopsis hymenoides), penstemon (Penstemon subglaber) and lobeleaf groundsel (Senecio multilobatus). SCS estimated productivity is 300 pounds per acre.

The pinyon-juniper/sagebrush community is dominated by Utah juniper (8.7 percent cover), pinyon pine (7.4 percent cover) and big sagebrush (Artemisia tridentata) (11.2 percent cover). Total herbaceous cover (4.4 percent) is dominated by bluebunch wheatgrass (Agropyron spicatum) and Salina wildrye.

The riparian community is dominated by willows (64 percent of total vegetation cover and 18,124 stems per acre) with big sagebrush dominating the shrub stratum (1,013 stems per acre). The overstory is dominated by narrow leaf cottonwood (Populus angustifolia) and box elder (Acer negundo) with 41 and 36 trees per acre, respectively. The herbaceous stratum, except at the stream edge, is sparse with only 4.4 percent cover. SCS estimated productivity is 3,000 pounds per acre.

The sagebrush/grass community has historically received heavy grazing pressure and is dominated by big sagebrush with 3,477 stems per acre. Herbaceous cover averages 36 percent and is comprised mainly of grasses (93 percent). SCS estimated production is 1,000 pounds per acre.

Permanent seed mixtures (Tables III-15 through III-18, Chapter III, Volume 1 of the MRP) are included in the permit application. The tables contain mixtures for the mountain brush, pinyon-juniper, pinyon-juniper/grass and sagebrush-grass vegetation types. The seed mixtures have been designed to provide a diverse, permanent and effective cover of vegetation for stabilization, range and wildlife use. The wildlife value of each species is contained in Table IX-39 and cultural characteristics in Table III-19. No seedling transplanting will be accomplished. However, if natural invasion and seeding do not produce the required stem densities, transplants will be used (Chapter 3, Section 3.5.5.2).

Compliance

UMC 817.111 Revegetation: General Requirements

No threatened or endangered plants are known to exist within the permit area. One plant, Hedysarum occidentale canone, classified as Category 1 (plants for which sufficient data exist for listing) by the Utah Native Plant Society, was found in a side canyon of the permit area; however, it is removed from potential disturbance.

Following mine closure, all mine openings will be sealed, facilities dismantled (with the exception of a number of permanent buildings in the main complex), and the disturbed areas will be graded on the contour where possible to blend with the surrounding terrain. The coarse refuse disposal site will remain above general grade following revegetation since it is in this position at the present time and grading will not lower the elevation. All roads to be reclaimed as well as sites where no seedbed material is applied will be ripped to relieve compaction. Plans for revegetation of disturbed areas are discussed in Sections 3.5.5 and 9.7 of the MRP.

The applicant is in compliance with this section.

UMC 817.112 Revegetation: Use of Introduced Species

All but two of the species included in the mixtures are natives. Non-natives include Kentucky bluegrass (Poa pratensis) and redbtop (Agrostis alba) which are widely naturalized in the western United States and are a common component of the present vegetation at Sunnyside (Section 9.7).

The applicant complies with this section.

UMC 817.113 Revegetation: Timing

The proposed schedule for revegetation conforms to normal guidelines. Fertilizer will be spread prior to planting. Phosphorous fertilizer will be disked into the soil surface. Disking or surface roughening will be applied to all areas where a surface crust has developed. Seeding will generally occur during late fall. However, grasses and forbs may also be seeded in the spring (Section 9.7).

The applicant complies with this section.

UMC 817.114 Revegetation: Mulching

All disturbed areas will be mulched with two tons of native hay per acre. Mulch on gently sloping areas will be crimped or chemically tacked. Mulch on steeper slopes will be chemically tacked. Jute matting or excelsior blankets will be used to mulch in planned drainage areas (Section 3.5.5.3).

Replanted sites will be protected from livestock grazing by fencing (Section 10.3.2). Plastic netting will be used on tree and shrub seedlings, if necessary, to prevent wildlife browse damage. Weed and rodent control programs will be adopted as appropriate. No irrigation is planned (Section 3.5.5.4).

The applicant complies with this section.

