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APPROVED BY
 GM
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PROJECT LOCATION
 Figure I-A.1
EUREKA ENERGY COMPANY
 SAN FRANCISCO, CALIFORNIA

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CHRONOLOGY OF EVENTS

SUNOCO ENERGY DEVELOPMENT COMPANY
SAGE POINT-DUGOUT CANYON MINE

Application for SMCRA Permit Approval and Mining Plan

DATE	EVENT
December 12, 1980	Eureka Energy Company (EEC) submits permit application and mining and reclamation plan (MRP), under the approved Utah State program, to the Utah Division of Oil, Gas and Mining (UDOGM).
December 17, 1980	EEC files application in County Courthouse.
May 5, 1981	The Office of Surface Mining Reclamation and Enforcement (OSM) furnishes comments on the permit application, generated during its Apparent Completeness Review (ACR) for National Environmental Policy Act (NEPA), to UDOGM.
August 7, 1981	EEC submits additional material in response
September 8, 1981	to ACR and amends application and MRP in County Courthouse.
December 2, 1981	UDOGM announces that EEC's permit application and MRP is complete and commences its technical analysis.
January 13, 1982	EEC publishes fourth consecutive weekly notice in the Price Sun Advocate that its permit application and MRP has been filed.
February 4, 1982	UDOGM notifies EEC deficiencies discovered in the Sage Point-Dugout Canyon mine State permit application and MRP as a result of their preparation of the draft TA.
February 16, 1982	The public comment and informal conference request period for the Sage Point-Dugout Canyon MRP expires.
March 12, 1982	EEC responds to UDOGM concerning those
April 2 & 19, 1982	February 4, 1982 deficiencies.

Date	Event
April 28, 1982	UDOGM submits the draft TA for the Sage Point-Dugout Canyon mine to OSM for its review and comment.
May 28, 1982	Sunoco Energy Development Company (Sunedco) informs OSM of the purchase of the Eureka Energy Company's Sage Point-Dugout Canyon properties.
June 9-30, 1982	Sunedco republishes weekly notice in the Price Sun Advocate that a permit application and MRP for the Sage Point-Dugout Canyon has been submitted. Regulatory authority puts the permit review process on hold until the Sunedco staff has time to completely review the Eureka application to determine if they wished to adopt the entire application.
November 24, 1982	Eureka Energy Company supplies supplemental information to UDOGM and OSM.
December 20, 1982	Sunedco indicates to OSM and UDOGM that no major modifications to the application have been identified and request that the permitting process for a life-of-mine application proceed.
March 16, 1983	UDOGM submits the final TA for the Sage Point-Dugout Canyon life-of-mine application to OSM for its review and comment.
May 19, 1983	OSM submits its comments regarding the final TA for the Sage Point-Dugout Canyon life-of-mine application to UDOGM.
June 13, 1983	Sunedco submits supplemental permit application package (PAP) information to UDOGM.
July 14, 1983	UDOGM submits Addendum to the TA to OSM.
August 24, 1983	OSM-WTC submits draft Secretarial decision document to OSM Headquarters for comment.
September 15, 1983	Sunedco submits Supplement No. 1 to the TA to OSM.

Date	Event
November 2, 1983	OSM informs Sunedco by letter of four major deficiencies remaining with their PAP.
December 21, 1983	Sunedco submits substantial revisions to their PAP in which their 5-year application area was reduced from 18,272 acres to 4,475 acres.
January 4, 1984	BLM issues 740 AC surface lease #U-52808 to Sunedco that provides for special use to construct Dugout Canyon mine facilities.
January 4, 1984	Sunedco submits supplemental PAP information to UDOGM and OSM.
January 17, 1984	UDOGM submits draft TA revisions, revised list of stipulations, and revised findings to OSM.
February 17, 1984	UDOGM submits final TA revisions, revised list of stipulations, and revised findings to OSM.
March, 1984	OSM submits final Secretarial decision document recommending approval of mining plan and permit.

OSM
FINDINGS
SUNOCO ENERGY DEVELOPMENT COMPANY
SAGE POINT-DUGOUT CANYON MINE

Application for SMCRA Permit and Mining Plan Approval

- I. The State of Utah has determined that the permit application package (PAP) submitted on December 17, 1980, and revised through January 4, 1984, is complete and accurate and the applicant has complied with the Utah State Program [UMC 786.19(a)]. OSM has determined that the PAP as revised through January 4, 1984, and the Federal permit with conditions is accurate and complete and complies with the requirements of the Utah State Program, the Surface Mining Control and Reclamation Act (SMCRA), and the Federal Lands Program [30 CFR 773.15(c)(1)]
- II. The Utah Division of Oil, Gas and Mining (DOGM) has reviewed the PAP and prepared the technical analysis (TA). OSM has prepared the environmental analysis (EA) and reviewed the TA and incorporated documents and based on this has made the following findings:

1. The applicant proposes acceptable practices for the reclamation of disturbed lands. These reclamation 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 DOGM staff has determined that reclamation, as required by the Act, can be feasibly accomplished under the reclamation plan contained in the PAP [UMC 786.191(b); TA, page 39, MRP pages II-303 to II-346]

OSM has determined that issuance of a permit would be in compliance with section 522(b) of SMCRA.

2. The probable cumulative hydrologic impact assessment (PCHIA) of all existing and anticipated mining by underground coal mines in the general area has been completed. OSM finds that the surface facilities and underground mine operations proposed under the application have been designed to prevent damage to the hydrologic balance off-site. See Cumulative Hydrologic Impact section, attached to this Findings Document. [UMC 786.19(c); TA, page 17, 18; MRP pages II-63 to II-118]
3. After reviewing the description of the proposed initial SMCRA permit area, DOGM and OSM determine this area is:
 - a. Not included within an area designated unsuitable for surface facilities and underground coal mining operations [UMC 786.19(d)(1)]
 - b. Not on or within an area under study for designating lands unsuitable for surface coal mining operations. (See Bureau of Land Management correspondence of October 23, 1981 [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)]

d. Within 100 feet of the outside right-of-way of a public road, however, the conditions of UMC 761.12(d) have been met. A public hearing was advertised for December 3, 1981. No adverse comments were received [UMC 786.19(d)(4); See State Findings Document]

e. Not within 300 feet of any occupied dwelling [UMC 786.19(d)(5); (See State Findings Document)]

4. OSM's issuance of a SMCRA permit and the Secretarial decision on the mining plan are in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800). [UMC 786.19(e); TA Addendum, page 13; State Historic Preservation Officer concurrence letter of December 6, 1982]

5. The applicant has the legal right to enter and begin underground activities in the initial SMCRA permit area through four Federal leases and two fee leases. In addition, in response to an objection by OSM that the applicant did not have the right to construct certain structures on BLM surface within the permit area but off the coal lease area, federal surface lease U-5208 (740 acres) was assigned to Sunedco on January 3, 1984 by the Bureau of Land Management. [See MRP, pages I-26 through I-34; UMC 786.19(f)]

6. OSM's records confirm that all fees for the Abandoned Mine Reclamation Fund have been paid. [UMC 786.19(h); personal communication with John Sender, OSM Fee Compliance Officer, in OSM Albuquerque Field Office on February 14, 1984]

7. 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); MRP, page I-25; personal communication with Jodi Merriman in OSM Albuquerque Field Office and Gene Filer, OSM Casper Field Office on February 16, 1984]

8. OSM records show that the applicant does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act. [UMC 786.19(i); personal communication with Jodi Merriman, in OSM Albuquerque Field Office and Gene Filer in the Casper Field Office on February 16, 1984]

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

10. There are no prime farmlands within the proposed mining plan and initial SMCRA permit areas.

11. Negative alluvial valley floor determinations have been made for the drainages in the proposed mining plan and initial SMCRA permit areas. These determinations were made on the basis of a field review of the proposed permit area and a technical review of the hydrologic data in the PAP. The only adjacent drainage determined to be an alluvial valley floor (AVF) is Soldier Creek and a determination has been made that this AVF would not be affected by mining activity within the initial SMCRA permit area. (See pp. 45-49 of the March 1983 TA, the January 1984 TA Supplement, and the State Findings Document.)
12. The proposed postmining land use of the permit area has been approved by the Utah Division of Oil, Gas and Mining, Bureau of Land Management and OSM [UMC 786.19(m); letter of concurrence from Bureau of Land Management; State findings, page 3].
13. The 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); State findings, page 3].
14. 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); TA, page 35; December 23, 1982 memorandum from U.S. Fish and Wildlife Service].
15. 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.)
16. The applicant has complied with all other requirements of applicable Federal laws and either has or has applied for permits from Environmental Protection Agency and State of Utah Department of Health and State of Utah Division of Water Rights; [30 CFR 741.17(d); letters of concurrence and clearance are appended to the TA].

arty Richard E. Dawes
Administrator
Western Technical Center

Headquarters Reviewing Officer

CUMULATIVE HYDROLOGIC IMPACTS

Book Cliffs Coal Field, Sage Point-Dugout Canyon Mines
ACT/007/009, Carbon County, Utah

The most probable cumulative impacts 1/ to the hydrologic system have been assessed by the Utah Division of Oil, Gas and Mining (DOG M). The applicant's Mining and Reclamation Plan (MRP) proposals indicate the methods that will be used to comply with Utah State regulations to minimize diminution to the hydrologic regime on the minesite and adjacent areas. Based on the information presented in the MRP (and summarized in the Technical Analysis), the Division has established that Sunoco Energy Development Company (Sunedco) can implement mining operations that will not significantly impact the local or regional hydrologic system. The following is a worst-case scenario of negative impacts which could potentially affect the hydrologic regime and the mitigative measures which will be implemented to minimize these potential impacts and/or justification as to why the significant impacts are not expected to occur.

Ground-Water Impacts

Mining will take place below and within strata that are units of a very low-yielding and undeveloped areal aquifer system. This areal aquifer includes the interbedded sandstone and shale units of the Blackhawk Formation, the Castlegate Sand sandstone and the Price River Formations. These formations lie beneath the North Horn and Flagstaff formations which create a perched aquifer system that is hydraulically discontinuous with the areal aquifer. Subsidence fractures in the roof of the mine could form and drain some areas within the overlying water-bearing beds of the areal aquifer. If the fractures were to extend into the perched aquifer, a conduit could form which would drain parts of the perched aquifer and increase flow to lower strata (coal beds). If fractures were to extend to the land surface, it may result in additional recharge from overland flow, particularly if the fractures intersect surface streams. This additional recharge could reduce the flow of streams by an approximately equal quantity, but due to the nature of the formations overlying the coal seams this reduction would only be temporary. Similarly, if the fractures extend to the perched aquifers there could be additional induced flow to the lower strata and a reduction of discharge now occurring at the springs. However, due to the nature of the formations overlying the coal and due to the very localized recharge area for the springs, the reduction in flow would be temporary, with only springs in a small area being affected at any one time.

There are several shale beds in the formations overlying the coal seams. These shales contain clays that expand when they become hydrated. If water is introduced to these clays from fractures caused by subsidence, these shales would become saturated and under lithostatic pressure would become plastic. The shale would tend to squeeze into fractures and restrict or limit the movement of ground water down and along fractures. As water seeps through the

1/Note: This CHIA was prepared for Sunedco's original life-of-mine application, and in addressing the larger area has presented a worst-case analysis.

fractures it carries fine mineral particles that are deposited in the restrictions. Eventually the fractures are filled and water circulation ceases. Consequently, a potential interruption or reduction in discharge from any significant spring(s) would probably not be a long-term impact, but a short-term effect, if at all.

A surface subsidence study was performed near Duncan Mountain (southern Wasatch Plateau) on the Fishlake National Forest, Richfield, Utah, over a 20-acre area affected by an underground coal mine (DeGraff, Jerome V., 1981). This report involves, "Subsidence Tension Cracks: Initial Assessment of 'Self-Healing' Rates and Magnitude". Between 800 and 1,000 feet of interbedded sandstone and shale (Blackhawk Formation and Castlegate Sandstone) separate the mine workings from the surface. Numerous cracks of varying length and width (6-300 feet long, 1/8-6 inches width) are widely distributed within the area. Cracks occur in both exposed bedrock and regolith. Maximum subsidence is about nine feet. Several monitoring stations were established over 22 different cracks and monitored weekly over a fifteen-week period in 1978. Initial analysis confirmed the "self-healing" phenomenon. Healing rates for 16 cracks averaged slightly more than 1/6 inch per week (4 stations were damaged and 2 cracks showed no movement). The average amount of crack closure was 56 percent over the study period. Only cracks which closed completely or ceased to move for the latter part of the monitoring period were used to calculate closure values.

These data are considered applicable to the proposed Sunedco project site. This phenomenon would tend to reduce or inhibit the transmittal of substantial increases of recharge from surface-water sources to the ground-water system. This would again tend to support the assumption that any potential losses of flow from surface-water sources would be of short duration and of probable insignificant volume.

In ascertaining information concerning the existing ground-water regime, the Division contacted Kidd Waddell (pers. com., March, 1983), a hydrologist for the U.S. Geological Survey who has recently completed a study in the Wasatch Plateau and Book Cliffs area. During the study some information and data were collected which are specific to the proposed mine permit area. The following narrative describes his interpretation of ground-water movement in the area:

Ground water occurs as perched and unconfined aquifers in the Book Cliffs area. Perched springs occur at the contact between the Flagstaff Limestone and North Horn Formations. Water is transmitted within the Flagstaff Limestone until it comes in contact with the near impervious matrix of the North Horn Formation. The flow within the Flagstaff is generally parallel with the dip (northeastward) of the formation, except where some of the ground water moving down through the formation finds its way to openings along the escarpment of the Book Cliffs. During recharge periods (i.e., spring runoff and rainstorms) more water is contributed to the underground system, and the springs along the Flagstaff LS/North Horn FM contact flow at greater rates. As the recharge decreases, the spring rates also decrease. This scenario also depicts the flow of water through the Price River Formation, Castlegate Sandstone and Blackhawk Formation above the coal seam. However, the transmissivities (T) of these formations are very low so that water reaching the coal seam is greatly inhibited. Transmissivities were calculated from slug tests within the upper and lower zones of the Castlegate Sandstone at 0.02 ft²/day and 0.003 ft²/day, respectively. A rate of 0.07 ft²/day was calculated from a slug test in the Price River Formation.

Other factors involved are the extent and characteristics of the recharge area, the extent of faulting in the area and location of streams relative to recharge area. The Flagstaff Limestone is exposed over large portions of the area. Recharge to the Flagstaff is estimated to be less than five percent of the snowpack. Hydrographs and calculations were developed from stream parameters which indicate that the combined recharge to the Castlegate Sandstone, Price River Formation and Blackhawk Formation is less than the recharge that occurs in the Flagstaff Limestone. The available data suggest that most recharge to the Price River, Castlegate Sandstone and Blackhawk Formation occurs along the stream channels. A comparison of discharges show that the Flagstaff Limestone contributes 1.8 and 5 times more ground water to Soldier Creek and Dugout Creek than do the Castlegate Sandstone, Price River Formation and Blackhawk Formation combined. In essence, low volumes of ground water reaching the coal zones are the result of:

1. Low transmissivity rates within the Price River Formation, Castlegate Sandstone and Blackhawk Formations;
2. The limited areal exposure of the formations;
3. The fact that these formations make up the escarpment of the Book Cliffs and exhibit steep surface areas which contribute to reduced infiltration; and,
4. The North Horn Formation, an almost impermeable formation, overlies and restricts the downward flow to the Price River Formation, Castlegate Sandstone and Blackhawk Formations.

The reclamation measures discussed in other sections of the reclamation plan will have no adverse effect on the water rights of other surface- or ground-water users in the mine plan or adjacent area. As of 1980, ground water had not been developed in the mine plan or adjacent areas and it probably will not be developed in the foreseeable future because of the extremely low yield potential of the water-bearing formations. Also, the applicant completed the purchase of private land in and adjacent to the mine plan area in November, 1982, therefore there are no other adjacent water users that can be affected.

Observation wells were completed in each of the several water-bearing geologic formations that may be affected by mining (areal and perched aquifers). The same observation wells monitored during the premining and mining phases will be monitored during the reclamation phase. By monitoring the same wells during all three phases, the effects of mining will be more easily recognized than if different wells were used during each phase.

An assessment of the MRP ground-water sections dealing with past and present ground-water interception by other existing coal mines in the surrounding region was made by the Division in an attempt to ascertain what might be expected to occur upon initiation of mine development on the Sunedco properties.

