



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

October 31, 1985

HAND DELIVERED

Mr. J. A. Gustafson
Vice President
Co-Op Mining Company
53 West Angelo Avenue
Salt Lake City, Utah 84115

Dear Mr. Gustafson:

RE: Final Permit Approval, Bear Canyon Mine, ACT/015/025, #2
and #4, Emery County, Utah

Please find enclosed two copies of the final state permit for the Bear Canyon Mine. Appended to the actual permit is the Technical Analysis (TA) and supporting documentation. Please examine the TA and associated stipulations and sign both copies of the attached permit, ACT/015/025, 10/85, on page 5 of that document. Upon signing, please keep one copy of the permit for your records and return one copy Certified Return Receipt Requested to the Division at your earliest convenience.

A Letter of Credit from the Sandy State Bank for the Bear Canyon Mine has been received by the Division in the amount of \$237,545.00 payable to the state of Utah. Therefore, upon your signature of the permit, it will become valid and enforceable.

Thank you for your cooperation on this matter. Should you have any questions, please feel free to contact the Division.

Best regards,

Dianne R. Nielson
Director

JJW/btb
Enclosures
cc: Allen Klein
Robert Hagen
Lowell Braxton
9294R-36

Joe Helfrich
Technical Review Team

NON-FEDERAL
(February 1985)

Permit Number ACT/015/025 , 10/85

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

This permit, ACT/015/025, is issued for the state of Utah by the Utah Division of Oil, Gas and Mining (DOGGM) to:

Co-Op Mining Company
53 West Angelo Avenue
Salt Lake City, Utah 84115

for the Bear Canyon Mine. Co-Op Mining Company is the owner of certain fee-owned parcels. The permit is not valid until a performance bond is filed with the Division of Oil, Gas and Mining in the amount of \$237,545.00, payable to the state of Utah, Division of Oil, Gas and Mining and the DOGGM 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 Bear Canyon Mine situated in the state of Utah, Emery County, and located:

Township 16 South, Range 7 East, SLBM:

Section 14: SW1/4

Section 23: E1/2, E1/2 NW1/4, E1/2 SW1/4

Section 24: All land West of North-South Trending Bear Canyon Fault

Section 25: All land West of North-South Trending Bear Canyon Fault

Section 26: NE1/4 NE1/4, NW1/4 NE1/4, N1/2 SW1/4 NE1/4 and the access/haul road and topsoil storage area as shown on Plate 2-1 of the Mining and Reclamation Plan

This legal description is for the permit boundary (as shown on the permit area map, Plate 2-1) of the Bear Canyon Mine. 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, 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 on the date the permit is signed by the permittee, 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 UMC 788.17-.19.
- Sec. 5 The permittee shall allow the authorized representative of the DOGM, including but not limited to inspectors, 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 UMC 840.12, and UMC 842.13; and,
 - B. be accompanied by private persons for the purpose of conducting an inspection in accordance with 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 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. Mining shall be confined to the Bear Canyon Coal Seam.

- Sec. 7 The permittee shall minimize any adverse impact to the environment or public health and safety resulting from noncompliance, 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 which prevents violation of any applicable State 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 in approving alternative methods of compliance with the performance standards of the Act and the approved Utah State 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 UCA 26-11-1 et seq (Water Pollution Control) and UCA 26-13-1 et seq (Clean Air).
- Sec. 12 Upon expiration, this permit may be renewed for areas within the boundaries of the existing permit in accordance with the Act and the approved Utah State 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 (are) not disturbed and shall notify the State Regulatory Authority (RA). The state RA shall inform the operator of necessary actions required.
- Sec. 14 APPEALS - The lessee shall have the right to appeal Division actions as provided under UMC 787.
- Sec. 15 SPECIAL CONDITIONS - In addition to the general obligations and of performance set out in the leases, and this permit, the permittee shall comply with the special 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: October 30, 1985

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

Authorized Representative of
the Permittee

Date: _____

Page 5
NON-FEDERAL

APPROVED AS TO FORM:

BY:

Barbara W. Roberts
Assistant Attorney General

Date:

October 30, 1985

0520R

ATTACHMENT A

STIPULATIONS DOCUMENT

Co-Op Mining Company
Bear Canyon Mine
ACT/015/025, Emery County, Utah

October 30, 1985

Stipulation 782.15-(1, 2)-JW

1. Co-Op Mining Company will not conduct mining operations within any portion of the proposed incidental boundary changes shown on Plates 2-1 and 3-4 of the permit application.
2. Prior to conducting any mining operations in the proposed incidental boundary changes shown on Plate 2-1 and Plate 3-4 of this permit application, the applicant must submit a permit application and receive written approval from the Division and the Office of Surface Mining, including approval by the Secretary of the Interior.

Stipulation 817.13-.15-(1)-RVS

1. Within 30 days of completion, boreholes utilized for ground-water monitoring will be sealed in a nonpermanent fashion by installing PVC surface casing with a threaded cap for access.

Stipulation 817.44-(1)-TM

1. The applicant shall provide, within 60 days of permit approval, revised plans and drawings for the proposed rock gabion structures for final reclamation of the Bear Canyon stream channel. The revised plans and drawings shall incorporate the compliance concerns noted in UMC 817.44 of this TA.

Stipulation 817.46-(1)-TM

1. The applicant must provide, within 60 days of permit approval, detailed plans for removal of the sedimentation ponds during final reclamation. The applicant must provide plans to divert flows going to and around the sedimentation ponds during final reclamation of the ponds.

Stipulation 817.55-(1)-TM

1. The applicant shall not divert or discharge water from the surface or from an underground mine into other underground mine workings unless specific approval is obtained for this from the Division.

Stipulation 817.57-(1)-TM

1. The applicant must submit, within 60 days of permit approval, a map showing a new location for the electrical storage area on the disturbed area. Within 30 days of Division approval, Co-Op must relocate the electrical storage area to the approved location.

Stipulation 817.121-.126-(1)-RVS

1. The applicant must, within 30 days of permit approval, commit to maintaining a continuous barrier along the north-south trending fault that occurs approximately 950 feet in from the main access portal. The barrier shall be 80 feet wide with 40 feet of the barrier along each side of the fault for the entire length of the fault. The barrier may not be mined through without specific Division approval to do so based on revised mine sequence maps and mining plans submitted to the Division.

The applicant must provide within 30 days of permit approval a revised Plate 3-4 which delineates the 80 foot barrier.

MINE PLAN INFORMATION

Mine Name: Bear Canyon Mine State ID: ACT/015/025

Operator: Co-Op Mining Company County: Emery

Controlled By: Co-Op Mining Company

Contact Person(s): Nathan Atwood Position: _____
 Telephone: (801) 748-5238

New/Existing: Existing Mining Method: Room and Pillar

Federal Lease No(s): None Approved in Permit Area
 Legal Description(s): _____

State Lease No(s): None
 Legal Description(s): _____

Other Leases (identify): COP Development Fee Simple

Legal Description(s): Township 16 South, Range 7 East, SLBM, SW1/4 Section 14; E1/2, E1/2 NW1/4, E1/2 SW1/4, Section 23; all land in Section 24 and 25 west of the NS Trending Bear Canyon Fault Line; and, NE1/4 NE1/4, NW1/4 NE1/4 and N1/2 SW1/4 NE1/4, Section 26, and the access/haul road and topsoil storage area as shown on Plate 2-1 of the MRP.

Ownership Data:

<u>Surface Resources (acres)</u>	<u>Existing Permit Area</u>	<u>Proposed Permit Area</u>	<u>Total Life Of Mine Area</u>
Federal	_____	_____	_____
State	_____	_____	_____
Private	_____	991	_____
Other	_____	_____	_____
TOTAL	_____	_____	_____

Coal Ownership (acres):

Federal	_____	_____	_____
State	_____	_____	_____
Private	_____	991	_____
Other	_____	_____	_____
TOTAL	_____	_____	_____

<u>Coal Resource Data</u>	<u>Total Reserves (1981)</u>	<u>Total Recoverable Reserves (1981)</u>
Federal	<u>0</u>	<u>92,500 tons*</u>
State	<u>0</u>	<u>0</u>
Private	<u>20,033,470 tons</u>	<u>10,016,985 tons</u>
Other		
TOTAL	<u>20,033,502 tons</u>	<u>10,017,001 tons</u>

*See Section UMC 782.15 of Technical Analysis describing mining of unpermitted and unleased federal coal (92,500 tons per Steve Falk, BLM, October 24, 1985).

<u>Recoverable Reserve Data</u>	<u>Name</u>	<u>Thickness</u>	<u>Depth</u>
Seam	<u>Bear Canyon</u>	<u>10 ft</u>	<u>200-1,800 ft</u>
Seam	<u>Hiawatha</u>	<u>5 ft</u>	<u>250-1,850 ft</u>
Seam	<u></u>	<u></u>	<u></u>
Seam	<u></u>	<u></u>	<u></u>
Seam	<u></u>	<u></u>	<u></u>
Seam	<u></u>	<u></u>	<u></u>

Mine Life: 50 years
 Average Annual Production: 300,000 tons/year Percent Recovery: 50%
 Date Projected Annual Rate Reached: Presently
 Date Production Begins: Currently Producing Date Production Ends: 2030
 Reserves Recoverable By: (1) Surface Mining: None
 (2) Underground Mining:
 Reserves Lost Through Management Decisions: Unknown
 Coal Market: Lump Coal, Steam Coal, Utah and Western United States

<u>Modifications that have been approved:</u>	<u>Date:</u>
<u>Reconstruction of Sedimentation Pond A</u>	<u>December 5, 1984</u>
<u>Incidental Boundary Change</u>	<u>August 24, 1984</u>
<u>Scalehouse Area Modification</u>	<u>October 12, 1983</u>
<u>Topsoil Consolidation</u>	<u>August 17, 1983</u>
<u>Truck Loading Conveyor</u>	<u>June 11, 1985</u>
<u></u>	<u></u>

FINDINGS DOCUMENT

Co-Op Mining Company
Bear Canyon Mine
ACT/015/025, Emery County, Utah

October 25, 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 outside the proposed mine plan area (UMC 786.19[c]). (See Cumulative Hydrologic Impact Analysis [CHIA] Section, attached to this Findings Document. (Also, see Huntington Creek Basin CHIA, May 29, 1984, prepared by Simons, Li & Associates for the Office of Surface Mining [OSM].)
4. The proposed permit area is:
 - A. not included within an area designated unsuitable for underground coal mining operations;
 - B. not within an area under study for designated lands unsuitable for underground coal mining operations;
 - C. not on any lands subject to the prohibitions or limitations of 30 CFR 761.11(a) (national parks, etc.), 761.11(f) (public buildings, etc.) and 761.11(g) (cemeteries);
 - D. within 100 feet of the outside right-of-way line of a public road;
 - E. not within 300 feet of any occupied dwelling (MRP, Section 2.5.3) (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 June 10, 1985, attached to TA.
6. The applicant has the legal right to enter and begin underground activities in the permit area through fee-owned land (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 (personal communication with Joe Helfrich, October 18, 1985) (UMC 785.19[g]).
8. Co-Op Mining Company is not delinquent in payment of fees for the Abandoned Mine Reclamation Fund for its mining operation (UMC 786.19[h]) (personal communication, John Sender, OSM, Albuquerque, October 24, 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]) (personal communication with Joe Helfrich, October 18, 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]).
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 with DOGM prior to final permit issuance (UMC 786.19[k]).
12. No lands designated as prime farmlands occur on the permit area (see Soil Conservation Service [SCS] letter in Appendix 8-C, MRP). The applicant has satisfied the requirements of UMC 785.19, Alluvial Valley Floors (see TA, Section UMC 785.19).
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 10.5) (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]) (see public notices attached).
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.

John W. Hitchcock 10/25/85
DOGMR Lead Reviewer

Lance P. Braxton 10/25/85
Administrator, Mineral Resource
Development and Reclamation Program

Samuel E. May
Associate Director, Mining

Dianne R. Nielson 10-30-85
Director



STATE OF UTAH
NATURAL RESOURCES
Wildlife Resources

1596 West North Temple • Salt Lake City, UT 84116-3154 • 801-533-9333

*Orig mine file
C. J. Whitehead*

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
William H. Geer, Division Director

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JUL 22 1985

DIVISION OF OIL
GAS & MINING

July 18, 1985

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

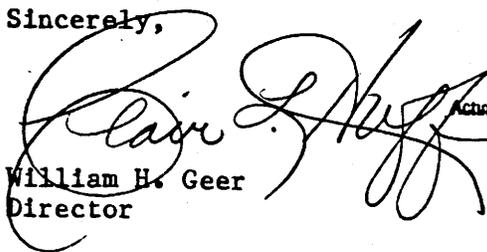
Attention: Lowell Braxton

Dear Dianne:

The Division has evaluated Coop Mining Company's response to the draft technical analysis, dated May 10, 1985. Our only concern lies with comments on page 10-37. The company has indicated that they will report to the Division every golden eagle observed and its location on the mining property. It would only be necessary for the company to report their discovery of raptor nests on the mining property. Additionally, we would not anticipate that the company would report observations of threatened or endangered species of wildlife (peregrine falcon and bald eagle), since the division is well aware of these species' use of the mine plan area.

The Division has no further concern. Thank you for an opportunity to review the MRP and provide comment.

Sincerely,


Acting Director
William H. Geer
Director

RECEIVED

JUN 12 1985

DIVISION OF OIL
GAS & MINING

June 10, 1985

Lowell P. Braxton
Administrator
Mineral Resource Development
and Reclamation Program
Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attn: John Whitehead

RE: Response to Draft Technical Analysis, Co-op Mining Company,
ACT/015/025, #2, Emery County, Utah

In Reply Please Refer To Case No. I126

Dear Mr. Braxton:

The Utah Preservation Office has received your letter of June 3 concerning the response to draft technical analysis, Co-op Mining Company. After review of that response, our office notes no material concerning cultural resources, and therefore our office has no comment.

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
Office of State Historic
Preservation Officer

JLD:jrc:I126/1743V



NORMAN H. BANGERTER
GOVERNOR



STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

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

RECEIVED

JUL 17 1984

DIVISION OF OIL
GAS & MINING

July 11, 1984



SCOTT M. MATHESON
GOVERNOR



STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

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

JJE

JUL 17 1984

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

Attn: Mary M. Boucek

RE: DOC/TD Response, Co-op Mining Company, Bear Creek Canyon
Mine, ACT/O15/O25, Folder No. 2, Emery County, Utah

In Reply Refer To Case No. E408

Dear Mr. Smith:

The Utah Preservation Office has received for consideration your letter of July 6, 1984, concerning a copy of the Co-op Mining Company's determination of completeness and technical deficiencies review response.

After review of the document, our office notes the enclosed copy of the Senco-Phenix Archeological report. After review of that report, our office would concur with the recommendations made by the cultural resource management company.

The above is provided on request as information or assistance. We make no regulatory requirement, since that responsibility rests with the federal agency official, as outlined by 36 CFR 800. However, if you have questions or need additional assistance, please let us know. Contact Jim Dykman at 533-7039.