UMC 817.116-.117 Revegetation: Standards for Success and Stocking

Reference areas have been chosen for each disturbed community and their locations are shown on Plate IX-1. These areas were confirmed as valid representations of disturbed communities by the Division (Figures IX-6 and IX-7). Quantitative comparison is given on Tables IX-40 through IX-46 of the MRP. The applicant has committed to permanently mark and protect these areas from mining disturbances throughout the life of the mine (Section 9.3.2.8 of the MRP). However, the location of the pinyon-juniper/grass reference area is proposed to be relocated based on the expansion of

Reclamation Borrow Area #1. The applicant has committed to provide details on location and vegetative sampling data to show similarity with the previously established pinyon-juniper/grass reference area within 30 days of permit approval (Section 9.3.2.8 of the MRP). Since the adequacy of the proposed reference area can only be evaluated based on the applicant's submittal, the Division cannot approve the new pinyon-juniper/grass reference area at this time (see Stipulation #1).

It is proposed that success of revegetation be determined using statistically adequate samples (for cover and woody plant density, 90 percent and 80 percent confidence, respectively, with a 10 percent change in the mean) and comparing reclaimed areas with the appropriate reference area for the last two years of the liability period. Revegetation will be considered successful if, for the last two years of the liability period, cover and woody plant density on reclaimed areas is at least 70 percent and 90 percent of the reference area cover and woody plant density, respectively (Section 3.5.7.2 of the MRP). This proposal is acceptable for cover and woody plant density. However, the applicant has not identified a success standard for productivity (see Stipulation #2).

Except for the last two years of the liability period for which vegetation sampling will be done to determine revegetation success, the applicant has proposed to monitor reclaimed areas as per Division recommendations (Section 9.8 of the MRP). Stipulation #3 below identifies Division requirements for monitoring revegetated areas for years 1-8 of the liability period.

The applicant is in compliance with this section in light of the following stipulations.

Stipulation 817.116-.117-(1, 2, 3)-LK

1. The applicant shall not disturb the approved pinyon-juniper/grass reference area currently shown on Plate IX-1 until a revised Plate IX-1 showing the location of the proposed new reference area and vegetation sampling data are submitted to and approved by the Division.
2. The success standard for productivity on reclaimed areas shall be achievement of at least 90 percent of the productivity of the corresponding reference area for the last two years of the liability period, using statistically adequate samples at 80 percent confidence with a 10 percent change in the mean.
3. Kaiser Coal Corporation will monitor all permanently reclaimed areas as per the following schedule:

year 1: reconnaissance survey to determine initial species establishment and woody plant density;

years 2, 3, 5, and 7: sample for cover, woody plant density and determine diversity;

If year 3 equals at least 90 percent of and year 5 equals or exceeds the success standard for cover and woody plant density, year 7 monitoring may be waived.

Productivity monitoring is optional for years 1-8. However, no harvest methods (i.e., clipping) shall be used.

The results of monitoring permanently reclaimed areas shall be submitted to the Division by December 31 of each year monitoring is performed.

Feasibility of Reclamation. The Sunnyside Mine site receives approximately 12 to 16 inches of rainfall annually. This amount is clearly sufficient for the establishment of the majority of the species included in the planting mixtures. Seedbed materials, although composed primarily of spoil and cut-and-fill material, should provide an acceptable growth medium. Reclamation of the coarse refuse disposal site is considered feasible at this time (prior to revegetation tests being conducted on coarse refuse) only if covered by a sufficient depth of borrow material. The proposed method for determining revegetation success is sufficiently stringent so as to ensure successful revegetation efforts before any bond monies are released to the applicant.

UMC 817.121-.126 Subsidence Control - RVS

Existing Environment and Applicant's Proposal

The applicant provides information about subsidence in Sections 3.4.8 and 6.6.3.3 of the MRP. Supplementary subsidence data are given in Tables III-21A through III-21E, Plate III-3 and Plate III-4.

Mining will occur in the Upper Sunnyside coal seam in the No. 3 Mine and Lower Sunnyside coal seam in the No. 1 Mine and No. 2 Mine (MRP, Section 3.3.1.1, page 9). Coal extraction will occur primarily by longwall methods (Section 3.3.1.3, page 10).