There are four active mines within an 8-14 mile radius of the proposed Sunedco project area:

1. Tower Resources - Pinnacle mine (NW - @ 12 miles distant)
2. Soldier Creek - Soldier Canyon mine (NNW - @ 8 miles distant)
3. Kaiser Steel - Sunnyside mine (ESE - @ 10 miles distant)
4. U.S. Steel - Geneva mine (SE - @ 14 miles distant)

A comparison of surrounding mines to the Sage Point-Dugout Canyon mine may provide understanding of the hydrologic system and future impacts. Soldier Creek Coal Company's Soldier Canyon mine lies adjacent and to the north-northwest of Sunedco's proposed mine property, while Kaiser's Sunnyside mine lies adjacent and to the east-southeast of the property. Tower Resources' Pinnacle mine (1981) lies adjacent and to the northeast of Soldier Creek's property. The Pinnacle mine is considered a dry mine. Very little water is produced in the mine and, to maintain dust suppression and operate mine equipment, water has to be hauled in by truck. No faults occur on Tower's property. Tower Resources has attempted to drill water wells for a water supply, but those completed to date have not produced any significant flow to be of value.

Soldier Creek Coal Company (SCCC) produces water in their mine in quantities that allow them to operate their equipment and discharge an estimated 3/4 million to 1-1/4 million gallons per month from the mine. No faulting occurs on the mine property. It is the opinion of the mine engineers that water is produced from fractures in the rock matrix, and after the fractures drain (2 to 3 weeks) no more significant amounts of water are produced. Dave Spillman (SCCC mining engineer, pers. com. of March 1983) stated that most of the water is produced randomly in the mine at the working face and after a few weeks the source ceases to flow.

Kaiser Steel Corporation's Sunnyside mines (1981) lie to the east-southeast of Sunedco's property. Sage Point-Dugout Canyon mine, although adjacent to the Soldier Creek and Sunnyside mines, exhibits different characteristics. Several faults which trend in a northwest direction occur on the mine property. Vertical displacement ranges from 13 feet to 110 feet. In 1979, Kaiser discharged at an average rate of 740 gpm of mine water from their Sunnyside mines. According to studies on deep percolation from surface precipitation performed by the Utah State University (Water Resources Planning Services, October 1980, UWRL/P-80/05), ground-water discharge from the Kaiser mines should increase about 0.13 gpm for each acre of future underground development.

The relationship of ground water in the surrounding mines as compared to Sunedco's proposed mine is somewhat speculative. It is the opinion of the Division that some water will be encountered during mining. The quantities encountered at the Sage Point-Dugout Canyon mines should be less than that produced at the Sunnyside mines due to the paucity of faults on the mine-plan property. It is also anticipated that most of the water encountered will be at the working face produced from fractures in the rock matrix and that this water will reduce in flow as the fractures drain. In essence, the available data suggest that the proposed mines will encounter ground-water volumes comparable to SCCC's operating mine.

Surface-Water Impacts

There could be interception of surface waters into the mines through subsidence fractures, which may extend as much as several hundred feet above the mine roof. It is anticipated that intercepted underground water will be consumed inside the mine through various operations, and that none of the mine water will ever reach any surface streams or bodies of water until it is properly treated and meets State and Federal effluent criteria. Drainage into the mine through subsidence fractures may reduce the flow of some springs that have their source in the areal aquifer. If there is some reduction in spring discharge, it should be small, since most of the spring discharge is from alluvium and the uppermost few feet of consolidated rock. This rock is weathered and highly fractured; consequently, it has a relatively high permeability.

No pollution of water courses from mine drainage is expected, because, if mine water is intercepted, it will be used inside the mine. The floor of the mine will slope downward from the portals at an angle of 5 to 7 degrees so there will be no gravity discharge.

The chemical analyses of water from two mines in Dugout Canyon, sites 74 and 75, afford a comparison between the quality of water from abandoned coal mines in the area and from a spring which represents the natural outflow from the areal aquifer. Spring 63 is the only spring stratigraphically below the coal mine which is monitored for both flow and quality. The spring occurs at the base of the Aberdeen Member of the Blackhawk Formation or the base of the sandy Mesa Verde Group and the top of the impermeable Mancos Shale. With the exception of pH (mine waters being about 0.1 units more acidic) the quality of the mine waters is better than spring 63. In the mines, the water has been standing since mining ceased in about 1962. No discharge has occurred from these abandoned mines.

Special precautions will be taken to protect the environment from any degraded water that is generated outside of the mine. Fluid wastes will be generated at various facilities, such as the portal areas, coal-cleaning and storage areas, and along conveyor belts, waste piles, and tailings ponds. Sewage lagoons and sedimentation ponds will be utilized to prevent contamination of streams and springs. If, for some unforeseen reason, some acidic or high-sulfur-content water from the mine or facilities should enter water sources in the area, the acid would soon be buffered and the sulfur precipitated because of the moderately high pH and bicarbonate in the natural water of the area. A comprehensive study has confirmed those conclusions; the quality of some streams in Colorado shows virtually no degradation resulting from the sulfur content in the coal mine water (Wentz, 1974).

Sediment ponds are planned at facilities where soil disturbances may result in increased suspended-sediment concentrations in streams. There will be some reduction in sediment discharge in Soldier Creek because more of its water will be cycled through Anderson Reservoir than in the past. Consequently, the net total suspended sediment leaving the project area may be less during mining than under existing conditions. According to the U.S. Geological Survey (1979), even under the worst possible conditions, mining in central Utah in general, and specifically in the Dugout Canyon drainage, will have an insignificant detrimental effect on sediment movement.

The reclamation plan describes how Sunedco will restore the disturbed areas and streams. The flows beyond the permit area will continue during and after mining ceases with at least as good a quality and volume as existed prior to mining. Much of the water that flows beyond the mine-plan area is dissipated by evapotranspiration far above any diversions. The only surface water that is now available for diversion or would be available after mining ceases is flood flows that reach the Price River. Consequently, even if there were small detrimental effects on some streams, there will be virtually no adverse effect on any downstream surface-water user.

Based upon the information and data presented in the permit application concerning the previous description of the existing environment, the plan for mine development, the monitoring plans, and protective measures to be implemented, it is the Division's opinion that the cumulative hydrologic impacts from this proposed operation should present no material damage to the hydrologic balance offsite.

LITERATURE CITED

- DeGraff, J. B., and Romesburg, H. 1981. Susidence crack closure: rate, magnitude and sequence. International Association of Engineering Geology Bulletin No. 23, pp. 123-127.
- Kaiser Steel Corporation. 1981. Mine Reclamation Plan, Sunnyside Mines, Sunnyside, Utah.
- Spillman, D. Soldier Creek Coal Company, Soldier Canyon Mine, Utah. Personal communication, January, 1983.
- Tower Resources. 1981. Mine Reclamation Plan, Centennial Project, Utah.
- U.S. Geological Survey. 1979. Development of coal resources in central Utah, Final Environmental Statement.
- Waddell, K. W. U.S. Geological Survey (Water Resources Division), Salt Lake City, Utah. Personal communication, January, 1983.
- Wentz, D. A. 1974. Effects of mine drainage on the quality of streams in Colorado, 1971-1972. Colorado Water Resources Circular No. 21.

FINDINGS DOCUMENT

SUNOCO ENERGY DEVELOPMENT COMPANY
Sage Point-Dugout Canyon Mine
ACT/007/009, Carbon County, Utah

Application for Mining and Reclamation Plan

February 17, 1984

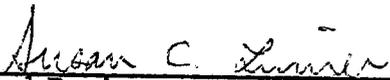
1. The plan and the permit application are accurate and complete and all requirements of the Surface Mining Control and Reclamation Act (the "Act"), and the approved Utah State Program have been complied with (786.19[a]).
2. The applicant proposes acceptable practices for the reclamation of disturbed lands. These practices have been shown to be effective in the short-term; there are no long-term reclamation records utilizing native species in the western United States. Nevertheless, the Utah Division of Oil, Gas and Mining (DOG M) staff has determined that reclamation, as required by the Act, can be feasibly accomplished under the MRP (see TA, Section UMC 817.111-.117) (UMC 786.19[b]).
3. The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance has been made by the DOGM. The mining operation proposed under the application has been designed to prevent damage to the hydrologic balance in the permit area and in the associated off-site areas (UMC 786.19[c]). (See Cumulative Hydrologic Impact Section, attached to this Findings Document.)
4. The proposed permit area is:
 - A. Not included within an area designated unsuitable for underground coal mining operations.
 - B. Not within an area under study for designated lands unsuitable for underground coal mining operations.
 - C. Not on any lands subject to the prohibitions or limitations of 30 CFR 761.11(a) (national parks, etc.), 761.11(f) (public buildings, etc.) and 761.11(g) (cemeteries).
 - D. Within 100 feet of the outside right-of-way line of a public road, however, the conditions of UMC 761.12(d) have been met. A public hearing was noticed for December 3, 1981. No adverse comment was received.
 - E. Not within 300 feet of any occupied dwelling (UMC 786.19[d]).

5. DOGM's issuance of a permit is in compliance with the National Historic Preservation Act and implementing regulations (36 CFR 800) (UMC 786.19[e]). See letter from SHPO dated December 6, 1982 attached to TA.
6. The applicant has the legal right to enter and begin underground activities in the permit area through four Federal leases and two fee leases (see MRP, pages I-26 through I-33) (UMC 786.19[f]).
7. The applicant has shown that prior violations of applicable law and regulations have been corrected (UMC 786.19[g]).
8. Sunedco is not delinquent in payment of fees for the Abandoned Mine Reclamation Fund for its active mining operations (UMC 786.19[h]).
9. The applicant does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (UMC 786.19[i]).
10. Underground coal mining and reclamation operations to be performed under the permit will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the proposed permit area (UMC 786.19[j]). Soldier Creek Coal Company operates the Soldier Canyon Mine immediately to the northwest of the Sage Point-Dugout Canyon permit area. No other mines have been proposed for the immediate vicinity.
11. A detailed analysis of the proposed bond for the five-year permit term has been made. The DOGM has made appropriate adjustments to reflect costs which would be incurred by the State, if it was required to contract the final reclamation activities for the minesite. The bond of \$611,875.00 shall be posted (UMC 786.19[k]) with DOGM prior to final permit issuance or before any construction may begin. A copy of the bond estimate is attached to the TA (Supplement II to the Technical Analysis, February 17, 1984). Sunedco has already posted \$1,112,417 in December of 1980.
12. Soil and land-use investigations indicated that two mapping units within the proposed mine area could be prime farmlands. The Soil Conservation Service (SCS) was contacted to determine whether any of these areas met the minimum requirements for prime farmlands. The SCS found that "Field 2 - East 1/2 of Section 1, Township 14 South, Range 11 East (has) soil characteristics and qualities suitable for prime farmland" (see attached SCS letter dated January 17, 1980). This half section is located along Soldier Creek Road at the southern boundary of the permit area (see Figure IV-C.1). The only planned surface disturbance in conjunction with the proposed mine plan and permit will be an access road. This road will not be constructed during this five-year permit term.

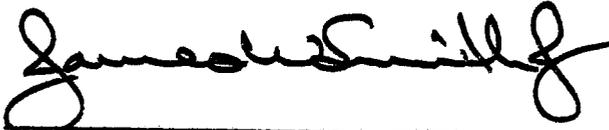
A potential Alluvia' Valley Floor (AVF) has been identified on the central facilities area near Soldier Creek and corresponding alluvial deposits. This area will not be impacted during the initial five-year permit term.

13. The proposed postmining land-use of the permit area has been approved by DOGM (see TA, Section UMC 817.133) (UMC 786.19[n]).
14. The DOGM has made all specific approvals required by the Act, and the approved State Program (786.19[n]).
15. The proposed operation will not affect the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats (786.19[o]).
16. All procedures for public participation required by the Act, and the approved Utah State Program have been complied with (741.21[a][2][ii]).

Prior to the permit taking effect, the applicant must forward a letter stating its compliance with the special stipulations in the permit and post the performance bond for reclamation activities.



DOGM Lead Reviewer



Coordinator of Mined Land Development

FINDING OF NO SIGNIFICANT IMPACT

Sunoco Energy Development Company
Sage Point/Dugout Canyon Mine

The technical analysis (TA), prepared by the State of Utah, and the environmental assessment (EA), prepared by the Office of Surface Mining (OSM), identify certain environmental impacts that would result from the Federal approval of the mining plan and permit for Sunoco Energy Development Company's (Sunedco) Sage Point/Dugout Canyon mine. The 5-year permit application, submitted to the State under its approved permanent program, proposes a total permit and mining-plan area of 4,475 acres.

The regional impacts of coal mining in the Central Utah coal region are addressed in the U. S. Geological Survey's "Development of Coal Resources in Central Utah" environmental impact statement, 1979. The State determined that some impacts will occur as a result of the Sage Point/Dugout Canyon mine. However, OSM finds that these impacts would not be significant.

Impacts identified by OSM and the State would be mitigated by the environmental protection measures detailed in Sunedco's permit application package and proposed conditions attached to the permit.

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

Rich E. Dawen
acts Administrator
Western Technical Center

3/23/84
Date

ENVIRONMENTAL ASSESSMENT

SUNEDCO COAL COMPANY

SAGE POINT - DUGOUT CANYON MINE

CARBON COUNTY, UTAH

for a

Utah Permanent Program SMCRA Permit

and a

Federal Mining Plan Approval

Prepared by

The Office of Surface Mining (OSM)

U.S. Department of the Interior

March 1984

Introduction

The proposed Sage Point-Dugout Canyon underground coal mine project is located 15 miles northeast of Price in Carbon County, Utah. Eureka Energy Company (EEC), a subsidiary of Pacific Gas and Electric of San Francisco, California, submitted a mining and reclamation plan (MRP) for the Sage Point-Dugout Canyon mines to the U.S. Geological Survey (USGS) on November 3, 1976, in accordance with Title 30 CFR Part 211. The USGS, in its final environmental statement for the Development of Coal Reserves in Central Utah (1979), individually assessed the MRP for this mine as well as six others in the area. Since the MRP was submitted prior to promulgation of OSM's regulations, EEC was requested to revise the MRP in accordance with applicable OSM and State of Utah regulations. EEC did so by submitting an application to the Utah Division of Oil, Gas, and Mining on December 12, 1980, that addressed the requirements of SMCRA, the Utah State Coal Program, the Federal Lands Program and the Mineral Leasing Act of 1970. (See TA in this Secretarial decision document.)

On February 10, 1982, EEC executed a definitive coal property sale and purchase agreement to sell the Sage Point-Dugout Canyon coal properties to Sunedco Coal Company. The purchase of the property by Sunedco was completed on May 13, 1982, with the completed reassignment of all Federal leases. Since the regulatory authority was not certain that Sunedco would adopt the entire application as it stood at the time of purchase, the permitting process was put on hold until the Sunedco staff had time to completely review the application. On December 20, 1982, Sunedco indicated that no major modifications to the application had been identified and requested that the permitting process for a life-of-mine application (40 yrs) proceed.

Several letters were sent to Sunedco by the regulatory authorities in 1983 which resulted in PAP revisions by the applicant. (See TA in this decision document.) In November 1983, OSM indicated that four outstanding problems remained with Sunedco's application. (See TA.) In December 1983 and January 1984, Sunedco responded to OSM's November letter by submitting a permit application package (PAP) revision that greatly reduced their scale of operations. The area of initial permit approval being sought by Sunedco was reduced from the proposed original life-of-mine (18,242 acres) to that needed for only the first 5 years of mining (4,475 acres). The original life-of-mine and initial SMCRA permit areas are shown on the accompanying maps entitled "Permit Boundaries," and "Life-of-Mine Permit Area."

An environmental assessment was originally written for this mining permit in September 1983 to assess the impacts of Sunedco's proposed original life-of-mine. Alternative #2 of the assessment was for OSM to approve the SMCRA permit and for the Secretary to approve the mining plan for the original life-of-mine area. However, because of Sunedco's desires to reduce their area of initial approval, a new alternative (#3), has been added to this revised EA - that of approving Sunedco's PAP (as revised through January 4, 1984) for the initial 4,475-acre SMCRA permit area and the 3,080-acre mining-plan area only.