Sincerely,

Wilson G. Martin
Deputy State Historic Preservation Officer

JLD:jrc:E408/0610V



State Office Bldg. 1104114
Telephone 801-533-5245

office of planning and budget

Scott M. Matheson, Governor

Michael B. Zuhl, Director

Ralph E. Becker, Jr., Deputy Director

FILE

ACT/015/025, #2

RECEIVED

November 7, 1984

NOV 08 1984

DIVISION OF OIL
GAS & MINING

James Smith
Division of Oil, Gas & Mining
4241 State Office Building
Salt Lake City, UT 84114

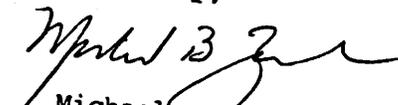
Dear Mr. Smith:

SUBJECT: Determination of Completeness, Co-op Mining Company,
Bear Canyon Mine ACT/015/025, Folder No. 2, Emery
County
State Application Identifier #UT841009-020

The Resource Development Coordinating Committee of the state of Utah
has reviewed this proposed action and no comments have been
indicated.

Thank you for the opportunity to review and comment on this
document. Please address any questions regarding this
correspondence to Carolyn Wright (801) 533-4971.

Sincerely,


Michael B. Zuhl
Director

/cw



STATE OF UTAH
NATURAL RESOURCES
Water Rights

1636 West North Temple • Salt Lake City, UT 84116 • 801-533-6071

cc
John
Tom
Mary

To Mary

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dee C. Hansen, State Engineer

RECEIVED

May 16, 1984

MAY 2

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

FILE
ACT/015/025
#2

DIVISION OF OIL
GAS & MINING

JIM
MAY 22 1984

RE: Response to Submittal
Dam Safety Review
Bear Creek Canyon Mine
ACT/015/025, Folder No. 2
Emery County, Utah

Dear Mr. Smith:

Our Dam Safety Section has completed their review of your most recent submittal for the subject mining-related project. We note:

- * Storage volumes are extremely limited.
- * Expected service lives of the facilities are only a few years.
- * Storage sites are relatively remote.

The proposed alterations are considered acceptable from the standpoint of dam safety, based upon the plans and design report submitted. Clearance for rights of use, storage, diversion, etc., should be specifically made by the owners through our Price office.

Yours truly,

Dee C. Hansen
Dee C. Hansen, P. E.
State Engineer

DCH:jba

cc: Mark Page, Price Area Engineer

Bob Morgan phone call: all items in order from dam safety point of view. Observations not problems of any kind. They basically look at things from an irrigation project point of view where expected lives are ~ 100 years

AFFIDAVIT OF PUBLICATION

Setty
Please
File
TK ED

STATE OF UTAH }
County of Carbon, } ss.

APR 10/85/025
#6

I, Dan Stockburger, on oath, say that I am
the General Manager of The Sun-Advocate,
a weekly newspaper of general circulation, published at Price,
State and County aforesaid, and that a certain notice, a true copy
of which is hereto attached, was published in the full issue of
such newspaper for Four (4)
consecutive issues, and that the first publication was on the
31st day of October, 19 84 and that the
last publication of such notice was in the issue of such newspaper
dated the 21st day of November, 19 84

Dan Stockburger

Subscribed and sworn to before me this
21st day of November, 19 84

Floey Jo Baker
Notary Public.



My Commission expires October 22, 1986
My Commission expires _____, 19 _____

Publication fee, \$ 62.40

**NOTICE OF FILING
APPLICATION FOR
COAL MINING AND
RECLAMATION
PERMIT**
Co-Op Mining Com-
pany, Box 1245, Hus-
tington, Utah, hereby
announces its intent to
file application for a
coal mining permit for
the Bear Canyon mine
with the Division of Oil,
Gas & Mining under the
laws of the State of
Utah. A copy of the
complete application is
available for public
inspection at the Emery
County Recorder's
Office, Emery County
Court House, Castle
Dale, Utah 84518.
Written comments on
the application should
be submitted to the
State of Utah, Division
of Oil, Gas & Mining,
4241 State Office
Building, Salt Lake
City, Utah 84114.
The area to be mined
can be found on the
U.S.G.S. Hiawatha
quadrangle map. The
approximate 620 acres
of the permit area are
on private property and
is described as follows:
Township 16 S. Range
7 E, SLBM; SW 1/4 of Sec.
14; E 1/4; E 1/4 of the
NW 1/4 and the SW 1/4 of
Sec. 23; All West of the
NS Bear Canyon Fault
in Sec's 24 and 25; NE 1/4
of the NE 1/4 of Sec. 26.
Published in the Sun
Advocate October 31,
November 7, 14 and 21,
1984.

RECEIVED
DEC 21 1984
DIVISION OF
OIL, GAS & MINING

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Co-Op Mining Company
Bear Canyon Mine
ACT/015/025, Emery County, Utah

October 25, 1985

I. Introduction

The purpose of this report is to provide a Cumulative Hydrologic Impact Assessment (CHIA) for Co-Op Mining Company's Bear Canyon Mine located in Emery County, Utah. The assessment encompasses the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance and whether the operations proposed under the application have been designed to prevent damage to the hydrologic balance outside the proposed mine plan area. This report complies with 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.

Co-Op Mining Company's Bear Canyon Mine is located along the eastern margin of the Wasatch Plateau Coal Field approximately 9.5 miles west of Huntington, Utah (Figure 1). The eastern margin of the Wasatch Plateau forms a rugged escarpment that overlooks Castle Valley and the San Rafael Swell to the east. Elevations along the eastern escarpment of the Wasatch Plateau range from approximately 6,500 to over 9,000 feet.

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

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

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.

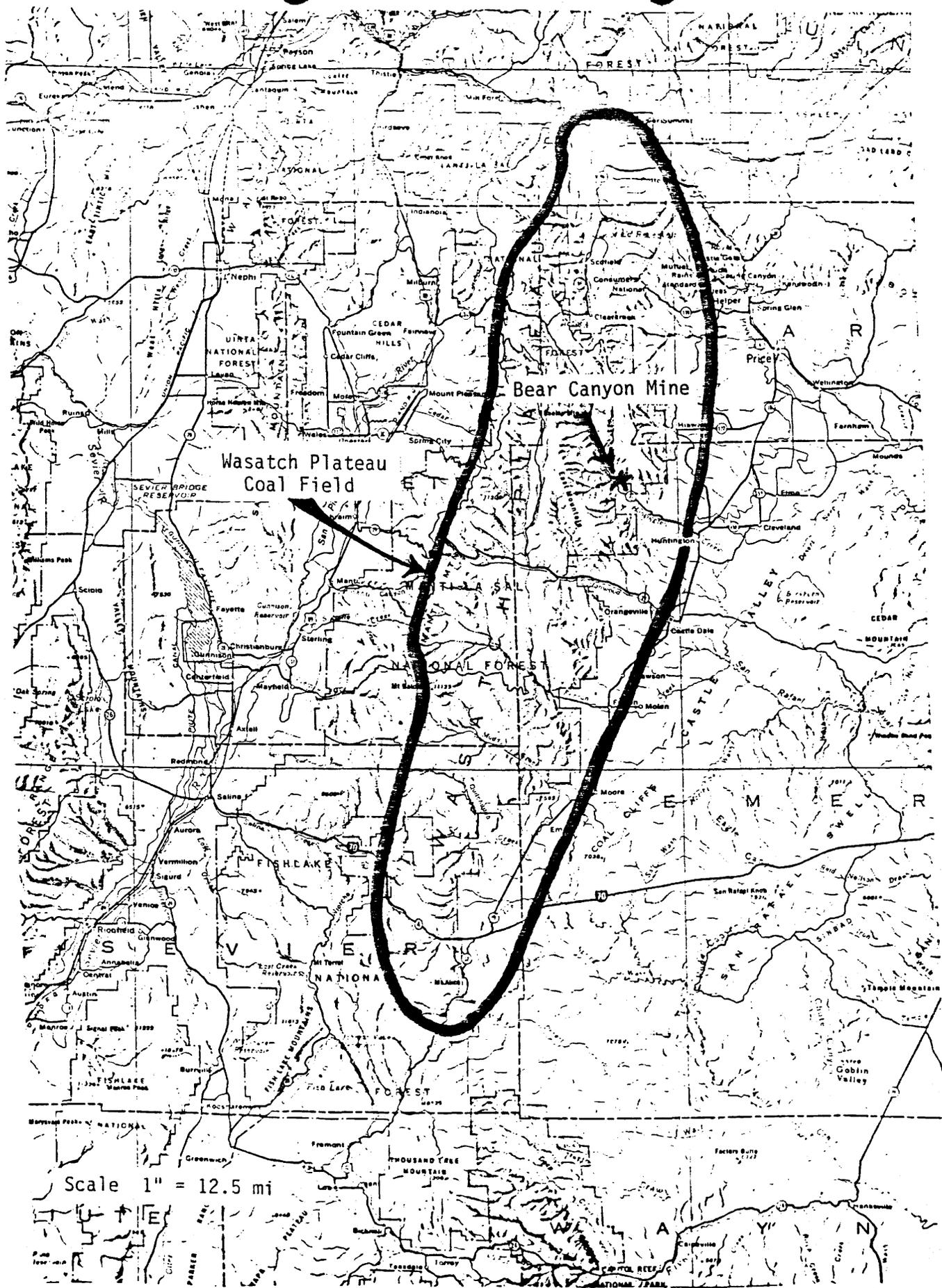


Figure 3. Wasatch Plateau Coal Field

Bear Creek which flows past the Bear Canyon Mine is a perennial tributary to Huntington Creek which is a tributary to the San Rafael River. The upper drainage of Huntington Creek encompasses about 200 square miles of mountainous country in the Wasatch Plateau. About 90 percent of the area is higher than 8,000 feet. The average channel gradient along Huntington Creek is about 100 feet per mile. The lower reaches of the tributaries to Huntington Creek typically have surface relief between the stream channels and tops of adjacent canyon walls of 2,000 feet or more.

II. Cumulative Impact Area (CIA)

Figure 2 delineates the CIA for current and projected Bear Canyon Mine operations. The CIA includes the Trail Canyon and Bear Canyon drainages and several intermediate ephemeral drainages. The CIA encompasses approximately 5,580 acres.

III. Scope of Mining

Mining in Bear Canyon was initiated between 1896 and 1906. Production also occurred from 1938 to 1957. Co-Op Mining Company acquired Bear Canyon area coal leases from Peabody Coal Company in 1975 and reentered the old Bear Canyon workings in 1982.

The Bear Canyon Mine permit area encompasses 991 acres. Mining, during the first five year permit term, will occur in the Bear Canyon coal seam. Production will be from room and pillar mining methods with secondary pillaring. Overburden thickness ranges from approximately 200 to 1,800 feet.

The Trail Canyon Mine, located immediately west of the Bear Canyon property, has been operated by Co-Op Mining Company since 1938. Production, to date, has been from the Bear Canyon coal seam. The Trail Canyon Mine was declared suspended during 1983 and has remained under that status. However, in the future, mining may recommence at Trail Canyon Mine in the underlying Hiawatha coal seam.

Two mines, located to the east and northeast of the Bear Canyon Mine, may be developed in the future. At present, the operators would be U. S. Fuels and Nevada Electric (Figure 2).

IV. Study Area

A. Geology

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

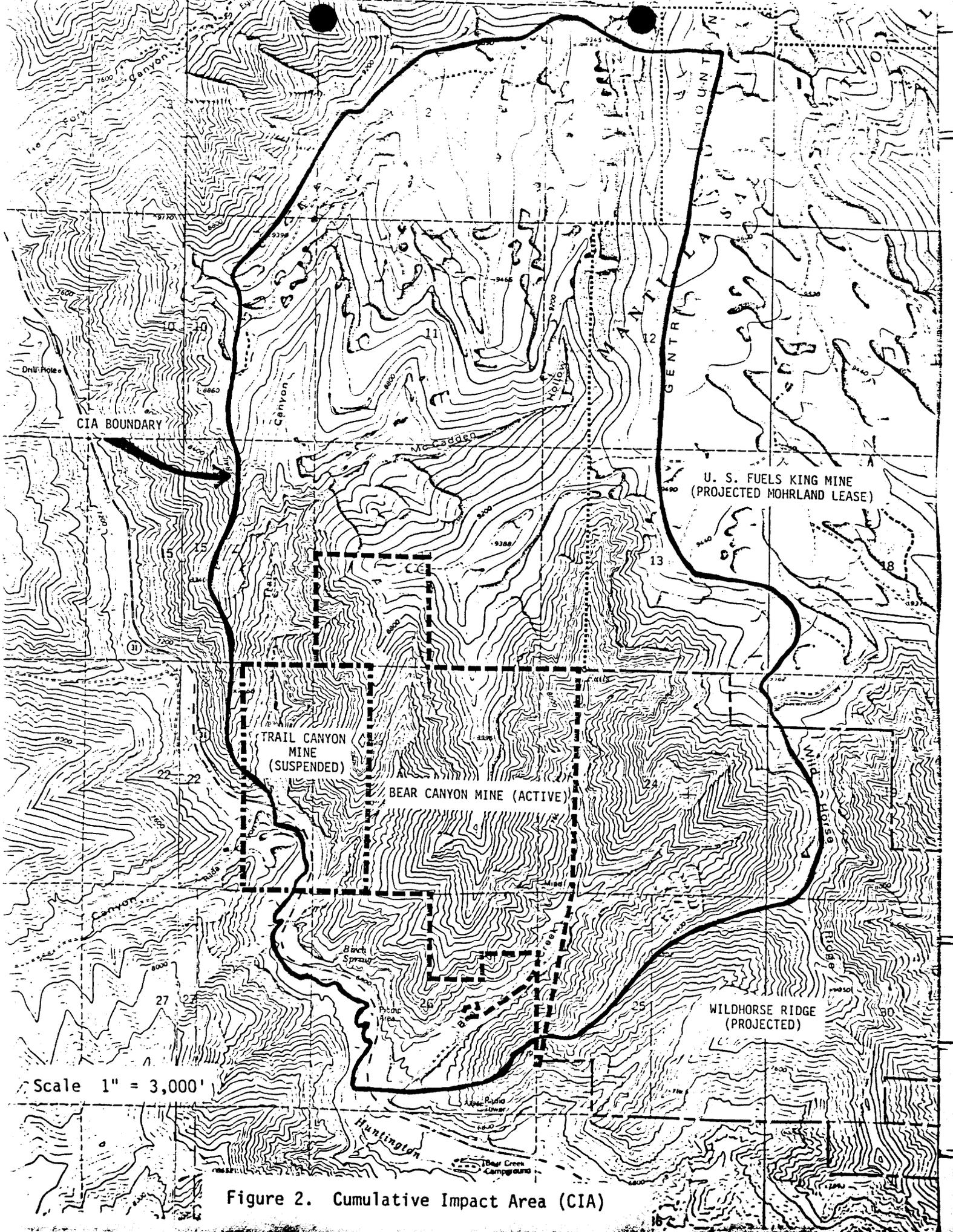


Figure 2. Cumulative Impact Area (CIA)

System	Series	Stratigraphic Unit	Thickness (feet)	Lithology and water-bearing characteristics
Quaternary	Holocene and Pleistocene	Quaternary deposits	0-100	Alluvium and colluvium; clay, silt, sand, gravel, and boulders; yields water to springs that may cease to flow in late summer.
Tertiary	Paleocene	North Horn Formation	800±	Variegated shale and mudstone with interbeds of tan-to-gray sandstone; all of fluvial and lacustrine origin; yields water to springs.
Cretaceous	Upper Cretaceous	Price River Formation	600-700	Gray-to-brown, fine-to-coarse, and conglomeratic fluvial sandstone with thin beds of gray shale; yields water to springs locally.
		Castlegate Sandstone	150-250	Tan-to-brown fluvial sandstone and conglomerate; forms cliffs in most exposures; yields water to springs locally.
		Blackhawk Formation	600-700	Tan-to-gray discontinuous sandstone and gray carbonaceous shales with coal beds; all of marginal marine and paludal origin; locally scour-and-fill deposits of fluvial sandstone within less permeable sediments; yields water to springs and coal mines, mainly where fractured or jointed.
		Star Point Sandstone	350-450	Light-gray, white, massive, and thin-bedded sandstone, grading downward from a massive cliff-forming unit at the top to thin interbedded sandstone and shale at the base; all of marginal marine and marine origin; yields water to springs and mines where fractured and jointed.
		Mancos Shale	600-800	Dark-gray marine shale with thin, discontinuous layers of gray limestone and sandstone; yields water to springs locally.