The applicant states that subsidence cracks occur over a 35 acre area along the east wall of Whitmore Canyon, between the office complex and Pasture Canyon (Section 3.4.8, page 32). Five subsidence monuments were installed along Bear Canyon (Plate III-4). Vertical monuments were initially surveyed in May 1982 (Table III-21). During August 1983, longwall mining took place

beneath monuments S1 and S2. Measurements during the following year indicated active subsidence with the maximum subsidence value exceeding one foot (Tables III-21A and III-21B). The applicant indicates subsidence monitoring will continue and that an additional net of permanent monuments will be installed along Whitmore Canyon below Grassy Trail Reservoir (Section 3.4.8, page 33).

The applicant suggests vertical movement will be minimized by the Castlegate Sandstone acting as a "monolithic slab" that reduces caving and subsequent surface subsidence impacts (Section 3.4.8, page 32).

Mining will not occur beneath Grassy Trail Reservoir (Section 3.4.8, page 36). A subsidence barrier based on a 20 degree angle-of-draw has been established under Grassy Trail Reservoir, Left Fork and Right Fork of Whitmore Canyon (Section 3.4.8, page 36 and Plate III-3).

The applicant provides a survey of renewable resource lands that includes discussion of aquifers, areas for the recharge of aquifers and grazing lands. Surveys of raptor nesting areas and cultural resources are also incorporated in the MRP. The applicant concludes that subsidence will result in minimal impact to the above resources (Section 3.4.8, page 33-35). However, should material damage or diminution occur the applicant commits to restoring or rehabilitating (to the extent technologically and economically feasible) aquifers, recharge areas, spring flow and grazing lands. Moreover, the applicant commits to replacing water rights, complying with Division of Oil, Gas and Mining (DOGM)/U. S. Fish & Wildlife Service (USFWS)/Division of Wildlife Resources (DWR) raptor nest mitigation and consulting with DOGM/DWR to formulate fishery restoration.

The applicant commits to notifying property owners and residents of areas that could be affected by subsidence as described under UMC 817.122 (Section 3.4.8, page 36).

Compliance

The applicant has provided information about mining methods, overburden thickness and vertical movement that indicate activities have been planned and will be conducted to prevent subsidence from causing material damage. Moreover, the applicant has adequately committed to public notification and surface owner protection.

The applicant will not mine beneath Grassy Trail Reservoir or the Left and Right Fork of Whitmore Canyon. Permanent subsidence monuments have been installed in Bear Canyon and will be installed in Whitmore Canyon below the reservoir. Annual subsidence monitoring will be conducted during August and submitted within 30 days (Section 3.4.8, page 33).

The applicant indicates on Plate III-3 and Plate III-4 that a longwall panel is currently being developed and two longwall panels will be developed beneath Grassy Trail Creek, a perennial stream. Plate III-38 indicates subsidence impacts will be minimized along Grassy Trail Creek due to the presence of approximately 200 feet of Castlegate Sandstone.

The applicant has committed to providing, within 30 days of approval, a subsidence monitoring plan that includes the number and installation schedule for monuments in Whitmore Canyon.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.131 Cessation of Operations: Temporary - PGL

Existing Environment and Applicant's Proposal

The applicant commits to notifying the Division before, or as soon as it is known, that a temporary cessation of operations will extend beyond 30 days. The notice will contain all requirements of UMC 817.131 (Section 3.3.6.2, page 21, Chapter III, MRP).

Compliance

The applicant's commitment is in compliance with this regulation.

Stipulations

None.

UMC 817.132 Cessation of Operations: Permanent - PGL

Existing Environment and Applicant's Proposal

Upon permanent cessation of operations, permanent reclamation will commence. Mine openings will be sealed, all surface equipment, structures and facilities associated with the operation, except those approved by the regulatory authority as suitable for the postmining land use or environmental monitoring, will be removed, and all affected areas permanently reclaimed. A complete reclamation plan and schedule can be found in Chapter III of the MRP.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.133 Postmining Land-Use - SC

Existing Environment and Applicant's Proposal

In the area of the active mine, underground coal mining has historically been the dominant land use while undisturbed grounds within the permit area were predominantly wildlife habitat or rangeland for domestic livestock grazing. Less significant uses of the land include recreation and a very small (four-acre) area of agriculture (alfalfa field) (Section 4.4.2).