Sunedco's proposed original life-of-mine permit area contained all or portions of five Federal coal leases (U-7746; U-089096; U-092147; U-0144820; and U-07064-027821), three state coal leases, and two areas of private coal. Sunedco's initial SMCRA permit area contains all or portions of four Federal coal leases (U-7746, U-092147, U-0144820, and U-07064-027821), and two areas of fee (private) coal. No State coal is included in Sunedco's initial SMCRA permit area. (See accompanying boundaries map.) Total surface disturbance for the original life-of-mine area would have been 476.5 acres while that for the initial SMCRA permit area is 70 acres.

Purpose and Need of the Proposed Action

Pursuant to 30 CFR 746.14, the Secretary of the Interior must approve, disapprove, or conditionally approve the proposed mining plan. This Environmental Assessment is being written to assist the public officials in making decisions that are based on an understanding of the environmental consequences. On February 17, 1984, UDOGM proposed to approved Sunedco's initial SMCRA permit area as revised and recommended that OSM do the same. (See Memoranda section of this decision document.) In support of this proposed decision, UDOGM has submitted an updated technical analysis (TA) of the PAP to OSM.

ALTERNATIVES

Alternative #1 - No Action

The Federal Mineral Leasing laws require that the Secretary of the Interior respond to mining plan applications and approve, disapprove, or conditionally approve mining plans for operations on Federal leases. Furthermore, under Section 523 of SMCRA the Director of OSM must approve, disapprove, or approve with conditions applications for operators to conduct surface coal mining operations on Federal lands in states without cooperative agreements pursuant to SMCRA. Therefore, the alternative to take no action is not viable and will not be discussed further.

Alternative #2 - Approve Sunedco's 40-year Life-of-Mine SMCRA Permit and Mining Plan

This alternative is for the Secretary of the Interior to approve mining in Sunedco's 40-year life-of-mine plan area as proposed in the original application. The original life-of-mine area is 18,242 acres, which includes 476.5 acres of surface disturbance.

The life-of-mine project includes four independent underground mines - two mines each in two box canyons, Fish Creek Canyon and Dugout Canyon. The four mines will be based on two portal pads, one in Fish Creek Canyon and one in Dugout Canyon. The portal pads will provide level areas for the parking, storage facilities, maintenance buildings, and change houses necessary to support the two mines in each canyon.

The 775 miners to be employed at Sunedco's operation (life-of-mine, maximum number) will extract coal from three seams, the Sunnyside, Rock Canyon, and Gilson. Both room-and-pillar and longwall mining methods will be used. The maximum annual production, nearly 5 MTY, will not be reached until the 14th year of the mine operations. The expected life of each mine is as follows: Fish Creek No. 1, 36 years; Fish Creek No. 2, 28 years; Dugout Canyon No. 1, 31 years; Dugout Canyon No. 2, 46 years. Newly mined coal will exit the mines on conveyor belts for transport down the canyons to the central facilities area for washing, preparation, and loadout. The overland conveyor, with a maximum length of 4 miles from Dugout Canyon to the central facilities, will be enclosed and will be elevated over approximately 95 percent of its length.

The central facilities, located southwest of Fish Creek Canyon on an outwash plain, will contain administrative offices, parking areas, two coal stockpile areas, a coal wash and preparation plant, a center for major equipment repair, a railroad loop, and coal-loadout structures. The railroad spur and loop will be constructed from a future Denver and Rio Grande Western Railroad line originating southeast of Wellington. This will provide access for unit trains to be used for transporting coal out of the permit area.

A mile west of the central facilities, Anderson Reservoir (an existing facility to be enlarged) will store water needed to operate the central facilities and Fish Creek portals. The water will be diverted from Soldier Creek, which flows south from the Book Cliffs through the western part of the project area. The Dugout mines will be supplied from a newly constructed reservoir near Dugout Creek.

This alternative is not viable at this time because all required land use authorizations could not be secured by the applicant. This alternative will be considered in the future when the 40-year mining plan is found to be complete and accurate.

Alternative #3 - Approve Sunedco's Initial 5-Year SMCRA Permit and Mining Plan (The Preferred Alternative)

This alternative is for the Secretary to approve mining in Sunedco's proposed mining plan and SMCRA permit area as described in the PAP as updated through January 4, 1984. Sunedco's initial SMCRA permit area is shown on the accompanying map entitled "Permit Boundaries."

During their initial SMCRA permit (approximately first 5 years of mining), Sunedco proposes to open two independent underground mines in Dugout Canyon. The two mines will be based on a portal pad placed in the canyon that would provide level areas for parking, storage, facilities, maintenance buildings, and change houses. In addition to the portal facilities, Sunedco would also build the following structures near the mouth of Dugout Canyon: sewage lagoon, waste-rock disposal site, reservoir (to provide water for the Dugout Canyon mine workings), and the associated water, power, and sewer lines necessary for mine operation. No Fish Creek area facilities would be authorized under this initial SMCRA permit. An overland conveyor will eventually be built from the Dugout Canyon portals; however, this is also not a part of Sunedco's initial SMCRA permit. When built, this conveyor would link the Dugout Canyon portals with the central facilities proposed for the life-of-mine. (See life-of-mine area map.)1/

Approximately 120 miners will be employed at the Dugout Canyon operations for the first 5 years (initial SMCRA permit). Coal will be extracted from the Dugout portal area according to the following sequence: Rock Canyon Seam (beginning in year 2), Gilson seam (beginning in year 5). (See maps D03006, D03007 and D03007 in Volume II of the PAP.) The expected life of the Dugout Canyon #1 portals is 31 years and that for the Dugout Canyon #2 portal is 46 years. Both room-and-pillar and longwall mining methods will be used. During the initial years of mining (approximately first 5 years) maximum coal production should not exceed 1.2 million annually. Newly mined coal will be transported from the mine mouth by truck and would be hauled approximately 20 miles via county road and State highway to an existing railroad siding.

The applicant has provided complete and accurate information for the 5-year mining plan. Therefore OSM's preferred alternative is to approve the initial SMCRA permit and mining plan with conditions and as recommended by the Utah Division of Oil, Gas, and Mining in their amended letter of recommendation and Findings of Compliance, dated February 17, 1984.

Alternative #4 - Disapproval of the SMCRA Permit and Mining Plan

If Sunedco's proposal is denied, there is a potential loss of approximately 94 million tons of coal production from five Federal leases and State and fee coal (worst case). There could also be a loss of Federal royalties from the mining of the coal, 83 percent of which is under Federal lease. This coal could be mined at some future date.

1/Note: The construction of this conveyor was included, subject to conditions, in BLM's industrial occupancy lease to Sunoco, dated January 4, 1984. Construction of this conveyor, however, may not commence until Sunedco submits a revised permit application and the revision is approved by UDOGM and OSM.

DESCRIPTION OF THE AFFECTED ENVIRONMENT^{2/}

The striking aspect of the project area landscape is formed by the erosional features that have been carved into the Mesa Verde group forming the steeply rising palisades of the Book Cliffs. The central facilities are to be located at the base of the Book Cliffs on the outwash plain (pediment).

Predominant vegetative types range from pinyon-juniper, greasewood-sagebrush, and shrub-grass-juniper at the base of the Book Cliffs to Douglas fir and aspen at higher altitudes. Less extensive habitats include cottonwood and other streambank species along the creeks and rush-grass and salt cedar-willow communities at Anderson Reservoir. Four parcels of cultivated lands lie in the permit area. The primary crop raised is alfalfa. No threatened or endangered species have been found in the permit area.

Structurally, the permit and adjacent areas lie along the northern extent of the San Rafael Swell and the southern flank of the Uinta Basin. Faulting in the permit area is minor. Some minor subsidence may occur under permitted land used for grazing and recreation. After careful analysis, OSM and DOGM have determined that subsidence will not impact a natural gas pipeline and dirt road passing through the potential subsidence area. Streams or springs should not be affected. Six small drainage basins are contained within the life-of-mine area. Soldier, Pine, and Dugout Creeks flow year-round except during periods of unusually low precipitation. The upper reaches of Pace, Fish, and Corbula creeks are maintained by springs that flow in direct response to precipitation.

The current land use for the project area is open range for cattle on the lower elevations and wildlife habitat on the higher elevations, with limited agricultural activity occurring in the vicinity of the proposed central administration facilities. Previous coal mining has occurred on the permit area. In the Dugout Canyon area, the Knight Ideal Coal Company mined the Rock Canyon and Gilson coal seams located on both sides of the canyon. The mine opened in 1940 and closed in 1965. Total coal extracted from the two seams was approximately 1,320,000 tons by conventional room-and-pillar methods.

Updated alternative subsidence prevention plans must be provided to the regulatory authority for approval if forecasts are found to be erroneous. Although significant subsidence impacts are not expected, should any surficial damage or fractures become apparent which may constitute a hazard, subsidence prevention plans must be updated immediately.

IMPACTS OF ALTERNATIVE ACTIONS

Impacts of Alternative #2

Soils

Approximately 131 acres of soils will be disturbed during mining activities without topsoil removal, because they have been identified as being without topsoil or excessively high in salt content. The applicant has been required

^{2/}Note: This general description, unless otherwise noted, applies to both the life-of-mine and initial SMCRA permit areas.

to provide substitute topsoil material for these sites. Soil material that is to be salvaged will be removed in two lifts. The top layer will be 6 inches or more thick; the second will include soil that is not suitable for a seed-bed material but will be useful as a spoil cover and will increase the water-holding capacity of the reclaimed area.

Vegetation

The vegetation on the 476-acre proposed surface disturbance area would be removed; revegetation on the majority of the area would not occur until the operation is abandoned in approximately 40 years. The retention of two permanent reservoirs (957 acres) and Fish Creek Road (26 acres) will result in small land tracts on which vegetation will not be replaced. The central facilities and preparation plant waste sites will mainly impact pinyon-juniper, greasewood-sagebrush, and shrub-grass-juniper types. Impacts to the deciduous-streambank vegetation in the Fish Creek and Dugout Canyon portal areas due to the facilities, roads, water lines, sewage lines, and overland conveyor will be more significant due to the limited extent of this vegetation type in the area. Little or no impact is anticipated on the vegetation overlying the underground workings due to subsidence.

The applicant has submitted a complete revegetation plan. This plan adequately addresses timing of revegetation, species and seeding rates, planting methods and mulching techniques for both permanent and contemporaneous reclamation. Introduced species are only used to add stabilization and species diversity to the species mix, or substituted for another species of the same growth form for which seed is not commercially available. Irrigation will be used only on steep slopes and preparation plant waste-disposal sites.

Fish and Wildlife Resources

Aquatic habitat is limited in the life-of-mine area. None of the streams on the project area is considered to be of value as a sport fishery, but some game species do inhabit them. Physical and chemical characteristics of the streams that will be disturbed by mining activities were measured for the purpose of developing stream reclamation plans. Streams will be culverted as they pass through the two portal areas to minimize disturbance from construction and mining activities.

Construction of surface facilities will disturb approximately 335 acres of critical mule deer winter range. This is roughly 3 percent of the designated critical winter range in deer herd unit 27b. During a winter deer study on the permit area, heavy use was found in pinyon-juniper habitat and in areas adjacent to agricultural fields near proposed surface facilities. However, heavy snowfall forced the animals to move south of the proposed central facilities area into lower elevations. Because of the relatively small acreage to be impacted, and because the main facilities are clustered at the base of the Bookcliffs, it is anticipated that this habitat loss will be insignificant.

Conveyors will be constructed to carry coal from the mine portals to the preparation plant. These conveyors, if not constructed properly, could impede passage of large mammals, particularly in areas of mule deer critical winter range. Preliminary data do not indicate a definitive migration movement, but rather daily feeding movements around the proposed conveyor route.

Because proper design of the conveyor is considered a critical consideration for big game protection, a condition has been proposed by DOGM and OSM which requires final detailed designs of the conveyor throughout its length, giving exact location and height. The design must take into account data collected by DWR on big game movements through and general use of the conveyor corridors chosen. In addition, Sunedco must carry out a big game movement monitoring program post-construction and may be required to construct special big game crossings based on results of this study.

The BLM, USFWS, and DWR have documented 3 golden eagle, 1 prairie falcon, and 2 Cooper's hawk active nests within the life-of-mine area. These would be protected by proposed permit conditions provided by the BLM and USFWS. Three bald eagles have been sighted during winter on the mining-plan area, but no roost trees have been located. The Endangered Species Office of the USFWS has confirmed that no species currently listed by the USFWS as threatened or endangered will be affected by the mine. It was noted, however, that the rare plant species Hedysarum occidentale var. canon may be affected by the proposed action.

Vegetation removal on the 476 acres of surface disturbance will degrade wildlife habitat. Noise, lights, activities, and traffic may further increase the acreage which will not be utilized by some wildlife species, particularly sensitive species such as black bears, mountain lions, and mule deer. Some riparian habitat will be lost. There will be a vehicle collision hazard for all wildlife. Illegal shooting may increase. The BLM has provided permit conditions for mitigating loss of riparian habitat, and reducing vehicular collisions and disturbance to nesting raptors by conveyor lights.

Surface Water Hydrology

The data from periodic measurements at 12 surface water monitoring sites in the project area are presented in the PAP. The data from recorder measurements taken on Soldier Creek and Dugout Creek suggest a mean annual flow estimated at 1,000 acre-feet per year and 558 acre-feet per year, respectively. The minimum uncontrolled flow in all reaches of all streams in the project area is less than one cubic foot per second for several months of the year. Maximum flows occur during spring snowmelt and summer torrential rainstorm periods.

Water sampling in the project area was initiated in July 1976 to determine baseline chemical constituents and suspended sediment in streams. Chemical and suspended sediment analyses for samples collected at 13 stream sites during 1976-81 are reported in the PAP. The quality of the surface water in the project area is better than that of the Price River. The observed range of dissolved-solids concentration in streams in the project area was 215 to 3,375 milligrams/liter, whereas in the Price River at Woodside during water years 1976-78 the observed range was 1,150 to 6,990 milligrams/liter. The

difference is primarily a result of the concentration of sulfate which was 25 to 980 milligrams/liter in the project-area streams and 640 to 4,300 milligrams/liter in the Price River. These higher concentrations of dissolved-solids and sulfates in the Price River are caused by the tributary streams dissolving sulfate (and to a lesser extent other constituents) as they flow across Mancos Shale or soils which are largely derived from that shale.

The wide variability of discharge rate, temperature, and specific conductance of most springs suggest a local body of ground water near the surface. The magnitude and duration of large discharges from springs occurs in early spring only after appreciable winter precipitation. Recharge derived from snowmelt is rapid, suggesting both high permeability and shallow depths to the water table. In addition, the large range in discharge rate over a short period of time, with a very low minimum in the summer, suggests that the body of ground water supplying the springs is small.

Sunedco's life-of-mine application calls for two permanent diversions of Soldier Creek (Fish Creek is a tributary) and Dugout Creek. The Soldier Creek diversion will divert flow from Soldier Creek to the proposed Anderson Reservoir (1,675 acre-feet active storage capacity), and the Dugout Creek diversion will divert flow from Dugout Creek to the proposed Dugout Reservoir (525 acre-feet active storage capacity). It can be expected that there will be some loss of water presently available to downstream riparian habitats. (See also Alluvial Valley Floor section.) The BLM has imposed conditions on Sunedco relative to their use of water from Dugout Creek which will mitigate impacts to potentially affected riparian vegetation. In addition, the State Engineer's Office requires that when Sunedco converts their water rights on Dugout Creek to industrial use they must release 50 percent of available water for down-stream use. Sunedco may only take water from Dugout Creek to fill Dugout Reservoir during the irrigation season (approximately February through June).

Temporary diversions will be installed to divert flow away from disturbed areas. Undisturbed drainages above the portal areas will be routed under the portal sites through large culverts. Sixteen sedimentation ponds will contain and settle sediments associated with runoff from disturbed areas. A sewage lagoon will be constructed to process wastewater produced at the portal sites, central facilities, and coal-preparation plant. A surface (13 sites) and ground-water (5 wells, 10 springs) monitoring program will be carried out. Sediment ponds should prevent some unavoidable increase in suspended sediment in streams during construction. Water discharge from underground workings is not anticipated.

Ground-Water Hydrology

Ground water in the Sage Point-Dugout Canyon project area, like ground water in other parts of the Price River drainage basin, occurs under both confined and unconfined conditions. Unconfined water exists primarily in shallow alluvial or colluvial deposits along the largest perennial and intermittent streams. It also exists in the soil mantle and the upper few tens of feet of the underlying consolidated rocks where the rocks have been extensively weathered and fractured. Confined water exists at greater depths where relatively impermeable beds are confining a more permeable water-bearing bed.