Figure 3. Stratigraphy of the Bear Canyon Mine Area (modified from Danielson, et al 1981).

Rocks in the study area strike east to northeast and dip from one to two degrees to the south and southeast. Four faults trending north to northeast are mapped within and adjacent to the permit area. Displacements range from less than 10 feet to approximately 150 feet.

Principal coal accumulation occurs within the Blackhawk Formation. Two coal seams have been identified and are termed the Hiawatha seam and Bear Canyon seam. Current mine development is in the Bear Canyon seam. Future development may encompass the underlying Hiawatha seam.

B. Topography and Precipitation

Topography ranges from less than 6,800 feet to over 9,500 feet in the southern and northern portions of the CIA, respectively.

The CIA is characterized by a southerly drainage system of perennial and ephemeral streams (Figure 4). Both Bear Creek and Trail Creek are perennial and have headwaters that originate above 9,200 feet. Intermediate to Bear Creek and Trail Creek are four, relatively small, ephemeral drainages. The perennial streams progressively traverse Tertiary and Cretaceous age rocks, whereas ephemeral drainages mostly cross Cretaceous age lithologies. Stream gradients in the CIA average 20 percent in upper reaches to 7 percent in canyon bottoms.

Average annual precipitation ranges from 16 inches to 25 inches in the CIA.

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

V. Hydrologic Resources

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 provide most of the ground-water recharge, particularly where permeable lithologies or faults/fractures are exposed at the surface. Vertical migration of ground water occurs through permeable rock units and/or along zones of faulting and fracturing. Lateral migration initiates when ground

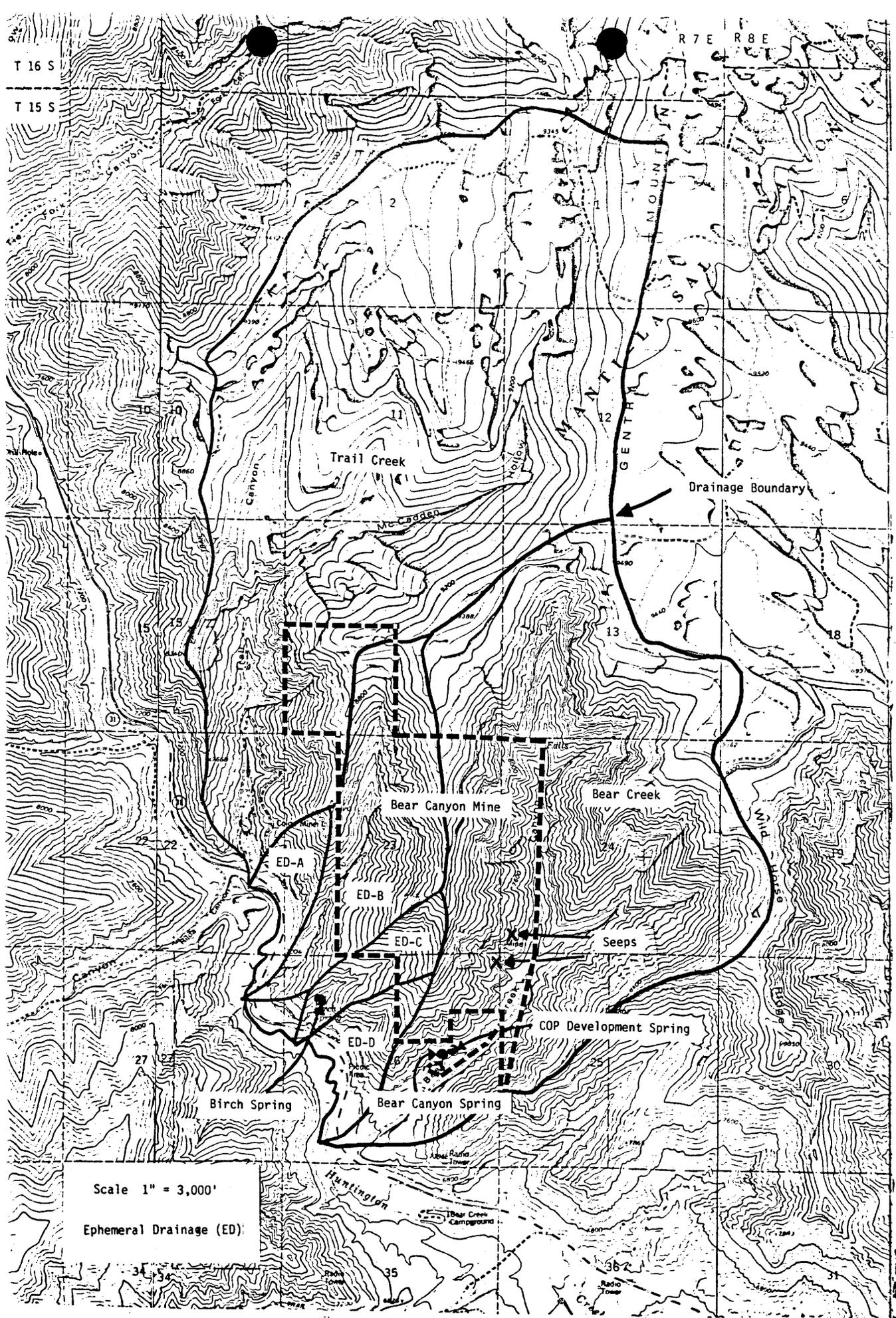


Figure 4. Surface Water Drainage Areas

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

Ground water is present in all lithostratigraphic units that occur within and adjacent to the permit area. Ground water may occur under localized conditions (Figure 5A) that often form a system of perched aquifers and associated springs and/or seeps. The U. S. Geological Survey (USGS) has identified and formally designated the Star Point-Blackhawk aquifer as the only regional ground-water resource in the study area (Danielson, et al 1981 and Lines 1984).

A total of 16 boreholes have been drilled within the CIA. Twelve boreholes were completed within the permit area for the purpose of evaluating ground-water resources and four boreholes were drilled approximately 1.5 miles north of the permit area for the purpose of coal exploration. One borehole (WM-E), located adjacent to the mine access portal, penetrated the Mancos Shale. Borehole WM-E did not encounter water indicating the Star Point-Blackhawk aquifer does not everywhere occur above the Mancos Shale. The remaining 15 boreholes penetrated units above the Mancos Shale and also did not encounter water. These data suggest aquifers, in the immediate vicinity of the permit area, are laterally and vertically restricted to localized saturated zones.

Three springs and two seeps occur within and adjacent to the permit area (Figure 4). Available data suggest spring occurrence is fault controlled, whereas the seeps appear to be associated with permeable lithologies of the Blackhawk Formation. Both Bear Spring (Huntington Municipal) and Birch Spring (North Emery Water Users) have been developed as culinary water sources. During 1978 and 1979, flow averaged 140 gpm for Bear Canyon Spring and 17 gpm for Birch Spring. Discharge data for Bear Canyon Spring indicate a delayed flow response to seasonal runoff. COP Development Spring flows intermittently in response to precipitation or seasonal runoff.

Mine inflow totals approximately 9 to 15 gpm from three roof areas that flow continuously. An extensive area of small roof drips occurs in close proximity to the fault located several hundred feet in by the access portal. Mine inflow may be attributed to dewatering of localized aquifers and the intersection of mine workings with flow along fault/fracture conduits.

B. Surface Water

The surface water regime within the CIA is characterized by mostly snowmelt runoff with base flows being sustained by ground-water springs and seeps. Approximately 80 percent of the runoff occurs between April to July, the snowmelt period (Danielson, et al 1981).

Lithologic Key

Qd - Quaternary deposits
 Kc - Castlegate Sandstone
 Km - Mancos Shale

KTn - North Horn Formation
 Kb - Blackhawk Formation

Kp - Price River Formation
 Ks - Starpoint Sandstone

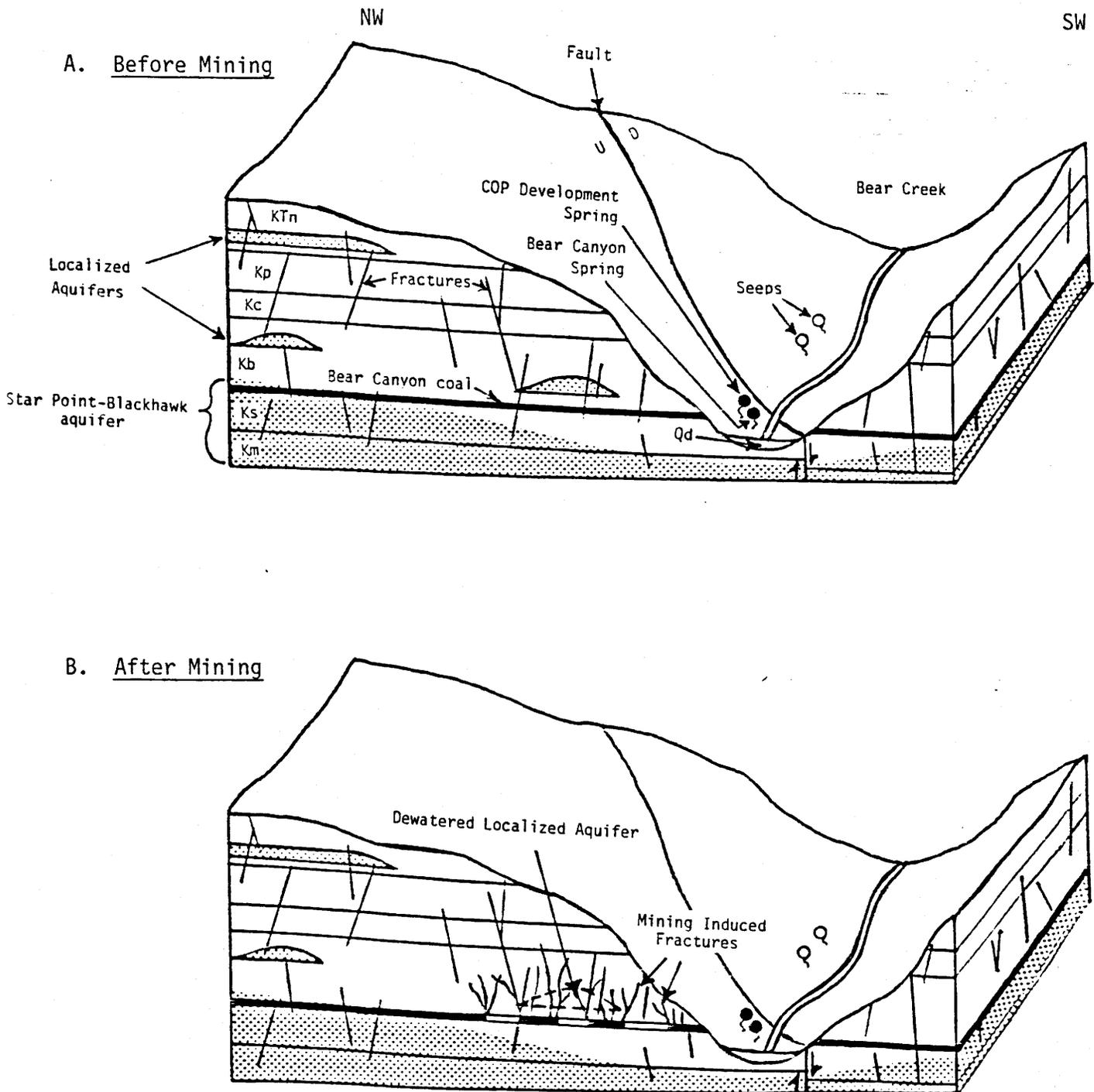


Figure 5. Conceptual Representation of the Potential Five Year Permit Term Impacts to the Ground-Water Regime (modified from Lines 1984).

The two major drainages found within the CIA are Trail Creek and Bear Creek (Figure 4). Both are perennial drainages flowing into Huntington Creek. Four ephemeral drainages, designated ED-A, ED-B, ED-C and ED-D (Figure 4) are also found in the CIA and flow to Huntington Creek between Bear Creek and Trail Creek.

Surface disturbance related to coal mining occurs in both Trail Canyon and Bear Canyon. Interaction between these surface disturbances and the streams are minimized due to sediment control facilities in place at each location. Bear Creek transports large quantities of suspended sediment due to springs emerging from the North Horn Formation in the headwaters of Bear Creek which continuously erodes the shales and mudstone and permits sloughing of large amounts of fine-grained material from the escarpments. Observed suspended sediment loads in Bear Creek have been measured as high as 28,092 milligrams per liter (mg/l) in 1984.

In terms of water quality, the predominant dissolved chemical constituents in the surface water in Bear Creek and Trail Creek are calcium, magnesium and bicarbonate.

The ephemeral drainage flows solely in response to rainfall events and have no recorded water quality data.

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. Mine inflow is currently 9 to 15 gpm. Of this total, approximately 50 gpd are discharged to Bear Creek. The remainder is utilized for dust control and pumped to a water storage tank. Ground water storage for the Blackhawk Formation has been estimated to be 43,000 acre-feet (ac-ft). The value for mine inflow (approximately 19 ac-ft/yr) is considered insignificant in comparison to derived values for ground-water storage and recharge (65 ac-ft/hr). However, continued interception of mine inflow may potentially dewater certain localized aquifers not only during the first five year permit term, but also throughout the life-of-mine as the workings are further developed (Figure 5B). Flow to Bear Canyon Spring may in the future be impacted as mine workings encroach upon the fault that conducts recharge to the spring.

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

B. Surface Water

Bear Creek and Trail Creek. The main concern in terms of water quality deterioration downstream is suspended sediments. The suspended sediment concentrations in Bear Creek in 1984 varied from a high of 28,092 (mg/l) in May of 1984 to a low of 122 (mg/l) in September of 1984 with five monthly readings within the 1-2,000 mg/l range. The suspended sediment concentrations in Trail Creek in 1984 varied from 1,400 mg/l in May of 1984 to a low of 1.0 mg/l in February of 1984 with seven monthly readings below 100 mg/l. These high suspended sediment values are associated primarily with natural climatic and geologic processes, although a proportion may be attributed to surface disturbances from roads and mine pads. Sediment controls do exist for all surface disturbances in both canyons. Therefore, the impact associated with mining in Trail and Bear canyons is minimized by surface controls (i.e., sediment ponds, diversion ditches, filter fences, dugout ponds, etc.).

No known surface disturbances occur with any of the ephemeral drainages within the CIA boundary other than Birch Spring development work in ED-C which has been reclaimed by North Emery Water Users to prevent future impacts.

Future development in the Wild Horse Ridge and Mohrland areas and/or the recommencement of mining at the Trail Canyon Mine may result in further dewatering of the ground-water system. The permitting process will require implementation of sediment control measures and impacts to surface water should be minimized.

