MINING PLAN DECISION DOCUMENT

Emery Deep Mine
Consolidation Coal Company and
Pittsburg & Midway Coal Mining Company
Emery County, Utah

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

Federal Coal Lease U-5287

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Refer to Record No. 0023
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for additional information

September 1985

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Memoranda

United States Department of the Interior

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

OCT 21 1985

Memorandum

To: Assistant Secretary for Land and Minerals Management

From: Acting Director, Office of Surface Mining

Subject: Recommendation for Approval of the Emery Deep Mine Mining Plan, Consolidation Coal Company, Emery County, Utah, Federal Lease U-5287

I recommend your approval of the Emery Deep Mine mining plan pursuant to the Mineral Leasing Act of 1920 (MLA), as amended. The Office of Surface Mining (OSM) has reviewed the permit application package (PAP), and the Administrator of the Western Technical Center has informed me that he is prepared to issue a permit under the Surface Mining Control and Reclamation Act of 1977 (SMCRA) for the Emery Deep Mine subsequent to your approval of the mining plan. My recommendation to approve the Consolidation Coal Company's mining plan is based on: (1) the applicant's complete PAP, (2) OSM's proposed permit conditions, (3) public participation, (4) review of the PAP by OSM, (5) compliance with the National Environmental Policy Act, (6) documentation assuring compliance with applicable requirements of SMCRA and other Federal laws, regulations, and executive orders, and (7) comments and recommendations or concurrences of other Federal agencies including the findings and recommendations of the Bureau of Land Management with respect to the resource recovery and protection plan and other requirements of the lease and the MLA.

The Secretary may approve a mining plan for Federal lands under 30 U.S.C. 207(c) and 1273(c). I find that the proposed operations will be in compliance with all applicable laws and regulations, and I recommend the Emery Deep Mine mining plan updated through August 23, 1984, be approved.

Approval:

I approve this mining plan:

Deputy Assistant Secretary for Land and Minerals Management

10/22/85
Date

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

SEP 17 1985

MEMORANDUM

TO: Director, Office of Surface Mining

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

SUBJECT: Recommendation for Approval of Consolidation Coal Company's Emery Deep Mine Mining Plan and Permit, Emery County, Utah, Federal Lease: U-5287

I. Recommendation

I am prepared to approve with conditions Consolidation Coal Company's Emery Deep Mine permit for an underground mining operation. This is a permit application for an existing mine under the approved Utah regulatory program. The mining plan and permit were approved under the State interim program. No mining has occurred previously on Federal lands. My recommendation is based on the technical analysis, the supplement to the technical analysis, and the environmental assessment of the complete application. The applicant has proposed to begin underground mining on Federal coal lease U-5287, during the 5-year permit, and later to develop additional fee coal during the 25 year life-of-mine. The permit, with conditions included with this memorandum, will be in conformance with the applicable Federal regulations, the Utah State Program, and the Mineral Leasing Act, as amended. I also recommend that you advise the Assistant Secretary for Land and Minerals Management, under 30 CFR 746, that the Consolidation Coal Company's Emery Deep Mine mining plan is ready for approval. I concur that a bond in the amount of $828,000 is adequate. A surety bond for $2,592,992.00 has been posted for the proposed preparation plant and loadout facility area. This bond is adequate and is on file with the Utah Division of Oil, Gas and Mining. Both bonds are necessary in order to maintain the Federal permit.

OSM has prepared a supplemental technical analysis (TA) to correct the deficiencies in the State's TA so that the Secretary and OSM can make a decision on the Emery Deep Mine permit application and mining plan. Included are cross references, where appropriate, to UDOGM's TA which is included in the decision package.

My recommendation for approval is based on the complete mining plan and permit application package, updated to August 23, 1984. I have determined that this action will not have a significant impact on the human environment.

II. Background

The Emery Deep Mine is located in Emery County, central Utah, approximately 4 miles south of the town of Emery. Coal mining has occurred in this area since the turn of the century. The permit area contains 5,180 surface acres, of which 80 and 5,100 acres are Federal and private surface, respectively. All of these acres are either leased or owned by the applicant. This mine operation will not significantly affect any environmentally sensitive areas. The coal mining operations will utilize room and pillar mining methods. The I-J coal seam will be mined to yield a maximum production rate of 1.7 million tons per year. The proposed coal mining operations are scheduled to cease around the year 2010.

The I-J coal seam mined at the Emery Deep Mine is situated in the Ferron Sandstone member of the Mancos Formation. The Ferron Sandstone is a major regional aquifer system, and the I-J coal seam forms a confining boundary between the two artesian units of this aquifer system (upper Ferron and lower Ferron aquifers). The municipal well for the town of Emery, Utah is located about 2.5 miles north of the mine permit boundary and draws water from the lower Ferron aquifer.

Mining will cause part of the aquifer surrounding the mine to drain through the mine workings. Consolidation Coal Company submitted ground-water drawdown prediction maps for life-of-mine effects on August 23, 1984, in response to concerns identified by OSM's Western Technical Center. The computer model which the applicant used to predict the amount of drawdown associated with the mining showed a cone of depression in the water table that was much steeper than would be expected in a confined aquifer situation. After reviewing the input and results with Consolidation Coal Company personnel, OSM's Western Technical Center used the Western Technical Center's in-house ground-water modeling program to develop a series of drawdown prediction maps to compare with the applicant's results.

OSM's results were dramatically different from those of the applicant and showed a more widespread drawdown effect on the aquifer as a result of mining. However, although the effects predicted by OSM are more widespread than those predicted by the applicant, they were not of sufficient magnitude to be considered significant. The predicted net effect to the Emery town well was a piezometric drawdown of approximately 130 feet, which translates to 11 percent of current levels in the well. A piezometric reduction is not considered significant until it reaches a minimum of 25 percent of the current level. The greatest impact of the predicted decrease would be that the well will require marginally more electricity to pump water from a lower level in the well.

During the technical review, after the permit application package was determined to be administratively complete, both OSM and UDOGM found several technical inadequacies in the permit application package, primarily with regard to ground water, subsidence control, alluvial valley floors (AVF's), and prime farmland. UDOGM submitted a deficiency letter on December 30, 1983, and a draft TA with stipulations on February 2, 1984. Each of these documents outlined the technical deficiencies remaining in the permit application package. Several correspondence exchanges took place between the applicant, UDOGM, and OSM concerning the remaining deficiencies before the State issued a "final" TA. The primary deficiencies listed above were resolved through commitment responses by the applicant. Some of the commitments were achieved with great reluctance by the applicant. Specifically, the applicant did not agree with the regulatory authority's assessment of alluvial valley floors, but agreed to establish the required buffer zones in order to expedite the permitting process.

One written objection to the permit was received from Mr. Duane A. Frandsen of Price, Utah, on January 9, 1984. Mr. Frandsen disputed some of the coal ownership as specified in the permit application package. By letter to UDOGM of January 19, 1984, Mr. Frandsen requested an informal conference. The Attorney General's office for the State of Utah, by letter of February 22, 1984, denied that this issue of coal ownership should affect the permitting process and referred the matter to Civil Court. No further correspondence was received on the matter.

A public scoping meeting was held on July 17, 1984, to solicit public response on the issues of mining in the vicinity of the Emery town well and the overall effects of the mine on the Ferron aquifer and subsidence in the vicinity of the mine. Ten individuals attended the meeting. One participant, County Commission Chairman Rue P. Ware submitted a formal statement to the effect that he wished to be kept informed of when the mine would recommence operation. At that time the mine had temporarily ceased operations due to market conditions, and resumed production on February 4, 1985. After the meeting, OSM received a written statement dated July 17, 1984, from the District Manager of the Castle Valley Special Service District, who requested that additional study be undertaken to determine the effect of mining on the Emery town's wells. No other comments or statements were received.

Runoff from approximately 4.7 acres of the surface facilities area flows into a bermed catchment basin used for coal stockpiling rather than to the facilities sediment pond as originally intended. Rather than undertaking a major regrading effort in the facilities area to divert the runoff to the sediment pond, the applicant currently pumps the water from the catchment basin to the sediment pond as necessary. The issue is discussed in the Hydrology section of the supplement to the TA, and, if implemented as described, will meet the applicable performance standards. No condition was deemed necessary.

On page ten of the State's TA the statement is made that there have been no plans for handling of sediment cleaned from the mine discharge sediment pond at the Emery Deep Mine. In fact, the applicant has discussed removal and backfilling of sediment from the mine discharge pond as well as all other sediment ponds on page 42 of the October 7, 1983, response to the apparent completeness review in Volume 13 of the permit application package, on page 13-25 of Volume 8, and on page 3-56 of Volume 1. The issue is clarified in OSM's supplement to the TA.

During OSM's preparation of the addendum to the TA, it became apparent that clearance had not been obtained from the U. S. Soil Conservation Service for the applicant's prime farmland mitigation plans. Although the proposed mitigation measures appear adequate to OSM, UMC 785.17(c) requires that UDOGM consult with the Secretary of Agriculture through the U. S. Soil Conservation Service regarding the proposed methods of soil reconstruction. OSM has added a special condition to the permit which precludes the applicant from mining under prime farmland until the concurrence required by UMC 785.17(c) is obtained. UDOGM has now begun taking the steps necessary to obtain this concurrence.

UDOGM's TA of February 25, 1985, includes the State Findings (Appendix D of the TA). Finding number 8 concerning "pattern of willful violations" states that no pattern was found for the Emery Deep Mine and references a determination by UDOGM's Field Supervisor on February 21, 1985. OSM contacted UDOGM's Field Supervisor in April 1985, to update the finding for permitting in May. On May 3, 1985, UDOGM's Field Supervisor responded to the request and advised OSM's Project Leader that a preliminary pattern of violations had been determined by mathematical means (three or more violations in a twelve month period) for 1981, in apparent contradiction of UDOGM's findings on February 25, 1985. He emphasized that the determination was preliminary and added that several other steps are involved in a final determination including interviews with the inspector and the operator, review by the State Attorney General, and preparation of a final outcome document. He also added that a statute of limitations might apply. Later conversation with UDOGM's Associate Director (May 7, 1985), confirmed that the State would not pursue the issue beyond the mathematical test, based on a 1-year statute of limitations from the most recent violation in that petition. No indications of a pattern since 1981 have been identified.

The Emery Deep Mine permit application was reviewed by the UDOGM and OSM under the provisions of the approved Utah State Program, and the Federal Lands Program (30 CFR Chapter VII, Subchapter D). The Mineral Leasing Act portion of the plan was also reviewed for compliance with the applicable portion of 43 CFR 3480. The technical analysis for this mine application was prepared by UDOGM with a supplemental TA document prepared by OSM. The environmental assessment was prepared by OSM. These documents, other documents prepared by UDOGM, the company's application, and other correspondence developed during the completeness and technical reviews are part of OSM's mining plan and permit application file.

A chronology of events related to this mining plan application is enclosed. After the Consolidation Coal Company published the newspaper notice as required, no written comments, objections, or requests for an informal conference were received, other than that of Mr. Frandsen mentioned previously. Written concurrence was provided by the Bureau of Land Management, Branch of Solid Minerals, and Moab District Office; and letters from U.S. Fish and Wildlife Service; and the State Historic Preservation Officer.

The information in the permit application and mining plan, as well as other information documented in the recommendation package and made available to the applicant, has been reviewed by UDOGM staff in coordination with the OSM Project Leader. Other information included: the U.S. Geological Survey, 1979, Final Environmental Impact Statement (FEIS) titled Development of Coal Resources in Central Utah; and the Bureau of Land Management, 1981, FEIS titled Uinta-Southwestern Utah Regional Coal Environmental Impact Statement.

Location Map

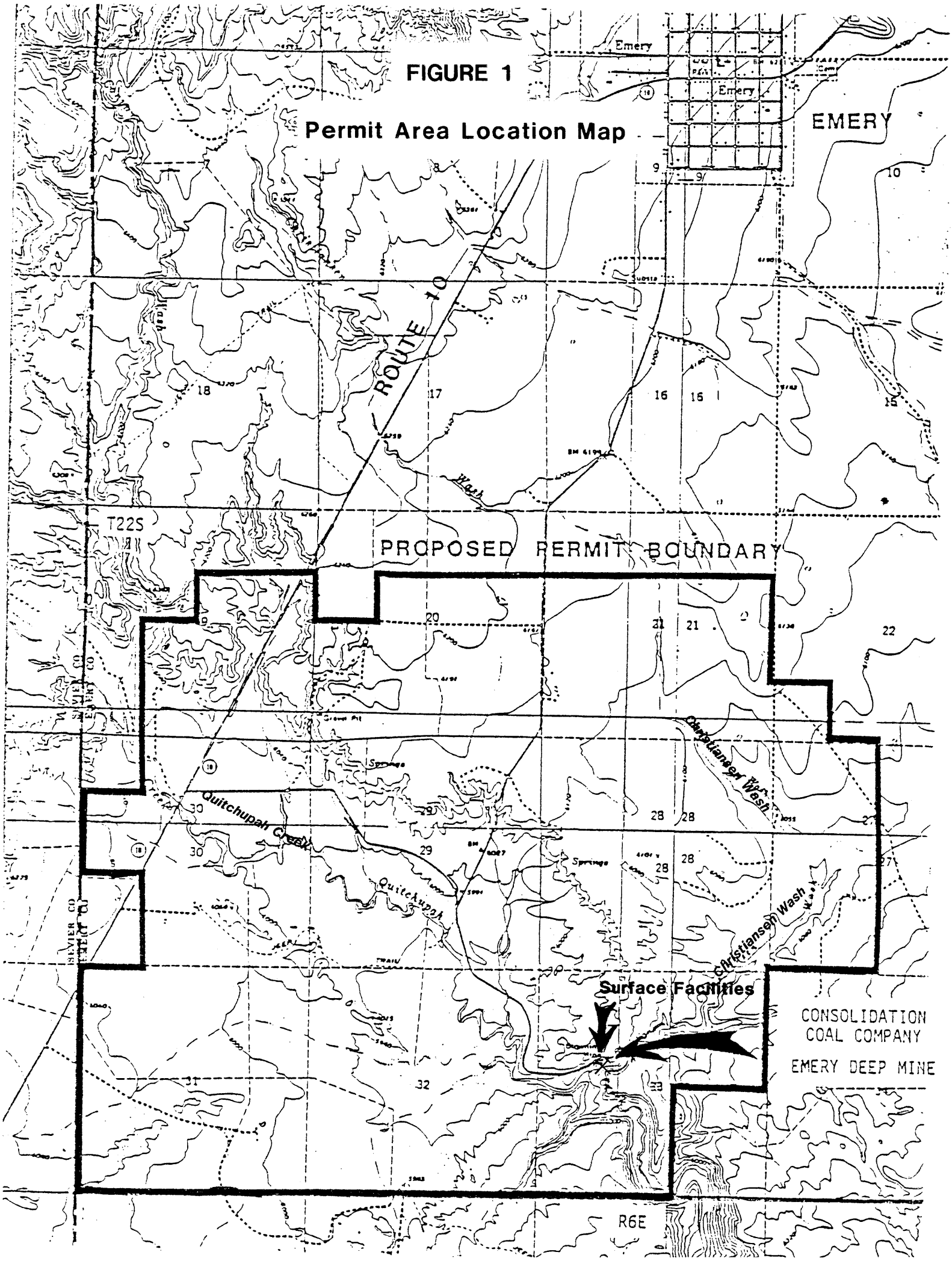
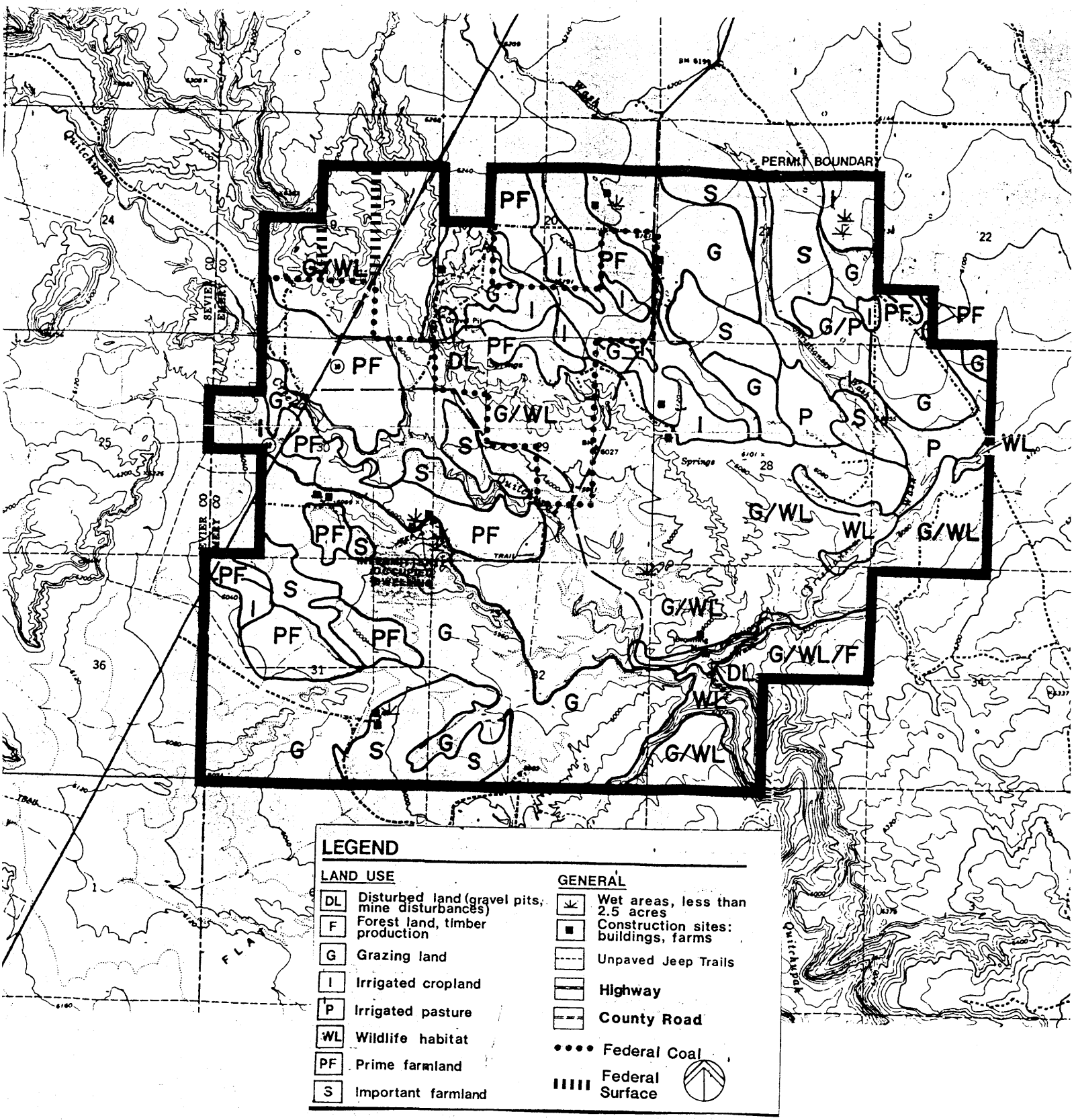