In the affected area, there has been no development of ground water in either the perched aquifers or the regional (areal) aquifer. Three wells were drilled in the north adjacent area, but these wells were for monitoring purposes only. Discharge occurs from natural sources such as widely scattered springs, seepage into streams, and evapotranspiration by native vegetation. If the water supply of any owner of a vested water right is injured as a result of the mining activities, Sunedco will replace that water supply in a manner consistent with applicable State law.

As indicated by the long period of time required for ground-water levels to stabilize following well perforation (table IV-B.7), the permeability of the aquifers is low. This low permeability makes well sampling difficult and precludes the collection of good ground-water quality data from wells in the permit area. Consequently, the applicant has assessed the quality of ground water in the permit area by collecting and analyzing water samples from a wide variety of springs. Because the samples were taken immediately after the water emerged from the aquifers, the data provide a good indication of the quality of water within the aquifer.

Measurements of ground-water levels in the permit area began in November 1979. Water levels in five exploration holes and in two idle mines in Dugout Canyon are measured at monthly intervals. The fluctuations in water levels and discharge may vary somewhat from one year to another. The variations result in response to the amount of winter precipitation and to the variability, in both time and length, of the snow-melt period. In the Sage Point-Dugout Canyon project area, the peak water levels in the unconfined aquifer should occur between late April and early June, approximately coinciding with or shortly following the peak snowmelt and runoff period.

Possible subsidence may impact Pine Creek. (See Permit Boundaries Map.) There may be drainage of surface waters into mines through subsidence fractures which may extend as much as a few hundred feet above the mine roof. Drainage into the mine through subsidence fractures may reduce the flow of some springs that have their sources in the regional aquifer. No mine drainage pollution is expected during the active operation because mine water will be used in the mine. The flow of Soldier and Dugout Creeks below Anderson Reservoir and Dugout Reservoir might be reduced.

Alluvial Valley Floors

Four major drainages are located in the life-of-mine area: Soldier Creek, Fish Creek, Dugout Creek, and Pace Creek. Fish Creek is an intermittent stream with no available water rights. The small area of alluvium in its downstream reach contains neither irrigated nor subirrigated croplands. Dugout Creek flows through alluvium only after it has exited the canyon. This alluvium contains neither subirrigated nor irrigated cropland. All planned surface disturbances in the Dugout Creek drainage are upland of any alluvium. Pace Creek flows through the northeast portions of the property. It is perennial above the Book Cliffs escarpment where the stream channel is rocky alluvium and short reaches of bedrock; it is intermittent below the cliffs where the creek bottom is Mancos Shale or alluvium which is derived in part from Mancos Shale. The small areas of alluvium along Pace Creek are not irrigable. Soldier Creek is the only drainage with alluvium deposits which maybe affected by surface facilities. Consequently, the alluvial valley floor

(AVF) investigation focused on the central facilities area near Soldier Creek and the corresponding alluvial deposits. No other areas approximate the conditions required for an AVF.

Soldier Creek is an intermittent stream where it traverses the proposed central facilities area (southwestern portion of the permit area); it is generally dry except in spring and early summer, depending on the amount of precipitation. Small-scale agricultural activities in the area of investigation have taken place periodically since the turn of the century.

Currently, the only cultivated lands in the permit area (38 acres) are planted in alfalfa and are flood irrigated. These lands provide supplementary feed for a local rancher's cattle herd during winter months. Most land adjacent to the currently flood-irrigated acreage is used as winter and spring rangeland.

OSM has designated Soldier Creek within the proposed life-of-mine area as an alluvial valley floor. The Soldier Creek AVF contains 158 acres of historically irrigated land (within the permit area), of which 58.1 acres have been irrigated within the past 5 years. Sunedco has proposed to surficially disturb 8.6 acres of previously irrigated land for a service road and central mine facilities. This level of disturbance is estimated to result in a 5.4 percent decrease in the farm's productivity during the life-of-mine.

This decrease in production is considered insignificant for this site because the area of historically irrigable land (158 acres) is much larger than the amount of water available for irrigation at present (i.e., sufficient water to irrigate approximately 58 acres). It is concluded that the farmer could utilize management practices to compensate for the loss of production on the 8.6 acres to be affected.

OSM has concluded that the applicant has demonstrated in the application that there should not be any significant adverse impact to the hydrologic balance or the hydrologic function of the AVF during or after mining. The impact will be confined to the surface disturbance of 8.6 acres for a portion of the central facilities and a service road on the permit area. These facilities will not impact the hydrologic function of the AVF and after mining the sites will be reclaimed to the prior land use.

Subsidence

Grazing lands used for cattle are not expected to be affected by subsidence. Potential subsidence effects should not impede the recreational use of the land, which is mainly for deer hunting. Selective mining will be employed providing for 50 percent or less extraction within a 25° angle of draw beneath a Mountain Fuel Supply Company pipeline and no subsidence effects are anticipated. Monitoring stations will be established to monitor the possible subsidence in the vicinity of the pipeline as well as near Soldier and Pine Creeks, the only streams which may potentially experience any measureable subsidence. Uniform lowering of the surface area (less than three feet of total elevation decrease) may occur due to longwall mining, but no fracturing should occur. Possible subsidence effects which may occur to a single dirt road passing through the subsidence area will be slight and easily repaired.

Along with partial extraction methods being employed, barrier pillar columnization and harmonic extraction will be utilized to avoid surface subsidence effects while multiple seam mining practices are used.

In addition, natural features such as the 200+ foot thickness of the massive Castlegate sandstone and the extensive (generally 1,000 to 2,500 foot) depth of overburden should preclude the transference of subsidence effects to the surface.

Backfilling and Grading

Sunedco has proposed that some of the Fish Creek and Dugout Canyon portal face cuts remain as a part of the postmining topography. A geotechnical investigation of the highwall stability in the Dugout Canyon portal area concluded that the minimum static safety factors are in excess of 1.5 and thus would be satisfactorily stable. Similar analyses have not yet been made for the two proposed Fish Creek portals.

Coal Processing and Underground Development Waste

Total coal waste from the preparation plant facility is estimated to be 807,000 TPY (tons per year). The applicant has selected two sites for coal preparation plant waste disposal. These areas are the Saddle Valley and Boot Valley waste dumps. Four sediment ponds are proposed for containing the runoff from the Saddle Valley area and three ponds for Boot Valley. Surface runoff diversions have been designed to divert upslope surface runoff away from the preparation plant waste. Other diversions within the waste areas will route disturbed runoff to the sedimentation ponds.

The coal preparation waste will be transported by conveyor belt to the northern end of the Boot Valley coal waste disposal site and be trucked to the Saddle Valley site or placed into the Boot Valley fill. The coal waste will be spread in lifts of less than 24 inches and compacted. An underdrain consisting of durable sandstone will be constructed to conduct infiltrated water to the sedimentation ponds. No spring or seeps are present in the area. These two sites will be reclaimed and revegetated.

Underground development waste from the Fish Creek and Dugout Canyon mines will be disposed of in two durable rock fill sites located in Fish Creek and Dugout canyons, respectively. Waste rock will be hauled by end-dump trucks to the disposal sites. The fills are estimated to exceed more than 90 percent by volume rocks that will not slake in water. The slopes will be similar to tallus slopes. (See PAP, p. III-338, Vol. II.)

During mine operation, rock wastes will be deposited in horizontal lifts to create a terraced fill with terraces at 50-foot vertical intervals and 3h:1v outslopes.

Surface runoff from above the two fills will be diverted to drainage channels on either side of the fills. (See Maps D033-0036 and D03-0037 in the PAP.) No surface flow on the outslopes is expected, because the coarse nature of the durable rock will lead to rapid infiltration.

At the cessation of mining, the terraces will be modified and final rock fill placed to conform with natural contours and landforms. The final slope will not exceed 3h:1v. Sunedco has been required to provide substitute topsoil material for reclamation vegetation of these sites. Substitute material for the Dugout Canyon fill will come from the proposed Dugout Reservoir.

Air Quality

Modeling conducted by the applicant estimated the TSP annual average concentration to be 30 micrograms per cubic meter and the maximum 24-hour concentration to be 112 micrograms per cubic meter. This is less than the Federal standard of 60 micrograms per cubic meter and 150 micrograms per cubic meter, respectively. No significant impacts are expected to air quality.

Prime Farmland

The Fish Creek Ridge Road (50-foot width) will cross 1,500 feet of prime farmland (1.72 acres disturbed). The Soil Conservation Service has approved the prime farmland operation and reclamation plan which addresses special handling and reclamation of these soils.

Postmining Land Use

In the area of the proposed mine, cattle grazing, wildlife habitat, recreation, and hunting are the primary land uses. Farming (alfalfa cultivation) and coal mining also occur nearby.

Anderson Reservoir, Dugout Canyon Reservoir, and their associated diversion structures will remain on the life-of-mine permit area as permanent features after the completion of underground mining activities. Dugout Canyon Reservoir, a permanent structure to be built by the applicant on BLM surface, will be suitable for the postmining land uses of grazing and wildlife habitat. The county roads which were in existence prior to the development of the underground mine (Soldier Creek and Dugout Canyon roads) will also remain at the conclusion of the underground mining activities. Fish Creek Road, a new county road, Dugout Canyon Road, and Soldier Creek Road will remain as paved roads.

The waste rock fills in Fish Creek and Dugout Canyons as well as the preparation plant processing waste sites in Saddle and Boot Valleys will be constructed as permanent features to blend into the existing topography. These areas will be contoured and revegetated upon completion of operations.

The portal face cuts will remain as permanent features after mining. They will not affect the anticipated postmining land uses.

In the areas of surface disturbance, soil reclamation and revegetation will restore the areas to their premining use, rangeland and wildlife habitat. The value of present cropland will be restored or enhanced following mining, since Anderson Reservoir will be enlarged and water availability may increase.

Cultural and Historical Resources

The proposed Sage Point-Dugout Canyon life-of-mine permit area has been inventoried. Thirty-three cultural resource sites within the life-of-mine

permit area were located. The sites included 9 historic structures, 23 prehistoric sites, and one site with both historic and prehistoric components.

During mining operations 3 historic sites and 5 prehistoric sites will be impacted. Mitigation measures in the form of a data recovery plan will be necessary to mitigate adverse impacts. (See stipulation.) Even with a well-developed mitigation plan, however, some data will be lost. Furthermore, once the sites are destroyed, they can never be reexamined. Thus, there would be a loss of potential data, as well as the physical loss of the sites.

Known and unknown cultural resources located in the vicinity may be impacted by mining activities as a result of increased population in the area. There may be increased vandalism and unauthorized collections associated with recreational activities and other pursuits.

Socioeconomics

The socioeconomic impacts of the Sage Point/Dugout Canyon mine would be moderately significant. Assuming that mine development were to commence in 1984, the overall construction period would last six years, with peak construction employment occurring in 1986 at 150 workers. At peak production (5 MTY), a total operations work force of 775 would be required. The mine would induce approximately 600 secondary jobs and result in a total mine-related population of 3,126 by 1995.

The primary jurisdictions to be affected by the mine are Price and Wellington in Carbon County and, to a lesser extent, the communities of Helper and East Carbon, also in Carbon County. Without the mine, the population of Carbon County is projected to increase 54 percent from its 1982 population of 24,183 to 37,218 in 1995; with the mine, to 40,344. This represents an 8 percent increase over the county's projected total population without the mine in 1995.

Over this same period, the cities of Price and Wellington without the mine are forecast to nearly double in size from 10,043 to 17,659 and 1,550 to 2,777, respectively. With the mine, the 1995 population of Price is projected at 19,347, with Wellington's population reaching 3,621. This represents an increase over the Price and Wellington projected 1995 populations without the mine of 9.6 and 30 percent, respectively. The annual growth rates without the mine from 1980-95 average 3.5 percent, with the mine 4.5 percent. The greatest change will be felt in Wellington in 1985-86 when the mine increases the town's projected growth rate from 6 percent to 11.2 percent.

The following is a summary of the important effects on public services and facilities attributable to the mine:

1. Education:

The mine would add approximately 809 students to the Carbon County School District by 1995. The projected mine-related student enrollment will require an additional elementary school, expansion of the junior and senior highschools, and 35-40 additional teachers over projected baseline demands.

2. Housing:

Approximately 900 housing units are forecast to be required for the mine-related population. Although the housing trade has historically been able to meet demands, service infrastructure and the financial market may inhibit the mine-related population from finding adequate housing.

3. Water:

The Price City water treatment system is projected to exceed current capacity in 1985. If improvement funds are not secured, the mine-related population capacity demand of 0.5 MGD would place an additional burden on the system.

4. Sewer:

The projected cost of improving the existing sewage treatment system has escalated from 4 to 6 million dollars. If improvements are further delayed, the mine-related impact will exacerbate the problem.

5. Fiscal Impact:

The mine would have both positive and negative fiscal impacts on jurisdictions and service providers. The mine would generate a peak income between \$10 and \$11 million in direct sales tax and property tax to Carbon County jurisdiction over the 1984-95 timeframe. However, the lag time between revenue generation and project impact may exacerbate the county's financial problems under the baseline population forecast. Using a set of alternative assumptions, the State has projected that the mine could result in average annual County deficits of approximately \$1.5 million, reaching a cumulative deficit of \$17.5 million by 1995 (Utah Department of Community and Economic Development (DCED)). Using these assumptions, the project could have the net effect of reducing annual surpluses and increasing deficits in all of the affected jurisdictions.

The Utah Resource Development Code, Utah Code Ann. Section 63-51-1 et seq. (Supp. 1981), requires all major developers to file a socioeconomic impact and mitigation plan with the CDED 90 days prior to project construction. Sunedco has partially complied with this requirement by preparing a draft impact report. The review of this report by State and local officials has concluded that certain major issues exist which will need to be resolved during the mitigation planning phase. These issues include the report's assumptions and Sunedco's finding of no significant impacts related to the Sage Point/Dugout Canyon mine. OSM's socioeconomic permit stipulation, agreed upon by Sunedco on May 9, 1983, will help ensure the company's compliance with applicable laws as well as the development and implementation of a mitigation plan in consultation with OSM, State, and local officials.

Impacts of Alternative #3

Alternative #2 is a more complex proposal than Alternative #3 and represents disturbance to a larger area (i.e., central facilities area, 4 portals, 2 conveyors, etc.). Thus, for many disciplines the impacts under

Alternative #2 would be greater than those under Alternative #3. Rather than duplicate the impact discussion provided for Alternative #2, the following discussion focuses on where the impacts under Alternative #3 differ from those previously described for Alternative #2.

Soils

Impacts to soils would be similar although less extensive than those described for Alternative #2 as there would be only 70 acres of surface disturbance as compared to 476 acres. Sunedco has submitted plans for the revegetation of their Dugout Canyon waste rock disposal site by utilizing excess soils salvaged from the Dugout Canyon Reservoir site. It has been determined that these soils represent a suitable growth medium. (See TA supplement No. 2, re: UMC 817.111-.117.)

Vegetation

Vegetation impacts would be similar although less extensive than those described under alternative #2. Seventy acres of surface disturbance would occur as compared to 476 acres. Because the Fish Creek portals and pad, the central facilities, and the two conveyor systems would not be constructed under this alternative, vegetation impacts would be concentrated at the Dugout Canyon portal pad site and nearby sewage lagoon, waste rock and reservoir sites. (See Permit Boundaries Map.) Sunedco has submitted comprehensive and acceptable plans to revegetate the Dugout Canyon waste rock site; thus, long-term vegetation impacts should be minimal.

Fish and Wildlife Resources

Fish and wildlife impacts would be similar to those described under Alternative #2. However, for the following reasons, they should be less extensive:

Less aquatic habit disturbance would occur. The Soldier Creek (central facilities) and Fish Creek portions of the life-of-mine plan area and the Dugout Canyon conveyor system would not be constructed.

Less mule deer winter range would be disturbed because the central facilities and Fish Creek portions of the life-of-mine area would not be authorized.

No conveyor systems would be constructed that could potentially impede passage of large mammals.

Vegetation removal would occur on 70 acres as opposed to 476 acres.

Potential for direct wildlife-man interaction such as vehicle collisions and poaching would be less because fewer new roads would be constructed and hence access would be more restricted.