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

REFERENCES

- Co-Op Mining Company, Application for an Underground Coal Mine Permit, June 3, 1985, Bear Canyon Mine, Emery County, Utah.
- Danielson, T. W., Re Millard, M. D., and Fuller, R. H. 1981. Hydrology of the coal-resource areas in the upper drainages of Huntington and Cottonwood creeks, Central Utah: U. S. Geol. Surv., Water-Resources Investigations Report 81-539.
- Doelling, H. H. 1972. Central Utah coal fields: Sevier-Sanpete, Wasatch Plateau, Book Cliffs and Emery: Utah Geol. and Mineral Surv., Monograph Ser. No. 3.
- Lines, G. 1984. The ground-water system and possible effects of underground coal mining in the Trail Mountain area, Central Utah: U. S. Geol. Surv., Open-File Report 84-067.

0344R

FINAL TECHNICAL ANALYSIS

Co-Op Mining Company
Bear Canyon Mine
ACT/015/025, Emery County, Utah

October 30, 1985

UMC 782.15 Right of Entry- JW

Existing Environment and Applicant's Proposal

The applicant has submitted an incidental boundary change for 15 acre and 5 acre additions to the permit application. Revised Plates 2-1 and 3-4 delineate the two parcels located in Section 26, Township 16 South, Range 7 East.

Compliance

The applicant's proposal, in response to a Notice of Violation from the Division for mining outside the permit boundary, does not describe right of entry for either parcel. Based on information provided by the Bureau of Land Management (BLM), it appears that the five acre parcel (N1/2 NW1/4 SE1/4 NE1/4, Section 26) is unleased federal coal. The 15 acre parcel (E1/2 E1/2 NE1/4 NW1/4 and W1/2 NE1/4, NE1/4 NW1/4, Section 26) is leased federal coal not contained previously in the permit application.

The Division cannot approve the incidental boundary changes proposed by the applicant at this time. Right of entry information must be provided by the applicant. However, this permit will reflect the fact that Co-Op mined outside its permit area in the two designated areas.

The following stipulations govern mining operations within the proposed incidental boundary changes shown on Plates 2-1 and 3-4. Co-Op Mining Company is further warned against conducting mining operations in any area or lease which is outside of the permit boundary.

Stipulation 782.15-(1, 2)-JW

1. Co-Op Mining Company will not conduct mining operations within any portion of the proposed incidental boundary changes shown on Plates 2-1 and 3-4 of the permit application.
2. Prior to conducting any mining operations in the proposed incidental boundary changes shown on Plate 2-1 and Plate 3-4 of this permit application, the applicant must submit a permit application and receive written approval from the Division and the Office of Surface Mining, including approval by the Secretary of the Interior.

UMC 785.19 Alluvial Valley Floors - RVS

Existing Environment and Applicant's Proposal

Bear Creek Canyon encompasses limited unconsolidated streamlaid deposits (Plate 3.4-1). Although Bear Creek sustains sufficient water for limited agricultural activities, the applicant states that the "area has no history of agricultural attempts" (Mining and Reclamation Plan [MRP], page 3-112). The Division of Oil, Gas and Mining (DOGGM) determines that the lack of "agricultural attempts" also precludes past utilization of flood irrigation. Moreover, technical staff inspections of the mine site have not identified the presence of flood irrigation. Limited streamflow, poor soil conditions (Plate 8-1) and steep topography (Plate 3.4-1) indicate a low capability for the area to be flood irrigated. Finally, the applicant states that there is "no evidence for suberrainian irrigation" (MRP, page 3-112).

Compliance

Sufficient information about alluvial deposits and irrigation are available for DOGGM to determine as required by UMC 785.19(c)(2) that no alluvial valley floors exist.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.11 Signs and Markers - PGL

Existing Environment and Applicant's Proposal

Page 3-25 states that signs used on the property are constructed of suitable material, employ uniform and standard designs and conform to local ordinances and codes. They will be maintained during the conduct of all activities to which they pertain. The gate at the main entrance will be posted with a sign containing the company name, address, telephone number and identification number. The maintenance of the signs is indicated on page 3-25A.

The applicant indicates surface blasting is not anticipated at this underground mine (MRP, page 3-29). However, if required, upon initiation of blasting, "Blasting Area" signs will be posted on access roads and on public roads within 200 feet (MRP, pages 3-25 and 3-5E). In addition, the blasting area will be conspicuously flagged in the vicinity of charged holes and the entrance to the property from the public road will be posted with a sign stating, "Warning! Explosives in Use" and explaining the blast warning and all-clear signals and the marking of blast areas.

Topsoil stockpile areas are marked with "Topsoil" signs and access roads will be posted with will be posted with a sign stating, "Warning! Explosives in Use" and explaining the blast warning and all-clear signals and the marking of blast areas.

Topsoil stockpile areas are marked with "Topsoil" signs and access roads will be posted with speed, direction and traffic information signs (MRP, page 3-26).

The applicant commits to properly post a sign for stream buffer zones in Appendix 3-G.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

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

Existing Environment and Applicant's Proposal

Boreholes. The applicant has drilled 12 boreholes for the purpose of evaluating the permit and adjacent area ground-water system (Table 7.1-2). Borehole locations have been identified on Plate 3.4-1. Three additional boreholes will be completed to further evaluate the ground-water system (Section 7.1.7, page 21 and Plate 3.4-1).

The applicant states that, upon abandonment, all boreholes will be plugged with five feet of cement as required by Rule M-3(5), Utah Mined Land Reclamation Act of 1975 (Section 3.6.3.1, page 3-86).

Entries. The applicant has committed to sealing all mine entries upon completion of mining (Section 3.6.3.1, pages 3-43 and 3-87). Seals will be constructed of solid concrete blocks in a double wall thickness (16 inches) and located a minimum of 25 feet from the entryway (Section 3.6.3.1, pages 3-43, 3-87 and 3-88). Installation will include recessing the seals 16 inches and 12 inches into the rib and floor, respectively. Seals will not be recessed into the roof. Structural integrity will be enhanced by incorporating interlaced pilasters in the central portion of the seals.

Figure 3-1 indicates entries will be backfilled to the seal (not less than 25 feet) with noncombustible material. The entryway and adjacent highwall (including the exposed seam) area will be backfilled with noncombustible material, graded, covered with suitable topsoil material and revegetated.

The applicant proposes to install temporary seals for entryways that are temporarily inactive (Section 3.6.9.1, page 3-121). Temporary seals will be constructed of woven wire and posted.

Compliance

The applicant's proposals for permanently sealing boreholes and entries are designed to prevent access and preclude toxic drainage from entering ground or surface waters as required by UMC 817.13 and 817.15.

The applicant has provided adequate plans for posting signs and limiting access to temporarily inactive entries. However, the applicant has not included plans for temporarily sealing boreholes (i.e., ground-water monitoring wells) as required by UMC 817.14.

The applicant will be in compliance when the following stipulation is met.

Stipulation 817.13-.15-(1)-RVS

1. Within 30 days of completion, boreholes utilized for ground-water monitoring will be sealed in a nonpermanent fashion by installing PVC surface casing with a threaded cap for access.

UMC 817.21-.25 Topsoil - EH

Existing Environment and Applicant's Proposal

The Bear Canyon Mine is located within the Wasatch Plateau at an elevation of approximately 7,100-7,600 feet. The mean annual air temperature ranges from 42° to 45° F and frost-free days from 80 to 130. The mean annual precipitation ranges from 12 to 16 inches, with approximately 35-40 percent of this moisture falling during the summer months.

Native vegetation in the permit area consists mainly of sagebrush-grassland, pinyon-juniper with a few conifer trees.

The Soil Conservation Service (SCS) conducted a soil survey during the 1980 season. Two soil series were found to exist within the area of disturbance. Datino Bouldery fine sandy loam--5 to 20 percent slopes, and a Datino-Rock Outcrop Complex--55 to 70 percent slope. Both soil series are classified as typic haploboralls.

The Datino Bouldery fine sandy loam is a very deep, well-drained soil that forms on alluvial fans and floodplain from the weathering of sandstone and shale. The Datino-Rock Outcrop Complex is a very deep, well-drained soil that formed on steep side slopes from the weathering of colluvium of sandstone and shale.

Soil profiles have an A horizon ranging from 10-16 inches deep with a well defined B horizon ranging in thickness from 16 to 18 inches.

The Bear Canyon Mine was developed in an area of pre-Law disturbance and had no topsoil removed from the majority of the present 10 acre disturbance. The scalehouse area, however, was developed in 1982 in an area where topsoil and subsoil could be removed and stockpiled. Approximately 2,600 yd³ of soil material was removed and stockpiled for reclamation (Plate 2-2).

The volume of soil material needed during final reclamation to cover the 10 acres of disturbance with six inches of soil is approximately 8,100 yd³. The additional topsoil material needed, approximately 5,500 yd³, has been purchased and will be stockpiled on a location included into the permit area (Section 8.6 MRP).

Storage of the 5,500 yd³ of topsoil substitute material will be accomplished by spreading the soil material to a uniform depth over a baseball diamond, seeding as per seed list on page 8-16B and not disturbed before removal and use as topsoil during final reclamation.

Chemical and physical analysis of all soil material that will be used for reclamation have been conducted and are present in the mine plan (Appendix 8-A).

Topsoil redistribution will be accomplished by first ripping the regraded areas to a depth of 14 inches. Steep slope areas will receive special ripping to create ledges, crevices, pockets and screes. Topsoil will then be redistributed during the fall of the year to a depth of six inches. Following topsoil placement, it will be disced to a depth of six inches in preparation for seeding as per the revegetation plan.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.41 Hydrologic Balance: General Requirements - TM, RVS

Existing Environment and Applicant's Proposal

Surface Water - TM

Co-Op Mining proposes to conduct all mine site operations in such a way as to minimize potential impacts to surface and ground-water quality.

The following quotes discuss the existing environment and surface water quality and quantity collected to date by Co-Op Mining Company.

"The channel of Bear Creek is straddled by the mine plan area with the vast majority of the area, disturbed and undisturbed, west of the creek. Bear Creek is a perennial stream with flows often frozen during the winter. An intermittent tributary flows into Bear Creek from the east in the mine plan area, but this tributary does not pass through any disturbed area" (Section 7.2.2, MRP). Bear Creek flows into Huntington Creek approximately one mile south of the mine site.

The applicant has included the following flow data on Bear Creek from Danielson's report (1981) (Open File Report 81-539, U. S. Geological Survey [USGS]).

Bear Creek (Site No. 81)

<u>Date</u>	<u>Discharge (cfs)</u>
August 10, 1978	.09
October 25, 1978	.08
November 8, 1978	.06
December 13, 1978	.04
June 27, 1979	.34
July 16, 1979	.21
November 30, 1979	.05

The applicant also shows data collected by Co-Op Mining from November 15, 1982 to April 11, 1984. These data included the following parameters: flow (gpm), temperature (°C); pH; iron (mg/l); manganese (mg/l); and, solids (mg/l) (Table 7-8, MRP).

The applicant makes the following commitments regarding reclamation.

"Upon completion of mining activities, all diversion structures (ditches, culverts, ponds) shall be reclaimed as close to original configuration as possible. Sequencing of this reclamation shall be from the highest points in elevation to the lowest ones. In addition, the lower disturbed area collection ditches and sedimentation ponds shall not be removed until the reclaimed areas have been stabilized" (MRP, Section 7.3.1).

For additional technical information regarding reclamation see Section 7.3, Reclamation Hydrology, MRP.

Ground Water - RVS

The applicant describes ground water as occurring under confined and unconfined conditions in the permit and adjacent area (Section 7.1.3, page 3). Unconfined conditions occur within shallow alluvial deposits as local perched zones, whereas confined conditions are recognized at depth and are associated with fault zones and relatively permeable lithologies that are overlain by impermeable rocks or juxtaposed by faulting against impermeable rocks (Section 7.1.3, page 3). Surface percolation from snowmelt is thought to be the source of most ground-water recharge (Section 7.1.3, page 4).

Three springs occur adjacent to the permit area. Bear Spring (140 gpm average flow) and Birch Spring (17 gpm average flow) are perennial and COP Development Spring is intermittent (Table 7.1-1).

The applicant states that spring flow is controlled by fault zone that drain aquifers adjacent to the permit area (Section 7.1.3, page 4). Discharge data indicate springs and seeps respond to seasonal runoff (Section 7.1.3, page 4).

The applicant initiated a drilling program (12 boreholes) to identify aquifers within the mine plan area (Table 7.1-2). Data from four boreholes adjacent to the permit area were also utilized to characterize the regional ground-water system. One borehole (WM-E), located adjacent to the main access portal, penetrated the Mancos Shale and did not encounter water (Section 7.1.3.2.1, page 10). The remaining 15 boreholes penetrated units above the Mancos Shale and also did not encounter water (Section 7.1.3.2.1, page 8-9). These borehole data indicate aquifers within the vicinity of the permit area are laterally and vertically restricted to localized saturated zones (Section 7.1.3.2.2, page 13).

Mine inflow totals approximately 9 to 15 gpm from three roof areas that flow continuously (Section 7.1.3.2.2, page 13). An extensive area of small roof drips occurs in close proximity to the fault located in by the access portal (Section 7.1.3.2.2, page 13). Mine inflow is attributed to dewatering of localized aquifers and the intersection of mine workings with flow along fault/fracture conduits (Section 7.1.3.2.2, page 13-14).

Water quality data for springs and mine inflows are given in Table 7.1-3. These data indicate water quality is within state and federal standards.

Compliance

Surface Water - TM

The applicant is in compliance with this section.

The surface water data collected to date is adequate to characterize the baseline surface water quality and quantity and thereby allow a determination of minimal changes to the prevailing hydrologic balance.

Ground Water - RVS

The applicant has provided information about the occurrence, movement and quality of ground water that, in conjunction with Stipulation 817.121-.126-(1)-RVS, allow a determination of minimal change to the subsurface hydrologic balance. Moreover, the applicant has committed to acquiring additional baseline ground-water data (Section 7.1.7, pages 20-21 and Table 7.1-4) and submitting an Annual Hydrologic Monitoring Report (Section 7.1.7, page 21)

The applicant is in compliance with this section.

Surface Water Stipulations

None.

Ground Water Stipulations

None.

UMC 817.42 Water Quality Standards and Effluent Limitations - TM

Existing Environment and Applicant's Proposal

The applicant proposes the following water treatment measures for the mine plan area.

"The vast majority of the disturbed area of the Bear Canyon Mine is on the west side of Bear Canyon (same side as the mine portal and to the south). All the runoff from this west side disturbed area is collected and channeled to Sedimentation Pond "A." The small amount of runoff from the disturbed area east of Bear Creek is channeled to Sedimentation Pond "B." In order to minimize the amount of water crossing the disturbed area, runoff from the disturbed area above is diverted around or channeled through the disturbed area and into Bear Creek (Section 7.2.5, MRP).

Compliance

The applicant is in compliance with this section.

The applicant currently is monitoring three locations within or adjacent to the permit area. These locations are above and below the permit area on Bear Creek and also the Right Fork of Bear Creek.

"Monitoring of the following parameters will be performed monthly: flow (gpm); pH; temperature (°C); total dissolved solids (mg/l); iron; magnesium potassium; chloride; nitrate sulphate; carbonates; bicarbonates; calcium; magnesium; sodium; and, total suspended solids (all in mg/l). On a quarterly basis, the parameters list in Table 7.2-6 will be measured" (Section 7.2.4, MRP).