FIGURE 1

Permit Area Location Map

FIGURE 2
Land Use



COA .NE DATA FORM

Mine Name: Emery Deep
New/Existing: Existing
State: Utah
OSM ID: UT 05
Operator: Consolidation Coal Company
County: Emery
Mining Method: Room and Pillar/Underground
Subsidiary of:
Federal Lease Nos. (Legals on attached map): U-5287

Ownership Data:

Surface Resources (Acres)	Existing Permit Area	Proposed Permit Area	Total Life of Mine Area	Total Percent of Mine Area
Federal	80	80	80	
State	0	0	0	
Private	5100	5100	5100	
TOTAL	5180	5180	5180	
Coal Ownership (Acres)				
Federal	720	720	720	
State	240	240	240	
Private	4220	4220	4220	
TOTAL	5180	5180	5180	

Coal Resources Data	Federal	State	Private	TOTAL
Total Reserves	6,926,000	5,037,000	34,476,000	46,439,000
Total Recoverable Reserves	2,776,000	2,469,000	17,087,000	22,332,000

Reserve Data	Name	Thickness	Total Reserve	Recoverable
Seam	I-Seam	8.5 ft.		
Seam	A-Seam	10 ft.		
Seam				

Percent Recovery: 50
Mine Life: 25 years
Market:
Transportation:

Chronology of Events

CHRONOLOGY OF EVENTS

Consolidation Coal Company
Emery Deep Mine

Application for Mining Plan and Permit Approval

DATE	EVENT
March 20, 1981	Consolidation Coal Company submitted permit application and mining plan, under the approved Utah Program, to the Utah Division of Oil, Gas and Mining.
September 1, 1981	Consolidation Coal Company submitted permit application revision to include a coal preparation facility. Added two volumes to 10-volume application.
October 5, 1981	The Office of Surface Mining Reclamation and Enforcement (OSM) furnished comments on the permit application, generated during its Administrative Completeness Review (ACR) for National Environmental Policy Act (NEPA), to Utah Division of Oil, Gas and Mining.
December 11, 1981	The Utah Division of Oil, Gas and Mining advised Consolidation Coal Company that administrative delay would be applied to the Emery Deep Mine.
January 7, 1982	Utah Division of Oil, Gas and Mining notified Consolidation Coal Company that its permit application and mining plan was incomplete.
March 18, 1982	The Utah Division of Oil, Gas and Mining declared plans for the non-federal preparation plant and loadout to be complete.
September 21, 1982	The Utah Division of Oil, Gas and Mining gave final approval to the proposed preparation plant and loadout facilities.
June 29, 1983	Mine shut down temporarily due to poor market conditions.
October 7, 1983	Consolidation Coal Company submitted additional material in response to ACR.
October 27, 1983	Utah Division of Oil, Gas and Mining announced that Consolidation Coal Company's permit application and mining plan was complete and commenced its technical analysis.

DATE	EVENT
December 28, 1983	Consolidation Coal Company published fourth consecutive weekly notice in the Emery County Progress that its permit application and mining plan had been filed.
December 30, 1983	Utah Division of Oil, Gas and Mining submitted a list of technical deficiencies to Consolidated Coal Company.
January 5, 1984	OSM prepared biological assessment regarding the possible existence of a threatened and endangered cactus species at the permit area and submitted to the U.S. Fish and Wildlife Service.
January 9, 1984	Written objection to the permit by Mr. Duane A. Frandsen of Price, Utah. Addressed to the Utah Division of Oil, Gas and Mining.
January 19, 1984	Mr. Frandsen requested an informal conference.
January 20, 1984	Consolidation Coal Company responded to the Utah Division of Oil, Gas and Mining deficiencies of December 30, 1983.
January 27, 1984	The Utah Division of Oil, Gas and Mining submitted a determination regarding alluvial valley floors to the Consolidation Coal Company.
February 2, 1984	Consolidation Coal Company supplied information requested by the Utah Division of Oil, Gas and Mining regarding ground-water drawdown.
February 2, 1984	Utah Division of Oil, Gas and Mining notified Consolidation Coal Company of deficiencies discovered in the Emery Deep Mine permit application and mining plan in course of preparation of the TA.
	Draft TA submitted to the applicant and OSM.
February 22, 1984	Utah Attorney General's office notified Mr. Frandson that coal ownership does not affect the permitting process and referred the matter of his informal conference request to civil court. Nothing further transpired on the issue.
February 23, 1984	OSM provided comments on the State's draft TA.

DATE	EVENT
February 27, 1984	Consolidation Coal Company responded to February 2, 1984 deficiencies.
March 1, 1984	Consolidation Coal Company responded to Utah Division of Oil, Gas and Mining January 27, 1984, AVF deficiencies.
March 15, 1984	Consolidation Coal Company provided justification for non-recovery of certain coal seams to the Bureau of Land Management.
April 25, 1984	Consolidation Coal Company revised the mining plan to provide a 300 foot buffer zone around an occupied dwelling.
May 4, 1984	Utah Division of Oil, Gas and Mining submitted a final TA for the Emery Deep Mine to OSM.
May 18, 1984	Consolidation Coal Company responded to stipulations in the Division's TA.
May 25, 1984	Utah Division of Oil, Gas and Mining requested more information for stipulations response.
May 31, 1984	Consolidation Coal Company provided the additional stipulation information requested by the State.
June 20, 1984	Utah Division of Oil, Gas and Mining submitted a "final" TA incorporating the applicant's May 18 and May 31, 1984, responses.
June 25, 1984	Bureau of Land Management concurred with the resource recovery and protection plan.
June 27, 1984	Public notified of July 17, 1984 public scoping meeting.
July 17, 1984	OSM held public scoping meeting regarding NEPA related issues related to continued operation of the Emery Deep Mine.
August 23, 1984	Consolidation Coal Company supplied supplemental information to Utah Division of Oil, Gas and Mining and OSM.

DATE	EVENT
September 6, 1984	OSM concluded that Consolidation Coal Company's supplemental data involving drawdown in the Ferron aquifer is "inconsistant" and begins in-house computer modeling of aquifer drawdown due to mining.
January 15, 1985	OSM submitted complete aquifer model results to Consolidation Coal Company.
January 22, 1985	OSM submitted aquifer model results to the Utah Division of Oil, Gas and Mining along with suggestions for incorporating the results into the final TA.
January 25, 1985	OSM preliminary determination that no EIS is needed.
February 4, 1985	Mine re-opened from June 29, 1983, temporary cessation.
February 26, 1985	OSM prepared draft EA.
March 1, 1985	Utah Division of Oil, Gas and Mining submitted the "final" TA for the Emery Deep Mine to OSM incorporating ground-water modeling results.
April 22, 1985	OSM completed supplemental TA for the Emery decision document.
May 1, 1985	OSM Western Technical Center requested review by the Compliance Office under the requirements of 510(c).
July 31, 1985	OSM Compliance Office completed review under the requirements of 510(c).
August 16, 1985 August 22, 1985	Clearance obtained on violations related to 510(c) findings noted in the Compliance Office memo of July 31, 1985.
September 3, 1985	Clearance obtained on AML fee issues noted in Compliance Office memo of July 31, 1985.
September 1985	OSM recommended approval of Consolidation Coal Company's mining plan.

Findings

FINDINGS

Consolidation Coal Company
Emery Deep Mine

Application for Mining Plan

I. The State of Utah and the Office of Surface Mining (OSM) have determined that the permit application package submitted on March 20, 1981, and updated through August 23, 1984, and the permit with conditions are accurate and complete and comply with the requirements of the approved Utah State Program, the Surface Mining Control and Reclamation Act (SMCRA), and the Federal Lands Program. [UMC 786.19(a)]

II. The Utah Division of Oil, Gas and Mining (UDOGM) has reviewed the permit application and prepared the technical analysis (TA). OSM has prepared the environmental assessment (EA) and a supplemental TA, and based on these has made the following findings:

1. The applicant proposes acceptable practices for the reclamation of disturbed lands. These practices have been shown to be effective in the short-term; there are no long-term reclamation records utilizing native species in the Western United States. Nevertheless, the UDOGM staff and OSM have determined that reclamation, as required by the Act, can be feasibly accomplished under the mining plan. [UMC 786.19(b); TA, page 38; TA supplement pages 4-7; permit application, page 3-54; and National Environmental Policy Act (NEPA) compliance document, page 11]

2. The cumulative hydrologic impact assessment (CHIA) of all existing and anticipated coal mining in the general area indicates that the operations proposed under the application will lower static ground-water levels in the mine area, and contribute additional salt loading to the streams within the cumulative impact area. However, impacts will not preclude the present and potential uses of the water and therefore, are not material damage. [UMC 786.19(c); TA, Appendix A; PAP, Chapter 7]

   The surface mine operations proposed under the application have been designed to prevent damage to the hydrologic balance in associated off-site areas. [UMC 786.19(c); TA supplement pages 7 through 13; TA, page 23; permit application, Chapter 7; and NEPA compliance document, page 10]

3. After reviewing the description of the proposed permit area, Utah Division of Oil, Gas and Mining and OSM determines this area is:

   a. Not within an area designated unsuitable for mining (See Bureau of Land Management, Moab District Office correspondence of March 30, 1984). [UMC 786.19(d)(1)]

   b. Not within an area under study for designating lands unsuitable for surface coal mining operations. (See permit application page 2-3. [UMC 786.19(d)(2)]

   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). [UMC 786.19(d)(3); permit application page 2-3]

   d. Within 100 feet of the outside right of way of public roads; however, the Emery Deep Mine was permitted and operating prior to enactment of SMCRA and is therefore, exempt from this requirement (UMC 761.5) and (UMC 761.11). [UMC 786.19(d)(4)]

   e. Within 300 feet of an occupied building, but the applicant will not be authorized to mine within a 300 foot buffer zone of the building unless a written waiver is received from the dwelling owner (TA pages 43 through 48). [UMC 786.19(d)(5)]

   f. Not unsuitable in accordance with section 522(b) pursuant to standards set forth in 522(a)(2) and (3) of SMCRA. [NEPA compliance document]

   g. Not on any Federal lands within the boundaries of any national forest.

4. OSM's issuance of a permit and the Secretarial decision on the Mineral Leasing Act plan are in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800). [UMC 786.19(e); EA, page 13; State Historic Preservation Officer concurrence letter of February 28, 1985]

5. The applicant has the legal right to enter and begin surface mining activities in the permit area. [UMC 786.19(f); permit application, section 4.3]

6. The applicant has submitted proof and OSM's records indicate that prior violations of applicable law and regulations have been corrected. [UMC 786.19(g); personal communication with Donna Griffin, OSM Reclamation Specialist, in OSM Albuquerque Field Office on March 18, 1985, and Joe Helfrich, Field Supervisor Utah Division of Oil, Gas and Mining, May 3, 1985; memo from OSM Compliance Office concerning 510(c) findings dated 7/31/85 with follow-up telephone conversation memos to John Davidson and Paul Sosone, Pennsylvania Department of Environmental Resources; Gordon Hufford, Ohio Department of Natural Resources; Howard Johnson, EPA, Ohio]

7. OSM's records confirm that all fees for the Abandoned Mine Reclamation Fund have been paid, except for one case in which the applicant is appealing surface rates vs underground rates at a mine. The contested amount has been placed in escrow in this case; therefore, this finding is complete regardless of the outcome of the appeal. [UMC 786.19(h); personal communication with Dan Martinez, OSM Fee Compliance Officer, in OSM Albuquerque Field Office on April 16, 1985; Camille Sellers, OSM, DOI, August 22, 1985; Janet Goodwin, OSM, Solicitor, Charleston, West Virginia, September 3, 1985]

8. OSM records show that the applicant does not control 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, Field Supervisor, Utah Division of Oil, Gas and Mining, on May 3, 1985 and Ron Daniels, Associate Director, Utah Division of Oil, Gas and Mining on May 7, 1985; memo from OSM Compliance Office concerning 510(c) findings dated 7/31/85 with follow-up telephone conversation memos to John Davidson and Paul Sosone, Pennsylvania Department of Environmental Resources; Gordon Hufford, Ohio Department of Natural Resources; Howard Johnson, EPA, Ohio]

9. Surface coal mining and reclamation operations to be performed under the permit will not be inconsistent with other mines in the immediate vicinity of the Emery Deep Mine. [UMC 786.19(j); NEPA compliance document, page 1; State findings, Appendix D of the TA, number 9]

10. The applicant has provided evidence that there are prime farmlands in the permit area which are being protected as required by 30 CFR 785.17. [UMC 786.19(l); pages 13 through 15 of the supplement to the TA; TA page 40]

11. Positive alluvial valley floor determinations have been made for portions of certain drainages in the proposed permit area. These determinations were made on the basis of these drainages to either support or have the capability of supporting flood irrigation. However, the alluvial valley floors are being protected as required by UMC Part 822, except for those portions of alluvial valley floors undermined prior to enactment of SMCRA. [UMC 786.19(l); pages 15 through 17 of the supplement to the TA; TA, page 26; and State finding number 12, Appendix D of the TA]

12. All existing structures comply with UMC 700.11(e) and the applicable performance standards of 30 CFR Subchapter B, or UMC Subchapter K and no significant harm to the environment or public health or safety will result from use of the structures.

13. The proposed postmining land use of the permit area has been approved by the Utah Division of Oil, Gas and Mining, the Bureau of Land Management and OSM. [UMC 786.19(m); letter of concurrence from the Bureau of Land Management, Moab District Office; State finding number 13, Appendix D of the TA; and TA, page 41]

14. Utah Division of Oil, Gas and Mining and OSM have made all specific approvals required by the Act, the approved Utah State Program and the Federal Lands Program. [UMC 786.19(n); TA; Supplement to the TA; Letters of Concurrence; Federal Findings Document]

15. The proposed operation will not affect the continued existence of threatened or endangered species or result in the destruction or adverse modification of their critical habitats. [UMC 786.19(o); letter from U.S. Fish and Wildlife Service (USFWS) dated April 2, 1982, and biological assessment concurrence letter from USF&WS dated January 20, 1984; TA pages 34 through 36; and NEPA compliance document]

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

17. The applicant has complied with all other requirements of applicable Federal laws and has permits from the Environmental Protection Agency and Utah State air and water quality agencies. [30 CFR 746.13(g); and mining plan and permit application, page 2-6]

Administrator
Western Technical Center

NEPA COMPLIANCE DOCUMENTS

FINDING OF NO SIGNIFICANT IMPACT

Consolidation Coal Company
Emery Deep Mine

The technical analysis (TA), prepared by the State of Utah, and the supplemental TA and environmental assessment (EA), prepared by the Office of Surface Mining (OSM) accompanied by this "Finding of No Significant Impact", identify certain environmental impacts that would result from the Federal approval of the mining plan for Consolidation Coal Company's Emery Deep Mine. The 5-year permit application, submitted to the State under its approved permanent program, proposes a total permit area of 5,180 acres. The permit area encompasses portions of Federal lease U-5287.

The regional impacts of coal mining in the Bureau of Land Management, 1981, Final Environmental Impact Statement titled Uinta-Southwestern Utah Regional Coal Environmental Impact Statement.

The State and OSM determined that impacts to the Emery Deep Mine area would result from mining the Emery Deep Mine. However, OSM finds that impacts would not be significant.

A public scoping meeting was held on July 17, 1984, to solicit public response on the issues of mining in the vicinity of the Emery town well and the overall effects of the mine on the Ferron aquifer and subsidence in the vicinity of the mine. Ten individuals attended the meeting. One participant, County Commission Chairman Rue P. Ware submitted a formal statement to the effect that he wished to be kept informed of when the mine would recommence operation. (At that time the mine had temporarily ceased operations due to market conditions, and resumed production on February 4, 1985.) After the meeting, OSM received a written statement dated July 17, 1984, from the District Manager of the Castle Valley Special Service District, who requested that an additional study be undertaken to determine the effect of mining on the Emery town's wells. OSM subsequently conducted a computer modeling analysis of the effect of mining on the aquifer system. The analysis was completed in December of 1984. No other comments or statements were received.

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

Administrator
Western Technical Center

9/17/85
Date

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EMERY DEEP MINE

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ENVIRONMENTAL ASSESSMENT
CONSOLIDATION COAL COMPANY
EMERY DEEP MINE

INTRODUCTION

The Emery Deep Mine is an underground mine operated by the Consolidation Coal Company (Consol) in joint agreement with the Pittsburg and Midway Coal Mining Company (a subsidiary of Gulf Oil Corporation). The mine is located in central Utah approximately 4 miles south of the town of Emery (Figure 1). The proposed permit area covers 5,180 acres, approximately 2,700 acres of which will be undermined. (The Utah Division of Oil, Gas and Mining (UDOGM) incorrectly indicates in their technical analysis (TA) that 570 acres will be undermined.) Included is Federal coal lease U-5287 encompassing 2,776,000 tons of recoverable reserves in 720 acres of subsurface coal rights. Approximately 480 of these acres will be mined (OSM review of Plate 3-7 of the permit application package). Consol owns 4,040 acres of coal and leases 240 acres from the State (lease numbers 25005 and 19797) and 180 acres from private owners. Coal reserves total 46,439,000 tons with 22,332,000 tons recoverable. Federal surface on the proposed permit area comprises 80 acres and is managed by the Bureau of Land Management. No mining is proposed under this Federal surface for the life of the mine. The proposed mining rate is 720,000 tons per year which is expected to increase to 1.7 million tons per year during the next permit term. The remaining life of the mine is 25 years.

The Bureau of Land Management, Branch of Solid Minerals (BLM) granted approval of the Emery Deep Resource Recovery and Protection Plan (RRPP) on June 25, 1984. The RRPP approval covers the 720 acres of Federal coal. The mining plan approval of the 720 acres of Federal coal incorporates all Federal lands and other lands affecting or affected by those operations on Federal lands within the permitted area. The OSM permit boundary covers the same area as the State permit.