Two Cooper's hawk nests, one active prairie falcon eyrie, one suspected prairie falcon eyrie and one golden eagle nest site (old) were documented within the proposed initial SMCRA permit area by the U.S. Fish and Wildlife Service (USFWS) and the Utah Division of Wildlife Resources (UDWR). These would be protected by proposed permit conditions provided by BLM and USFWS. (See also the conditions attached to the BLM's surface occupancy lease #U-529808.)

Surface Water Hydrology

Impacts would be similar although less extensive than those described for alternative #2. The absence of the proposed Fish Creek portals, central facilities area, and the Soldier Creek diversion would make surface water impacts under Alternative #3 less severe.

Ground Water Hydrology

Impacts would be similar although less extensive than those described for Alternative #2.

Possible subsidence impact to Pine Creek should be less under Alternative #3 because only the southernmost boundary of the drainage would be impacted during the initial SMCRA permit term.

Alluvial Valley Floors

No impacts would occur to the Soldier Creek alluvial valley floor under this alternative.

Subsidence

The potential for subsidence would be similar to that for Alternative #2 though the potential impact would be smaller. The potential for damage to the Mountain Fuel Supply pipeline under Alternative #3 would be considerably less because no extraction would occur within a mile of the pipeline.

Backfilling and Grading

Impacts would be similar although less extensive than those described for Alternative #2. Only the Dugout Canyon portals would be constructed under Alternative #3.

Coal Processing and Underground Development Waste

No coal processing waste would be generated under Alternative #3, and no coal development waste would be placed in the proposed Fish Creek Canyon at the durable rock fill. The durable rock fill in Dugout Canyon would be constructed as described under Alternative #2.

Air Quality

Impacts would be similar although less extensive than those described for Alternative #2. No significant impacts are expected to air quality.

Prime Farmland

No impacts would occur to prime farmland under Alternative #3.

Postmining Land Use

Impacts to land use would be similar though less extensive than those described for Alternative #2.

Cultural and Historical Resources

Clearance has been obtained from the SHPO for the entire 40-year life-of-mine area; this clearance also pertains under Alternative #3. A condition for protection of cultural resources included in Alternative #2 has been retained in Alternative #3.

Socioeconomics

Socioeconomic impacts would be similar though less noticeable under Alternative #3. Approximately 120 people would be employed by Sunedco under Alternative #3 as compared to the potential 775 employees under Alternative #2. (See descriptions of Alternatives #2 and #3.)

Impacts of Alternative #4 -Disapproval

If the initial mining permit (5 years) is disapproved, the 40-year life-of-mine action is not likely to take place either. Therefore, disapproval of this mining permit would mean that a potential maximum of 775 jobs directly related to the mine and about 600 secondary jobs in the area would not be made available to the local economy. There would be a potential loss of approximately 94 million tons of coal production over 40 years. This energy source would have to be substituted by coal mined elsewhere or by oil and gas.

An average annual 1.5 million dollar deficit to the local economy in the early years of mine development and mining would be avoided. Potential subsidence would be avoided, although this is not expected to be a problem in the relatively stable overburden at this mine. The other impacts cited would not occur as a result of this action.

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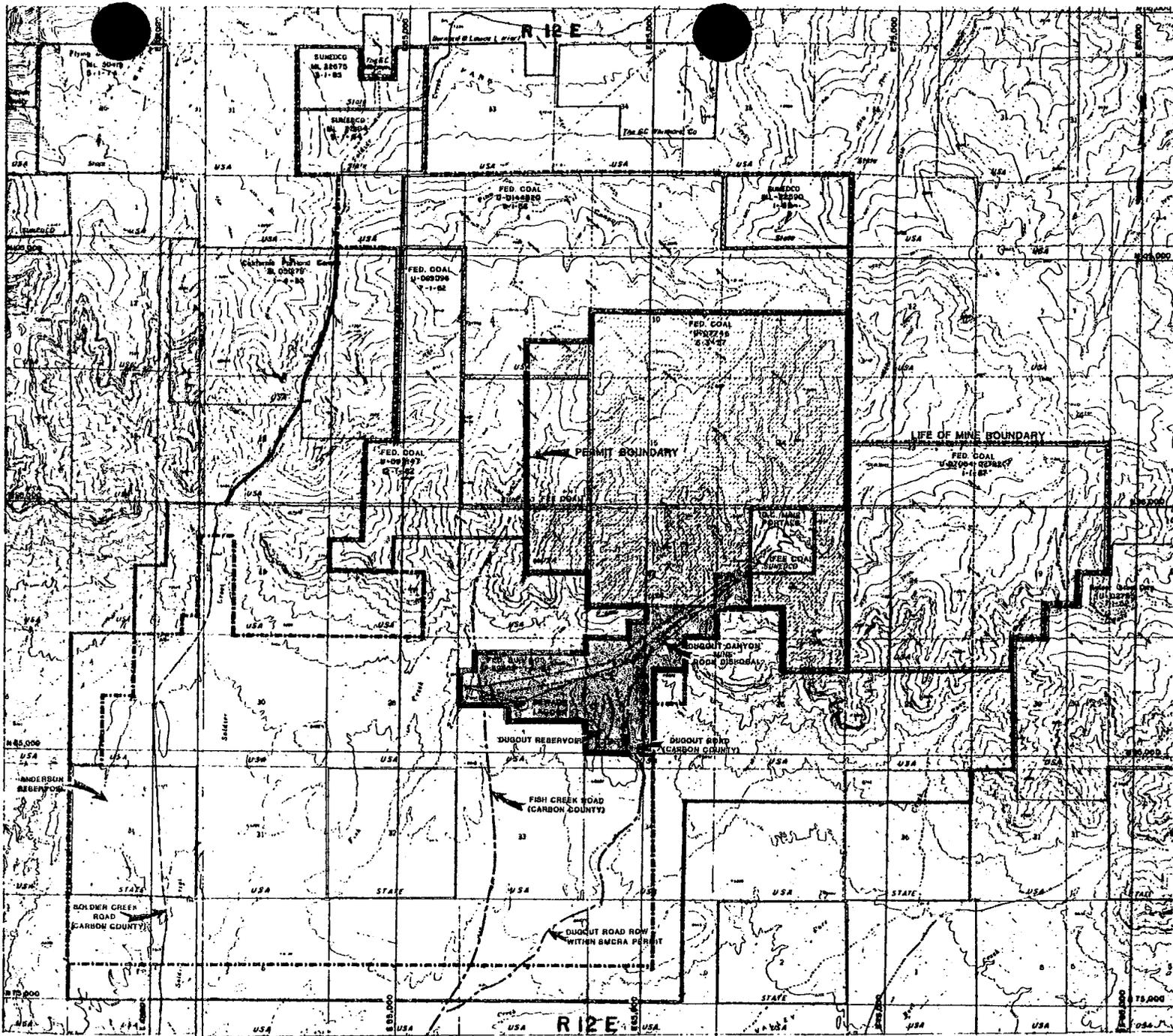
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(SEE OMC 018)



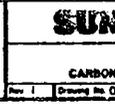
- PORTIONS OF SUNEDCO'S FEDERAL COAL LEASES
U-07064-027821
U-07746
U-0144520 AND
U-092147 WITHIN INITIAL S M C R A PERMIT
- ▣ FEDERAL SURFACE LEASE U-92808

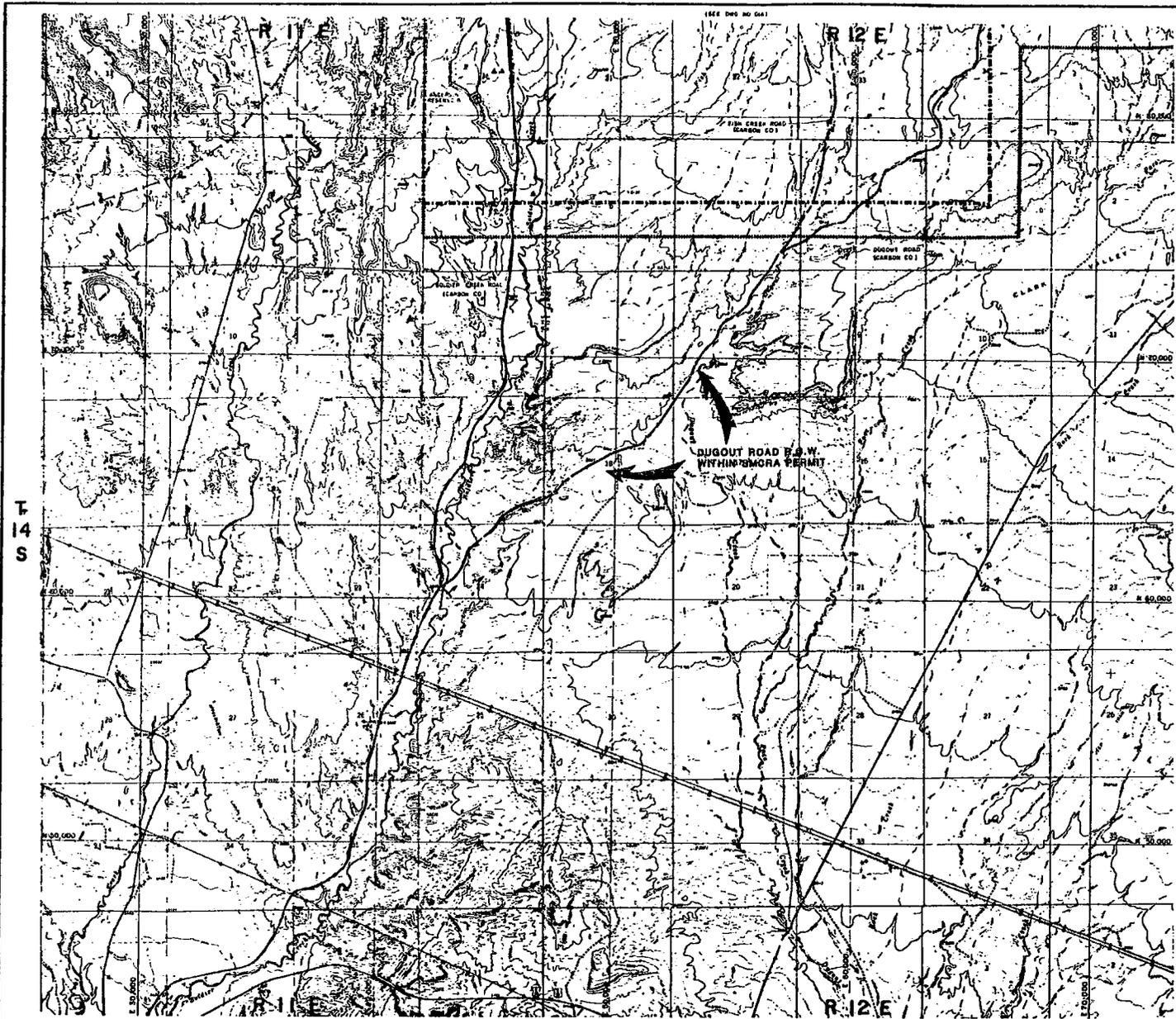
	TOPSOIL STOCKPILE		County Roads
	LIFE OF MINE BOUNDARY		Improved/New Roads
	INITIAL SMCR PERMIT AREA		Sewage Lines
	Water Lines		Existing Power Lines

REVISIONS		REVISIONS	
No.	Description	No.	Description

Scale	1" = 400'
Drawn By	F. COFFA
Checked By	PETER H. AFFAIRS
Approved By	ENGINEERING
Issue Date	2-84
Revision	2-84

PERMIT BOUNDARIES





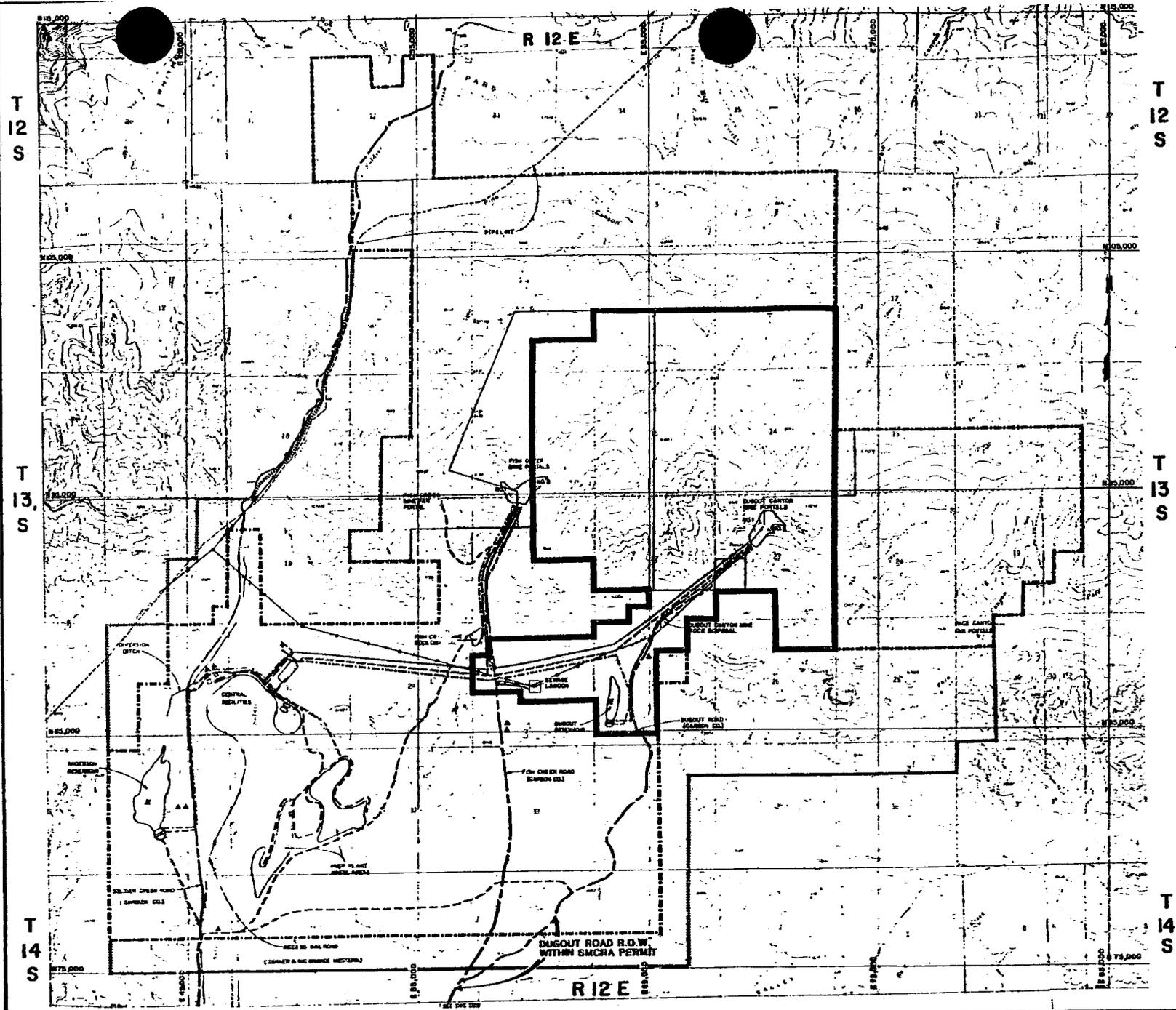
	TOPOG. STOCKPILE		County Road
	Life of Mine Boundary		Improved/Free Road
	North SmoGRA Permit Boundary		Railroad
	Aspect Area		Existing Power Line
	Range Line		
	Water Line		
	Drifted Boundary		

SUN											
DATE	DESCRIPTION	BY	CHK	APP	DATE						

Scale	0 2000 4000	Date	
Designed By		Date	
Drawn By	E. COHEN	Date	2-24
Checked By	EXTERNAL AFFAIRS CD	Date	2-24
Approved By	CAROLINE DING	Date	2-24
Approved By		Date	2-24

PERMIT BOUNDARIES

SUN Surface Coal Co.
 SAGE POINT/DUGOUT CANYON
 CARBON COUNTY, UTAH
 Drawing No. 01B



	TOPICAL SYMBOL
	Life of Mine Boundary
	SMCRA Permit Boundary
	Adjacent Area
	Storage Area
	Water Line
	Overhead Damaged
	County Road
	Segment/Non Road
	Railroad
	Easement Power Line

Author	Checked	Drawn	Scale	Date	By	Checked	Date	By

Scale	1" = 2000'
Designed By	J. F. COPEL
Checked By	EXTERNAL AFFAIRS
Approved By	ENGINEERING
Approved By	SMCRA

LIFE OF MINE PERMIT AREA

SUN
 CARBON COUNTY
 No. 1 Contingency No. 62A



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

1 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

OSM-VTC
1984 FEB 21 AM 10:23
WESTERN TECHNICAL CENTER

February 17, 1984

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

RE: Revisions to Technical Analysis
and Recommendations for Approval
Sunoco Energy Development Company
Sage Point-Dugout Canyon Mine
ACT/007/009, Folder No. 2
Carbon County, Utah

Dear Mr. Klein:

Since the Division transmitted the final Technical Analysis (TA) for the Sage Point-Dugout Canyon Mine in March of 1983, several changes have occurred in the Permit Application Package (PAP) that have required corresponding changes in the TA. A Technical Analysis Addendum was submitted in July of 1983 and Supplement I to the Technical Analysis analyzing the PAP's compliance with regulations that were found not to have been legally suspended by the State of Utah, was submitted in September.