The applicant has completed the reconstruction of Sedimentation Ponds "A" and "B" in order to bring these structures into regulatory compliance.

Stipulations

None.

UMC 817.43 Hydrologic Balance: Diversions and Conveyance of Overland Flow, Shallow Ground Water Flow and Ephemeral Streams - TM

Existing Environment and Applicant's Proposal

The applicant uses a series of diversion ditches and culverts to divert "disturbed" and "undisturbed" drainage through the Bear Canyon Mine. The calculations for these structures are shown on two tables labeled "Summary of Ditch Sizes" and "Summary of Culvert Sizes" (Section 7.2.5.2, MRP).

Computer programs and printouts were used in sizing the ditches and culverts. Refer to Plate 7-1 for locations of the various structures and Plate 7-5 for watershed areas used in calculations.

Compliance

The applicant is in compliance with this section.

The Division has analyzed the design calculations proposed by the applicant for the disturbed and undisturbed surface water drainage plan. The applicant has used an extended basin lag time in the MRP for all ditch and culvert calculations based on the conclusion that "different methods, different rainfall distributions, different computer programs will all generate different numbers and that too short a time of concentration or lag for generated hydrographs will give you an erroneously high indication of peak flow because of the difference between the theoretical computations and the actual channel and ground surface conditions found in nature" (Appendix 7-D, MRP).

The Division does not concur on the issue of using an artificially lengthened basin lag time in design calculations. However, the results produced by the applicant are not significantly different from the Division's calculations. Thus, the designs proposed by the applicant are deemed acceptable, especially in light of the fact that the structures (i.e., culverts, ditches, etc.) are already in place. The structures associated with the surface water drainage plan will be monitored monthly by Division Inspection and Enforcement Staff. Should problems become evident, Co-Op will be required to replace or modify existing structures.

Stipulations

None.

UMC 817.44 Stream Channel Diversions - TM

Existing Environment and Applicant's Proposal

The applicant has proposed to restore the natural drainage system found in the current permit area. This includes two small ephemeral channels and Bear Creek which is a perennial stream. The two ephemeral channels will be reconstructed in the locations, and to the dimensions shown in cross sections (C-C and D-D) and profiles (E and F) found on Plates 7-7 and 7-8. Table 7.3.1 contains a summary of the 100-year, 24-hour flows and expected velocities associated with the two ephemeral channels (Section 7.3, MRP).

Bear Creek channel restoration involves re-creation of the natural channel based on cross sections taken prior to channel disturbance. As well as reconstructing the natural channel cross sections, the applicant plans on using rock check dams along the course of the channel utilizing native materials to enhance reestablishment of riparian vegetation. The holding ponds created by the check dams will fill with sediment and minimize the downstream migration of silt and convert these silted-in areas into potential riparian vegetation areas (Section 7.3.3).

Measures will be taken to restore a pattern of riffles, pools and drops approximate to natural stream channel characteristics. Riprap and filter blankets under the riprap will be used to control erosion. It will be placed in the ephemeral channels as shown on Plate 7.7.

Compliance

The applicant has met the criteria spelled out in UMC 817.44(d)(1)(2)(3). Since no preexisting cross sections for the two ephemeral drainages are available, the applicant has chosen to size these two channels based on the 100-year, 24-hour storm event criteria listed in UMC 817.44(b)(2). Bear Creek has been sized so

that the capacity of the channel itself is equal to the capacity of the unmodified stream channel immediately upstream and downstream of the current diversion (see Plate 7-8). All three channels will be restored to a natural meandering shape of an environmentally acceptable gradient. Also, a pattern of riffles, pools and drops rather than uniform depth will be restored to approximate natural stream channel characteristics.

An important design consideration for the Bear Cr ek restored stream channel is the rock gabion structures. Currently, the applicant has suggested design criteria spelled out in Section 7.3.3, pages 79 and 80, as well as Figure 7.3-2.

After assessing the applicant's proposal based on the best technology currently available, the Division mandates the following design changes for these structures must be made.

1. The 12-24 inch boulders proposed must be replaced by a well-graded distribution of angular rock from 6-24 inches. The angle of rest for this angular rock should correspond to a slope ratio not less than 1.5.
2. The keyway proposed is 24 inches wide and deep and excavated into the streambed and banks. The keyway must be increased to 36 inches deep into the banks.
3. The apron section must be increased to a 10 foot length and placed with an adverse slope of six inches over the 10 foot length. A filter blanket must be placed under aprons. Riprap side slope protection measures for the length of the apron and two feet above the gabion crest must be included. The 6-12 inch rock riprap should not be placed on the upstream side as shown on Figure 7.3-2, but the angle of rest for the 6-24 inch well-graded material used to construct the gabion must be strictly adhered to.
4. All changes spelled out above need to be shown on Figure 7.3-2 and in the text, Section 7.3.2.
5. A test structure incorporating the above design changes shall be implemented by September 1986 in the vicinity of the sediment pond. This test structure will be monitored over the life of the mine to determine its effectiveness and stability. The exact location of this structure shall be determined based on an onsite visit between Division hydrologists and Co-Op.

Stipulation 817.44-(1)-TM

1. The applicant shall provide, within 60 days of permit approval, revised plans and drawings for the proposed rock gabion structures for final reclamation of the Bear Canyon stream channel. The revised plans and drawings shall incorporate the compliance concerns noted in UMC 817.44 of this TA.

UMC 817.45 Sediment Control Measures - TM

Existing Environment and Applicant's Proposal

Bear Canyon Road erosion control is proposed as follows by the applicant.

"Ditches and culverts have been added to the road to control runoff and safely pass the runoff from a 10-year, 24-hour precipitation event (see Plates 3-1 and 3-5). Ditches shall be maintained at a minimum depth of 1.8 feet, and at least 30 inches of headwater depth will be maintained at the inlet of the 18 inch culverts. Culverts are fitted with trash racks to prevent plugging and buried and compacted a minimum of 30 inches to prevent crushing. In areas where velocities of runoff exceed five fps, erosion protection such as straw bales at 100 foot intervals or six inch median diameter riprap on a bed of gravel/sand six inches thick shall be maintained. Culvert spacing conforms with the requirements of UMC 817.153(c)(z)(i). Rock or concrete headwalls shall be other erosion protection shall be the outlet" (Section 3.3.11, MRP).

The applicant has provided several erosion control methodologies (i.e., silt fences and energy dissipators) which are currently practiced or will be used as warranted within the permit area.

Compliance

The applicant is in compliance with this section.

The applicant has outlined methods of sediment control in place onsite which have been specifically detailed in the MRP or on Plate 7-1. These measures are included in the MRP and on Plate 7-1. This includes a typical cross section or drawing of the structure (i.e., silt fence, energy dissipator) and installation procedure (Figures 7.2-6, 7.2-8, 7.2-9, MRP).

Stipulations

None.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds - TM

Existing Environment and Applicant's Proposal

The applicant includes the following proposal for sediment ponds in the MRP.

"The vast majority of the disturbed area of the Bear Canyon Mine is on the west side of Bear Canyon (same side as the mine portal and to the south). The all runoff from this west side disturbed area is collected and channeled to Sedimentation Pond "A." The small amount of runoff from the disturbed area east of Bear Creek is channeled to Sedimentation Pond "B." In order to minimize the amount of water crossing the disturbed area, runoff from the undisturbed area above is diverted around or channeled through the disturbed area and into Bear Creek" (MRP, Section 7.2.5).

The disturbed area west of Bear Creek was split into three sections to facilitate calculations. The design calculations for both Pond "A" and "B" are found in Section 7.2.5.1 of the MRP.

The applicant chose to accept calculations derived by Division technical staff for sediment pond "A" and "B." The calculations are as follows:

Design Criteria Pond "A"

Drainage Area: 14.35 Acres
SCS Curve #82
3-Year Sediment Storage: 41,444 ft³
10-Year, 24-Hour Runoff Storage: 42,714 ft³
Total Storage Volume: 84,158 ft³
Use Existing Spillway: 10 Foot Wide
Broad Crested Weir
Rainfall Data Base: Hiawatha Data by
E. Arlo Richardson

Design Criteria Pond "B"

Drainage Area: 1.82 Acres
SCS Curve #82
3-Year Sediment Storage: 2,156 ft³
10-Year, 24-Hour Runoff Storage: 8,182 ft³
Total Storage Volume: 10,338 ft³
Use Existing Spillway: 4 Foot Wide
Broad Crested Weir
Rainfall Data Base: Hiawatha Data by
E. Arlo Richardson

Plates 7-2 and 7-3 shows the required plan and sections of Sedimentation Pond "A" and "B," respectively.

Compliance

The applicant is in compliance with this section.

The applicant has adequate plans for the design of pond "A" and has implemented this design during the 1985 construction season. The applicant also has complete plans for Pond "B" which address Division concerns and has implemented this design during the 1985 construction season.

The applicant has not provided detailed plans for removal of the sedimentation ponds.

The applicant has not provided detailed plans for diverting disturbed area flows going to the sedimentation ponds during final reclamation.

Stipulation 817.46-(1)-TM

1. The applicant must provide, within 60 days of permit approval, detailed plans for removal of the sedimentation ponds during final reclamation. The applicant must provide plans to divert flows going to and around the sedimentation ponds during final reclamation of the ponds.

UMC 817.47 Hydrologic Balance: Discharge Structures - TM

Existing Environment and Applicant's Proposal

The applicant addresses certain specific methods for reducing discharge related erosion from sedimentation ponds and diversions by installing energy dissipators, riprap channels and other devices where necessary to reduce erosion to control flows (Figure 7.2-6 through Figure 7.2-9, MRP).

Compliance

The applicant is in compliance with this section.

The applicant has identified what energy dissipators will be used, how they will be installed and where it will be located on Plate 7-1, as well as Figures 7.2-6, 7.2-7, 7.2-8, 7.2-9.

Stipulations

None.

UMC 817.48 Acid-Forming and Toxic-Formign Materials - EH

See Section UMC 817.103 of this TA.

UMC 817.49 Hydrologic Balance: Permanent and Temporary
Impoundments - TM

Existing Environment and Applicant's Proposal

The applicant states that all embankments of temporary impoundments, the surrounding areas and diversion ditches, disturbed or created by construction shall be graded, fertilized, seeded and mulched to comply with the requirements of UMC 817.111-.117 immediately following embankment construction. Areas where vegetation is not successful, or where rills and gullies develop shall be repaired and revegetated (Section 3.6.6.2, MRP).

Compliance

The applicant is in compliance with this section.

The applicant has not proposed any permanent impoundments to be left onsite, therefore, does not need to meet the requirements associated with permanent impoundments.

Stipulations

None.

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

Existing Environment and Applicant's Proposal

The applicant states that "strata in the Wasatch Plateau generally dip southerly (slightly southeast or southwest) at angles of one to three degrees" (MRP, page 6-9). Plate 3.4-1 indicates the dip within the mine plan and adjacent area ranges from one to two degrees in an overall southerly direction. Elevations shown on Plate 3-4 show the access portal, conveyor belt portal and fan portal to be lower than all other portions of the mine workings.

Mine inflow totals approximately 9 to 15 gpm from roof areas that flow continuously (Section 7.1.3.2.2, page 13). An extensive area of small roof drips several hundred feet inby the access portal serves to recharge the mine sump area (Section 7.1.3.2.2, page 13 and Plate 3-4).

Details of the permanent portal seals are given in Section 3.6.3.1 (pages 3-87 and 3-88), Section 7.3.5 (page 80-A) and Figure 3-1).

A monitoring (quarterly) and mitigation plan for unplanned portal discharges following mining is presented in Section 7.3.5, page 80-A.

Compliance

The applicant has demonstrated that entries and accesses to underground workings are located, designed, constructed and utilized to prevent gravity discharge from the mine. Moreover, the applicant has committed to monitoring and, if necessary, providing mitigation for unsuitable portal discharges following mining.

Stipulations

None.

UMC 817.52 Surface and Ground Water Monitoring - TM, RVS

Existing Environment and Applicant's Proposal

Surface Water - TM

The operational monitoring plan is shown in Table 7.2, page 75, MRP.

The following parameters are currently utilized in the surface water sampling program at the Bear Canyon Mine site.

TABLE 3-6

Parameters Included in Surface Water and Ground Water Monitoring Plan

1. Flow (gpm)
2. pH
3. Temperature (°C)
4. Total Dissolved Solids (mg/l)
5. Dissolved Calcium (mg/l)
6. Dissolved Iron (mg/l)
7. Dissolved Magnesium (mg/l)
8. Dissolved Potassium (mg/l)
9. Dissolved Sodium (mg/l)
10. Dissolved Bicarbonate (mg/l)
11. Dissolved Carbonate (mg/l)
12. Dissolved Chloride (mg/l)
13. Dissolved Nitrate (mg/l)
14. Dissolved Sulfate (mg/l)
15. Total Suspended Solids (mg/l)

Note: See Figure 7-4 for reporting format.

Sampling is being conducted monthly at the monitoring sites given below.

"In the past, Co-Op Mining Mining Company has monitored two stations on Bear Creek, one above (north) of the mine plan area and one below (southwest). The monitoring location above the mining area is approximately 3,000 feet upstream from where the mine road crosses Bear Creek in the mine plan area. The monitoring location downstream is a Weir W-4. In addition to these, a third monitoring location is being added. In the future, the right-hand tributary of Bear Creek will be monitored just above its confluence with Bear Creek" (see Plate 7-4).

Flows will be determined by direct measurement (depth times width times 2/3 velocity) or, whenever feasible, by timed filling of a unit volume container. Chemical analyses will be performed by a certified laboratory. Reporting format will be as shown in Figure 7-4.

Ground Water - RVS

The applicant commits to monitoring "water levels, discharge and water quality fluctuations in relevant aquifers or ground water occurrences in the mine area" (Section 7.1.7, page 20). Moreover, data will be derived from mine roof seeps and sumps, future boreholes that encounter water and springs. All sites will be sampled on February 1, May 1, August 1 and November 1.

Bear Spring, COP Development Spring and Birch Spring will be sampled to determine discharge and water quality (Section 7.1.7, page 20). Water quality parameters will be derived according to the listing and frequency in Table 7.1-4.

The mine sump water level will be measured and water quality samples will be taken on a quarterly basis (Section 7.1.7, page 21).

The applicant commits to providing an Annual Hydrologic Monitoring Report that includes a yearly update of the mine inflow survey (Section 7.1.7, page 21).

Compliance

Surface Water - TM

The applicant is in compliance with this section.

On a quarterly basis, the parameter list shown in Table 7.2-6 will be utilized for sampling. This list was taken from the Division water quality guidelines (Section 7.2.4, MRP).

Ground Water - RVS

The applicant has committed to acquiring operational monitoring data for springs, mine inflows and boreholes and providing these data on an annual basis.

The applicant is in compliance with this section.

Surface Water Stipulations

None.

Ground Water Stipulations

None.

UMC 817.53 Hydrologic Balance: Transfer of Wells - RVS

Existing Environment and Applicant's Proposal

The applicant states on page 3-86 of the MRP that "upon abandonment of drilling operations, all drill holes are to be cemented with an approved slurry."

Compliance

The applicant has indicated that no boreholes will be transferred for further use as water wells.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.54 Water Rights and Replacement - TM

Existing Environment and Applicant's Proposal

The applicant shows in Appendix 7-C of the MRP that Mr. C. W. Kingston owns 333 and 77/100 shares of Capital Stock in the Huntington-Cleveland Irrigation Company (MRP, Appendix 3.3.6).