None of the surface facilities are located over Federal coal or on Federal surface. There are areas of prime farmland and alluvial valley floors over Federal coal.

The nearest existing mine to the Emery Deep location is the Convulsion Canyon Mine, in Township 22 South and Range 4 East of the Salt Lake Baseline and Meridian, approximately 10 miles west of the Emery Deep Mine. The Convulsion Canyon Mine is an operating mine currently undergoing the Federal permitting process in accordance with the requirements of the Surface Mining Control and Reclamation Act (SMCRA) and the Mineral Leasing Act. There are 7,355 acres in the Convulsion Canyon permit area. There is a permit application on-file for a surface mine adjacent to and partially overlying the eastern part of the Emery Deep mine. This surface mine is proposed by the Consoldation Coal Company as part of an overall Emery area mining complex for the future.

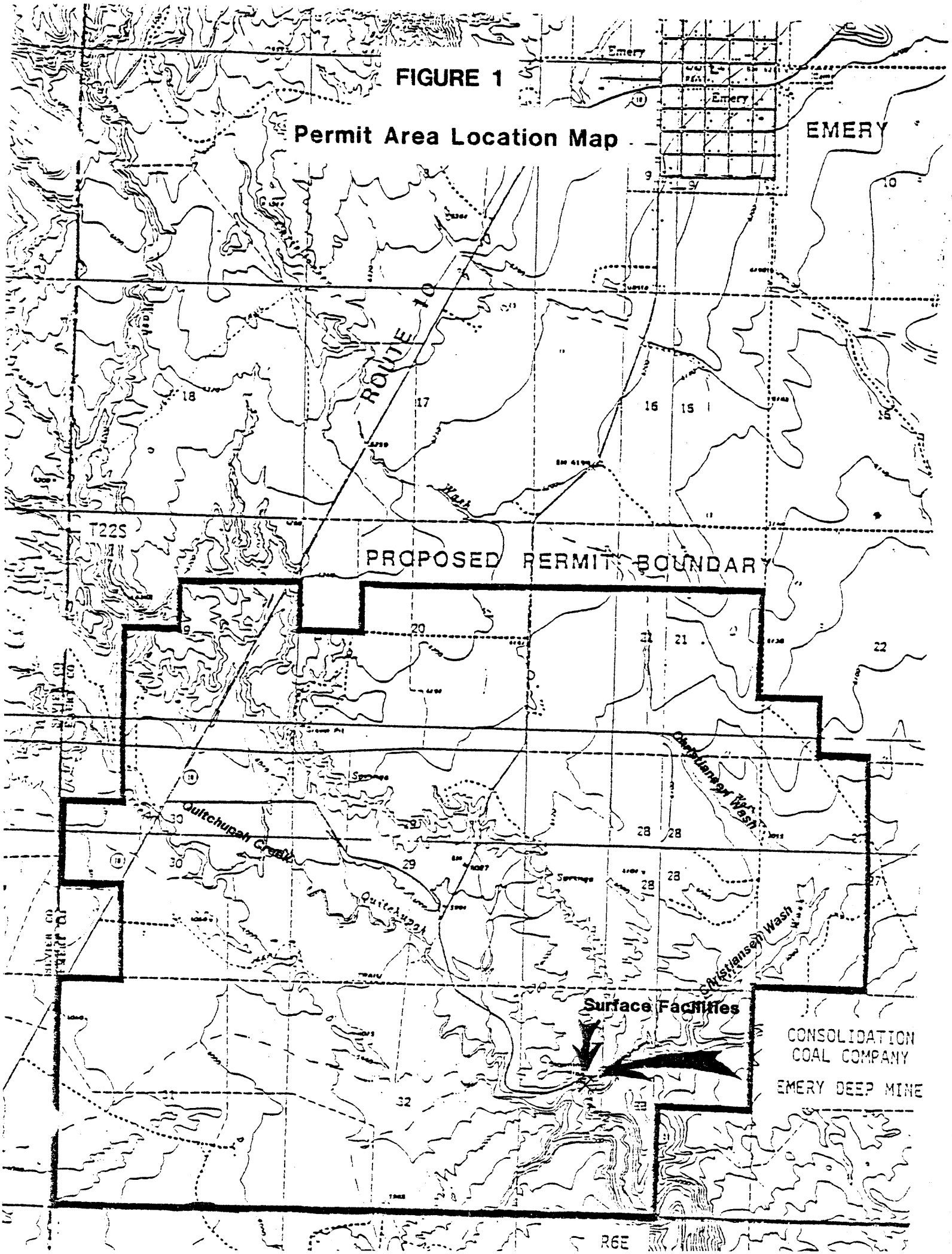


FIGURE 1
Permit Area Location Map
EMERY
Emery
Emery
ROUTE 10
Wash
T22S
PROPOSED PERMIT BOUNDARY
Quitchupah Creek
Quitchupah
Christiansen Wash
Surface Facilities
CONSOLIDATION
COAL COMPANY
EMERY DEEP MINE
R6E

PURPOSE AND NEED FOR ACTION

The Emery Deep Mine is currently operating on fee lands under a permit (ACT/015/015) issued by the State of Utah, Division of Oil, Gas and Mining (UDOGM) on May 11, 1978. No Federal approval has ever been issued because no Federal coal has been previously mined or proposed to be mined. The Mine Safety and Health Administration (MSHA) identification number is 42-00079.

To continue mining, the applicant has submitted an underground mine permit application package in compliance with the approved Coal Mining and Reclamation Permanent Program (Chapter 1) of the State of Utah (the Utah Regulatory Program). The necessary Federal action is to approve, disapprove, or conditionally approve the application in accordance with the requirements of SMCRA and the Mineral Leasing Act. This environmental assessment will address the environmental consequences of the proposed mining operations and reclamation plans in the permit application package. The consequences of no permit and mining plan approval will also be addressed. The purpose of this document is to assist the Secretary of the Interior in making a decision with respect to compliance with the National Environmental Policy Act (NEPA).

DESCRIPTION OF ALTERNATIVES

Proposed Action: Approval of the Permit, With Conditions

The Secretary may approve a mining plan for the 720 acres of Federal coal within the 5,180 acre permit area. OSM may approve the operator's permit application package for the 5,180 acre permit area subject to certain conditions.

Alternative I: No Action

The Federal Mineral Leasing Act requires that the Secretary of the Interior approve, disapprove, or conditionally approve mining operations on Federal leases. Therefore, the alternative to take no action is not viable and will not be discussed further.

Alternative II: Disapproval of the Permit Application Package

Disapproval of the applicant's permit would result in permanent closure of the existing mining operation. Permanent closure would result in the permanent loss of approximately 118 jobs in the area. Under this alternative, the mine operator would begin reclamation at the disturbed area, resulting in revegetation and a slight increase and improvement in wildlife habitat.

The impact unique to this alternative would be the loss of 22,332,000 tons of recoverable coal reserves, and the effects of mining transferred to other unknown site(s) with unknown impacts.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

Soils

Soils at the mine portal and facilities area were disturbed prior to enactment of SMCRA. The disturbed land is composed of various soils with 0 to 15 percent slopes. Surface soils have either been buried under coal fines, or heavily mixed with subsoils.

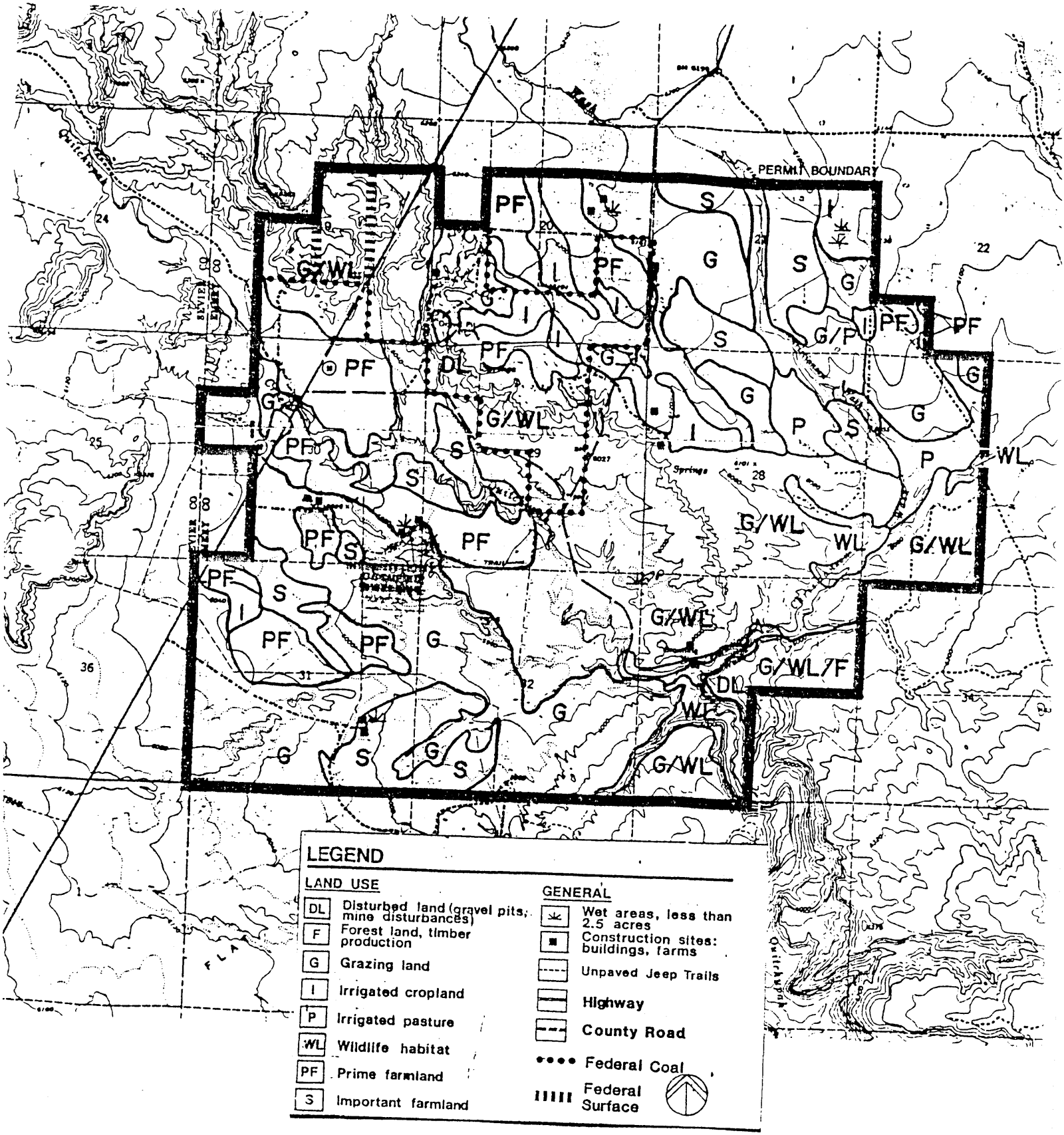
Future disturbances will occur mainly on the Ravola-Bunderson Complex, (RaB2), Persayo-Chipeta Complex (PCE2) and the Chipeta-Badland Association (CBE2). The Ravola-Bunderson Complex is on nearly level to level alluvial fans, floodplains and bottomlands. The landscape is hummocky in some areas. The slopes range from one to three percent. The vegetation is mainly the greasewood shrubland type. The Persayo-Chipeta Complex is on nearly level to steep fans, terraces, uplands and shale knolls. The slopes range from 1 to 20 percent. The vegetation is principally the mixed desert shrubland type. The Chipeta-Badland Association is on steep to strongly sloping broad fans, ridges and sandstone and shale hills. The slopes range from 3 to 30 percent. The native vegetation is principally the mixed desert shrubland and matscale shrubland types. These soils have a poor to fair rating as topsoil.

The soils investigation was conducted according to the standards of the National Cooperative Soil Survey. Mapping was conducted on foot using hand augers. Within the Detailed Mapping Area, one profile for each major soil was sampled and described. Soil pits were excavated to a depth of 60 inches or more, and pedons were described and sampled according to the standards of the National Cooperative Soil Survey. For the soils occurring outside the Detailed Mapping Area, but within the Permit Area, Soil Conservation Service soil descriptions were used.

There has been a mine at the Emery Deep minesite since the 1890's. (Before the Emery Deep Mine, the mine was known as the Browning Mine.) For this reason, no topsoil has been removed and stored, nor is any topsoil currently available for reclamation. The applicant has committed to removing and storing any available topsoil at the site of any future disturbance. In lieu of topsoil, the applicant has proposed using material from reclaimed roads, and a borrow area.

There are areas of prime farmland which exist in the permit area as shown on Figure 2. Mapping units considered prime farmland by the SCS include: Bebe Fine Sandy Loam, Billings Silty Clay Loam, Huntington Clay Loam, Michney Loam, Palisade Loamy Sand, Penoyer Loam, Ravola Loam, and Woodrow Silty Clay Loam (page 8-57 pf the permit application package). Prime farmlands that occur within the permit area are irrigated fields used as cropland, pastureland, or for hay production. There is no prime farmland in the areas now affected by surface operations, nor is any prime farmland proposed to be disturbed by surface operations in the future. There is, however, prime farmland overlying present and proposed underground mining. The potential exists that prime farmland may be impacted by subsidence in the future.

FIGURE 2
Land Use



Hydrologic Resources

Surface facilities at the portal area of the Emery Deep Mine cover 40 acres and are located at the confluence of Quitchupah Creek and its tributary, Christiansen Wash, both perennial streams. The mine complex has been established in a relatively small narrow area that is formed by the stream channels and their valley walls. Flooding from both these streams in the past has necessitated the placement of riprap along the stream channels to prevent the erosion of berms that comprise part of the surface water control system at the mine.

Quitchupah Creek, with a drainage area of 430 square miles, flows to the southeast from the mine complex, converging with Ivie Creek, immediately above the confluence of that stream with Muddy Creek at Highway I-70. Muddy Creek, with a drainage area of 1,450 square miles, is one of the major streams in the Dirty Devil River watershed, a tributary to the Colorado River. Flows in Quitchupah Creek and Christiansen Wash derive from three sources: direct runoff, baseflow from the upper and lower Ferron Sandstone aquifers, and returning irrigation flows that are diverted out of Muddy Creek. Quitchupah Creek is also directly impacted by discharge from the mine because all mine-inflow pumped from the underground workings is directed to a single treatment pond that discharges into a small tributary of that stream.

The mine removes coal from the I-J zone coal bed, in the Ferron Sandstone Member of the Mancos Shale. The Ferron Sandstone comprises a principal regional aquifer and consists of two distinct water bearing zones; the upper Ferron aquifer and the lower Ferron aquifer. The lower Ferron shows higher hydrostatic pressure under undisturbed conditions than the upper unit. The I-J zone bed defines the confining boundary between the upper and lower Ferron aquifers.

Overlying the Ferron Sandstone is the Bluegate Shale, which acts as a confining bed over the upper Ferron aquifer. Due to the shale content of this formation, permeability is very low. Water is contained in the Bluegate Shale; however, it is not considered an aquifer in the regional context. Water is generally thought to exist and move via localized fracturing in the formation.

Unconsolidated alluvial aquifers also exist at the mine. Alluvial terrace deposits overlying the Bluegate are waterbearing, as are the alluvial deposits of Christiansen Wash and Quitchupah Creek.

Ground-water movement throughout the Ferron Sandstone is in an updip direction, toward the mine and areas of outcrop. Generally, this is to the southeast. Recharge to the Ferron Sandstone is believed to take place to the west, on the Wasatch Plateau and along the Joe's Valley - Paradise fault zone. Discharge of the two aquifer zones in the area is to Muddy, Ivie and Quitchupah Creeks, Christiansen Wash, and Miller Canyon. In the immediate minesite area, the upper Ferron aquifer is primarily responsible for subsurface outflow to Christiansen Wash and Quitchupah Creek.

Water quality in Quitchupah Creek and Christiansen Wash is characterized by high total suspended solids (TSS), and total dissolved solids (TDS) (dominated by sulfate, and sodium). TDS values in Christiansen Wash are higher than those in Quitchupah Creek, as demonstrated by data that showed means of 3,871 and 2,233 mg/l for Christiansen Wash as opposed to means of 1,947, 1,329 and 1,424 mg/l for Quitchupah Creek. TSS values are higher in Quitchupah Creek, with areas between 1,094 and 1,447 mg/l, while Christiansen Wash is characterized by TSS means of 848 and 620 mg/l.

Data provided by the applicant (Table 7-4, page 7-57 of the permit application package) indicates that ground-water quality varies in both Ferron aquifers from a TDS level of about 200 parts per million (ppm) to more than 1,600 ppm, with at least one value in the upper Ferron over 15,000 ppm. However, in general the lower Ferron water is considered to be of better quality than the water in the upper Ferron aquifer. The ground water within the Bluegate Shale is saline with high amounts of sodium, sulfate and chloride.

There are no surface water users in the vicinity of the Emery Mine that could be impacted by the mine operation. The only surface-water use identified by the Utah Division of Water Rights pertained to cattle that drink from Muddy Creek when adjacent BLM lands are used for grazing.

Two private wells, the Bryant well and the Lewis well, are registered in the permit area. Both withdraw water from within the Ferron Sandstone, presumably from the upper aquifer. The town of Emery also maintains a municipal supply well, approximately 2.5 miles north of the permit area. The Lewis and Bryant wells withdraw about 30 gpm from the upper Ferron, while the Emery town well withdraws about 50 to 90 gpm from the lower Ferron. In addition to the numerous springs which exist in the terrace gravels overlying the Bluegate Shale (discussed earlier), two springs were identified as issuing from the Ferron Sandstone. The Christiansen Spring, located at the head of Miller Canyon (Spring #SP-16) discharges from the upper Ferron Sandstone at a rate of 6 gallons per minute (gpm) and is appropriated for stock-watering. Spring SP-16 in Muddy Creek Valley is believed to discharge from the lower Ferron at a rate of 5 gpm with no appropriation.

The upper Quitchupah Creek valley contains unconsolidated stream-laid deposits and has sufficient water for flood irrigated agricultural activities as evidenced by ongoing irrigation activities which utilize Quitchupah Creek water. An assessment of the annual runoff indicated that sufficient water could be available to flood irrigate 300 to 400 acres along the Quitchupah Creek valley. Based upon this information, and soil survey information, discrete areas of the upper Quitchupah Creek valley have been determined to be a potential alluvial valley floor. These areas of potential alluvial valley floor either presently support or have the capability of supporting flood irrigated agricultural activities.