Coal mining has occurred on the permit area continuously since the turn of the century. Mining occurred within both the lower and upper Sunnyside seams, and approximately 60 million tons of coal have been removed (Appendix IV-2).

The applicant proposes (Section 4.5) to return the areas designated for reclamation to the premining land uses of wildlife habitat/rangelands/recreation.

KCC proposes to leave most of the existing road system in place as access to rodeo grounds, Grassy Trail Reservoir and other facilities and for future grazing and recreational uses (TA Section UMC 817.150-.176).

Compliance

Reclamation and revegetation practices outlined in Chapter III appear feasible and sufficient to return the premining land uses.

The applicant complies with this section.

Stipulations

None.

UMC 817.150-.176 Roads - PGL

Existing Environment and Applicant's Proposal

Class I Roads - UMC 817.150-.156

The applicant states that plans for Class I Haul Roads will be placed in Appendix III-11 within 30 days of permit approval on page 3-6, Chapter III, Volume 1.

Compliance

The Class I Haul Road plans have been approved by the Division (see September 19, 1985 letter to Doug Pearce). The applicant is in compliance with this regulation.

Stipulations

None.

Class II Roads - UMC 817.160-.166

Existing Environment and Applicant's Proposal

The mine area has a total of six Class II Roads within the permit area. These roads were all constructed prior to enactment of SMCRA. No new roads during this permit period are planned (Chapter III, page 6 of the MRP). The six Class II Roads within the permit area are:

1. Refuse Road. The refuse road is used to haul coal refuse from the coarse refuse bin to the coarse refuse disposal area and as access to the Water Canyon Road.
2. Water Canyon Road. The Water Canyon Road is used as an access road for the No. 2 Mine fan and associated outcrop portals.
3. Number Two Canyon Road. The Number Two Canyon Road is used as an access for the No. 3 Mine fan in Number Two Canyon.
4. Slaughter Canyon Road. The Slaughter Canyon Road was used as an access for the Slaughter Canyon Portal. This road was reclaimed in 1982.
5. Man Shaft Road. The Man Shaft Fan Road is used as an access for the upper bathhouse and man shaft.
6. Complex Roads. The Complex Roads are used as an access around the mine offices, shop, bathhouse and preparation plant.

The Reservoir Road is a Carbon County road and is an extension of State Highway 123.

KCC has provided a profile and plan view of the Refuse Road (Haul Road, Plate III-25). Typical cross-sections of each road are provided on Plate III-17. Basic road specifications consisting of length, average grade, maximum grade and average width are provided in Table III-3. Road culverts are identified on Plate III-1 with specifications provided in Table III-22. Appendix III-1 provides design calculations for culverts.

KCC proposed to leave most of the existing road system in place as access to rodeo grounds, Grassy Trail Reservoir, and other facilities and for future grazing and recreational uses (Chapter III, page 7 of the MRP).

"The roads in Fan Canyon, lower Water Canyon and Slaughter Canyon, and short access roads to the raise holes, manshaft, fans and ponds will be removed after the mine life," as stated on page 6, Chapter III, Volume 1.

Compliance

The roads will be reclaimed in an environmentally sound manner.

The applicant proposes to maintain and reclaim the pre-Law Class II Roads according to the permanent program performance standards. The justification for retention of Pole Canyon Road, Reservoir Road and the No. 2 Canyon Road are stated on Table III-3.

The applicant did not include the ROW from the BLM for the Water Canyon Road (Section 8, owned by the USA).

Applicant will be in compliance when the following stipulation is met.

Stipulation 817.160-.166-(1)-PGL

1. The right-of-way from the BLM for the Water Canyon Road must be submitted to the Division within 30 days of permit approval (Section 8 is owned by the USA) (UMC 782.150).

UMC 817.170-.176 Roads: Class III - PGL

Existing Environment and Applicant's Proposal

The applicant states that there are five Class III Roads on Table III-3. Roads will be maintained according to the permanent performance standards. These roads will be maintained and restored at the end of the mine life to prevent damage to fish, wildlife and related environmental values as well as to prevent additional contributions of suspended solids to stream flow or runoff outside the permit area (page 3-7, Chapter III, Volume I).