In Appendix 3.3.6.A, a letter from Mark Page, Area Engineer for the Division of Water Rights, Department of Natural Resources, state of Utah, states that Co-Op Mining has filed Change Application No. a-12921 (93-1067) requesting the right to withdraw up to 0.25 sec-ft of water from a mine tunnel in Bear Canyon at a point North 79 feet and East 75 feet from the Southwest Corridor of Section 26, Township 16 South, Range 7 East, SLB&M.

The applicant states the following with regard to water replacement.

"State and federal regulations (30 CFR 817.54 and UMC 817.54) require that an alternate water supply be provided to replace any water supplies in the area, Co-Op Mining Company will provide this alternate supply if needed. Several alternate sources of supply exist:

1. Water from springs could be piped to the affected site.
2. Water rights could be purchased for springs damaged by Co-Op Mining Company, or, alternate water shares could be substituted (see Appendix 3.3.6, Proof of Ownership).
3. A well could be drilled at the affected site to provide an alternate supply (since artesian conditions do not exist).
4. Water produced in the mine could be piped to the affected site.
5. Water shares presently owned could be transferred.

Alternative 4 may mean treating of poorer quality water and pumping to overcome elevation differences.

In the unlikely event that mining adversely affects a water source, the Co-Op Mining Company will select an alternative after considering all possibilities of each site-specific circumstance" (MRP, pages 3-46 and 3-47).

Compliance

The applicant is in compliance with this section.

The applicant must leave barrier pillars to protect fractures that control Bear Spring (see UMC 817.126[1]).

Huntington City has a legal agreement with Co-Op Mining to assess diminished or contaminated water from Bear Spring and will enforce this agreement from a legal standpoint if water replacement is deemed necessary.

Based on the above situations, bonding for additional replacement water rights is not a necessary alternative.

Stipulations

None.

UMC 817.55 Discharge of Water into an Underground Mine - TM

Existing Environment and Applicant's Proposal

The applicant has not discussed discharge of water into the mine in the MRP.

Compliance

The applicant is in compliance based on the following stipulation.

Stipulation 817.55-(1)-TM

1. The applicant shall not divert or discharge water from the surface or from an underground mine into other underground mine workings unless specific approval is obtained for this from the Division.

UMC 817.56 Hydrologic Balance: Postmining Rehabilitation of Sedimentation Ponds, Diversions, Impoundments and Treatment Facilities - TM

Existing Environment and Applicant's Proposal

The applicant provides the following information about restoration of the surface water drainage system.

"After the disturbed areas are stabilized and runoff is comparable to the area's premining conditions without detention time, the site drainage system will be removed. The site drainage system areas will be backfilled and revegetated. All ponds will be drained and allowed to dry; thereafter, they will be backfilled and revegetated" (MRP, Section 3.6.3.3).

Compliance

According to the above statement, the applicant does not propose to retain any impoundments or drainage systems onsite. Therefore, the applicant is in compliance with this section.

Stipulations

None.

UMC 817.57 Hydrologic Balance: Stream Buffer Zones - TM

Existing Environment and Applicant's Proposal

The applicant shows stream buffer zone sign placement on Plate 2-2.

Compliance

The applicant is not in compliance at this time.

A map showing stream buffer zones and sign placement has been incorporated into the MRP, Plate 2-2. The electrical storage area is shown within the buffer zone. To achieve compliance with this section, the electrical storage area must be removed from the buffer zone.

Stipulation 817.57-(1)-TM

1. The applicant must submit, within 60 days of permit approval, a map showing a new location for the electrical storage area on the disturbed area. Within 30 days of Division approval, Co-Op must relocate the electrical storage area to the approved location.

UMC 817.59 Coal Recovery - RVS

Existing Environment and Applicant's Proposal

The Bear Canyon coal seam averages 10 feet in thickness over the proposed workings and is the current extraction target (Section 3.4.3.2.1, page 3-19). Recoverable coal reserves were "conservatively" estimated to be 50 percent of the in-place coal reserves (page 3-19). Under Section 3.4.1.2 entitled Mining Methods, the applicant states that room and pillar mining methods will be employed (page 3-9).

The applicant states that the Hiawatha (lower) coal seam will be mined later and commits to providing the Division with "complete plans for entering the lower seam prior to taking such action" (Section 3.4.3.2.1, page 3-20). Plans for entering the Hiawatha seam will be submitted as a modification to this MRP and subject to Division approval.

Compliance

The applicant proposes to conduct underground activities to maximize the utilization and conservation of the 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 there will be "no surface blasting activities incident to this underground operation" (Section 3.3.13, page 3-5D).

Compliance

Inasmuch as all blasting will be confined underground, the applicant is in compliance with this section.

Stipulations

None.

UMC 817.71 Disposal of Excess Spoil and Underground Development Waste - EH

Existing Environment and Applicant's Proposal

Co-Op does not anticipate the handling of development waste rock in its mining operation although a contingency plan has been developed if the need were to become critical in the effort to maximize coal removal. Co-Op has designated a waste rock storage site in Trail Canyon. This area was used historically in this capacity and has the necessary hydrologic safeguards presently implemented. The waste would be handled in the same manner as coal and trucked to Trail Canyon. This area would be addressed as a permit modification or New Permit Application (pages 3-73, 3-74).

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.81-.88 Coal Processing Waste Banks - PGL

The applicant does not process any coal onsite, therefore, this regulation is not applicable. The coal is transported from the mine by conveyor belt to a receiver bin, conveyed to the sizing and crushing plant, and from there, to the truck loadout bins or to the stockpile area. It is stated on page 3-4 that the applicant does not generate coal refuse.

UMC 817.89 Disposal of Noncoal Waste - PGL

Existing Environment and Applicant's Proposal

The applicant states on page 3-74 that "salvageable equipment is stored in the designated area." The noncoal waste (other than rock refuse) generated in the operation of the mine will be placed in metal dumpsters. A local contractor empties these bins when they are 80 percent full.

The applicant describes the noncoal storage yard in Appendix 3.3.4.A and outlined the yard in Figure No. 1-1 in that Appendix.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.91-.93 Coal Processing Waste: Dams and Embankments - PGL

This section is not applicable because coal is not processed at the mine and, therefore, coal refuse is not generated (see UMC 817.81-.88).

UMC 817.95 Air Resources Protection - PGL

Existing Environment and Applicant's Proposal

The applicant states on page 3-69 that the mining operation would not be a "major source" under the PSD regulations because total annual controlled emissions of particulate matter are expected to be less than 250 tons/year. Chapter 11, page 3-130, includes a stipulated approval letter from the Division of Environmental Health (DEH) dated December 20, 1983. In June 1985, Co-Op Mining Company submitted a revised plan to the DEH, Bureau of Air Quality, because Condition #2 required that an excess production of 200,000 tons per year cannot be sought without prior approval from the Executive Secretary in accordance with Section 3.1 Var.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.97 Fish and Wildlife Information - SL

Existing Environment and Applicant's Proposal

The Fish and Wildlife Resources Information for the Bear Creek Canyon Mine area is discussed in Chapter 10 of the MRP.

A wide variety of wildlife species use the highly variable habitats within and adjacent to the permit area (Appendix 10-B). Five major vegetation habitat types are present. They are pinyon-juniper, sagebrush, conifer, grass and riparian.

Economically important and high interest mammals which are most likely impacted by mining operations and associated disturbance include mule deer and elk. According to the Utah Division of Wildlife Resources (DWR), the permit and adjacent area contains critical winter range for elk and deer, high priority summer range for elk and deer and high priority winter range for deer (Plate 10-1). Other high interest mammals present in the area include the cougar, black bear, bobcat and snowshoe hare. The major impact to these species is the loss of habitat which has already occurred (Section 10.4.2).

Two species of birds on the endangered list may occur on or near the permit area. These are the bald eagle (winter resident) and peregrine falcon (thought to be a year-round resident in southeastern Utah). Neither species has been observed and there are no known roosting trees or nesting sites within the permit area (page 10-9). No other threatened or endangered species are known to occur in the mine plan area (Section 10.3.3.1 and Section 9.4).

Golden eagle nests have been found on and near the permit area (Appendix 10-C). From surveys conducted the last three years, only one nest has shown evidence of activity, and it is believed to be a buteo rather than a golden eagle nest (Appendix 10-C). No disturbance to nests are expected to occur. Co-Op will report the presence of all golden eagles on the permit area, as well as any other threatened and endangered species encountered (page 3-65).

Although the applicant has stated that no perennial streams exist on the permit area (page 10-6), the Division considers Bear Creek to be perennial (see UMC 817.41, Compliance). Bear Creek is straddled by the mine plan area with the vast majority of the disturbed area west of it (Section 7.2.2). The quality of Bear Creek is poor before passing through the mine plan area (Section 7.2.3). Bear Creek drains into Huntington Creek, determined to be a Class 3 fishery by the DWR. It supports natural reproduction of self-sustaining cutthroat and brown trout populations (Appendix 10-B). All drainage from the disturbed areas is passed through sedimentation ponds before discharge into lower Bear Creek and subsequently Huntington Creek.

Existing disturbance precludes establishment of a buffer zone next to Bear Creek in several areas.

A commitment to notify the Division in the event that any threatened or endangered species or their critical habitats are observed on the permit area has been made (page 10-15).

The potential raptor electrocution hazard posed by existing powerline pole configurations on site has been determined by the U. S. Fish and Wildlife Service (USFWS) to not require corrective modification as long as raptor mortality continues not to occur (letter from USFWS to DOGM dated July 6, 1983). All new poles and power transmission facilities will be designed as raptor proof (page 10-30).

A minimum of either 100 or 200 foot barrier pillars to the outcrop (see UMC 817.121-.126) will be maintained to minimize potential detrimental impacts to nesting raptors from subsidence and possible escarpment failure (page 3-14).

The mine produces no acid-forming or toxic-forming materials. Any toxic materials stored on site will be in sealed containers and placed inside a berm (page 3-27). No pesticides will be used unless approved by the regulatory authority (page 10-28).

All water sources necessary to wildlife will be provided (page 3-64). In addition, riparian habitat on Bear Creek off of the permit area will be enhanced by installing velocity dissipators, and planting of species valuable for wildlife along the stream channels (Appendix 10-D).

All employees will be required to view the film "Coal Mining and Wildlife" produced by the DWR as a tool to educate mine personnel in safeguarding wildlife.

During the first suitable planting season following mining, the applicant will implement permanent revegetation methods designed to restore and enhance wildlife habitat on disturbed areas. The revegetation planting mixture includes herbaceous and woody species that are adapted to onsite conditions and are of known value to wildlife for cover, forage or both (MRP, Section 9.5).

Compliance

In an effort to characterize the fish and wildlife resources and assess potential impacts, the applicant has conducted surveys on the permit area as well as a literature search of the DWR files and other publications on the distribution and status of vertebrates in the study region (Appendix 10-B).

Surveys to determine the presence of any critical habitat of a threatened or endangered species, any plant or animal listed as threatened or endangered or any bald or golden eagle have been conducted. Only one nest, thought to be that of a buteo, was active in 1983 (Appendix 10-C). The Company has committed to mitigate possible impacts to nests from subsidence using measures agreed upon between the USFWS and DWR (Appendix 10-D).

A commitment to report any threatened and endangered species or their critical habitat observed on the permit area during operations has been made (page 10-15). A commitment to report any golden eagles observed has also been made (Section 3.5.6.2, MRP).

The potential raptor electrocution hazard posed by existing powerline pole configurations onsite has been determined by USFWS to not require corrective modification as long as raptor mortality continues not to occur (letter from USFWS to DOGM dated July 6, 1983) and all additional powerlines will be constructed to be raptor proof (Section 10.7, MRP).

Adequate plans for permanent revegetation of the site have been provided (Section 9.5; see TA, Section UMC 817.111-.117). Species to be used for revegetation will provide nutritional value and cover for fish and wildlife and support and enhance fish and wildlife habitat after bond release. Plants will be grouped in a manner which optimizes edge effect (page 9-24).

The Bear Canyon Mine has intermittently been in operation since 1896. The majority of surface disturbance and associated loss of wildlife habitat has already occurred. Little additional surface disturbance is planned. Therefore, the mitigation and management plans focus on minimizing impacts related to continued mining activities and returning the site to suitable habitat after decommissioning (MRP, Section 10.5).

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.99 Slides and Other Damage - PGL

Existing Environment and Applicant's Proposal

The applicant commits to take all necessary steps to remedy any adverse impacts from slides and notify the Division by the fastest available means to safeguard human and environmental values as stated on page 3-42 (Section 3.5.2.2).

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.100 Contemporaneous Reclamation - SC

Existing Environment and Applicant's Proposal

Land reclamation will take place as soon as possible after surface disturbance (page 3-78). Appendix 3-6 details procedures to be used for backfilling, grading and revegetation of any area which becomes available during the life of the mine. Reclamation and revegetation will be implemented during the first available favorable planting season (Section 3.6.1).

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.101 Backfilling and Grading - PGL

Existing Environment and Applicant's Proposal

Page 3-91 of the MRP notes, "backfilling operations will be conducted in the portal and treatment facility areas. Compaction operations utilizing equipment such as sheeps-foot tampers, will be conducted to stabilize all filled holes and depressions. The portal fill material will be put in place with a LHD."

A backhoe and dozer will work in conjunction to remove the outer edge of the operational benches and compact it against the highwall. This will be accomplished by the backhoe reaching over the edge of the bank approximately 20 feet pulling the material back. The dozer will then push and compact this material from the highwall outward to reach a bench slope of approximately 3h:1v for drainage purposes.

The procedure will continue from the upper benches down the canyon reshaping the mine yard and disturbed area to the configuration shown on Plate 3-2, Postmining Topography.

As backfilling and grading is completed, operational areas will be scarified by ripping to a depth of 14 inches with a dozer where possible.

Topsoil will be spread over the disturbed areas after the grading and ripping is complete.

With regard to recontouring, the applicant states "The cut slopes will be constructed in a manner which will achieve the necessary physical stability." Steep slopes and highwalls, the applicant states, are inaccessible to conventional equipment, and thus, cannot be reduced or flattened appreciably during reclamation. Stability analyses on these areas have confirmed that they have a factor of safety greater than 1.3 as they presently exist" (MRP, page 3-91C) (Stability Analysis - Appendix 3F).

The applicant proposes to reduce or retain highwalls as follows, "The highwalls will be reduced along the pad and road areas where feasible. This will be accomplished by recovering material from the edge of pad and road fill areas with a backhoe and placing it against the base of the highwall. The material will be compacted with a cat to promote stability of the backfill. Erosion controls, such as straw dikes or water bars, will be placed below the backfilled areas to minimize washing of the fill material." The applicant proposes to leave highwalls in some areas. The rationale for leaving or reducing highwalls offered by the applicant is stated on page 3-92. Plate 3-2 delineates highwalls that will be retained.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

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

Existing Environment and Applicant's Proposal

The applicant indicates on page 3-27 of the MRP that the mine produces no acid- or toxic-forming materials. Samples of the roof and floor were taken and presented in Chapter 6, Appendix 6-C.

Analyses of these materials indicate that they contain high amounts of sodium. Therefore, the applicant has committed to disposal of any roof material that is brought to the surface and having high SAR values against the highwall and covering it with four feet of soil material.