This letter and its attachments serve to notify you of further changes in the TA, brought about by changes to the PAP submitted by Sunoco Energy Development Company (Sunedco) on December 21, 1983 and January 4, 1984.

A major change in the permit area has occurred with this latest submittal. Sunedco had originally requested a life-of-mine permit for a permit area covering a total of 18,242 acres. Due to Sunedco's inability to gain legal right-of-entry to the entire permit area at this time, the permit has been revised to a five-year permit with a total permit area of 4,475 acres. Approximately 70 surface acres will be disturbed during the five-year permit term. Maps D03-002A and B (attached) show the boundaries of the originally proposed life-of-mine permit area and the five-year permit area currently proposed.

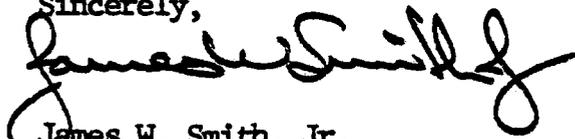
Mr. Allen D. Klein, Administrator
ACT/007/009
February 17, 1984
Page 2

The December 21, 1983 submittal also addressed several technical issues that were of concern to the regulatory authority. These issues included Alternative Water Supply, Reclamation of the Dugout Canyon Waste Rock Disposal Site, the Alluvial Valley Floor issue and Stability of Highwalls. The technical adequacy of this submittal in these four areas is addressed in Supplement II to the Technical Analysis (February 17, 1984).

The recent changes to the PAP have also necessitated changes to certain of the original Findings, to the Mine Plan Information form, to the Stipulations list and to the Bond. Updated Findings and Mine Plan Information sections have been prepared accordingly. A revised Final Stipulations List and Bond Estimate are included in Supplement II to the Technical Analysis.

It is the Division's opinion that Sunedco has answered all requirements for a five-year permit, and the Division is ready to issue a five-year permit with conditions. It is recommended that the Office of Surface Mining do the same at this time. The Division will be happy to provide any additional information or clarification to make this possible.

Sincerely,



James W. Smith, Jr.
Coordinator of Mined
Land Development

JWS/SCL:btb

Enclosures

cc: Shirley Lindsay, OSM
Charlie Durrett, Sunedco
S. Linner, DCGM

**STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining**

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

June 1, 1983



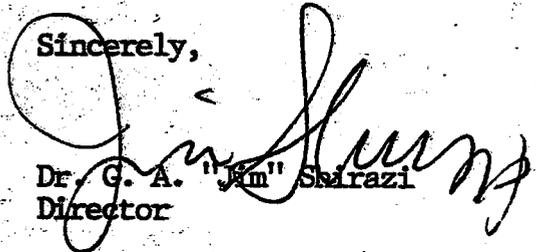
**Mr. Allen D. Klein, Administrator
Western Technical Center
Office of Surface Mining
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202**

**RE: Stipulations to Permit Approval
Sun Energy Development Company
(Sunedco)
Sage Point-Dugout Canyon Mine
ACT/007/009
Folder Nos. 2 and 4
Carbon County, Utah**

Dear Mr. Klein:

Division staff have reviewed the Socioeconomics stipulation proposed by OSM for inclusion in Sunedco's Permit Approval Decision Document. We concur with the language of the proposed stipulation, and will require no further amendments to this section of the Decision Document.

Sincerely,


Dr. G. A. "Jim" Shirazi
Director

JS/SCL:btb

cc: Sarah Branson, OSM
S. Linner, DOGM



STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Cleon B. Feight, Division Director

1 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

March 16, 1983

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

RE: Recommendations for Approval of MRP
Sunoco Energy Development Company
Sage Point-Dugout Canyon Mine
ACT/007/009
Folder No. 2
Carbon County, Utah

Dear Mr. Klein:

The Division of Oil, Gas and Mining has completed the Technical Analysis (TA) of the Sage Point-Dugout Canyon Mine, incorporating OSM's comments into the final document. We hereby recommend issuing a conditional approval to begin operations upon Sunoco Energy Development Company's written acceptance of the stipulations contained in the TA and posting of the required reclamation surety. The permit term is to be for a five-year period, with permit renewal and/or revision due at that time.

Enclosed is a copy of the final joint DOGM/OSM TA with stipulations and a brief findings document and a completed Mine Plan Information form. I trust this information will enable OSM to complete its final Environmental Assessment for the decision document to be forwarded to Washington, D. C., for Secretarial approval. We would greatly appreciate all you can do to expedite the final permitting process.

If you have any questions or need additional information, please contact myself or Susan Linner of my staff.

Sincerely,

JAMES W. SMITH, JR.
COORDINATOR OF MINED
LAND DEVELOPMENT

JWS/SCL:btb

Enclosure

cc: Charles Durrett, Sunedco
Susan Linner, DOGM



United States Department of the Interior

IN REPLY REFER TO

3482.1(c)
U-07064 et al.
(U-921)

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

MAR 15 AM 11:27
WESTERN TECHNICAL CENTER

Memorandum

To: Mr. Allen D. Klein, Administrator Western Technical Center,
Office of Surface Mining, Denver

Attention: Ms. Shirley Lindsay

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

Subject: Sunedco Coal Company, Sage Point - Dugout Canyon Project,
Carbon County, Utah, Mining and Reclamation Plan (MRP)

The subject MRP on file in this office consists of 12 volumes as amended through March 6, 1984. Our reviews have determined that the underground mining plan part of the MRP (Resource Recovery and Protection Plan (R₂P₂)) complies with the Mineral Leasing Act requirements and the rules and regulations 43 CFR 3482.1(c).

In our opinion the R₂P₂ is technically correct and should safely achieve maximum economic recovery of the coal deposit within the plan area.

The R₂P₂ reviewed is adequate for BLM administration of the associated Federal coal leases and to become an integral part of the permit application package.

J. Gordon Whitney
Acting

cc: Sunedco
DOGM

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Moab District

IN REPLY REFER TO:
3400
(U-066)

To : Center Administrator, Office of Surface Mining, Denver
Attention: Shirley Lindsay
FROM : District Manager, Moab

FEB 27 1984

SUBJECT: Sage Point-Dugout Canyon Project; Sunedco Coal Company

By your letter dated February 7, 1984, you requested a reassessment of stipulations provided by us for the original 40-year application for subject mine project in light of their revised 5-year application. By your phone conversations with our Price office, you indicated that our response to your request should be based on review of the proposed permit conditions prepared by your office for the 40-year application which we received on February 15, 1984. Therefore, reassessment of our stipulations is provided below with those checked as "Within 5 Years" being recommended as conditions to approval of the 5-year permit. Wording changes in the conditions due to changes in the coal regulations (43 CFR 3461.4-2) are also indicated.

This reassessment also included a review of the industrial occupancy lease recently issued by this office to Sunedco to ensure that those lease stipulations will not conflict with conditions on the mine permit. Construction activities on this lease would begin only after the mine permit is approved.

<u>Condition No.</u>	<u>Subject</u>	<u>Within 5 Years</u>	<u>After 5 Years</u>	<u>Change Wording</u>
8a	Roads	X		
8b	Riparian Habitat	X		
8c	Deer Habitat	X		
8d	Visual Resources	X		
8e	Traffic	X		
8f	Dugout Reservoir	X		
8g	Migratory Birds	X		1
8h	Eagle Nests		X	2
8h A-D	Fish Creek Canyon		X	
8i	Prairie Falcon	X		3
8i A-B	Prairie Falcon		X	
8i C-D	Prairie Falcon	X		
8i E	Prairie Falcon		X	
8j A-C	Cooper's Hawk	X		4
8k	Raptor Survey		X	
9	Conveyor		X	
10	Mitigation Plan	X		

Change 1 - Drop "as required by 43 CFR 3461.1(n)(1)."

Change 2 - Rewrite second sentence: "A buffer zone, shown on map 1, has been established for protection of these nest sites within which the following mitigating measures apply:"

Change 3 - Rewrite second sentence: "A buffer zone, delineated on map 2, has been established for protection of these sites within which the following mitigating measures apply:"

Change 4 - Rewrite second sentence: "A buffer zone, shown on map 3, has been established for protection of these nest sites within which the following mitigating measures apply:"

Additionally, the stipulations provided by our memorandum dated October 23, 1981, for the protection of cultural resources have not been included in your proposed permit conditions. Therefore, the following stipulations are again recommended for inclusion as permit conditions:

1. The lessee shall provide a qualified cultural resource specialist (approved by the BLM) to intensively survey areas of proposed surface disturbance for the presence of cultural resources. All known cultural sites and those located during inventory that are of significant value shall be avoided where feasible as provided for in 36 CFR, part 800, "Protection of Historical and Cultural Properties" and the Coal Programmatic Memorandum of Agreement between the President's Advisory Council on Historic Preservation, OSM, BLM, and SHPO. Impacts to all unavoidable sites shall be mitigated using data recovery techniques, such as collection and/or excavation. The lessee shall be responsible for mitigation. The cultural resource specialist and salvage techniques used shall be subject to approval by the Bureau of Land Management.

2. A predictive sample inventory of cultural resources shall be made by the lessee if subsidence is shown to have a negative impact on cultural resources.

With the above changes and additions being made to your conditions of approval anticipated, we hereby grant our final concurrence for the approval of a 5-year permit for subject project.

Gene Reine

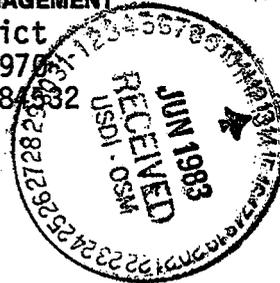


United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Moab District
P. O. Box 979
Moab, Utah 84302

IN REPLY
REFER TO: 3400
(U-066)



Memorandum

To: Center Administrator, Office of Surface Mining, Denver,
Colorado Attention: Shirley Lindsay

From: ^{ACTING}
District Manager, Moab

Subject: Mine Plan Review - Sunedco's Sage Point-Dugout Project

Stipulation number 8 for subject mine plan approval in our memorandum dated October 23, 1981, has been reviewed at the request of Sunedco. As a result, the last sentence of the stipulation, relating to water rights associated with Dugout Reservoir, is hereby withdrawn. The remainder of the stipulation remains in effect.



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-066)

MAY 19 1983

Memorandum

To: Center Administrator, Office of Surface Mining, Denver, Colorado
Attention: Shirley Lindsay

From: ^{ACTING} District Manager, Moab

Subject: Mine Plan Review - Sunedco's Sage Point-Dugout Canyon Project

The following letter is provided as a followup response to the letter dated May 10, 1983 and to consolidate final comments on Sunedco's Sage Point-Dugout Canyon Mine Plan.

Previous correspondence dated October 23, 1981 and February 26, 1982 contain stipulations and concerns pertinent to the approval of the subject mine plan. One additional stipulation is provided to protect the concern that an active golden eagle nest may still exist unidentified in the Fish Creek Canyon area.

The operator shall conduct raptor surveys (in close coordination with the U.S. Fish and Wildlife Service and the BLM) within .5 miles of proposed developments in Fish Creek Canyon in the nesting season prior to initiation of surface disturbing activity. Surveys must be acceptable to the Authorized Officer with respect to methods and qualified personnel.

If you have any further questions please contact the appropriate staff personnel at our Price Office.

Daryl A. Foster



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
3400
U-05067-
08916
et al.
(U-942)

Certified Mail

MAY 1 2 1982

DECISION

Sunoco Energy Development Co. : Coal
12700 Park Central Pl., Suite 1500 : Utah 05067-08916, Utah 07064-027821,
Dallas, Texas 75251 : Utah 07746, Utah 089096, Utah 092147,
: and Utah 0144820

Assignments Approved Bonds Accepted

On March 5, 1982, assignments of coal leases Utah 05067-08916, Utah 07064-027821, Utah 07746, Utah 089096, Utah 092147, and Utah 0144820, dated March 4, 1982, between Sunoco Energy Development Co., as assignee, and Eureka Energy Company, as assignor, were filed in this office.

Satisfactory evidence of the qualifications and holdings of Sunoco Energy Development Co. have been filed, and the lease account is in good standing. The assignments appear to meet the requirements of the regulations and are hereby approved effective June 1, 1982. Approval of these assignments do not constitute approval of any of the terms therein which may be in violation of the lease terms.

As required by the regulations in 43 CFR 3474.2(a) lease bonds Nos. 8090-85-81, 8090-85-83, 8090-85-84, and 8090-85-85 in the amounts of \$5,000 covering coal leases U-05067-08916, U-0144820, U-092147, and U-089096 respectively and bonds Nos. 8090-85-82 and 8090-85-86 in the amounts of \$10,000 covering coal leases U-07064-027821 and U-07746 respectively, with Sunoco Energy Development Co., as principal and Federal Insurance Company, as surety, were filed in this office on May 7, 1982. The bonds are satisfactory and are accepted effective May 7, 1982, the date of filing.

Chief, Minerals Section

Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Moab District

Price
IN REPLY REFER TO:

3400
(U-066)

To : Center Administrator, Office of Surface Mining Date: MAY 10 1983
Associate District Manager, Moab
FROM : Denver, Colorado Attn: Shirley Lindsay

SUBJECT: Mine Plan Review - Sunedco's Sage Point-Dugout Canyon Project

In accordance with your request, we hereby affirm that our previous correspondence dated October 23, 1981 and February 26, 1982 remain pertinent to the approval of subject mine plan. As you will note the stipulations provided by the second memorandum replaced two stipulations in the first.

Another active golden eagle nest is believed to be located in the area of the mine project and a field study is being conducted shortly. Should another active nest be identified, you will be advised as early as possible.

If you have any further questions, please feel free to contact the appropriate staff personnel at our Price Office.



/s/ Kenneth V. Rhea

SVogelpohl:ta:4/27/83
Mag Card II



United States Department of the Interior

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



Mar 16 1982

Memorandum

To: Regional Director, Office of Surface Mining, Denver, Colorado
From: District Manager, Moab
Subject: Mine Plan Review - Eureka Energy

The following stipulations were prepared through consultation with the U. S. Fish and Wildlife Service (FWS), the Utah Division of Wildlife Resources (UDWR), and Eureka Energy Company representatives to mitigate impacts to raptor nesting activities on the project area. These stipulations are provided to replace tentative stipulations numbers 1 & 2, identified in a previous memorandum dated October 23, 1981.

1. Three golden eagle nest sites were documented by the FWS and the UDWR as active by definition given in Washington Office Instruction Memorandum 80-346. A buffer zone, shown on map 1, has been established for protection of these nest sites. The area within this buffer zone is considered unsuitable for underground mining, according to Criterion 11 in the Unsuitability Criteria. Under this designation, surface occupancy or surface disturbance would not be allowed. However, an exception can be applied based on the following mitigating measures.

A. Prohibit all surface construction activity in Fish Creek Canyon within the established buffer zone during the critical nesting period, February 1 to May 15. Surface construction may be initiated on May 1 if a nesting attempt has not been documented by the authorized officer in consultation with the FWS. Surface construction may also be initiated on May 1 if a determination by the authorized officer, in consultation with the FWS, shows the nesting attempt to be nonproductive. This determination may be ascertained by observed behaviors of the nesting pair or by presence or absence of eggs.

B. Coordinate all nest visitation through the FWS and/or the authorized officer to minimize disturbances to nesting activity.

C. Reseed and control access to the exploration road constructed in 1979, which passes below the nest sites. Prohibit use of this road, vehicular or pedestrian, during the nesting period, February 1 to May 15.