The roads are:

1. R-4 Fan Canyon Road. The road is used as an access road to the No. 1 Mine fan.
2. R-6 Pole Canyon Road. The road is used as an access for the Pole Canyon exhaust shaft.

3. R-8 Reservoir Road. The road is used as an access for the Whitmore Canyon Dam and as an access for private lands above the dam.
4. R-9 Railroad Access Road. The road is used for access to the railroad storage shed outside the permit area.
5. R-11 Coarse Refuse Toe Road. The road is used for access to the Coarse Refuse Toe Sediment Pond, seep and sampling areas.

Compliance

The applicant will maintain and reclaim the Class III Roads in an environmentally sound manner. The applicant complies with this section.

Stipulations

None.

UMC 817.180 Other Transportation Facilities - PGL

Existing Environment and Applicant's Proposal

Transportation facilities at the Sunnyside Mines include a spur of the Denver and Rio Grande. Forty-inch gage tracks link the surface and underground, and 10 conveyor belts transfer coal and coarse refuse (Chapter III, page 7, Volume 1). These transportation facilities are all located in the main surface facilities area (Plate III-2). The applicant has stated that the facilities will be removed on page 47, Chapter III, Volume 1.

Compliance

The majority of the conveyor belt system and railroad spur are located in the surface facilities area. Consequently, drainage will be passed through the surface facilities sediment pond. A smaller portion of the drainage from along the railroad spur enters the slurry ditch. It is treated and settled in the slurry ponds and clear water pond.

The applicant commits to the maintenance and restoration of the transportation facilities area to prevent damage to fish, wildlife and related environmental values and to prevent additional contributions of suspended solids to streamflow or runoff outside the permit area (page 3-7, Chapter III, Volume 1). The applicant's proposal is in compliance with this section.

Stipulations

None.

UMC 817.181 Support Facilities and Utility Installations - PGL

Existing Environment and Applicant's Proposal

The main support facilities are located in the surface facilities area (Table III-1). Other support facilities occupy small areas of several acres or less and consist of fan buildings and hoist houses. The applicant has constructed sediment ponds to control runoff from all facility areas with significant disturbances. The sediment ponds control suspended solids and have skimmers to control oil and grease. Runoff from undisturbed areas above support facilities are diverted around the facilities to help prevent degradation of water quality. In locations where the disturbance area is small around support facilities, silt fences have been used to control suspended solids runoff (Chapter III, page 2-3).

Compliance

The applicant has presented measures to control erosion and prevent additional contributions of suspended solids to streamflow or runoff outside the permit area. A commitment is given by the applicant to maintain and restore the area to prevent damage to fish, wildlife and related environmental values and to prevent additional contributions of suspended solids to streamflow or runoff outside the permit area (page 2-3, Chapter III, Volume 1). The applicant is in compliance with this section.

Stipulations

None.

0249R

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
KAISER COAL CORPORATION'S
PERMANENT PROGRAM PERMIT
SUNNYSIDE MINES
CARBON COUNTY, UTAH

The United States Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE), has approved, with conditions, a 5-year permit for Kaiser Coal Corporation to mine coal at its Sunnyside mines.

The Sunnyside underground coal mines are located in Carbon County, Utah, approximately 20 miles southeast of Price, Utah. The mine has been in operation since the 1890's. The permit area covers approximately 14,385 acres, of which 287 acres are disturbed by facilities construction. Maximum mine production will be approximately 2 million tons of coal per year during the life-of-mine through the year 2010.

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 OSMRE 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 C.F.R. Sections 1501.4(c) and 1506.6, notice is hereby given that the Utah Division of Oil, Gas and Mining has completed a technical analysis (TA) for the permit application package for the Sunnyside mines, Carbon County, Utah. OSMRE has supplemented this TA with its own environmental assessment (EA). OSMRE's approval of permit application package with conditions and recommendation to approve Kaiser Coal Corporation's mining plan are in accordance with Sections 510 and 523 of SMCRA. For information or clarification concerning the approval of the Sunnyside mines plan, please contact Rick Lawton or Richard Holbrook at (303) 844-2451, Office of Surface Mining Reclamation and Enforcement, 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
1020 15th Street
Denver, Colorado 80202

Office of Surface Mining Reclamation and Enforcement
Albuquerque Field Office
219 Central Avenue, N.W., 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