Along with the roof rock, coal fines and any material contaminated with coal fines and soil material contaminated with oil and grease will be placed against the highwall and covered with four feet of soil material.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.106 Regrading or Stabilizing Rills and Gullies - EH

Existing Environment and Applicant's Proposal

If rills and gullies form, the applicant has committed to a four phase approach to the stabilization of the area: (1) diversion of water away from the area; (2) distribution of additional soil material in order to fill the rills and gullies; (3) recontouring of the area; and, (4) reseeding as outlined in Chapter 9 of the MRP (page 3-103).

Compliance

The applicant is in compliance with this section. A specific plan to regrade or stabilize rills and gullies has been proposed in the MRP.

Stipulations

None.

UMC 817.111-.117 Revegetation - SL

Existing Environment and Applicant's Proposal

Five major vegetation types are delineated on the permit area (Plate 9-1). These include conifer forest, grassland, riparian, pinyon-juniper woodland and sagebrush shrubland. The riparian and pinyon-juniper types are the only ones affected by the disturbance (Section 9.3.3, Table 9-1).

As described in Appendix 9-A of the MRP, a reference area was selected as representative of the topography, soils, aspect and species composition of the disturbed area. It was selected in cooperation with Lynn Kunzler, Division Reclamation Biologist.

The reference area is approximately .47 acres in size and is located off the permit area but within the fee property of the mine's parent company. It contains both vegetation types which were previously present in the disturbed area. The productivity of the pinyon-juniper area is classified as good and the riparian area fair by the SCS (Appendix 9-B). An existing road separates the two vegetation types in the reference area.

The revegetation plan for disturbed areas is outlined in Section 9.5 of the MRP. It describes the time schedule for revegetation, species and amounts per acre of seeds and seedlings to be used, methods to be used in planting and seeding, mulching techniques and measures to be used to determine the success of revegetation.

Compliance

817.112 Revegetation: Use of Introduced Species

The permanent reclamation seed mixes proposed by the applicant (pages 9-22 and 9-23) contain no introduced or inappropriate species. Therefore, the applicant complies with this section.

817.113 Revegetation: Timing

The entire area of disturbance will be drilled or hydroseeded during the first fall (September through November) following complete abandonment and earthwork (Section 9.5). This is the normal period for favorable planting of the materials selected for revegetation. The MRP states that seedlings will be planted in April through May or September through October (Section 3.6.5.2.1, MRP). Necessary seedlings will be planted two years after seeding (see UMC 817.117).

Section 3.6.5.6 outlines the interim revegetation plans for disturbed areas. Appendix 3-C, page 5, shows the interim seed mix proposed. The applicant has committed to seed or plant any disturbed area, as contemporaneously as practicable with the completion of backfilling and grading, with a temporary cover of small grains, grasses or legumes until a permanent cover is established (page 3-101).

The applicant is in compliance with this section.

817.114 Revegetation: Mulching

Following seeding, areas will be hydromulched and fertilized (page 9-17). The rate of application will be 1,200 to 1,500 pounds of wood fiber per acre on 1:1 slopes to 2,000 to 2,500 pounds of wood fiber mulch per acre on 3:1 slopes. The mulch will be

fortified with a tackifying agent. On areas with slopes greater than 2:1, terraces will be created along the contour of the slope (Section 9.5). The areas to be terraced are shown on Plate 3-2, Postmining Topography Map.

The applicant is in compliance with this section.

817.116 Revegetation: Standards for Success

The success of reclamation will be evaluated by detailed sampling and comparison of vegetative cover and production on the reclaimed and reference areas (page 3-104). To be in compliance, ground cover and productivity of the revegetated area shall be considered equal if they are at least 90 percent of the ground cover and productivity of the reference area with 90 percent statistical confidence (UMC 817.116[b][3]). The applicant has opted to use a somewhat higher standard of success (equal at 95 percent confidence) for their own purposes (page 3-104). This is acceptable, however, the regulatory authority can only judge if bond release criteria have been met using the standards set forth in the regulations.

Cover on both the reclaimed area and the reference area will be estimated using randomly located 1 m² quadrats, a method acceptable to the regulatory authority. Production will be measured using a harvest methodology.

Plans for monitoring revegetation success are presented in Sections 3.6.5.6 and 3.6.6.2 of the MRP. Under interim reclamation (Section 3.6.5.6), all seeded areas will be inspected at the end of each growing season for the first five years to determine success of seeding. Steps will be taken to correct any problem areas. For permanent reclamation (Section 3.6.6.2), the applicant has committed to ocular estimates of success for the first two years after reclamation. Beginning in year three (or when sufficient plant establishment has been attained) and continuing every other year until bond release, both reclaimed and reference areas will be sampled for cover and density. Productivity will be determined on both areas after the reclamation appears to be successful.

The applicant is in compliance with this section.

817.117 Revegetation: Tree and Shrub Stocking

The applicant in Chapter 9 has proposed to initially seed shrub species with no supplemental planting of seedlings. After two years, the seeding effort would be evaluated and planting would be initiated to bring the density up to the stocking level of the reference areas (page 9-24). This is an acceptable proposal.

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.121-.126 Subsidence Control - RVS

Existing Environment and Applicant's Proposal

The Bear Canyon coal seam is the primary mining target for this permit term (Section 3.4.3.2.1, page 3-19). The applicant states (Section 3.4.1.2, page 3-9) that room and pillar methods will be used to extract the Bear Canyon coal seam. Overburden, within and adjacent to the permit area, ranges from approximately 200 to 1,800 feet and encompasses the lower portion of the North Horn Formation, Price River Formation, Castlegate Sandstone and upper portion of the Blackhawk Formation (Section 6.5.2.1, page 6-14 and Plate 3.4-1). Maximum subsidence is projected to be 5.4 feet directly above a pillared panel (Appendix 3-H, page 5A-3).

The applicant states on page 3-70 of the MRP that "Surface fractures on the permit area have been minimal" and "there are no known anticipated effects from subsidence due to the amount of overburden and the strata above the coal seam."

A survey of renewable resource lands was conducted on June 13, 1984 and the applicant concludes that subsidence will not impact the hydrologic balance, timber, vegetation for grazing, fish and wildlife, paleontological and archeological resources, man-made structures and mineral and hydrocarbon resources (Appendix 3-H). The applicant indicates no surface facilities or structures exist over mine areas (Section 3.5.8, page 3-70 and 3-71) and, therefore, no man-made structures will be impacted by subsidence induced material damage.

The applicant commits, on page 3-14 of the MRP, to maintaining a minimum 200 foot outcrop barrier pillar. This figure is reiterated, on page 3-15 of the MRP, where the applicant states that "mining would be stopped within 200 feet of the outcrop." Plate 3-4 indicates a minimum 200 foot wide outcrop barrier will be established.

Appendix 3-H includes a plan for installing two permanent subsidence monitoring stations. The stations are located in Sections 14 and 23 (Figure 3-3a) and will be monitored at "nominal" six month intervals. The applicant commits to conducting a yearly field investigation for the purpose of identifying and recording surface manifestations of subsidence until the completion of reclamation (Appendix 3-H, page 5A-6). Annual results of the field investigation and subsidence monitoring program will be submitted to DOGM within 60 days following the final survey for the year (Appendix 3-H, page 5A-6).

The applicant commits to notifying all owners of property within the area that may be impacted by subsidence as per UMC 817.122 and mitigating for materially damaged structures and surface lands as described by UMC 817.124 (Appendix 3-H, pages 5A-6 and 5A-7).

The applicant identifies Bear Canyon Spring, Birch Spring and COP Development Spring as occurring adjacent to the permit area Section 7.1.3, page 4). COP Development Spring is characterized as intermittent, whereas Bear Canyon Spring and Birch Spring are identified as perennial with average flows of 140 gpm and 17 gpm, respectively (Section 7.1.3 and Table 7.1-1). Bear Canyon Spring and Birch Spring are public water sources.

Fault zones are given as the mechanism controlling recharge to Bear Canyon Spring, Birch Spring and COP Development Spring (Section 7.1.3, page 4). Data from boreholes drilled within and adjacent to the permit area indicate aquifers are laterally and vertically restricted to localized saturated zones (Section 7.1.3.2.2, page 12-14). Borehole WM-E did not encounter water, indicating the Star Point-Blackhawk aquifer does not occur everywhere above the Mancos Shale (Section 7.1.3.2.1, page 10). The applicant anticipates a certain amount of localized diversion and interception of the present ground-water flow due to subsidence (Section 7.1.5.1, page 18). However, the applicant also expects these impacts to be minimal because most subsidence cracks will naturally seal (Section 7.1.5.1, page 18).

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 (UMC 817.121). Moreover, the applicant has adequately committed to public notification (UMC 817.122) and surface owner protection (UMC 817.124).

The applicant indicates flow to Bear Canyon Spring and Birch Spring, both public water sources, is controlled by faults or fault zones. The Division hereby determines that additional mining, excepting development tunnels, along the fault occurring in by the access portal may impact spring flow.

The applicant will be in compliance when the following stipulation is met.

Stipulation 817.121-.126-(1)-RVS

1. The applicant must, within 30 days of permit approval, commit to maintaining a continuous barrier along the north-south trending fault that occurs approximately 950 feet in from the main access portal. The barrier shall be 80 feet wide with 40 feet of the barrier along each side of the fault for the entire length of the fault. The barrier may not be mined through without specific Division approval to do so based on revised mine sequence maps and mining plans submitted to the Division.

The applicant must provide within 30 days of permit approval a revised Plate 3-4 which delineates the 80 foot barrier.

UMC 817.131 Cessation of Operations: Temporary - PGL

Existing Environment and Applicant's Proposal

The MRP states on page 3-112 that in the event of a temporary cessation of operation, Co-Op will notify the Division within 48 hours of pending shut down and will submit all information regarding exact number of surface acres and the horizontal and vertical extent of subsurface strata in the permit area prior to cessation or abandonment, extent and kind of surface reclamation, and identification of backfilling, regrading, revegetation, environmental monitoring, underground opening closures and water treatment activities that will continue during temporary cessation.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.133 Postmining Land-Use - SC

Existing Environment and Applicant's Proposal

The land on which the Bear Canyon Mine is located has long been used for mining. The mine was started in 1896 and was worked until 1906. It reopened in 1938 and worked intermittently until 1957. The mine was then abandoned until Co-Op reentered it in 1981 (Section 4.4.2.5).

Premining uses of the permit area included livestock grazing, wildlife habitat and various types of recreation. Present management emphasizes livestock grazing, wildlife habitat and watershed management. A variety of land managing agencies including the U. S. Forest Service (USFS), state of Utah, and Emery County administer the permit and adjacent areas (Section 4.3.1.2).

The applicant intends to return the disturbed portions of the Bear Creek Canyon Mine permit area to the premining land uses of wildlife habitat, livestock grazing and recreation. Following cessation of mining, the disturbed areas will be reclaimed by regrading the yards, reclaiming the roads and portal areas to a practical degree, planting all disturbed areas and monitoring the revegetation effort to achieve the appropriate success standards, as discussed under UMC 817.111-.117 of this document.

Compliance

The applicant complies with this section.

Stipulations

None.

UMC 817.150-.156 Roads: Class I - PGL

Existing Environment and Applicant's Proposal

The applicant states that the Bear Canyon Road is approximately 1,800 feet long (page 3-4). The road is constructed 30 feet wide and surfaced with six inches of 3/4 inch gravel. Drainage is provided along the road by ditches at least 1.8 feet deep. Culverts are installed as shown on Plate 3-5. They will be protected by rock lining or concrete headwalls. Culverts are installed with a trash racks and rock headwalls at inlets and riprap at outlets to prevent erosion. The road is maintained and will be maintained throughout the life of the operation. This road will be reclaimed at the end of the operation and all culverts will be removed.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.160-.166 Roads: Class II - PGL

Existing Environment and Applicant's Proposal

The mine area and portal access road is described on pages 3-5A and B of the MRP as being approximately 2,112 feet long. The road is used primarily for access to the mine portals and other facilities. The overall grade as described in the MRP does not exceed 10 percent. The horizontal alignment is consistent with existing topography. The road is surfaced with 4" of 3/4" gravel, and is maintained. The road shall be removed upon completion of the mining operation.

Appendix 3-G lists three other Class II roads within the permit area: road to Sedimentation Pond A (430 feet long); road to coal preparation facility (600 feet long); and, bathhouse road (160 feet long). All of these roads are surfaced with four inches of 3/4 inch gravel and will be maintained in such a manner that approved design standards are met. All of these roads will be removed upon completion of the mining operation.

The MRP states (page 3-5C) that culvert spacing conforms with requirements. Ditches are maintained. Rock or concrete headwalls will be provided at inlets to all culverts, and riprap or other erosion protection will be installed.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.170-.176 Roads: Class III - PGL

Existing Environment and Applicant's Proposal

A small pre-Law jeep trail is shown on Plate 2-2. This road is blocked off and not used (as stated in Appendix 3-G).

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.180 Other Transportation Facilities - PGL

Existing Environment and Applicant's Proposal

The coal storage yard is equipped with a system of conveyors whereby coal can be segregated according to size. The truck loadout is a conveyor system designed to load tractor-trailer trucks. Coal exits the mine via the conveyor. Page 3-5D of the MRP states that all conveyors and other facilities, will be maintained in such a manner to prevent damage to fish, wildlife and related environmental values by:

1. maintaining hydrologic controls, such as ditches, culverts, diversions and sedimentation ponds to assure that disturbed drainage is conveyed away from undisturbed drainages and either held or cleaned before release;
2. watering of roads as necessary to reduce fugitive dust;
3. protection of wildlife within the permit area and reporting of sightings of threatened and endangered species;
4. contemporaneous reclamation;
5. advocating good-housekeeping practices to reduce the possibility of contamination of surface waters in the area.

The applicant commits on page 3-88 to remove facilities and restore those areas to prevent damage to fish, wildlife and associated environmental values.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.181 Support Facilities and Utility Installations - PGL

Existing Environment and Applicant's Proposal

The Bear Canyon Mine has the following support facilities as described in Appendix 3.3.4.A:

- temporary scalehouse;
- coal storage facilities;
- crusher facility;
- fuel storage tanks;
- shop;
- power transformer;
- principle conveyor structure;
- noncoal storage yard;
- new scalehouse;
- mine office;
- magazines;
- electrical storage shed.

The applicant states on page 3-50 that all conveyors and other facilities will be maintained and the area restored in such a manner to prevent damage to fish, wildlife and related environmental values.

The applicant states on page 3-126 that the transformer substation is the concern of Utah Power & Light Company (UP&L), but Co-Op does maintain the fence, and enforces health and environmental safeguards.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

0206R

STIPULATIONS DOCUMENT

Co-Op Mining Company
Bear Canyon Mine
ACT/G15/025, Emery County, Utah

October 30, 1985

Stipulation 782.15-(1, 2)-JW

1. Co-Op Mining Company will not conduct mining operations within any portion of the proposed incidental boundary changes shown on Plates 2-1 and 3-4 of the permit application.
2. Prior to conducting any mining operations in the proposed incidental boundary changes shown on Plate 2-1 and Plate 3-4 of this permit application, the applicant must submit a permit application and receive written approval from the Division and the Office of Surface Mining, including approval by the Secretary of the Interior.

Stipulation 817.13-.15-(1)-RVS

1. Within 30 days of completion, boreholes utilized for ground-water monitoring will be sealed in a nonpermanent fashion by installing PVC surface casing with a threaded cap for access.

Stipulation 817.44-(1)-TM

1. The applicant shall provide, within 60 days of permit approval, revised plans and drawings for the proposed rock gabion structures for final reclamation of the Bear Canyon stream channel. The revised plans and drawings shall incorporate the compliance concerns noted in UMC 817.44 of this TA.