Portions of the areas of potential alluvial valley floor predominantly in Section 30 north of the Quitchupah Creek channel are currently flood irrigated with water supplied from Muddy Creek and delivered by the Emery Ditch. Consol does not agree that these areas qualify as an active flood irrigated alluvial valley floor. However, to avoid delays in permit approval, Consol has adopted plans which call for no mining under these areas. Plans to mine under portions of these areas may be presented in a future proposed permit revision and mine plan modification. No Federal coal proposed for mining occurs in this disputed area.

Vegetative Resources

The majority of the 40 acres disturbed by mining activities lies within the Annual Forb, Mixed Desert Shrubland, Greasewood Shrubland and Rock Outcrop/Talus vegetation types of the Salt Desert Zone of the Northern Desert Shrub Formation. The total affected area represents less than two percent of the permit area.

Although the vegetation types are used as wildlife habitat and rangeland, their value to both wildlife and livestock is limited. Because this is an active mine and surface disturbances have already occurred, baseline vegetation information were impossible to obtain. Therefore, reference areas were necessary. In June 1980, vegetation studies were conducted within the permit area. Vegetation types were delineated based on the dominant species with the aid of color aerial photography. Reference areas were randomly located in each vegetation type. Herbaceous cover (total and relative) was estimated visually within randomly located circular quadrats. Shrub cover and density were obtained using the Lindsey-line strip method.

One Federally listed (July 27, 1983) plant specie, Wright's fishook cactus (Sclerocactus wrightiae), is reported in the area of the mine; however, none have been located within the permit area (See OSM's biological assessment attached to the technical analysis document.)

Fish and Wildlife Resources

A total of 170 vertebrate species have been documented for the permit area (26 mammals, 133 birds, 6 reptiles, 1 amphibian, and 4 fish).

Riparian habitat is the only type which occurs on the permit area that is classified as crucial/critical to wildlife by the Utah Division of Wildlife Resources. No threatened or endangered wildlife species are known to breed or otherwise extensively use the permit area. Golden eagles make considerable use of the area for hunting, but no nests were located within 1 km of areas to be affected. There is a potential for peregrine falcons and bald eagles to briefly visit or pass through the area during certain seasons. Blackfooted ferret habitat (prairie dog colonies) exists on the permit area. Nine active and two inactive prairie-dog colonies are located entirely within the permit area boundary and two other active colonies lie on the boundary, but none are located within areas of proposed disturbance. No blackfooted ferrets or sign of their presence was recorded within the permit area.

Wildlife habitat types on the permit area include pinyon-juniper, agricultural land, riparian-wetlands, semi-desert shrub, rocky outcrops and mat saltbush.

Mule deer is the only big game species which utilizes the permit area throughout the year. Use is concentrated mainly on the agricultural lands and riparian-wetlands habitat types. The area is considered low value to deer because the UDWR has determined the native vegetation can support only 0.003 deer per hectare. Two deer were observed on the study area during field surveys. The nearest designated crucial/critical habitat for deer is winter range located about 2.4 km north of the permit area.

Upland game species that use the permit area are the ring-necked pheasant and mourning dove. A majority of the mine permit area is within year long pheasant habitat that is designated as crucial/critical by UDWR. Pheasants are common within the permit area and were frequently observed during surveys.

A total of 13 raptor species were observed on the permit area. The only nests found were those of the American Kestral and burrowing owl. The burrowing owl is a species of "high interest" to both the State of Utah and the Federal Government.

Land Use

Surface ownership in the permit area consists of 5,100 acres of fee land with 80 acres of Federal land managed by the Bureau of Land Management. The majority of the surrounding land is managed by the Bureau of Land Management except to the north and northeast of the permit area, which is dominated by fee land. Mineral ownership consists of Federal, State, and fee coal (Federal = 720 acres; State = 240 acres; fee = 4,220 acres). There are no oil and gas leases in or adjacent to the permit area.

Permit area land use consists of pastureland, irrigated farmland, wildlife habitat, rangeland, and lands disturbed by mining of coal and gravel. Coal has been mined at the Emery Deep site (formerly the Browning Mine) sinced the late nineteenth century. There is no fishing in the mine vicinity although some hunting occurs through the permit area and vicinity.

Agricultural use consists of alfalfa and improved pastureland. The adjacent open and fenced rangeland is used for livestock grazing. Irrigation for the agricultural land is accomplished by diversions, ditches, and flood irrigation.

The permit area contains renewable resources and structures, and the potential effect of subsidence upon these resources becomes a concern. The applicant uses room and pillar extraction at the Emery Deep Mine and plans to use partial extraction methods to recover the coal. That is,

after room and pillar mining is complete, the pillars will not be completely removed to recover more coal. Instead, portions of the pillars will be recovered. Over time, the remaining coal in the pillars will deteriorate, allowing subsidence to occur. The subsidence associated with partial extraction results in an uneven settling of the ground surface, because the pillars fail unevenly. The amount of subsidence varies with the depth of overburden, thickness and strength of each overlying strata and the width of the mine passageway at the pillar failure. The applicant has provided an analysis of predicted subsidence effects; however, exact prediction is impossible. One subsidence event has been measured at 5.33 feet of vertical drop on the surface.

Uneven subsidence of this type is of particular concern regarding the renewable resources at the Emery Deep Mine. These resources include farmland, alluvial valley floors, wood buildings, roads, irrigation ditches, ponds, corrals, wells, and a utility line. The applicant has submitted a subsidence control and mitigation plan to address potential impacts to renewable resources. The plan is discussed in the environmental impacts section of this document, and in detail in the technical analysis of the decision document.

Topography

The Emery Deep Mine is located at the junction of Quitchupah Creek and Christiansen Wash, both perennial streams. The streams have deeply incised the resistive Ferron sandstone at the surface facilities area to form vertical cliffs which are approximately 80 feet high. The remainder of the topography over the area is underlain by the Bluegate shale and forms a relatively flat to low-rolling topography.

Air Resources

The vicinity of the Emery Deep Mine experiences a semi-arid steppe climate characterized by low relative humidity, abundant sunshine, generally low precipitation, warm summer, and cold winter temperatures. Annual precipitation at the town of Emery averages 7.55 inches. Normally, 75 percent of this precipitation enters the soil, then two-thirds is lost to evapotranspiration. Temperature varies from a minus 16 to nearly 100 degrees Fahrenheit seasonally. Prevailing winds are out of the west and southwest. Winds are generally calm, but can gust to 25 miles per hour, and are strongest during the Spring. Air quality is generally good.

The applicant does not propose to conduct an air quality monitoring program due to the lack of any significant point source discharge and small disturbed acreage.

Fugitive dust emissions from the coal handling and loading are controlled by spraying the coal with water as it is mined at the face and at all transfer points on the conveyor system. When the coal exits the mine and enters the tipple, it is thoroughly wetted. Road traffic dust is controlled by regular spraying the unpaved areas with water. In the summer spraying will occur at least three times a day, and in the winter about two times each week.

A letter of approval from the Utah Bureau of Air Quality has been obtained for the previously approved, non-Federal, preparation plant facility which is located at the north end of the existing surface facilities at the Emery Deep Mine.

Socioeconomics

The Emery Deep Mine was temporarily idled on June 29, 1983. Locally improved coal market conditions have since allowed the mine to re-open on February 4, 1985. The full operating workforce is 180 people. The current and projected population of the affected area is as follows (after 1980 Census Reports):

Emery County, Utah Community	1980 Population	1990 Population
Emery	372	640
Ferron	1,718	4,450
Castle Dale	1,910	6,742
Orangeville	1,309	3,354

The 1984 population of the town of Emery and surrounding residences was approximately 450 people.

Other towns of lesser size in commuting distance are Moore, Molen, and Clawson in Emery County.

Additional information regarding the socioeconomics environment of this area may be found in the Bureau of Land Management's "Round II Final Environmental Impact Statement, Uinta-Southwestern Utah Coal Region," October, 1983.

Cultural Resources

Mining in the vicinity of the Emery Deep Mine has occurred since before the turn of the century with associated surface disturbance (other than subsidence) taking place. Several surveys of the mine permit and surrounding areas have been conducted. Two of the most recent inventory reports are by Archeological-Environmental Research Corporation (AERC

1980, 1981). Approximately 1,000 acres of the 5,180 acre permit area have been surveyed for cultural resources. Sixteen sites (13 prehistoric, 3 historic) were recorded in the permit area. Several of these 16 sites appear to be eligible for nomination to the National Register of Historic Places, while several others will require further investigation prior to eligibility determination. The proposed underground coal mining is not expected to affect the recorded sites. It does not appear that the future disturbances to construct the preparation plant and loadout facility will disrupt any of the existing cultural resource sites.

ENVIRONMENTAL IMPACTS OF THE PROPOSED ALTERNATIVE

Soils

Presently, 40 acres have been disturbed for surface facilities at the Emery Deep Mine. Approximately 200 more acres are proposed for disturbance to construct a preparation plant and loadout facility. The preparation plant and loadout facility plans were approved by the Utah Division of Oil, Gas and Mining on September 21, 1982. Seven acres of the present disturbance at the facilities area are on the proposed preparation plant site, and the topsoil has been stockpiled. The remaining 33 acres of present disturbance was impacted before enactment of SMCRA and no topsoil was saved. For reclamation of the 33 acres of pre-law disturbance, topsoil substitutes will come from a borrow area previously approved as part of the preparation plant application, and from regrading road-bed material. The applicant proposes redistribution of approximately 40,000 cubic yards of materials and has detailed proper redistribution procedures in the January 20, 1983 response to deficiencies.

The applicant does not intend to conduct surface operations on prime farmland and has committed on page 12-16 of the permit application package, and in the May 31, 1984, response to stipulations, to mitigate any adverse impacts to prime farmland that may occur through subsidence. The proposed mitigation involves grading to restore the natural drainage and productivity.

Hydrologic Resources

Because the Emery Deep Mine contains alluvial valley floors (AVF), perennial streams, and a significant aquifer system, hydrologic impacts are one of the most important environmental aspects. Acknowledging this fact, the applicant has proposed a thorough monitoring program for both surface and ground water.

The applicant's surface-water sediment-control system is adequately designed to control suspended solids. However, the mining operation will contribute salinity (total dissolved solids) to the Quitchupah Creek flow. The amount of salinity, based upon dilution in Quitchupah Creek

and Muddy Creek, is not considered detrimental. The proposed monitoring program will allow tracking of the amount of salinity increase that the mine is contributing to the Muddy Creek System. Mitigative measures can be instituted if the salinity levels increase beyond acceptable amounts.

Acceptable subsidence protection plans for AVF's have been proposed by the applicant except at those areas of the mine exempted from the requirements of SMCRA. The areas are exempted because the disturbance existed prior to the enactment of SMCRA.

The applicant's proposed ground-water monitoring is sufficient to provide ongoing information regarding the effects of mining on the area aquifers. However, because of the requirements to predict future effects in order to meet the requirements of the cumulative hydrologic impacts analysis regulations, the Office of Surface Mining (OSM) Western Technical Center conducted a complete modeling analysis (Appendix C of the TA) of the effect that mining will have on the Ferron aquifer system. OSM's ground-water prediction model results indicate that the upper Ferron aquifer will be essentially dewatered in the vicinity of the underground mine, and that there will be no additional effect on the aquifer system from the proposed surface mine (separate permit application, non-Federal). Because the applicant has already achieved a mitigation agreement with the owners of the wells which may be impacted by this dewatering, the impact is considered insignificant.

The OSM model further indicates that drawdown in the static piezometric level of the lower Ferron aquifer will eventually reach up to 140 feet. Although this amount may seem significant, the current static level of potentiometric head confined in the lower Ferron corresponds to a level approximately 1,200 feet above the Ferron sandstone. Therefore, a reduction of 140 feet in the piezometric head would still leave the equivalent water level well above the Ferron sandstone. Drawdown in the piezometric head at the Emery municipal well is predicted to be approximately 130 feet. A reduction of 130 to 140 feet in the artesian piezometric head which currently exists amounts to a decrease of 11 to 12 percent in the total piezometric level. A piezometric reduction is not considered significant until it reaches a minimum of 25 percent of the unaffected level. The greatest impact of the predicted decrease would be at the Emery municipal well where marginally more electricity will be required to pump the water from a lower level in the well.

There are no indications that ground-water quality will deteriorate. Both the upper and lower Ferron aquifers are of good quality. There will be more drawdown in the upper Ferron than in the lower Ferron, and there will be a tendency for some leakage to occur from the better quality lower Ferron into the upper Ferron. In this manner, the upper Ferron can be replaced with water of better quality than that originally in place. Monitor-well tests in the Ferron Sandstone and Bluegate Shale indicate that drawdown of Ferron ground water is not reflected in Bluegate water levels. This indicates that the Bluegate Shale is so tight (low permeability) that water is held in-situ without gravity controlled release. Therefore, contamination of the Ferron by drawdown of saline Bluegate waters will be insignificant.

Once mining is completed, the Ferron aquifer system will begin recovery of its pre-mining water levels.

Vegetative Resources

The applicant has submitted a revegetation plan which will establish a diverse, effective and permanent vegetative cover on all affected lands. The plan encourages a prompt vegetative cover and recovery of productivity levels compatible with a postmining land use of wildlife habitat and rangeland. Permanent seed mixes for revegetation of disturbed areas are capable of self regeneration and plant succession, and will be at least equal in extent of ground cover to the natural vegetation of the area. Thus, the applicant is in compliance with this section.

The applicant proposes to measure revegetation success by comparing reclaimed areas to reference areas, and has committed to a success cutoff level at 90% confidence of the cover, density, and productivity of the reference area.

Fish and Wildlife

The applicant's permit application proposals present minimal impact to wildlife. No habitat of threatened or endangered species will be affected, and impacts to the perennial pheasant habitat designated as crucial/critical is expected to be minimal and acceptable. The applicant proposes to minimize human disturbance by advising employees against harrassment, and has committed to develop a terrestial wildlife monitoring program.

Land Use

The applicant proposes to accomplish reclamation by restoring approximate original contour, apply topsoil substitutes, and reseed. Proposed postmining land use will be to restore disturbed areas to their premining uses of rangeland and wildlife habitat.

The applicant's subsidence mitigation plan involves three basic concepts in commitment:

1. Repair -- The operator carries liability insurance which covers mining impacts associated with subsidence. The amount of coverage is $1,000,000 for each occurrence. Through this measure the applicant has committed to restore, rehabilitate, remove, replace, purchase, or compensate the owner as necessary and fair. To date, the applicant has regraded subsided farmland, and extended the depth of two private wells that were dewatered by mining.

2. Buffer zones -- The applicant proposes to leave full pillars in a buffer zone approximately 500 feet wide along the perennial streams. The applicant also will not mine under a buffer zone around the only occupied structure in the permit area (small wood cabin with barn). However, because certain areas in the permit area were approved prior to enactment of SMCRA, not all alluvial valley floors will be protected by buffer zones.

3. Exempted areas -- Areas subject to mining prior to the enactment of SMCRA are not subject to the act's requirements. For these areas the applicant has committed to the mitigation plans listed above under Repair but no plans are proposed to prevent the effects of subsidence.

The applicant has committed to a subsidence monitoring program involving permanently installed survey monuments on site, with regular subsidence monitoring reports to the regulatory authority.

Air Resources

The dust control plan submitted by the applicant involves spraying with water at the mining face, coal transfer points on the conveyor, and along unpaved roads as outlined previously in this document. The proposed dust control plan is adequate, and the applicant has obtained previous approval of air quality on site from the Utah Bureau of Air Quality. Therefore, no air quality monitoring is required.

Socioeconomics

The Emery Deep Mine will employ approximately 180 people at peak productivity, about 60 more than current production levels. Assuming that 30 percent of the workforce comes from outside the local valley area, about 36 people have in-migrated to the local area to staff the mine with 18 more anticipated during peak production. Peak production is expected to occur sometime during the next permit term. The primary affected communities will be Emery, Ferron, Castle Dale, and Orangeville, in Emery County. To a lesser extent the workforce will affect Price and Helper in Carbon County. The total population increase which can be expected with peak production amounts to approximately 16 to 17 persons.

Continued operation will provide jobs for a workforce of 118 to 180 people. Employment fluctuates with the coal market and status of other Utah mines. In and out migration is such that demands for more workers are minimal, and unemployment is currently high at approximately 20 percent. Due to the December 19, 1984 fire at the Wilberg mine in Utah, there is currently an increased number of skilled workers available. Given the high rate of unemployment, there is no reason to expect adverse impacts due to continued operation of the Emery Deep mine.

Cultural Resources

The applicant has committed to pre-disturbance surveys of areas of the permit where disturbance will eventually take place, and to report all results of the surveys to the regulatory authority. No impacts to cultural resources are anticipated.

Federal Lands Review

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

Section 522(a)(2) of SMCRA requires that reclamation must be technologically and economically feasible. OSM reviewed and concurs with the Utah Division of Oil, Gas and Mining's (DOGM's) reclamation cost determined for bond requirement. OSM has reviewed page 3-54 of the permit application and concurs with DOGM's determination on page 38 of the technical analysis that reclamation can be feasibly accomplished. This review is complimented by pages 4 through 7 of the supplemental technical analysis prepared by OSM. As a result of this review, OSM has determined that the reclamation as proposed in the permit application package is technologically and economically feasible.

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

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

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

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

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

OSM reviewed the permit application package and reviewed and concurs with the Utah Division of Oil, Gas and Mining's findings and supporting documentation and supplemental report except as noted in the technical analysis and this environmental assessment. As a result of this review, OSM has made the following determinations.

Land Use

The permit area at the Emery Deep Mine is zoned for agriculture, grazing, and industry in Emery County. Since mining has occurred at the site since the turn of the century, the zoning was established around the existing mine, maintaining compatibility with the mining. Since the mining takes place underground, the postmining land uses will remain the same as the current land uses. The applicant has committed to mitigate any damaging effects caused by subsidence.

Fragile and Historic Lands

The proposed mining and reclamation operations will not result in significant damage to important historic, cultural or scientific resources in the permit area based on the surveys and information contained in the permit application package, information provided by the State Historic Preservation Officer, and Section 7 of the mining plan approval document.