D. Construct surface facilities in Fish Creek Canyon as shown on the attached drawing (figure 1). Place topsoil and revegetate the retaining wall (shaded in on figure 1) with trees, shrubs and understory species. Where possible, use fullsize native trees and shrubs which are in areas to be disturbed. This will act as a visual block for activity in the parking area and for traffic along the portal road. Specific requirements for this revegetation will be provided to the company at the time of development.

2. One active prairie falcon eyrie, one suspected prairie falcon eyrie and one golden eagle nest site (old) was documented by the FWS and the UDWR. A buffer zone delineated on map 2 identifies the area considered unsuitable according to Criteria 11 and 13 of the Unsuitability Criteria. An exception can be applied to allow limited surface activity based on the following stipulations.

A. Allow construction of conveyor belt alignment (Alternative 6) as shown in figure 2, in Dugout Canyon.

B. Shield all lighting of the conveyor belt within the buffer zones in Dugout Canyon to minimize visibility of these lights from golden eagle and prairie falcon nest sites.

C. Prohibit all surface construction activities within the buffer zone (map 2) during the critical nesting period, March 15 to June 15. Surface construction may be initiated on June 1 if a nesting attempt has not been documented by the authorized officer in consultation with the FWS. Surface construction may also be initiated on June 1 if a determination by the authorized officer, in consultation with the FWS, shows the nesting attempt to be nonproductive. This determination may be ascertained by observed behaviors of the nesting pair or by presence or absence of eggs.

D. Coordinate all nest site visitations through the FWS and/or the authorized officer to minimize disturbance to nesting activity.

E. Use the minimum required number of sound warning devices on the conveyor belt within the buffer zone.

3. Two Cooper's hawk nests have been documented as active by the BLM and the UDWR. A buffer zone established for the protection of these nest sites is outlined on map 3 and is unsuitable under Criterion 13. An exception can be applied with the following stipulations.

A. Coordinate all nest visitations with the FWS and/or the authorized officer to minimize disturbance to nesting birds.

B. Prohibit all surface construction activities within the buffer zone during the critical nesting period, April 15 to July 15. Surface construction may be initiated on July 1 if a nesting attempt has not been documented by the authorized officer in consultation with the FWS. Surface construction may also be initiated on July 1 if a determination by the authorized officer in consultation with the FWS, shows the nesting attempt to be nonproductive. This determination may be ascertained by observed behaviors of the nesting pair or by presence or absence of eggs.

C. Protect all shrubs, trees or other vegetation along the existing road shoulder (closest to the nest site) within the buffer zone.

Mitigating measures stipulated in this memorandum for protection of nesting raptors are a compromise of mitigating measures believed necessary for 100% mitigation. The compromise involved moving mine portals and facilities closest to nest sites while at the same time allowing some facilities to remain within the proposed nesting buffer zones. Monitoring of the success of this mitigation will be conducted by the authorized officer and the FWS.

If you have any questions regarding these requirements, please feel free to contact Dave Mills of my staff.



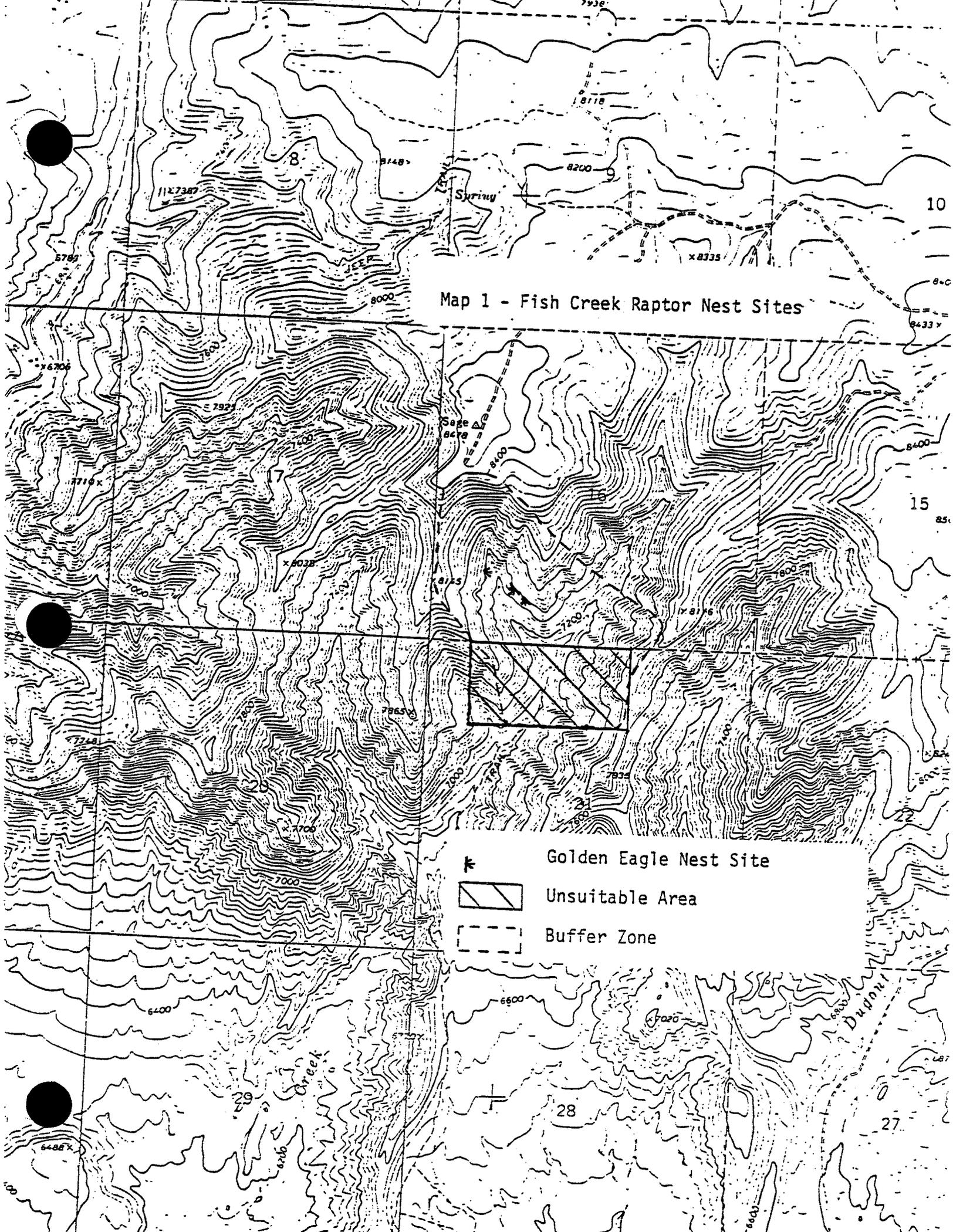
Enclosures (2)
1-Maps (3)
2-Figures (2)

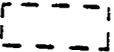
cc:
Jim Smith
Division of Oil, Gas, & Mining
4241 State Office Bldg.
Salt Lake City, Utah 84138

Clark Johnson
U. S. Fish and Wildlife Service
Area Office Colorado-Utah
1311 Federal Bldg.
125 South State Street
Salt Lake City, Utah 84138

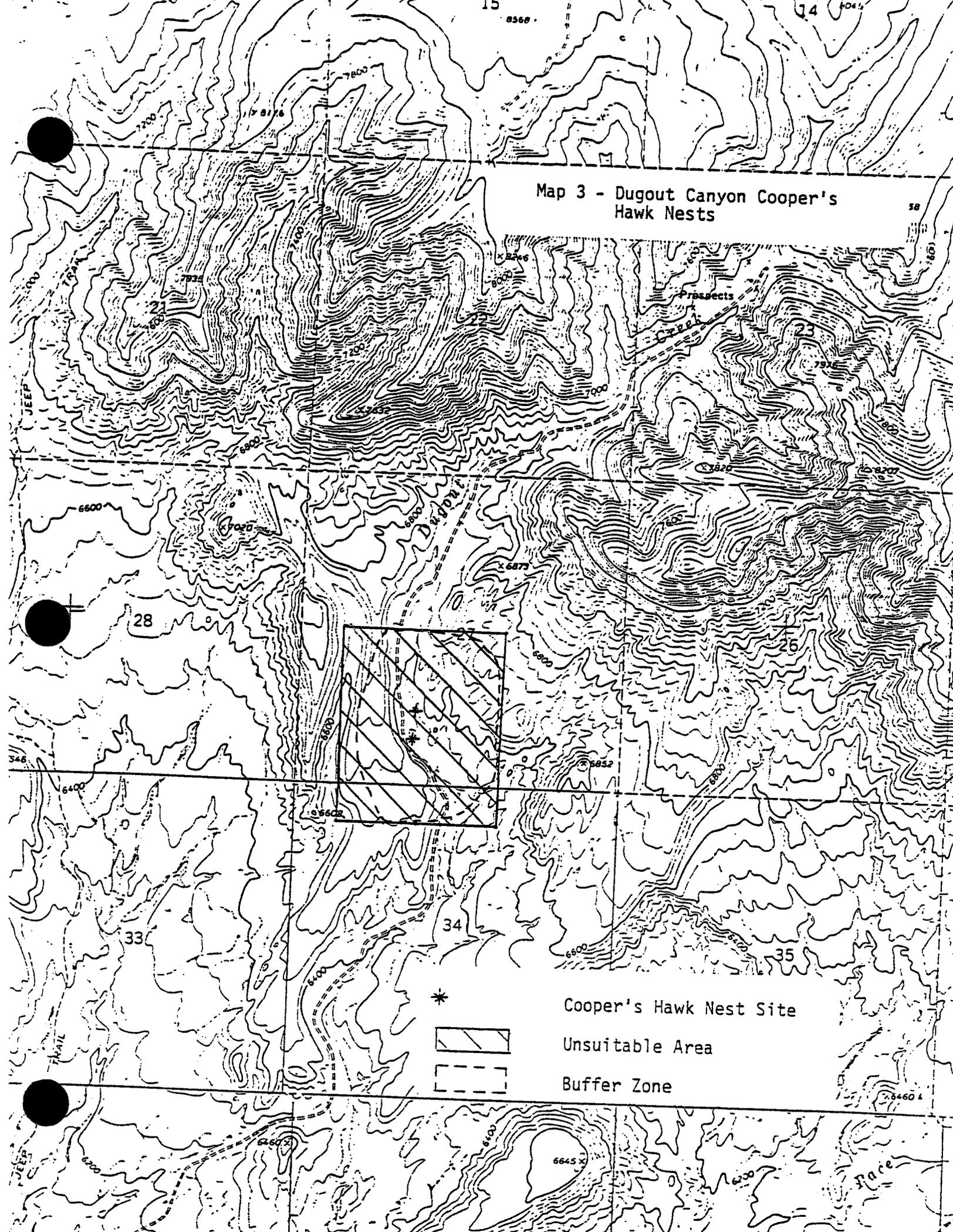
John Livesay
Utah Division of Wildlife Resources
455 West Railroad Avenue
Price, Utah 84501

Map 1 - Fish Creek Raptor Nest Sites



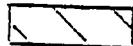
-  Golden Eagle Nest Site
-  Unsuitable Area
-  Buffer Zone

Map 3 - Dugout Canyon Cooper's Hawk Nests

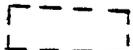


*

Cooper's Hawk Nest Site



Unsuitable Area



Buffer Zone

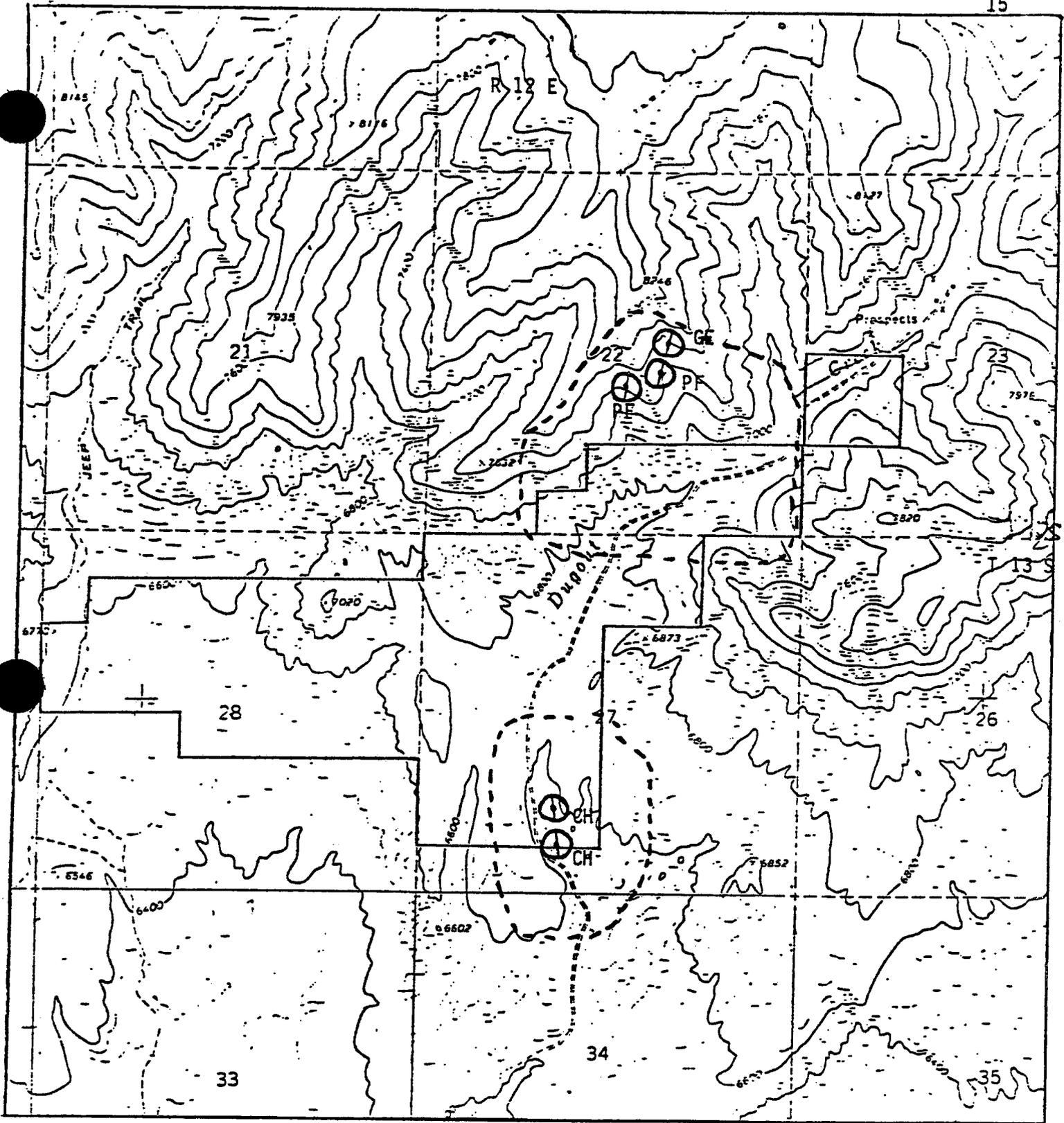


Figure 4. Raptor Nest Buffer Zones

- CH Cooper's Hawk Nest
- PF Prairie Falcon Seraps
- GE Golden Eagle Nest
- Buffer Zone



United States Department of the Interior

IN REPLY REFER TO

3400
(U-066)

BUREAU OF LAND MANAGEMENT

Moab District
P. O. Box 970
Moab, Utah 84532

OCT 23 1981

Memorandum

To: Regional Director, Office of Surface Mining, Denver, Colorado
From: District Manager, Moab
Subject: Mine Plan Review - Eureka Energy

Eureka Energy's Mining and Reclamation Plan has been reviewed. The plan has been determined to be complete in regards to the protection of Federal resources not granted to the lessee and post-mining land use. The plan is recommended for approval conditioned on the following stipulations. Additional mitigating measures may be developed upon review of exploration plans or mine plan addendums.

1. Widening of the existing roads along the riparian zone of Dug-out Creek and Fish Creek shall be done opposite the side adjacent to the riparian zones to the maximum extent practicable as determined by the operator in consultation with the Authorized Officer.
2. Loss of riparian habitat on public lands through construction of facilities will be mitigated by upgrading adjacent riparian zones or establishing new riparian zones in conjunction with the Dugout Reservoir. Habitat upgrading will be accomplished by the operator prior to or during construction through coordination with the Authorized Officer.
3. Loss of critical winter habitat for deer by destruction or disturbance will be mitigated by upgrading adjacent winter range. Habitat upgrading will be accomplished prior to initiation of surface construction by the operator through coordination with the Authorized Officer.
4. Surface disturbances and facilities planned for the lease area shall be subject to Visual Resource Management considerations. Efforts shall be made to mitigate visual impacts by imitating the form, line, color and texture of the natural landscape to the greatest extent practical as determined by the Authorized Officer. This will include painting of surface structures to blend with the surrounding terrain and minimal removal of vegetation in areas of proposed surface facilities.