Stipulation 817.46-(1)-TM

1. The applicant must provide, within 60 days of permit approval, detailed plans for removal of the sedimentation ponds during final reclamation. The applicant must provide plans to divert flows going to and around the sedimentation ponds during final reclamation of the ponds.

Stipulation 817.55-(1)-TM

1. The applicant shall not divert or discharge water from the surface or from an underground mine into other underground mine workings unless specific approval is obtained for this from the Division.

Stipulation 817.57-(1)-TM

1. The applicant must submit, within 60 days of permit approval, a map showing a new location for the electrical storage area on the disturbed area. Within 30 days of Division approval, Co-Op must relocate the electrical storage area to the approved location.

Stipulation 817.121-.126-(1)-RVS

1. The applicant must, within 30 days of permit approval, commit to maintaining a continuous barrier along the north-south trending fault that occurs approximately 950 feet in from the main access portal. The barrier shall be 80 feet wide with 40 feet of the barrier along each side of the fault for the entire length of the fault. The barrier may not be mined through without specific Division approval to do so based on revised mine sequence maps and mining plans submitted to the Division.

The applicant must provide within 30 days of permit approval a revised Plate 3-4 which delineates the 80 foot barrier.

0521R

BOND

Co-Op Mining Company
Bear Canyon Mine
ACT/015/025, Emery County, Utah

October 25, 1985

Detailed Timetable for Completion of Major Reclamation Processes

The following schedule of reclamation is proposed to be initiated within 90 days (weather permitting) of final abandonment of the mining operation:

	<u>Acc. Time</u>
1. Seal Portal - 1 week	1 week
2. Remove Structures - 2 weeks	3 weeks
3. Soil Placement (backfilling and grading)	
A. Upper Pad - 1 week (including road)	4 weeks
B. Channel Restoration - 1 week	5 weeks
C. Lower Pad and Diversions - 1 week (including road)	6 weeks
4. Seedbed Material and Handling - 1 week	7 weeks
5. Reseeding and Fertilizing - 1 week	8 weeks
6. Mulching - .5 week	8.5 weeks
7. Protective Fencing - 2 weeks	
	(concurrently)
	<u>8.5 weeks</u>

The above reclamation tasks are, therefore, proposed to be completed within 8.5 weeks following the start of reclamation activities.

Labor - Hourly Rates from 1985 Means Site Work Cost Data

Equipment Operator = \$29.25
Truck Driver = \$22.90
Average Helper = \$22.20
Foreman = \$32.20
Crane Operator = \$29.90
Welder - \$33.50

Equipment - Hourly Rates from 1985 Means Site Work Cost Data

	<u>Cost Per Hour</u>
1. Loader - 950B (2-1/2 cy bucket) - \$100 + \$17.65 Operator	\$117.65 29.25 <u>\$146.90</u>
2. Crane - Groves RT-580 20T - \$69.75 = \$12.35 Operator	\$ 82.10 29.90 <u>\$112.00</u>
3. Truck and Operator	\$ 85.15
4. Cat D-7G - \$137.50 + \$20.35 Operator	\$157.85 29.25 <u>\$187.10</u>
Ripper (three shanks = \$24.90 + 2.25 oper/hr)	\$ 27.15
5. Backhoe (Cat 235) - \$185.00 + \$26.90 Operator	\$211.90 29.25 <u>\$241.15</u>
6. Acetylene Torch	\$ 6.40
7. Lowboy (truck/trailer) @ \$93.30	\$ 93.30
8. Cat D-3 - \$39.50 + \$5.70 Operator	\$ 45.20 <u>\$ 29.25</u>
	\$ 74.45

Backhoe (BH) Cycle Time Estimates - 235 Backhoe (From Cat Performance Handbook)

Average	
Load Bucket	6.5 sec
Swing Bucket	6.0 sec
Dump Bucket	2.5 sec
Swing Empty Bucket	<u>5.0 sec</u>
Total Average	20.0 sec - 2.12 yds ³

Medium to hard digging (hard packed soil with up to 50 percent rock content) depth to 70 percent of machine's capability

3 cy/min x 2.12 yds x 60 = production/hr = 381.60 cu yd/hr or 180 cycles/hr.

Cut and fill yardages (same number - 1 cycle)

Crawler Tractor (D7G) Cycle Time Estimates (From Cat Performance Handbook)

D7G Cut Material - 200 yd run

Average Blade Load of 15 cu yd

Cycle Time	7.6 min - Loaded Average
	<u>4.0 min - Return</u>
	11.6 min

Efficiency 50 min/hr

50 min/11.6 min cycle x 15 yds/cycle = 64.65 yds/hr

950B Loader Cycle Time (From Cat Performance Handbook)
.50 min

- | | |
|--|----------------|
| 1. Pile (10 inches material and smaller) | + .01 min |
| 2. Common ownership of trucks | - .04 min |
| 3. 3/4 inch to 6 inch | <u>.00 min</u> |
| 113 cu yds/hr | .53 min |

196 cu yds/hr topsoil

Summary of Reclamation Cost Estimate

A. Seal Portal and Backfill	\$ 10,500.00
B. Removal Structures	\$ 28,023.00
C. Solid Waste Removal	\$ 2,703.00
D. Soil Placement (backfilling and grading)	\$ 36,146.00
E. Channel Restoration	\$ 19,797.00
F. Reseeding and Fertilizer	\$ 7,512.00
G. Mulching	\$ 9,093.00
H. Protective Fencing	\$ 6,000.00
I. Baseball Park Seeding	\$ 2,520.00

J. Retaining Wall Removal	\$ 482.00
K. Borehole Plugging	\$ 344.00
L. Maintenance and Monitoring of Subsidence, Vegetation and Erosion (10-yr bond liability period)	\$ 19,460.00
M. Hydrology Monitoring (10-year bond liability period)	\$ 23,168.00
N. Supervision (8-1/2 weeks)	\$ 11,050.00
O. Mobilization and Demobilization	<u>\$ 2,500.00</u>
	\$179,298.00
10% Contingency	<u>17,930.00</u>
	\$197,228.00 (1985 dollars)

1986 - \$204,703.00
1987 - \$212,461.00
1988 - \$220,513.00
1989 - \$228,871.00
1990 - \$237,545.00

Reclamation Costs

A. Seal and Backfill Portals	\$ 10,500.00
AMR Costs - \$3,500/seal including backfill x 3 seals	\$ 10,500.00
B. Removal Structures	
<u>Fan</u>	
Labor - 2 men x \$179.20/day x 2 days	\$ 717.00
Equipment (hauling) - truck + operator x 4 hrs X \$85.15/hr	340.60
20 T crane x 2 hrs x \$112.00/hr	224.00
SUBTOTAL	<u>\$1,281.60</u>

Structures and Conveyor (principle)

Labor - 3 men x \$179.20/day x 2 days	\$1,075.20
Equipment (hauling) - 1 truck + operator x 16 hrs x \$85.15/hr	1,362.40
1 loader + operator x 16 hrs x \$146.90 (950B - 2-1/2 cu yd bucket)	2,350.40
Crane - 2 hrs @ \$112.00/hr	224.00
SUBTOTAL	<u>\$5,012.00</u>

Substation Power Transformer

Labor - 2 men x \$179.20/day x 2 days	\$ 716.80
Hauling - 1 truck + operator x 16 hrs x \$85.15	1,362.40
Loader - 4 hrs x \$146.90/hr (+ operator)	587.60
SUBTOTAL	<u>\$2,666.80</u>

Scale House Complex Including Bathhouses, Shop, Warehouse,
One Mine Office (same building)

Labor - 2 men x \$179.20/day x 3 days	\$1,075.20
Equipment (hauling) - 1 truck + operator x 16 hrs x \$85.15/hr	1,362.40
Loader - 8 hrs x \$146.90/hr + operator	1,175.20
SUBTOTAL	<u>\$3,612.80</u>

Water System (10,000 gal & 12,000 gal tanks)

Labor - 2 men X \$179.20/day X 1 day	\$ 358.40
Hauling - 1 truck + operator x 4 hrs x \$85.15/hr	340.60
Loader - 2 hrs x \$146.90/hr + operator	293.80
Acetylene Torch - 4 hrs @ \$6.40/hr	25.60
Welder - 4 hrs @ \$33.50/hr	134.00
SUBTOTAL	<u>\$1,152.40</u>

Fuel Storage Tank and System

Labor - 2 men x \$179.20/day x 2 days	\$ 716.80
Hauling - 1 truck + operator x 16 hrs x \$85.15/hr	1,362.40
Loader - 8 hrs @ \$146.90/hr + operator	1,175.20
Acetylene Torch - 2 hrs @ \$6.40/hr	12.80
Welder - \$33.50/hr x 2 hrs	67.00
SUBTOTAL	<u>\$3,334.20</u>

Truck Loadout

Labor - 48 hrs @ \$29.25/hr	\$1,404.00
Lowboy truck + operator @ \$93.30/hr x 5.5 hrs	513.15
1 580 Crane 2 hrs x \$113.20	226.00
10 yd dump 6 hrs @ \$79.30	475.80
Torch - 4 hrs @ \$6.40/hr	26.00
Welder - 4 hrs x \$33.50/hr	134.00
950B Loader @ \$146.90/hr x 4 hrs	587.60
D-7 Crawler Tractor - 4 hrs @ \$187.10/hr	748.40
SUBTOTAL	<u>\$4,114.95</u>

Stacking Facility and Coal Bins

Labor - 4 men x \$179.20/day x 1 day	\$ 716.80
Truck and operator \$85.15 x 4 hrs	340.60
1 20 ton Crane 4 hrs x \$112.00	448.00
1 950B Loader \$146.90/hr x 4 hrs	587.60
Acetylene Torch - 2 hrs @ \$6.40/hr	12.80
Welder - 2 hrs @ \$33.50/hr	67.00
SUBTOTAL	<u>\$2,172.80</u>

Crusher Facility

Labor - 2 men @ \$179.20/day x 4 days	\$1,433.60
1 20 T Crane - 8 hrs X \$112.00/hr	896.00
1 Truck + operator - 8 hrs x \$85.15	681.20
Torch + Welder @ 4 hrs @ \$39.90/hr	159.60
SUBTOTAL	<u>\$3,170.40</u>

Oil Slack Loadout

Labor - 2 men @ \$179.20/day x 2 days	\$ 716.80
1 20 T Crane - 4 hrs X \$112.00	448.00
1 Truck + operator - 4 hrs x \$85.15	340.60
SUBTOTAL	<u>\$1,505.40</u>

C. Waste Removal

Labor - 2 men x \$179.20/day x 4 days	\$1,434.00
Hauling - 1 truck + operator x 8 hrs x \$85.15/hr	681.20
Loader (+ operator) - 4 hrs x \$146.90	587.60
SUBTOTAL	<u>\$2,702.80</u>

D. Soil Placement and Seedbed Material & Handling

SUBTOTAL	<u>\$38,954.01</u>
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E. Channel Restoration (pulling culverts, reshaping channel, riprap and gabion structures)

Backhoe + operator x \$241.80 x 48 hrs	\$11,575.00
Labor - 4 men x \$179.20/day x 4 days	2,867.00
Cat x 1 day @ \$187.10/hr	1,496.80
Gabion Structures @ \$63.00/sy (53.3 sy)	3,358.00
Miscellaneous Riprap - \$500.00	500.00
SUBTOTAL	<u>\$19,796.80</u>

F. Reseeding and Fertilization (5 ac)

Hydroseeding, operator and driver (from page 9-25 of the MRP)

Seeding = 853/ac x 20% reseeding rate	\$5,118.00
Shrubs (1,752/ac x 2 ac) @ \$.63/plant	2,207.52
\$93.00/ac x 2 ac (labor)	\$ 186.00
SUBTOTAL	<u>\$7,511.52</u>

G. Mulching (5 ac) (from page 9-25)

Hydromulcher, operator and driver

\$843/ac x 5 ac x 20% reseeding rate	\$8,092.80
Straw bales for sediment control	500.00
Mobilization of hydromulcher	500.00
	<u>\$9,092.80</u>

H. Protected Fencing (10 ac)

6 ft high x 3,000 linear ft x \$2.00/ft installed

SUBTOTAL	<u>\$6,000.00</u>
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I. Baseball Park Seeding

3 ac drill seeding @ \$240.00/ac
600 lbs seed @ \$3.00/lb

SUBTOTAL	<u>\$2,520.00</u>
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J. Retaining Wall Removal

2 hrs backhoe @ \$241.15

SUBTOTAL	<u>\$482.30</u>
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K. Borehole Plugging

5 yds cement @ \$51.00/yd
4 hrs labor @ \$22.20/hr

SUBTOTAL	<u>\$343.80</u>
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L. Maintenance and/or Monitoring for Subsidence, Vegetation and Erosion (bond for 10-year bond liability period)

Vegetation - 1 person (truck, expenses) - 3 days	\$ 500.00/yr
Erosion - D-3 for 1 day @ \$74.45/hr	595.60/yr
1 day to field check erosion - 8 hrs @ \$25/hr	200.00/yr
<u>Subsidence</u>	
2 day field survey @ \$200/day	
1 day certified surveyor @ \$250/day	650.00/yr
	<u>1,946.00/yr</u>
10 yrs x \$1,946.00 = \$19,460.00	

M. Hydrology Monitoring, Quarterly

Labor - 4 days annually @ \$179.20/day	\$ 716.80
Laboratory work - \$400.00/quarter x 4	1,600.00
	<u>\$2,316.80/yr</u>
10 yrs X \$2,316.80 = \$23,168.00	

N. Supervision - 8-1/2 weeks @ \$1,288/week	\$11,050.00
	<u>\$11,050.00</u>

O. Mobilization and Demobilization of 5 pieces of equipment @ \$500 each	\$2,500.00
	<u>\$2,500.00</u>

SOIL PLACEMENT
(Reference Area Postmining Contour Map)

Areas	Earth Moved	Cu Yds	Cost/Hr D7G	Cost/Hr BH-235	Time	Cost
Scale Area	Cut	889	\$187.10		13.7 hr	\$ 2,573.00
Sediment Pond B	Fill	450		\$241.15	1.18 hr	\$ 284.37
Sediment Pond A	Fill	1,333		\$241.15	3.49 hr	\$ 842.38
Ditch to Pond A	Fill	377	\$187.10		5.83 hr	\$ 1,091.05
Bathhouse Area	Cut	1,111	\$187.10		17.18 hr	\$ 3,215.28
Loadout	Cut	3,352		\$241.15	8.78 hr	\$ 2,118.27
	Fill	3,352		\$241.15		
Road Coal Preparation	Cut	2,222		\$241.15	5.82 hr	\$ 1,404.18
	Fill	2,222				
Lower Road to Switchback	Cut	3,377		\$241.15	8.85 hr	\$ 2,134.08
	Fill	3,377				
Upper Road to Portal	Cut	6,622		\$241.15	17.35 hr	\$ 4,184.74
	Fill	6,622				
Total	Cut	17,376				\$17,847.36
	Fill	17,333				

SEEDBED MATERIAL AND HANDLING

8,000 cu yds topsoil - transport .65 mi = 950B Loader 41 hrs - \$146.90/hr =	\$ 6,022.90
Dump and regrade - 2 trucks and operator = 41 hrs @ \$85.15/hr	\$ 3,491.15
Spreading and ripping (3 shank ripper) - D7G = 41 hrs @ \$214.25/hr	\$ 8,784.25
	<u>\$18,298.30</u>

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