Renewable Resource Lands

Based on the assessment of cumulative hydrologic impacts and probable hydrologic consequences of the proposed operations and the public scoping meeting held on July 17, 1984, the mining and reclamation operations will not result in a substantial loss or reduction of long-range productivity of the water supply in the area including aquifers and aquifer recharge areas.

Alfalfa and cattle are raised in parts of the permit area and vicinity. The mining and reclamation operations will not result in a substantial loss or reduction of long-range productivity of the lands producing alfalfa and/or cattle because the mining takes place underground and the applicant has committed to mitigate any damaging surface effects.

Natural Hazard Lands

There are no areas of unstable geology in the permit and adjacent areas. Areas where subsidence may take place are confined to open areas where no structures exist. Structures are protected by subsidence buffer zones where the surface will remain stable.

Flooding may take place along Quitchupah Creek or Christiansen Wash through natural runoff processes and ground-water inflow. The mining operation and facilities do not significantly contribute to this natural process beyond intercepting much of the ground water that would eventually discharge further down gradient. This interception will not substantially endanger life and property.

IMPACTS OF THE DISAPPROVAL ALTERNATIVE

Disapproval of the applicant's permit would shut down the existing Emery Deep mining operations and reclamation of the present disturbance would commence. Permanent closure would benefit the environment by eliminating future disturbances proposed during the 25 years of remaining mine life. Rangeland and wildlife habitat would be restored 25 years earlier than is proposed. Effects to the surface terrain caused by subsidence would be reduced.

Other impacts of this alternative would be the loss of approximately 180 jobs and 22,332,000 tons of coal reserves. The impact of the displaced production would be transferred to other area mines. It is possible that Consolidation Coal Company would use some of their existing staff for reclamation operations.

Letters of Concurrence

UT 0005

United States Department of the Interior

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

APR 1982
RECEIVED
UMC - OSM

IN REPLY REFER TO:

April 2, 1982

MEMORANDUM

TO: Acting Deputy Administrator, Technical Service Center West
Office of Surface Mining
Denver, Colorado

Attention: Don Henne

FROM: Acting Area Manager, Fish & Wildlife Service
Salt Lake City, Utah

SUBJECT: Mine Plan Review, Emery Deep Mine, Consolidation Coal Company (ACT/015/015)

The Emery Deep Mine Plan was reviewed for completeness and technical adequacy. The plan focused on existing and proposed facilities and developments on the five-year mine plan while identifying future facilities for the life of the mine. The scope of the review, however, is only for the five-year plan.

In a February 16, 1979 memorandum to the Bureau of Land Management, and a May 19, 1980 letter to the Utah Division of Oil, Gas and Mining the Fish and Wildife Service (FWS) identified endangered species that could have been present in the mine plan area. Also, after FWS and Utah Division of Wildlife Resources consultations, the Division of Oil, Gas and Mining submitted wildlife resource inventory guidelines to Mr. Steve Dole of Consolidation Coal Co. The FWS's Endangered Species Team and Energy Operations biologists have reviewed the mine plan and the recommended guidelines have been adequately met. The Emery Deep mine plan was found technically adequate and complete. Further review, however, will be required before "future facilities" are approved.

Jim Tisdale

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

MAR 08 1985

MEMORANDUM

TO: Field Supervisor
Endangered Species Office
Fish and Wildlife Service
Salt Lake City, Utah

FROM: Ramin Singh for Russell F. Price, Chief
Engineering Analysis Division

SUBJECT: Application of the Windy Gap Process to the Biological Assessment for the Emery Deep Mine, Emery County, Utah

Subsequent to our January 20, 1984, biological assessment for the Emery Deep Mine, the Office of Surface Mining (OSM) was informed of the need to assess water depletions for possible effects on listed fish species. As a reminder, this active underground mine is located in T22S, R6E of Emery County at the confluence of Quitchupah Creek and Christiansen Wash.

Our analysis revealed that the mine operation does not divert or otherwise consume any surface water flow. In fact, the operation produces 17,500 gallons per day from ground water sources that are discharged into Quitchupah Creek. Therefore, OSM has concluded that the Emery Deep operation would not cause any depletions that would affect threatened or endangered fishes of the Upper Colorado River Basin.

If you have any questions, please call Don Henne at (FTS) 564-5421.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
ENDANGERED SPECIES OFFICE
1406 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138-1197

IN REPLY REFER TO:

January 20, 1984

MEMORANDUM

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

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

SUBJECT: Biological Assessment for the Emery Deep Permit Application (UT 0005), Emery County, Utah.

We have received and reviewed your agency's biological assessment prepared for the Emery Deep Permit application (UT 0005) in Emery County, Utah. We concur with your determination of no affect by this project to any species currently listed as either threatened or endangered by the U. S. Fish and Wildlife Service, including Sclerocactus wrightiae (Wright fishhook cactus).

The biological assessment mentions Echnocactus whipplei var. spinosior as occuring on the site. This taxon is now recognized as Sclerocactus spinosior (Engelm.) Woodruff & Benson (see Cactus & Succulent Journal Vol. XLVIII, 1976 page 131). We suspect however that the cactus plants you found at the mine site are Sclerocactus whipplei var. roseus since Sclerocactus spinosior is not known to occur east of the Wasatch Plateau.

W. Robert Bentley
for Fred L. Bolwahnn

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

MEMORANDUM

To: Mr. Fred Bolwahnn, USFWS
Endangered Species Section

From: Steve Manger, Branch Chief
Utah Task Force

Subject: Biological Assessment for the Emery Deep Permit Application (UT0005), Emery County, Utah.

OSM has prepared and reviewed the attached Biological Assessment for the Emery Deep permit application. As you review this assessment please remember that the proposed permit is for an existing coal operation where there are no additional disturbances proposed during the term of this permit. Therefore, there are no known effects anticipated for any threatened or endangered (T&E) species. The assessment, however, does address the potential for the existence of T&E species within the permit area and adjacent lands.

cc. Susan Linner, UDOGM.

White

Biological Assessment For The Emery Deep Mine,
Consolidation Coal Company
Prepared By The Office of Surface Mining,
Western Technical Center,
Denver, Colorado.
December 20,1983.

Background Information

The Emery Deep Mine, operated by Consolidation Coal Company (Consol) is an underground mine located in Emery County approximately four miles south of Emery, Utah. The mine began operations more than 80 years ago. Current production is about 700,000 tons per year and is planned to increase production to about 1.7 million TPY during the next five years. The Emery Deep permit area encompasses 5,180 acres of which 42 acres are previously disturbed by surface facilities. The disturbed area represents about 1 percent of the permit area. The post mining land use includes wildlife and the reclamation plan will incorporate food and cover vegetation to support wildlife species in the area. Operations at Emery Deep Mine have been temporarily suspended as of June 29, 1983.

On September 23, 1983, OSM requested a list of threatened and endangered species potentially inhabiting the Emery Deep Mine site from the U.S. Fish and wildlife Service (FWS), Salt Lake City, Utah. The FWS responded on October 21,1983 with a list including Wright fishhook cactus (*Sclerocactus wrightae*). No other species were identified by the FWS as potentially inhabiting the Emery Deep Mine site. The assessment of potential impacts on the species is presented below.

IMPACT ASSESSMENT

Wright fishhook cactus

Wright fishhook cactus (*Sclerocactus wrightae*) has been collected in Emery County by Dorde Wright Woodruff (1961) and Lyman Benson (1966)[1]. Wright fishhook cactus occurs in close proximity with another fishhook cactus of the same genus (*S. pariflorus*), which is not a threatened or endangered (T&E) species. The only visual difference between the two cacti are the flower color and shape. Both cacti flower in the early spring. During the summer the cacti sometimes shrink to ground level to retain moisture making identification very difficult. There are no identified individuals or communities of Wright fishhook cactus inhabiting the Emery Deep permit area or within a mile of the permit area. However, two sites of possible *S. pariflorus* have been located within one mile east of the permit area and another within two miles east of the permit area.

[1] U.S. Fish and Wildlife Service. 1983.

Consol contracted a consultant that conducted a vegetation survey of the permit area. S. wright and S. pariflorus were not encountered in the survey, however, Echinocactus whipplei var. spinosior, another fishhook cactus that is not a T&E species, was found on the site. Mining operations within the Emery Deep permit area are not expected to have any additional effect on the vegetation. No expansion of disturbance is projected through the term of the permit. However, there is a potential for encountering Wright fishhook cactus under the proposed Emery surface mine, a different permit application adjacent to the Emery Deep Mine. The proposed surface mine will be evaluated for the potential of threatened and endangered species at a later date. Therefore, OSM does not anticipate disturbance of any threatened or endangered plant or animal species as a result of the proposed Emery Deep Mine permit.

REFERENCES

Bureau of Land Management. 1983. Uinta-Southwestern Utah Coal Regional Round Two Final Environmental Impact Statement.

England, L. 1983. Personal Communication. U.S. Fish And Wildlife Service, Endangered Species, November, 1983.

U.S. Fish And Wildlife Service. 1983. Technical Review Draft Recovery Plan for the Wright fishhook cactus, Sclerocactus wrightiae. Department of the Interior.

U.S. Fish And Wildlife Service, U.S. Forest Service, and Bureau of Land Management. Date unknown. Illustrated Manual of Proposed Endangered and Threatened Plants of Utah. Department of the Interior and Department of Agriculture.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
AREA OFFICE COLORADO—UTAH
1311 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138-1197

IN REPLY REFER TO:

21 October 1983

OSM-WTC
1983 OCT 27 AM 11: 11
WESTERN TECHNICAL CENTER

MEMORANDUM

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

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

SUBJECT: Threatened and Endangered Species in underground mines in Carbon and Emery Counties, Utah.

We have reviewed your memorandum of 23 September 1983 requesting lists of threatened and endagered species for various existing underground mines in Carbon and Emery counties in Utah. It appears that listed endangered species may occur in the area of influence of this action.

To comply with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies or their designees are required to obtain from the Fish and Wildlife Service (FWS) information concerning any species, listed or proposed to be listed, which may be present in the area of a proposed construction project. Therefore, we are furnishing you the following list of species which may be present in the concerned area:

Mine	Species	
Emery Deep	Wright fishhook cactus	*Sclerocactus wrightae*

In addition to the above listed species we would like to bring to your attention the following plant species which is under review by the Fish and Wildlife Service for possible listing in the future. While this species is not currently protected under the endangered species act, we encourage you that it be given consideration in environmental plans.

Mine	Species	
Trail Mountain, Sunnyside, Huntington No. 4 Gordon Creek No. 2	Canyon sweet-vetch	*Hedysarum occidentale* var. *canone*

Section 7 (c) also requires the Federal agency proposing a major Federal action significantly affecting the quality of the human environment to conduct and submit to the FWS a biological assessment to determine the effects of the

proposal on listed and proposed species. The biological assessment shall be completed within 180 days after the date on which initiated or a time mutually agreed upon between the agency and the FWS. Before physical modification/alteration of a major Federal action is begun the assessment must be completed. If the biological assessment is not begun within 90 days, you should verify this list with us prior to initiation of your assessment. We do not feel that we can adequately assess the effects of the proposed action on listed and proposed species or critical habitat and proposed critical habitat without a complete assessment. When conducting a biological assessment, you shall, at a minimum:

1. conduct a scientifically sound on-site inspection of the area affected by the action, which must, unless otherwise directed by the FWS, include a detailed survey of the area to determine if listed or proposed species are present or occur seasonally and whether suitable habitat exists within the area for either expanding the existing population or potential reintroduction of populations;

2. interview recognized experts on the species at issue, including those within the Fish and Wildlife Service, state conservation agencies, universities, and others who may have data not yet found in scientific literature;

3. review literature and other scientific data to determine the species' distribution, habitat needs, and other biological requirements;

4. review and analyze the effects of the action on the species, in terms of individuals and populations, including consideration of the cumulative effects of the action on the species and habitat;

5. analyze alternative actions that may provide conservation measures;

6. conduct any studies necessary to fulfill the requirements of (1) through (5) above;

7. review any other relevant information.

The FWS can enter into formal Section 7 consultation only with another Federal agency or its designee. State, county, or any other governmental or private organizations can participate in the consultation process, help prepare information such as the biological assessment, participante in meetings, etc.

After your agency has completed and reviewed the assessment, it is your responsibility to determine if the proposed action "may affect" any of the listed species or critical habitats. You should also determine if the action is likely to jeopardize the continued existence of proposed species or result

in the destruction or an adverse modification of any critical habitat proposed for such species. If the determination is "may affect" for listed species you must request in writing formal consultation from the Field Supervisor, Endangered Species Office, U.S. Fish and Wildlife Service at the address given above. In addition, if you determine that the proposed action is likely to jeopardize the continued existence of proposed species or result in the destruction or adverse modification of proposed critical habitat, you must confer with the FWS. At this time you should provide this office a copy of the biological assessment and any other relevant information that assisted you in reaching your conclusion.

Your attention is also directed to Section 7(d) of the Endangered Species Act, as amended, which underscores the requirement that the Federal agency or the applicant shall not make any irreversible or irretrievable commitment of resources during the consultation period which, in effect, would deny the formulation or implementation of reasonable and prudent alternatives regarding their actions on any endangered or threatened species.

We are prepared to assist you whenever you have questions which we may be able to answer. If we can be of further assistance, please advise us.

The FWS representative who will provide you with technical assistance is Larry England (FTS) 588-4430.

John L. England

Acting Field Supervisor

United States Department of the Interior

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

IN REPLY REFER TO
3400
U-5287
(U-067)

MAR 30 1984

Memorandum

To: Center Administrator, OSM, Denver, CO

Attention: Louis Hamm

From: Associate District Manager, Moab

Subject: Response to Revisions of Mining and Reclamation Plan for Consolidation Coal Company's Emery Deep Mine

We have reviewed revisions to the mine plan concerning ground water and alluvial valley floor investigations, OSM Serial No. UT-0005, and have found them to be complete. We have no further comments at this time.

We do not recommend that any of the lands within the mine plan area be designated unsuitable for coal mining.

Kenneth V Rhea

OSM-UTC
1984 APR -1 AM 10:13
WESTERN [illegible] CENTER

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
UTAH STATE OFFICE
136 E. SOUTH TEMPLE
SALT LAKE CITY, UTAH 84111

IN REPLY REFER TO
3482 (921)
U-5287

JUN 25 1984

Memorandum

To: Utah Senior Project Manager, OSM, Denver

Attn: Lou Hamm

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

Subject: Consolidated Coal Company, Emery Deep Mine, Emery County, Utah, Permit Application Package (PAP)

Twelve submittals of subject information identified and listed below have been reviewed for completeness and technical adequacy and are now a part of the PAP on file in this office:

1. Maps and pages forwarded with your letter dated December 5, 1983, and identified as "11/11/83 submittal of revisions for mining and reclamation plan in response to UT DOGM letter of 10/27/83."

2. Resource Recovery and Protection Plan (R2P2) for Emery Mine involving Federal lease U-5287 with Consol letter dated December 12, 1983, (Higgins to Moffitt.) Delivered to BLM State Office by Mr. Higgins on December 13, 1983. Included a briefing of the R2P2 plan by Consol personnel.

3. Pages forwarded with your letter dated January 4, 1984, and identified as "11/14/83 submittal of revision for vol. 13 of the ACR response regarding protection of the hydrologic balance."

4. One map forwarded with your letter dated January 4, 1984, and identified as "Submittal of Revision for vol. 13 of the ACR response, revised plate showing improvements to the water management system for the intermediate catch basin."

5. Maps and pages forwarded with your letter dated February 16, 1984, and identified as "02/02/84 submittal of revisions for ACR response in response to OSM request."

6. Pages forwarded with your letter dated February 16, 1984, and identified as "01/20/84 submittal of response to UT DOGM technical review deficiencies dated 12/30/83."

7. One map and pages forwarded with your letter dated March 5, 1984, and identified as "02/27/84 submittal of revisions for mining and reclamation plan in response to UT DOGM."

8. One map and pages forwarded with your letter dated March 9, 1984, and identified as "alluvial valley floor investigations, response to UT DOGM letter dated January 27, 1984,--March 1, 1984."

9. Letter dated March 15, 1984, Dunn to McKean containing supplemental information explaining why the coal seams below the I-Zone are not considered minable in Federal lease U-5287.

10. One map forwarded with your letter dated May 8, 1984, and identified as "04/25/84 submittal of revised map for mining and reclamation plan."

11. A copy of the Utah Division of Oil, Gas, and Mining's technical analysis for the subject mine that was forwarded with letter dated May 9, 1984, Manager to Moffitt.

12. One map and pages forwarded with your letter dated June 11, 1984, and identified as "05/18/84 submittal of revisions for MRP in response to final technical analysis and State decision package dated 05/18/84."

The total PAP presently on file in this office consists of seventeen volumes identified as follows:

Volumes 1 through 10 - Initial Mining and Reclamation Plan (MRP) submittal (as amended.) Supplement volumes - (as amended)

Volumes 11 and 12 - Coal Preparation Plant

Volumes 13 through 15 - Apparent completeness Review (ACR) and Associated documents(ACR)

Volumes 16 and 17 - Resource Recovery and Protection Plan (R2P2)

We have determined that the underground mining part of the subject PAP listed above generally conforms with 43 CFR 3482.1(c) rules and regulations. Within the constraints of the present economy and current markets, the proposed coal recovery procedures should safely obtain maximum economic recovery of the coal resource within the plan area by following the planned technology and by using the types of equipment listed in the plan. The R2P2 part of the PAP is adequate for BLM administration of the associated Federal lease U-5287. Within the limits of our authority we recommend that the Consolidation R2P2 be included as an integral part of the first permit package.

Although we recommend approval of the R2P2 plan, the overall recovery of coal in Federal lease U-5287 is low and we believe there is a future potential to increase the recovery as market conditions and technology improves. Performance standards at 43 CFR 3484 require that underground mining operations

be conducted to assure that maximum economic recovery of the coal resource will be obtained in a safe manner. BLM must approve plans that are consistent with known technology, that will maximize mine stability, and, as required, maintain the value and use of surface lands. Principle reasons for the low predicted recovery rate are listed below with possible future changes we expect would improve recovery.

1. Present economic conditions.

Should improve with time.

2. Geologic interpretations by the company of the multi seam complex.

As the mine develops new geologic knowledge will be gained and will possibly result in mine plan modifications which will permit more coal to be recovered. Modifications must involve BLM beginning with onsite discussions to final approval of modifications.

3. Requirements established by the company to determine minability.

As we have discussed with the company before, parameters used by them to determine what coal is minable are different than the parameters used by BLM. BLM parameters were established from experiences in the Blackhawk Formation in Carbon and Emery Counties. The I Zone selected for mining by the company is in the Ferron Sandstone Member of the Mancos Shale. We believe these differences will be tested with time.

4. Practical mining methods that have been developed by the current operator for the Emery Deep Mine.

Adverse geologic and mine conditions and the necessity to market mine run coal is basically responsible for the mining methods developed. Changes in conditions and the construction and operation of the planned coal preparation plant will, no doubt, require changes or modifications in mine planning and will ultimately enhance recovery.

BLM is responsible for all underground operations on Federal leases and is also concerned with underground operations on other lands, within the same mine complex, that may have adverse impacts on the associated Federal leases. The company must be aware that following PAP approval and issuance of mining permit, they will be required to perform as required by 43 CFR 3400 rules and regulations, which are administered by the BLM.

J. H. Moffitt

cc: Moab
DOGM
Consolidation

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

February 28, 1985

Rex L. Wilson
Chief Archeologist
Office of Surface Mining
Reclamation and Enforcement
Brooks Towers
1021 15th Street
Denver, Colorado 80202

RE: Emery Deep Mine, Emery County, Utah ACT/015/015

In Reply Refer to Case No. G573

Dear Mr. Wilson:

he Utah Preservation Office has received your letter of February 11 concerning the Emery Deep Mine for consideration. After review of the Office of Surface Mining's determinations concerning development at the project site, our office would concur with the determination of no effect.

Consultation provided in this letter by authority of the 1966 Preservation Act as amended, does not indicate approval or comment concerning Tax Act regulations (reference ERTA, 1981, P.L. 97-34, U.S.C., Section 46).

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

Sincerely,

Wilson G. Martin
Deputy State Historic
Preservation Officer

JLD:jrc:G573/1333V

State History Board: Milton C. Abrams, Chairman • Thomas G. Alexander • Phillip A. Bullen • J. Eldon Dorman • Elizabeth Griffith
Wayne K. Hinton • Dean L. May • William D. Owens • Helen Z. Papanikolas • Anand A. Yang

Permit with
Stipulations

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING

This permit, UT-0005, is issued for the United States of America by the Office of Surface Mining (OSM) to

Consolidation Coal Company
Mid Continent Region
12755 Olive Boulevard
St. Louis, Missouri 63141

for the Emery Deep Mine. Consolidation Coal Company is the lessee of Federal coal lease U-5287.

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

Sec. 2 The permittee is authorized to conduct surface coal mining and reclamation operations on Federal lands, as well as on such other lands affecting or affected by those operations on Federal lands situated in the State of Utah, Emery County, and located within:

Township 22 South, Range 6 East, Salt Lake Baseline and Meridian

Section 19:	S1/2 NE1/4, SE1/4, E1/2 SW1/4
Section 20:	S1/2 NE1/4, SE1/4 NW1/4, S1/2
Section 21:	S1/2 N1/2, S1/2
Section 22:	SW1/4 SW1/4
Section 27:	W1/2
Section 28:	All
Section 29:	All
Section 30:	E1/2, E1/2 NW1/4, SW1/4 NW1/4, N1/2 NW1/4 SW1/4, E1/2 SW1/4
Section 31:	All
Section 32:	All
Section 33:	W1/2, NE1/4

and shown on the map included in the permit (page 6 of 6); and to conduct surface coal mining and reclamation operations on the foregoing described property subject to the conditions of the lease and the approved mining plan, and all other applicable conditions, laws, and regulations.

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

Sec. 4 The permit rights may not be transferred, assigned, or sold without the approval of the Director, OSM. Request for transfer, assignment, or sale of permit rights must be done in accordance with 30 CFR 740.13(e) and UMC 788.17.

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

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

b. Be accompanied by a private person for the purpose of conducting an inspection in accordance with 30 CFR 842.12 and 840.15, when the inspection is in response to an alleged violation reported by the private person.

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

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

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

b. Immediate implementation of measures necessary to comply; and

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

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

Sec. 9 The permittee shall conduct its operations:

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

b. Utilizing methods specified as conditions of the permit by the Utah Division of Oil, Gas and Mining and OSM, the approved Utah State Program, and the Federal Lands Program.

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

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

Sec. 12 If during the course of mining operations previously unidentified historic properties are discovered, the permittee shall ensure that the site(s) is not disturbed and shall notify the State Regulatory Authority (RA) and OSM. The State RA, after coordination with OSM shall inform the permittee of necessary actions required.

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

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

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

OFFICE OF SURFACE MINING

By: Allen D. Klein
Administrator, Western Technical Center

12/18/85
Date

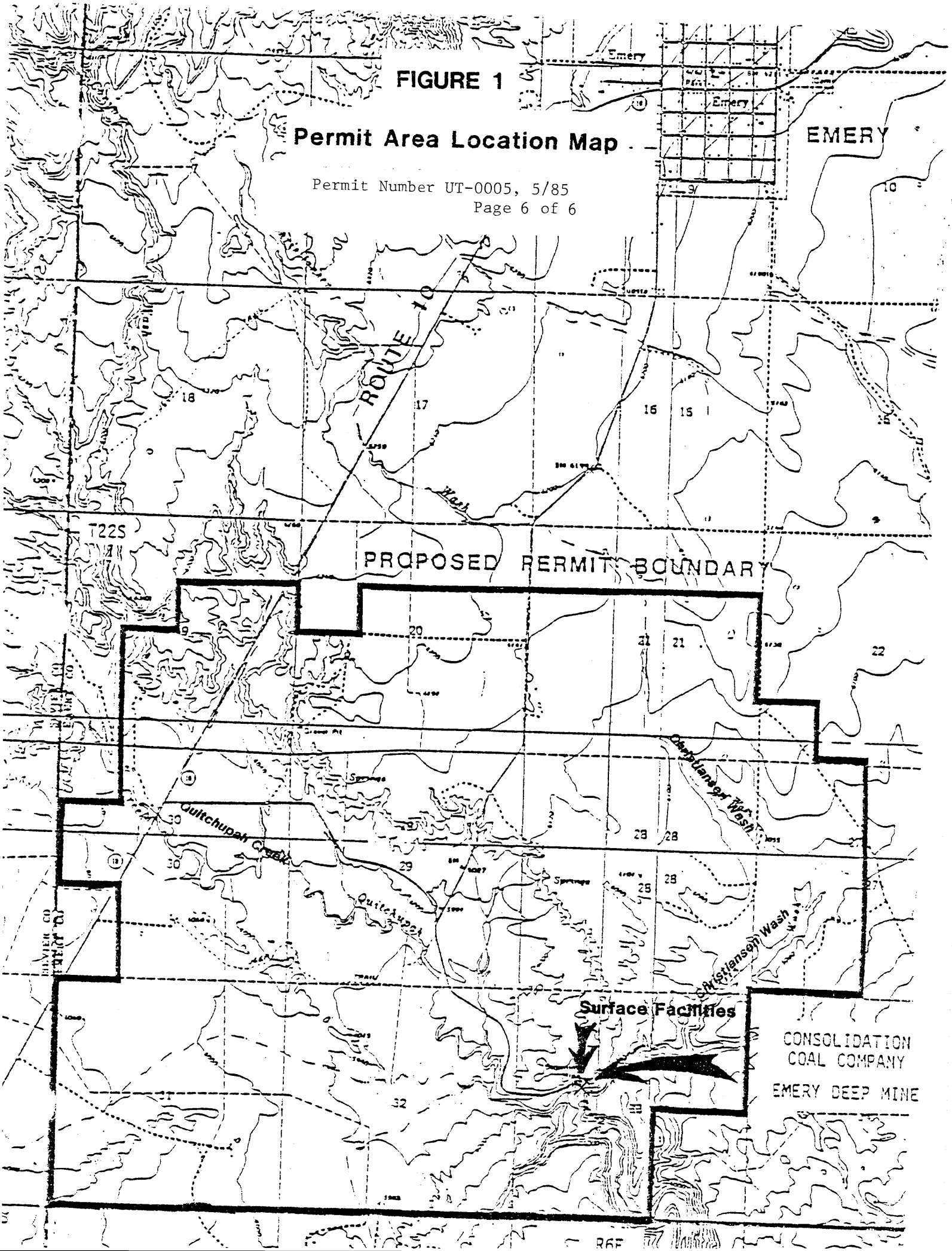
Attachment A
Special Condition

Before conducting mining under prime farmland areas designated on plate 8-3 of the permit application package, the permittee's proposed methods of soil reconstruction shall be reviewed by the Secretary of Agriculture, through the Utah State Conservationist of the U.S. Soil Conservation Service, under the requirements of UMC 785.17(c).

FIGURE 1

Permit Area Location Map

Permit Number UT-0005, 5/85
Page 6 of 6



TE A

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Supplement to the Technical Analysis
For the Emery Deep Mine,
Emery County, Utah
May, 1985

Prepared by the U.S. Office of Surface Mining,
Western Technical Center

Introduction

The Emery Deep Mine is an existing underground mine operated by the Consolidation Coal Company (Consol) in joint agreement with the Pittsburg and Midway Coal Mining Company (a subsidiary of Gulf Oil Corporation). The mine is located in Central Utah approximately 4 miles south of the town of Emery (Figure 1 and 2).

Mining operations at the Emery Deep Mine began around the turn of the century with small pick and shovel coal operations. Larger operations began in 1937 with the establishment of the Browning Mine at the current site of the Emery Deep surface facilities. No Federal coal has previously been mined. Approval of this application would provide for the commencement of mining on Federal lease number U-5287, which encompasses 720 acres of Federal coal. The permit area comprises 5,180 acres.

Consol presently has contracts to supply 720,000 tons of coal per year to the Utah Power and Light Company to replace coal production lost through the fire at Utah Power and Light Company's Wilberg Mine. Consol employs 118 people at its Emery Deep Mine (verbal communication with Mine Manager, Ron Thompson, May 1, 1985).

Approximately 2,700 acres of the 5,180 acres within the proposed permit area would be undermined by coal mining activities through 2010. To date, 40 acres of surface facilities area have been disturbed. Proposed construction of a preparation plant and loadout facility will disturb an additional 203 acres for a total surface disturbance area of 243 acres.

The applicant proposes to mine the I-J coal seam during the permit term, and later mine the A seam situated below the I-J coal seam. The I-J seam averages about 8.5 feet in thickness, and the A seam averages about 10 feet in thickness. Interburden between the A and I-J seams varies from about 100 to 200 feet. Since the strata dips locally about 3 to 4 degrees to the northwest, overburden above the I-J seam to the surface varies from about 80 feet at the surface facilities area to over 1,000 feet in the northwest part of the permit area. Underground mining is conducted by room and pillar methods.

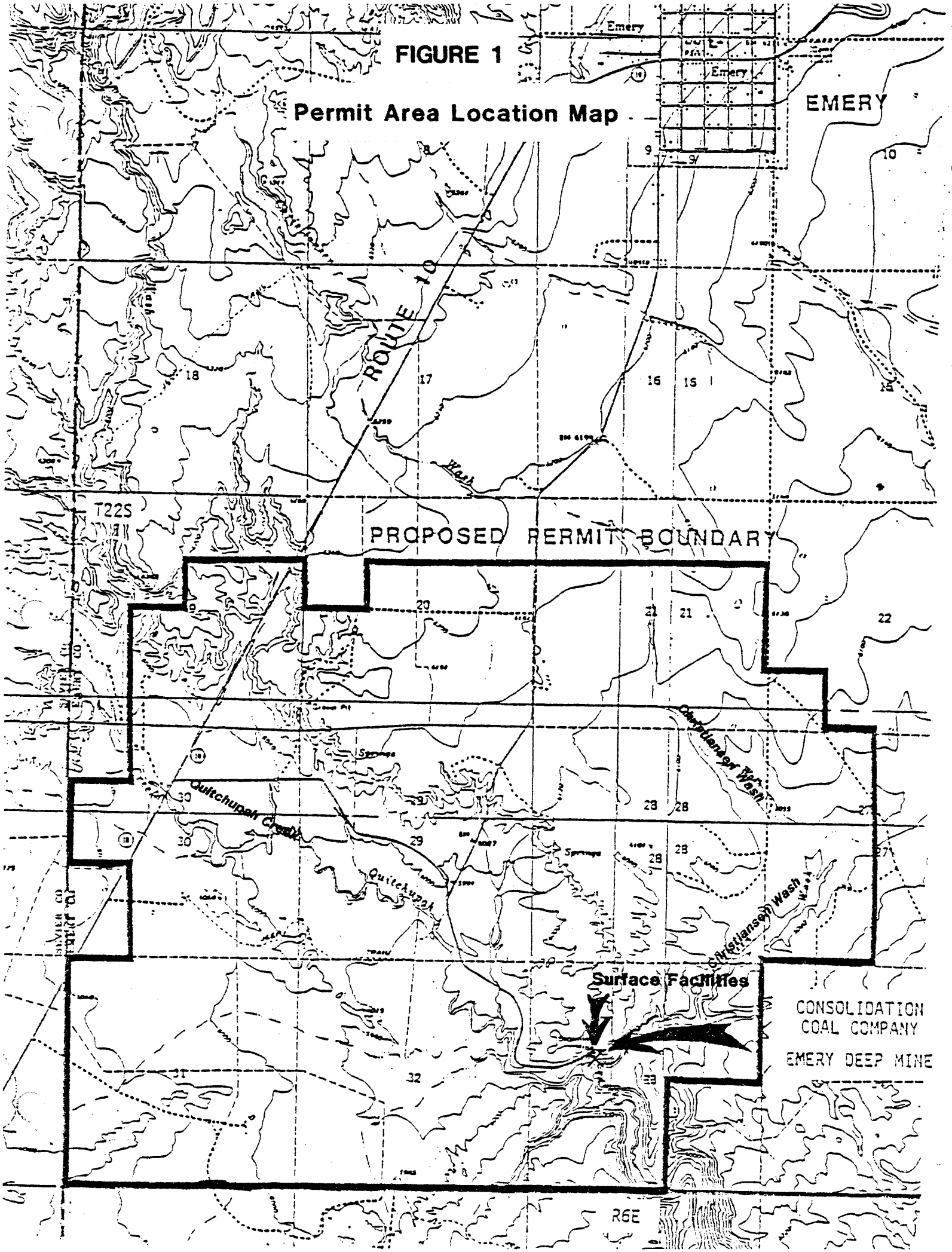
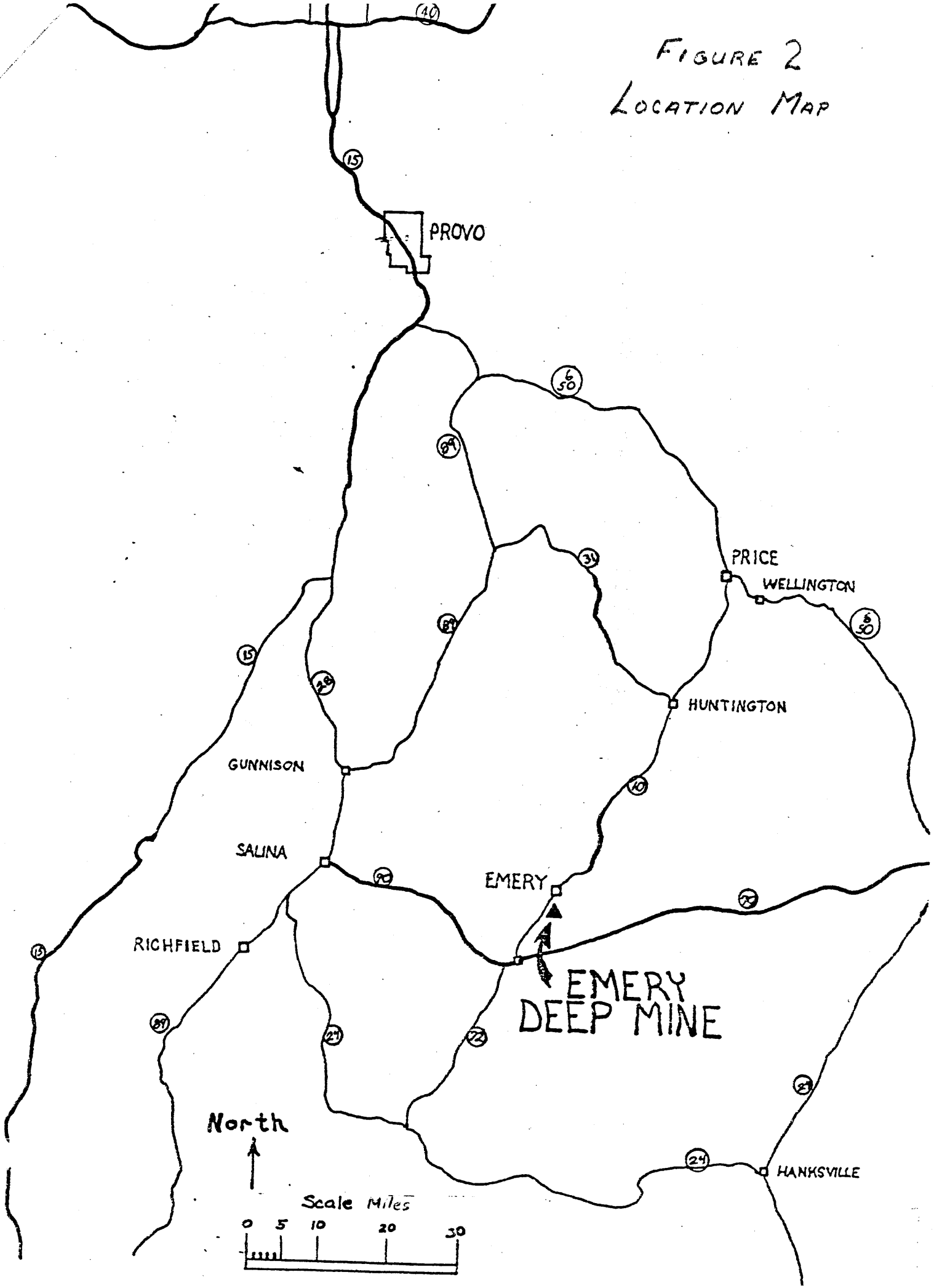


FIGURE 1
Permit Area Location Map
EMERY
Emery
ROUTE 10
T22S
PROPOSED PERMIT BOUNDARY
Quitchupah Creek
Quitchupah
Christiansen Wash
Christiansen Wash
Surface Facilities
CONSOLIDATION
COAL COMPANY
EMERY DEEP MINE
R6E

FIGURE 2
LOCATION MAP



Several characteristics of the Emery Deep Mine make it unique in the Central Utah coal fields. It is located on the floor of Castle Valley rather than the mountainous areas of the Central Wasatch. It is overlain by alluvial valley floors and prime farmland, and the target coal seams are situated in a major regional sandstone aquifer (Ferron Sandstone). The applicant has addressed each of these unique problem areas in the permit application package. This document, together with the technical analysis prepared by UDOGM will reference and summarize the applicant's proposals in order to provide supporting documentation for the findings required by Section 510 of the Surface Mining Control and Reclamation Act (SMCRA), UMC 786.19, and 30 CFR 745.12(g) and 746.13. This document particularly addresses issues that relate to the 80 acres of Federal surface, and the mining of 720 acres of Federal coal, within the 5,180 acre proposed permit area.

An additional portal across Christiansen Wash from the existing portal area is planned by the applicant for future development, but is not part of the current permit application. A permit revision will be submitted by the applicant at a later date when the portal plans can be finalized.

On April 19, 1982, the applicant submitted plans to the Utah Division of Oil, Gas and Mining (UDOGM) for a new surface mine to be located adjacent to the Emery Deep Mine surface facilities and extend to the northeast over a 1,000 acre permit area partially overlapping the southeast end of the Emery Deep permit area. The proposed surface mine is a new non-Federal action currently undergoing the State's permit review process.

Supporting Documentation

Topsoil
Existing Environment and Applicant's Proposal

Soil resources at the Emery Deep Mine are discussed in Volume 6, Chapter 8 of the permit application package.

Approximately 33 of the 40 acres of existing disturbance at the Emery Deep Mine were disturbed prior to the enactment of SMCRA. No topsoil was stored from the initial surface facilities area disturbance. Topsoil will be removed and stockpiled during construction of the preparation plant and loadout facilities (Volume 11, pages 15-20 and 15-23). The facilities area constructed prior to SMCRA were constructed on essentially natural level grade, and much of the topsoil remains in the facilities pad area with a shallow cover of disturbed colluvium and coal waste material. After the coal waste material is removed at the time of reclamation, some of the underlying topsoil may be suitable as a growth medium (page 28, June 23, 1983, response to apparent completeness review, permit application package Volume 13). Replacement topsoil substitute material as needed will be obtained from reclaimed road areas and a borrow area previously disturbed by the applicant to obtain underlying bedrock for riprap use (permit application package (PAP) Volume 13, January 13, 1982, submittal concerning borrow area use; approved by UDOGM on February 3, 1982. Also see PAP Volume 13, November 11, 1983, response to determination of completeness, page 4.)

Replacement topsoil sample results were submitted by the applicant on August 16, 1984. The samples of topsoil replacement material are all sandy with a low percentage of organic material ranging from 1.95 percent to 3.50 percent. However, the sodium absorption ratio is less than one on all samples and the pH ranges between 6.6 and 7.3. Soil amendments will be added to the topsoil materials during reclamation if soil tests demonstrate that this is necessary (January 20, 1984, response to technical deficiencies).

Compliance UMC 786.19(b)

The applicant has submitted sufficient chemical analysis and volumetric data to show that suitable topsoil substitute material is available for reclamation of the existing surface facilities. As a contingency measure the applicant has committed to add nutrients to the topsoil substitute material as necessary. The proposed preparation plant and loadout facility includes sufficient plans for removing, storing, and replacing existing topsoil. The applicant is in compliance with the topsoil related requirements of the reclamation finding. [UMC 786.19(b)]

Backfilling and Grading
Existing Environment and Applicant's Proposal

Backfilling and grading is discussed on page 3-57 of the permit application package.

The face-up portal area of the Emery Deep Mine is located at the base of the Ferron Sandstone cliffs where the coal seam outcrops. Therefore, the highwall at the face-up is natural and no highwall reduction is required. Coal mining related disturbance has existed at the Emery portal site since the turn of the century; therefore, no topographic maps depicting pre-mine topography are available. However, the entire existing facilities pad area does not appear to vary markedly from what must be presumed to be the original landscape. The pad area is constructed on a natural flat terrace formed by stream erosion of Christiansen Wash and Quitchupah Creek. Backfilling and grading will involve removal of berms and dams, removal of toxic and contaminated material, and topsoil handling. The predisturbance drainage will be restored.

The preparation plant and loadout facility will be located on top of the Ferron Sandstone above the existing portal area. This terrain is also flat and only limited backfilling and grading efforts similar to the existing facilities area will be necessary. Grading of the proposed preparation plant and loadout site are discussed on page 15-24, Volume 11 of the permit application package.

There are four existing sediment ponds at the Emery Deep minesite. There is also an evaporation lagoon for the reverse osmosis sewage treatment plant at the minesite. The evaporation lagoon covers 30,000 square feet of area. Approximately 2,500 square feet of the evaporation lagoon bottom (consisting of unconsolidated material below the soil level - all topsoil was previously removed) is covered with salts from evaporation of lagoon water produced at the treatment plant (October 7, 1983, response to the apparent completeness review, page 17, Volume 13). Removal of the salt contaminated material from the floor of the lagoon will amount to haulage of 1,000 cubic yards of material to the refuse disposal area. The berm around the lagoon will be graded into the excavation where the 1,000 cubic yards of salt contaminated material was removed.

Sediment ponds will be reclaimed by grading the berms and dams into each pond. Sediment pond number 3 is an incised structure and will be backfilled by sediment accumulated and stockpiled from the other sediment ponds (October 7, 1983, response to apparent completeness review, page 42, Volume 13).

The surface layer from the facilities area which is contaminated by coal fines, will be removed to a depth of 1-foot and backfilled into the mine in accordance with MSHA and regulatory authority approval upon reclamation (October 7, 1983, apparent completeness response, pages 17 and 18, Volume 13). This results in removal and backstowing of 39,527 cubic yards of material.

The applicant's postmining contour map (Plate 15-19, Volume 15, apparent completeness review response) shows that there will not be substantial amounts of grading required to restore the disturbed areas to suitable postmining topography.

Compliance 786.19(b)

The applicant's submittals indicate that the mine area will be restored to approximate original contour. All facilities will be removed and the portals will be backfilled (October 7, 1983, response to apparent completeness review, pages 18 through 27; and February 27, 1984, response to stipulations, page 1, Volume 13). All toxic and saline material will be removed from the site and properly disposed of. The applicant is in compliance with the backfilling and grading related requirements of the reclamation finding. [UMC 786.19(b)]

Vegetation

See the Revegetation section of the technical analysis prepared by the Utah Division of Oil, Gas and Mining (pages 36 through 39).

Subsidence

See the Subsidence Control Plan section of the technical analysis prepared by the Utah Division of Oil, Gas and Mining (pages 43 through 48).

Hydrology
Existing Environment and Applicant's Proposal

Surface Water

Surface water is discussed in Section 7.2 of the permit application package beginning on page 7-95.

Surface facilities for the Emery Deep Mine are located at the confluence of Quitchupah Creek and its tributary, Christiansen Wash, both perennial streams, as shown in figure 3. The existing mine complex is constructed on a flat alluvial terrace area at the confluence of these two streams, and bounded by the natural cliffs of the outcropping Ferron Sandstone. Berms and dikes throughout the surface facilities area comprise part of the mine's surface water control system, with controlled flows eventually spilling back into Quitchupah Creek.

Quitchupah Creek, with a drainage area of 430 square miles, flows to the southeast from the mine complex, converging with Ivie Creek immediately above the confluence of that stream with Muddy Creek at Highway I-70. Muddy Creek, with a drainage area of 1,450 square miles, is one of the major streams in the Dirty Devil River watershed, a tributary to the Colorado River. Flows in Quitchupah Creek and Christiansen Wash derive from three sources: direct runoff, ground water recharge from the upper and lower Ferron Sandstone, and returning irrigation flows of water diverted out of Muddy Creek. Monthly measurements of stream flow collected during the year beginning October 1979 revealed that Quitchupah Creek has a mean flow of 8.62 cubic feet per second (cfs) below the mine, and Christiansen Wash has a mean flow of 2.28 cfs above its confluence with Quitchupah Creek (pages 7-153 and 7-154 of the permit application package).

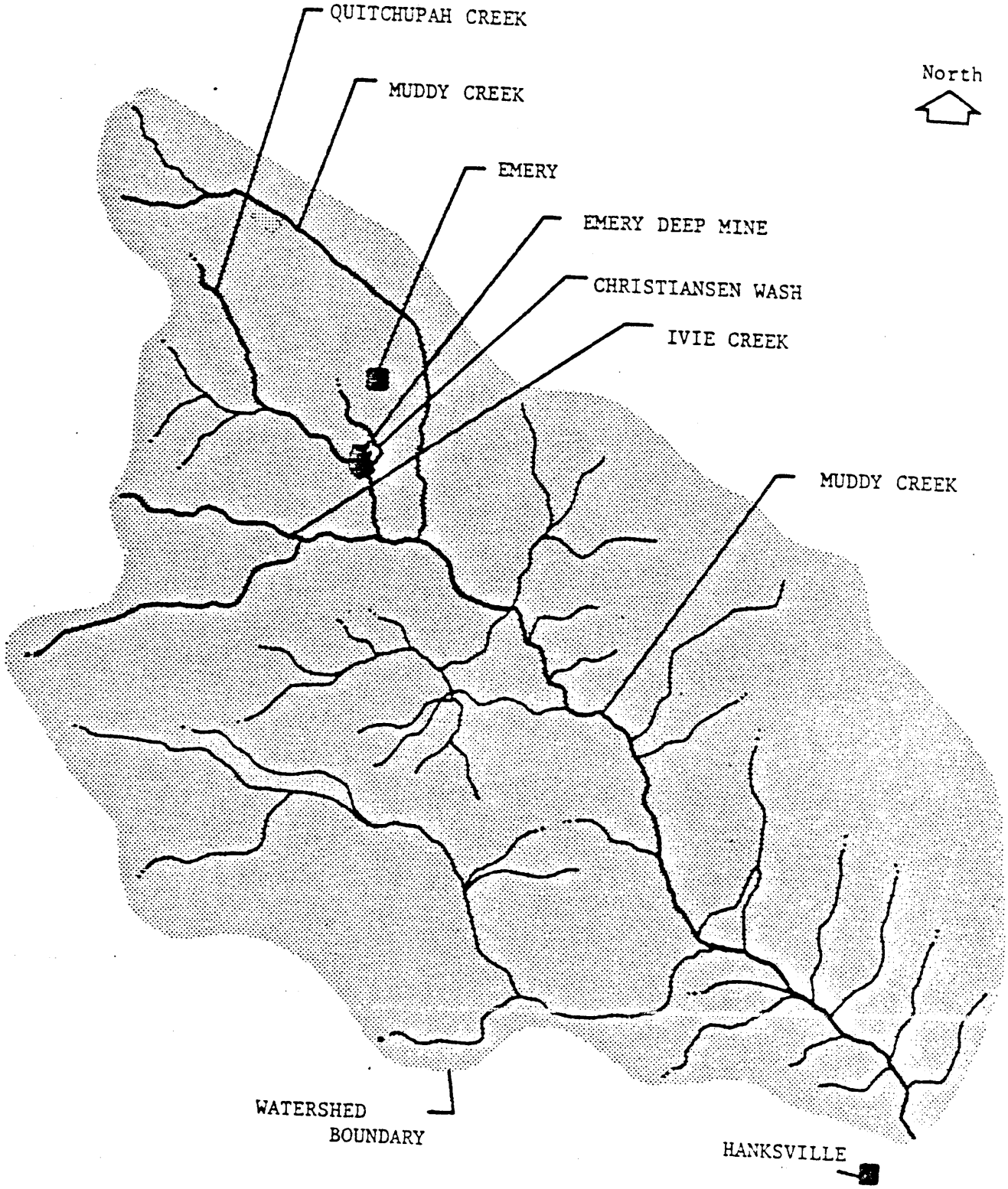


Figure 3 Muddy Creek Watershed (Source: Consol, 1976)

Consol's water monitoring program was begun in October of 1979. Water quality results are discussed on pages 7-149 through 7-162, and 7-177 through 7-181 of the permit application package, Volume 4. Stream water in the mine vicinity is characterized by the following ions in order of decreasing concentration (mg/L): SO_4, Na, Ca, Mg, HCO_3, and Cl. In general, the water becomes more saline downstream with increasing SO_4 and Na concentrations.

Ground water, which enters the underground workings with an average total dissolved solids (TDS) content of 1,080 mg/L (Table 7-6 of the permit application package, Volume 4, pages 7-76 through 7-81), leaves the mine as discharge with an average TDS value of 4,040 mg/L. Ca, Cl, Na, and SO_4 are the ions most responsible for the increase and are picked up from coal and rock dust in the mine (page 7-177, Volume 4 of the permit application package). Also contributing to increased salinity is irrigation flow to Christiansen Wash. Irrigation waters are exposed to the saline Bluegate Shale near the surface, bringing tributary water samples unaffected by the mine operation to average TDS levels of 14,054 mg/L (page 7-156, Volume 4 of the permit application package). Therefore, although mine discharge contributes to increased salinity downstream, other factors not related to the mine operations, such as irrigation and natural flow over and through the saline rocks of the Mancos Formation contribute salinity as well. The overall effect of mine discharge is an increase in TDS concentration of 377 mg/L (page 7-149, Volume 4 of the permit application package).

Both Quitchupah Creek and Christiansen Wash receive a minimal amount of flow from springs that occur immediately north of their confluence. The springs are issuing from the pediment gravels above the Bluegate Shale. To some extent, these springs are contributing additional dissolved solids to the streams because they appear to be recharged by irrigation water. The discharge, however, approaches a maximum flow of only 10 gallons per minute, so any impacts on the stream quality are actually small (page 7-158 and plate 7-1 of the permit application package).

Precipitation at the minesite is low at 7.55 inches annually, and is diminished by a high evaporation rate, reported by the U.S. Department of Agriculture, Soil Conservation Service to be approximately 60 inches a year. The 10-year, 25-year, and 100-year 24-hour storm events yield 1.5, 1.9, and 2.5 inches respectively.

The applicant's contact with the Utah State Engineer's Office indicates that there are no water rights on Quitchupah Creek and Christiansen Wash (page 7-163, Volume 4 of the permit application package). A further check indicates that there are no water rights on Muddy Creek for a distance of 15 miles downstream of its confluence with Ivie Creek (page 10 of the November 11, 1983, response to determination of completeness deficiencies). The only water use identified by the Utah Division of Water Rights pertained to cattle that drink from Muddy Creek when adjacent BLM lands are used for grazing.

The applicant's sediment control plan involves four sediment ponds, one evaporation lagoon, and a series of berms and diversion ditches. Sediment control measures and facilities are discussed on pages 7-163 through 7-175, Volume 4; Chapter 13 of Volume 8; and pages 15-8 through 15-10, and pages 15-46 through 15-57 in Volume 11 of the permit application package.

The facilities area is located immediately adjacent to two perennial streams; therefore, it was necessary to construct berms along the stream channels to prevent uncontrolled runoff from discharging into the streams. The berms have been stabilized and riprapped or vegetated as necessary to withstand flooding. Ditch diversions collect and convey disturbed area runoff to the sediment ponds.

Figure 4 illustrates the relative locations of the sediment control system facilities.

The mine discharge sedimentation pond, shown in figure 4 as pond number 1, is located west of the main surface facilities and serves only to provide an adequate settling basin for discharge pumped from the mine. The pond is completely surrounded by a berm preventing adjacent runoff from entering. Contribution from direct precipitation is minimal. The surface area of the pond is 2.2 acres and 1.5 inches of rainfall on the pond yields 0.28 acre feet.

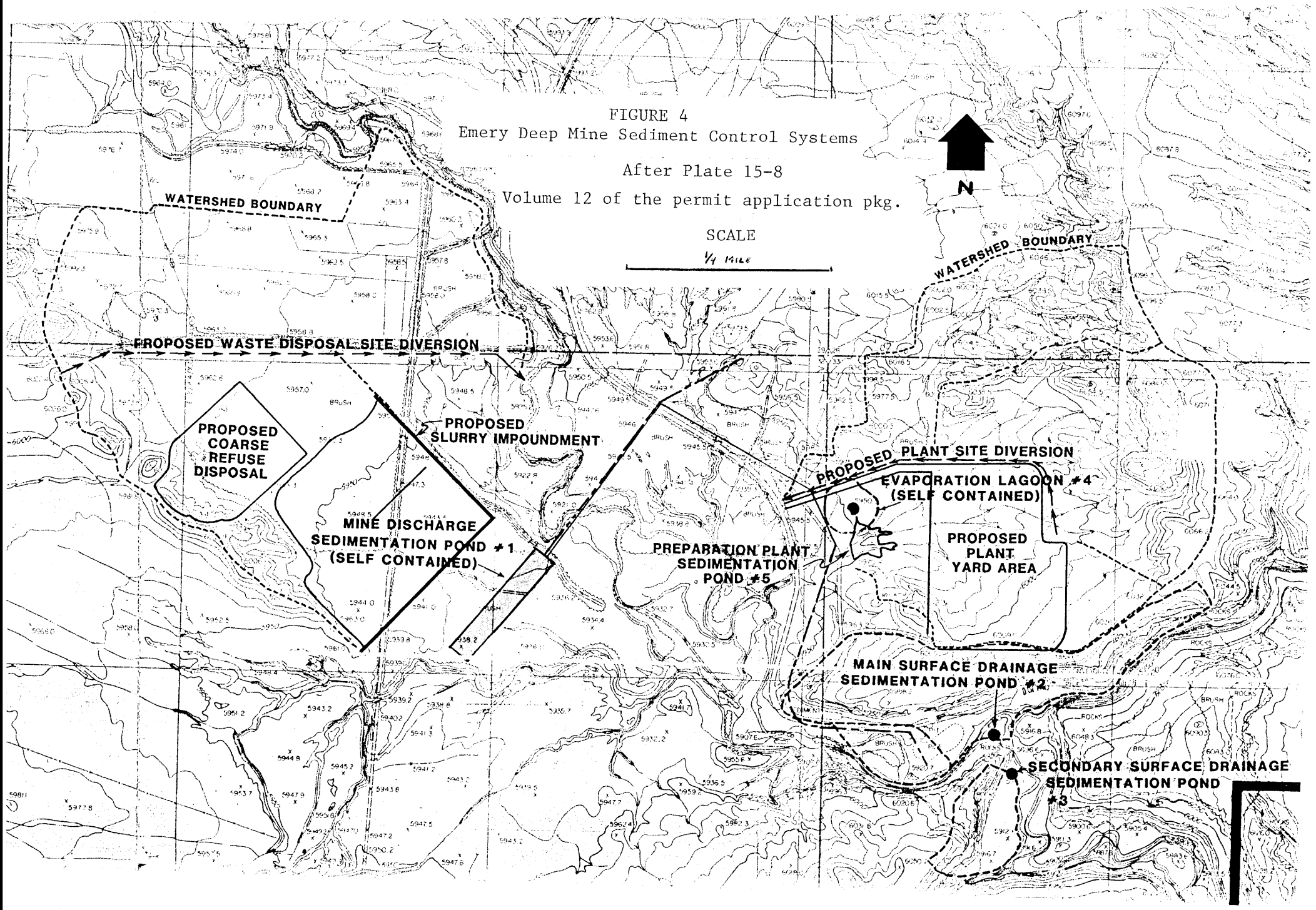
Discharge from the mine flows through an eight inch diameter pipeline to pond number 1. Currently the discharge from the mine averages about 800,000 gallons per day (gpd). The pond was designed to control a discharge of 2,655,265 gpd (page 13-3, Volume 8 of the permit application package). The pond is designed with a detention time of 36 hours based upon a laboratory analysis of the total suspended solids (TSS) in the mine effluent. Discharge is to a tributary of Quitchupah Creek. A NPDES permit has been issued for the pond (022616).

Sediment pond number 2, as shown on Figure 4, serves as the sediment pond for the main existing facilities area. Flow from the facilities complex is directed to the pond by berms and through swales constructed at road crossings to provide positive drainage. Four to five acres of the extreme western end of the existing facilities area does not drain to the sediment pond. Instead, runoff collects in a bermed catchment basin used for coal stockpiling (page 41 of the October 7, 1983 response to apparent completeness review, Volume 13). The applicant pumps this water into pond number 2 whenever the water level in the catchment basin reaches a level of 1 to 2 feet. To date, the level has seldom reached more than 3 to 6 inches (verbal communication with Mine Manager Ron Thompson, May 1, 1985). The area contributing to pond number 2 is 31.2 acres, which includes coal stockpiles, tipple, service buildings, roads, and access areas to the underground workings.

FIGURE 4
Emery Deep Mine Sediment Control Systems

After Plate 15-8

Volume 12 of the permit application pkg.



Sediment pond number 3, as shown on Figure 4, is designed to receive runoff from 6.4 acres that include a coal stockpile, explosive storage area, and a scrap yard. Pond number 3 is connected directly to pond number 2 by a buried six-inch diameter pipe equipped with a clean-out section. The discharge rate expected from a 25-year, 24-hour storm event at pond number 3 is 0.98 cfs, and the pipe is sized to carry this to pond number 2.

The spillway for the ponds 2 and 3 system consists of a 12-inch diameter corrugated metal pipe equipped with a slide gate to control detention time. The emergency spillway is a riprapped trapezoidal channel with 2h:1v side slopes. Discharge is into adjacent Quitchupah Creek (NPDES permit number 022616). To date, there have been no discharges from the ponds 2 and 3 system. This is attributed to the high evaporation rate in the area and the sandy texture of the surface material on which the ponds are built. Water retained in the ponds percolates into the ground where the subsurface material acts as a sand filter leaving sediment behind in the pond bottom.

Pond number 5 in Figure 4 is the sediment pond for the proposed preparation plant and loadout facility area above the existing facilities. The design of the pond and diversions is discussed on pages 15-46 through 15-58 of Volume 11 of the permit application package. Pond 5 constitutes 0.64 acres of disturbance in the seven acres presently disturbed at the proposed preparation and loadout site. The pond is equipped with a decant system and an emergency spillway, designed to pass the 25-year, 24-hour storm. The pond discharges into a small tributary drainage to Quitchupah Creek.

A diversion ditch approximately 2 feet deep and 1,118 feet long channels undisturbed runoff from a 75.1 acre drainage basin away from the proposed plant area. A second diversion 2 feet deep and 2,840 feet long channels undisturbed runoff from a 72.3 area drainage basin away from the proposed refuse disposal area.

Pond number 4 as shown on Figure 4 is a 30,000 square foot evaporation lagoon where brine from the reverse osmosis water treatment plant is pumped under controlled conditions. Approximately 2,500 square feet in the lagoon's bottom have been directly affected by brine fluids, and are covered with dried salts.

Pond 3 is an incised structure. Ponds 3 and 5 are partially incised with bermed slopes to increase holding capacity. Pond 2 is built in a naturally bermed area with man-made enhancement of the slopes. The evaporation lagoon is strictly a bermed structure.

The applicant proposes to dispose of sediment cleaned from the ponds by stockpiling it near pond 3 and eventually using the material to backfill pond 3 (page 42 of the October 7, 1983, response to the apparent completeness review, Volume 13; and page 13-25 of Volume 8). Some sediment from pond 1 may be backfilled into the mine (page 3-56, Volume 1).

For the ground water discussion see pages 14 through 25 of the technical analysis prepared by the Utah Division of Oil, Gas and Mining.

Compliance UMC 786.19(c)

The applicant has provided extensive water monitoring data for both surface and ground water, and has established an adequate continuing water monitoring program. Monitoring results and studies conducted by the Bureau of Reclamation are detailed by the applicant on pages 12, 13, 36, and 37 of the October 7, 1983 response to the apparent completeness review and show that although the mine will contribute salt loading to the Muddy Creek water system, the amount is relatively minor when compared with the contribution by agricultural irrigation and natural runoff. The relatively small amount of contribution together with the fact that there are no water users for several miles downstream of the mine makes the salt loading (TDS) impact negligible. The salt contribution from the mine does not constitute an increase of great enough magnitude to preclude downstream uses.

The applicant's sediment control system has been extremely effective in reducing total suspended solids (TSS) to average levels near 8 mg/L, whereas natural waters in the area range from 21.8 mg/L to 5,358 mg/L (page 7-149 of the permit application package, Volume 4).

The applicant has committed to removal of accumulated sediment from the sediment ponds as necessary, and has provided sufficient information regarding disposal locations for the accumulated sediment.

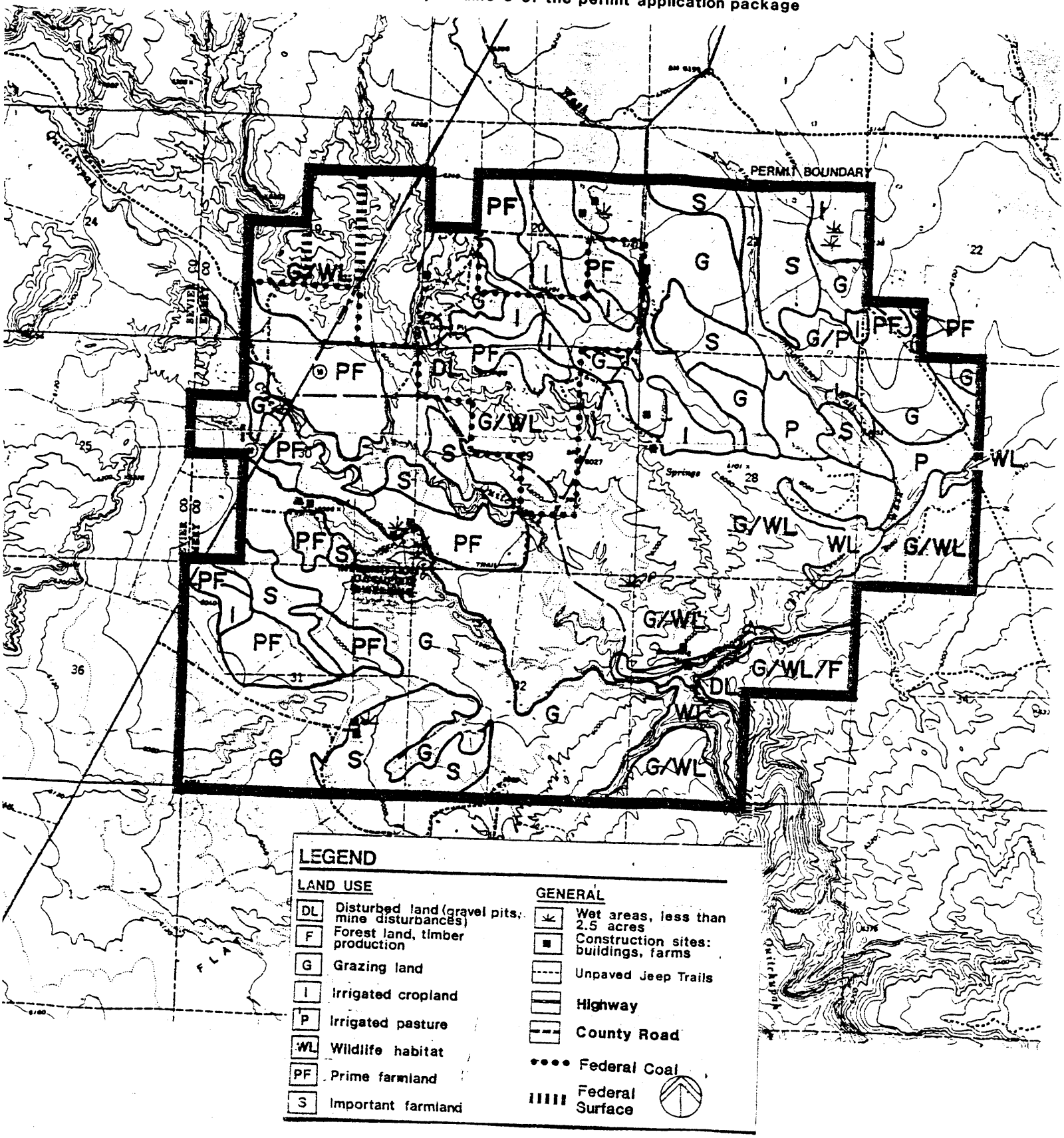
This addendum hydrology discussion when considered with the Utah Division of Oil, Gas and Mining ground water discussion and Cumulative Hydrologic Impact Assessment document, indicates that the applicant is in compliance with the hydrology finding. [UMC 786.19(c)]

Prime Farmland
Existing Environment and Applicant's Proposal

There are approximately 600 to 700 acres of prime farmland in the permit area (permit applicant package plate 8-3 and page 8-57). Figure 5 on the following page shows these areas as map unit PF. The total prime farmland acreage in the permit area is scattered through the north and west parts of the permit area as small patches. The primary use of these areas is for cropland in hay and alfalfa production. These lands are irrigated by diversion of Muddy Creek flow to Quitchupah Creek and Christiansen Wash.

FIGURE 5
Land Use

After plate 8-3, Volume 6 of the permit application package



There is no prime farmland affected by surface operations and no proposed surface disturbance will take place on prime farmland. The applicant has proposed detailed mitigation measures to conserve soil resources and replace productivity if subsidence should affect prime farmland (May 31, 1984, response to stipulations). These mitigation measures involve regrading, soil removal and replacement, and owner compensation as necessary.

Compliance UMC 786.19(1)

Detailed soil characteristics and analyses are contained in Chapter 8 of the permit application. The applicant has provided detailed mitigation and preservation plans concerning prime farmland. However, the Secretary of Agriculture through the U.S. Soil Conservation Service has not yet acknowledged that the mitigation and preservation plans have been reviewed as required by UMC 785.17(c). The Utah Division of Oil, Gas and Mining has the responsibility of soliciting this review. Notice that the required review is complete must be obtained before the applicant can mine under prime farmlands in the permit area.

With the condition below, the applicant meets the prime farmland requirements of this finding [UMC 786.19(1)]

Condition UMC 786.19(1)

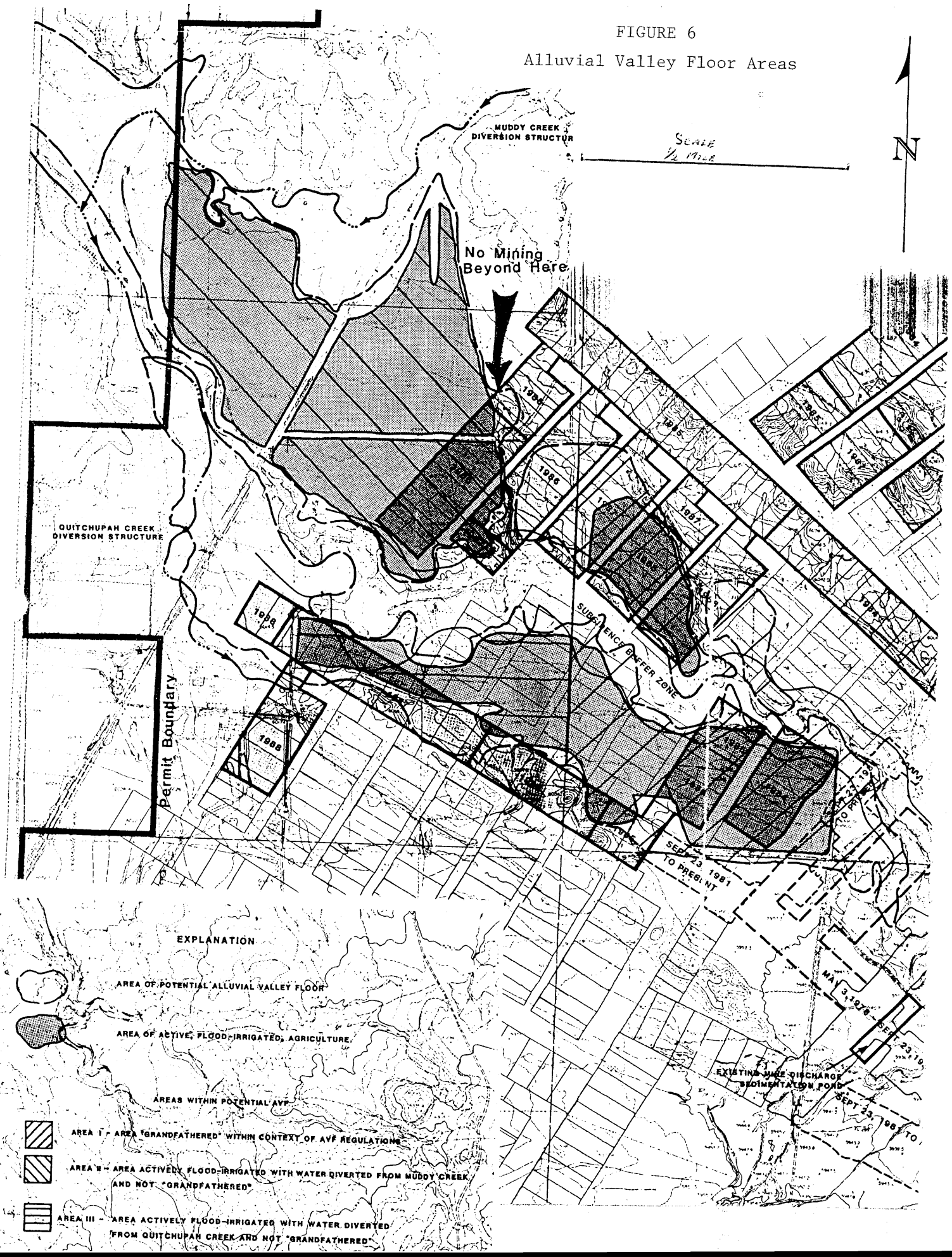
Before conducting mining under prime farmland areas designated on plate 8-3 of the permit application package, the permittee's proposed methods of soil reconstruction shall be reviewed by the Secretary of Agriculture, through the Utah State Conservationist of the U.S. Soil Conservation Service, under the requirements of UMC 785.17(c).

Alluvial Valley Floors
Existing Environment and Applicant's Proposal

The applicant's most recent proposals regarding alluvial valley floors (AVF) was submitted in a response submitted on March 1, 1984. Review of the data by the Utah Divsion of Oil, Gas and Mining led to a decision in the Division's May 4, 1984 technical analysis and decision package which found no AVF on Christiansen Wash because there was not sufficient natural flow (excluding diverted waters) to flood irrigate an economically viable amount of acreage. The diverted water comes from Muddy Creek which is already designated an alluvial valley floor. However, the Division also ruled that the upper portion of Quitchupah Creek in Section 19, 29, and 30 in the permit area, is an AVF. The portion of the AVF located in Section 30 was permitted prior to enactment of SMCRA and not subject to protective measures. The AVF boundaries are delineated on Figure 6 on the following page which was taken from the applicant's response of March 1, 1984.

FIGURE 6

Alluvial Valley Floor Areas



The applicant has protested the finding by the Division that Area II, as shown on the figure, is an AVF. The applicant contends that Area II is irrigated with diverted waters from Muddy Creek rather than those of Quitchupah Creek, but has accepted the Division's determination in order to avoid a delay in permit issuance (May 18, 1984, response to stipulations). It is likely the applicant will appeal the ruling on Area II after the permit is issued.

Compliance UMC 786.19(1)

Area I of the AVF as shown on the figure was permitted prior to enactment of SMCRA and is not subject to the protection requirements of SMCRA.

Area II overlies proposed working panels of the mine which have the potential to interrupt, discontinue, or preclude farming on the AVF; therefore, the applicant has committed (May 18, 1984, response to stipulations) to delete mining under this area (plate 3-7 of the permit application package showing proposed mining areas).

Area III is underlain only by one of the proposed submains of the mine. Submains are designed to preclude subsidence. Therefore, no surface disturbance would occur in this area and mining can proceed as proposed.

The applicant has proposed adequate mitigation measures for AVF areas that might experience detrimental subsidence effects, as well as an adequate AVF monitoring plan (pages 7 and 18 of the applicant's March 1, 1984, response submittal). Proposed mitigation includes regrading by cut-and-fill or borrow methods as necessary. The applicant is in compliance with the AVF portion of this finding. [UMC 786.19(1)]

Postmining Land Use

See the Postmining Land Use section of the technical analysis prepared by the Utah Division of Oil, Gas and Mining (pages 41 and 42) for compliance with UMC 786.19(m).

Wildlife

See the Protection of Fish and Wildlife section of the technical analysis prepared by the Utah Division of Oil, Gas and Mining (pages 34 through 36) for compliance with UMC 786.19(o).

DOGM's March 1, 1985

Final Technical Analysis and State Decision Package,