5. Prior to surface disturbing activities, the lessee shall have had an archaeologist, acceptable to the Authorized Officer, conduct an archaeological survey of the area to be disturbed. The Authorized Officer retains the prerogative to require the relocation of proposed facilities to protect archaeological values located on leased lands, or the lessee may be required to have sites salvaged by a qualified archaeologist prior to proceeding with operations. If sites are uncovered by his operations, the operator shall not proceed further until additional clearance is granted by the Authorized Officer.
6. A predictive sample inventory of cultural resources shall be made by the lessee if subsidence is shown to have a negative impact on cultural resources.
7. Speed of vehicular traffic associated with the mine project should be reduced to no more than 40 miles per hour throughout the mine project area (critical deer winter range) during the period November 1 through May 15 to minimize deer fatalities. The use of the Swareflex Wildlife Reflector Warning System (Strieter Corp.) is recommended to further minimize deer fatalities.
8. Dugout Reservoir will be left intact at the end of mine life if such action is determined to be in public interest. The determination will be made by the Authorized Officer at the end of mine life. If the reservoir is left intact, the associated water rights will be transferred to the Surface Management Agency.
10. An inventory of areas of proposed surface disturbances shall be performed by the operator in consultation with the Authorized Officer to determine the presence of migratory birds. Mitigating measures will be prepared by the Authorized Officer to protect the habitat of migratory birds as required by 43 CFR 3461.1 (n)(1).

The following stipulations are tentatively presented; however, may be changed following a field examination of affected raptor nests. Scheduled for the week of October 26, 1981:

1. Construction activities will not occur in T. 13 S., R. 12 E., Section 27: E $\frac{1}{2}$ W $\frac{1}{2}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ W $\frac{1}{2}$ SE $\frac{1}{4}$; Section 34: NE $\frac{1}{2}$ NW $\frac{1}{2}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ NE $\frac{1}{2}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{2}$ NE $\frac{1}{4}$ (200 acres) during the period of April 1 through July 15 (Cooper's hawk nest).
2. Areas indentified as falcon or eagle nest areas will be closed to surface occupancy with the exception of activities related to exploration, subsidence and ventilation. Exploration activities will not be allowed during the period between February 15 and July 15.

Surface construction for ventilation shafts and related access roads will not be accomplished during the aforementioned time period. Routine maintenance of ventilation fans may be accomplished yearlong. Additional mitigating measures will be developed, as needed, upon review of exploration and mine plans. Legal descriptions listed below provide an approximate .05 mile buffer zone around nest sites.

Prairie Falcon

T. 13 S., R. 12 E., Sec. 22: $SE\frac{1}{4}$, $S\frac{1}{2}NE\frac{1}{4}$, $E\frac{1}{2}SW\frac{1}{4}$, $SE\frac{1}{4}NW\frac{1}{4}$
 Sec. 27: $NW\frac{1}{4}NE\frac{1}{4}$, $NE\frac{1}{4}NW\frac{1}{4}$

Golden Eagle

T. 13 S., R. 12 E., Sec. 27: $E\frac{1}{2}NE\frac{1}{4}$, $NE\frac{1}{4}SE\frac{1}{4}$
 Sec. 26: $N\frac{1}{2}$, $SW\frac{1}{4}$, $N\frac{1}{2}SE\frac{1}{4}$
 Sec. 23: $S\frac{1}{2}SW\frac{1}{4}$, $SW\frac{1}{4}SE\frac{1}{4}$
 Sec. 25: $W\frac{1}{2}$, $NE\frac{1}{4}$, $N\frac{1}{2}SE\frac{1}{4}$, $SW\frac{1}{4}SE\frac{1}{4}$
 Sec. 24: $S\frac{1}{2}SE\frac{1}{4}$, $S\frac{1}{2}SW\frac{1}{4}$
 Sec. 21: $S\frac{1}{2}$, $S\frac{1}{2}NE\frac{1}{4}$, $N\frac{1}{2}NW\frac{1}{4}$, $SE\frac{1}{4}NW\frac{1}{4}$
 Sec. 28: $N\frac{1}{2}NE\frac{1}{4}$, $NE\frac{1}{4}NW\frac{1}{4}$
 Sec. 20: $NE\frac{1}{4}NE\frac{1}{4}$
 Sec. 17: $SE\frac{1}{4}$, $W\frac{1}{2}NE\frac{1}{4}$, $SE\frac{1}{4}NE\frac{1}{4}$, $E\frac{1}{2}SW\frac{1}{4}$

The Federal coal leases have been found acceptable for mining under all the unsuitability criteria except #14 which will be resolved by compliance of stipulation 10 as presented above.

cc: State Director, Utah (U-931)

SURNAME	
SE:	5 1 1/4 23
Bolwahn r/j	
ES:	1 2 12/3
✓ EOS:	
ORFP:	
AE:	
AW:	

23 December 1982

MEMORANDUM

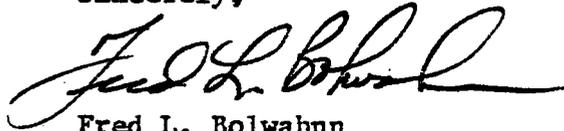
TO: Chief, Technical Support Branch
Office of Surface Mining, Denver, Colorado

FROM: Field Supervisor, Endangered Species Office
U. S. Fish and Wildlife Service

SUBJECT: Threatened and Endangered speices, Sage Point/Dugout Canyon Mine

We have reviewed your memorandum of 29 November 1982 concerning the Sage Point/ Dugout Mine in Carbon County, Utah. No species currently listed by the U. S. Fish and Wildlife Service (FWS) as threatened or endangered will be affected by the Sage Point/ Dugout Canyon Mine as described in your memorandum. We wish to bring to your attention the rare plant species Hedysarum occidentale var. canon which may be affected by your preposed action. This species is currently under review by the FWS for possible listing as an endangered species (see Federal Register Vol. 45, No. 242 pp 82480-82569 15 December 1980). This species is not at present protected by the Endangerd Species Act, however we encourage you to consider it in your enviromental planing.

Sincerely,



Fred L. Bolwahn
Field Supervisor

cc: AFA/SE: W. Wathen
EOS/UT
Official file
Reading file

JLE/jg:12-23-82

Other issues we would like to highlight are:

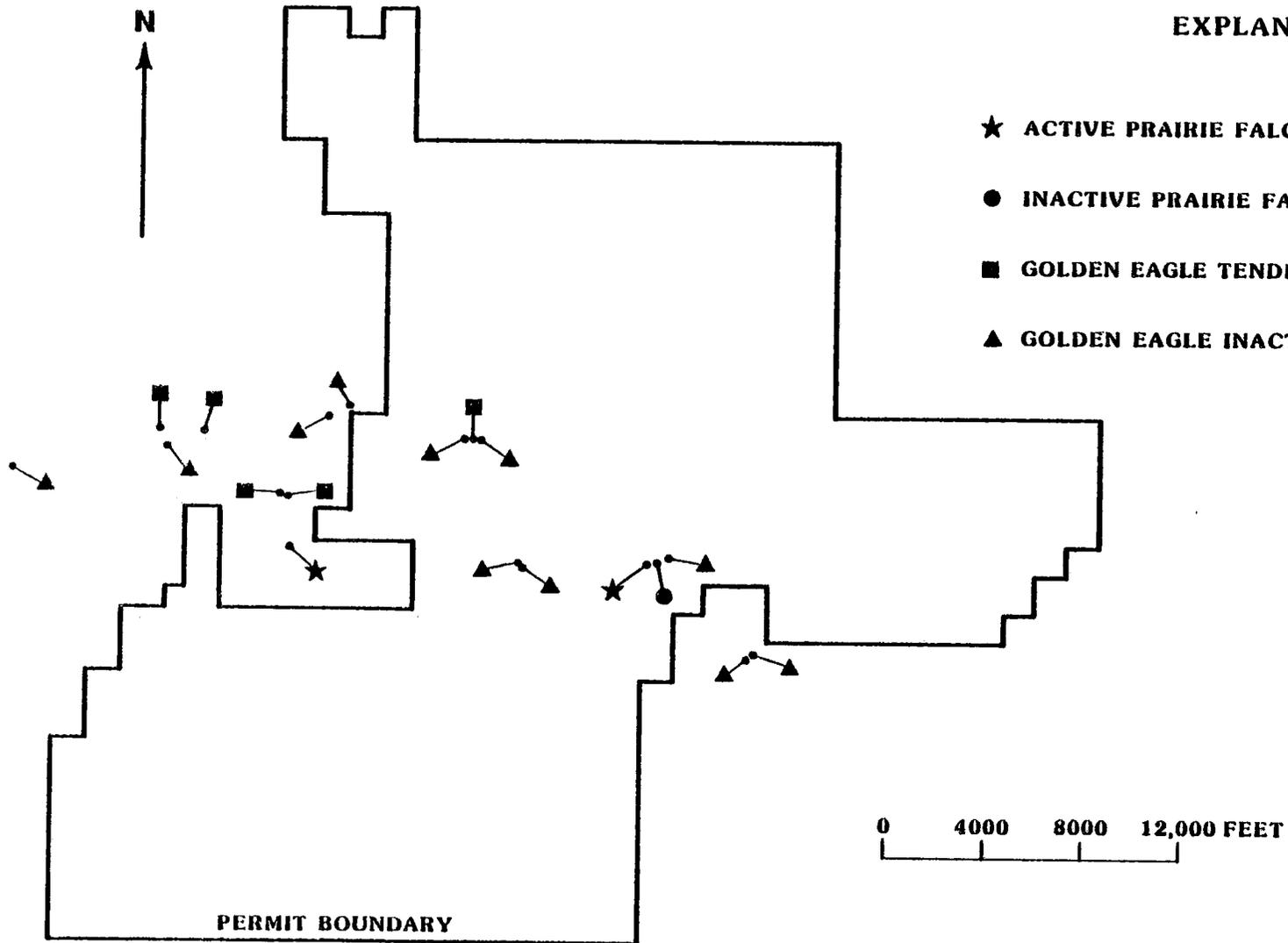
- a) Consideration by the Company to locate the conveyor system in Dugout Canyon in a manner that will minimize impacts to riparian vegetation, and the identified prairie falcon eyrie. Our preference for alignment would be for a location out of the riparian zone onto the adjacent benches. We would ask that the FWS be involved in discussion of design and alignment for the conveyor system.
- b) Stipulate seasonal avoidance of construction, surveys and maintenance operations, within raptor nest buffer zones if these nest sites are currently active.
- c) Require power pole designs that are not hazardous to raptors.
- d) Carry forward stipulations required by the BLM in their February 26, 1982 memorandum.
- e) Stipulate that reference plots (or other suitable methods) be maintained in riparian habitats of Dugout Creek downstream from the planned diversion to monitor impacts from diversion of Dugout Creek flows. Require the Company to maintain flows adequate to maintain these riparian habitats.
- f) Require the Company to replace all lost sources of wildlife water, lost due to mining activity.
- g) Require the Company to mitigate by replacement and maintenance of lost cavity nest sites at a rate of two nest boxes/cavity lost or impacted (within 50 yards of roads or developments).
- h) Provide stipulations adequate to prevent escarpment failure due to underground mining.
- i) Identify areas that are vegetated by Hedysarum occidentale var. canone and minimize disturbances if possible.
- j) Active mitigation (as opposed to passive or avoidance) should be proposed by the Company and required by your agency to offset impacts to raptors, other migratory birds, resident wildlife and riparian vegetation.

We assume these suggested stipulations can be implemented without delaying the permit process. Please don't hesitate to contact us if further clarification is required.

Attachment

cc: OGM, SLC
BLM, Price
BLM, SLC
DWR, Price





1982 FWS NEST SURVEY

You are aware that the disturbance or destruction of nests of migratory birds being used for nesting activities would constitute a violation of the Migratory Bird Acts and involved persons are subject to prosecution under the law. Therefore, we propose to work with OSM and mine permittees in the design or early planning stages to eliminate detrimental impacts of mine development to migratory birds.

One specific comment we direct your attention to relates to page II-410. We are recommending use of:

Olendorff, R.R., A.D. Miller, and R.N. Lehman. 1981. Suggested Practices for Raptor Protection on Powerlines - The State of the Art in 1981. Raptor Research Report No. 4, Raptor Research Foundation, Inc. 111p.

Please contact us if we can be of further assistance.

Ronald L. Gust

cc: DOGM, SLC
DWR, SLC
RO/HR, DEN



United States
Department of
Agriculture

Soil
Conservation
Service

4012 Federal Building
125 South State Street
Salt Lake City, UT 84138

January 17, 1980

To Whom It May Concern:

Soil survey data in the files of the Soil Conservation Service at Salt Lake City, Utah show that the parcels of land in Field 1 - East 1/2 of Section 12, T. 14 S., R. 11 E. and Field 2 - East 1/2 of Section 1, T. 14 S., R. 11 E., have soil characteristics and qualities suitable for prime land. If the parcels have an irrigation water right and have been cultivated within the past five years they are classed as prime agricultural land.

These soils have been mapped by Soil Conservation Service, soil scientist and tentatively named in the Haverson soil series.

Field 3 in the NE 1/4 of Section 36, and SE 1/4 of Section 25, T. 13 S., R. 11 E. has very strongly alkali affected layers within 40 inches and does not qualify as prime farmland.

Signed:

State Soil Scientist
Soil Conservation Service
Salt Lake City, Utah

January 17, 1980



United States
Department of
Agriculture

Soil
Conservation Service P. O. Box 11350
Salt Lake City, UT 84147

June 16, 1981

RECEIVED

JUN 22 '81

EUREKA ENERGY CO.
Salt Lake City

C. A. Slaboszewicz, Permit Analyst
Eureka Energy Company
1010 Kearns Building
136 South Main Street
Salt Lake City, Utah 84101

Dear Mr. Slaboszewicz:

I have reviewed the material submitted with your letter of June 9. There are two items I am suggesting for your consideration.

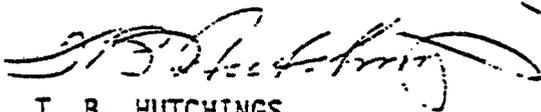
1. Page II-200; "When irrigated it is capability subclass IIe".
2. Page II-202; I could not interpret the statement 800 lbs. per acre, oven-dried weight.

I assumed this refers to native forage. I suggest you put "(range)" following the statement.

The alfalfa yields under irrigation ought to be 4,000-8,000 lbs. air dry weight. Normally, we record such yields as 2 to 4 tons.

With these additions, the proposal seems acceptable from our point of view.

Sincerely,



T. B. HUTCHINGS
State Soil Scientist



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

June 18, 1982

Melvin T. Smith, Director and
State Historic Preservation Officer
Division of State History
Utah State Historical Society
300 Rio Grande
Salt Lake City, Utah 84101

Re: Sage Point-Dugout Canyon Mine Plan

Dear Mr. Smith:

The Office of Surface Mining (OSM) has determined through review of the Sage Point-Dugout Canyon Mine Plan that of the 33 sites located, 13 sites appear to be eligible for listing in the National Register of Historic Places. However, there are only eight which will be directly or indirectly impacted by mining activities. These included three historic sites (42cbl72, 173 and 196) and five prehistoric sites (42cbl35, 185, 188, 202 and 186). Should you concur with this recommendation, OSM will forward documentation to the Keeper of the National Register and seek a 10-day consensus determination of eligibility pursuant to 36CFR 63.3.

OSM believes that with an adequately developed and implemented data recovery program, there should be "No Adverse Effect" to these sites. We, therefore, ask your review and concurrence with the approval of the mine plan based on the company's acceptance of the following stipulations:

1. If during the course of mining operations, previously unidentified cultural resources are discovered, the applicant shall ensure that the site(s) is not disturbed and shall notify the regulatory authority. The operator shall ensure that the resource(s) is properly evaluated in terms of National Register Eligibility (36 CFR 60.6). Should a resource be found eligible for listing after consultation with the regulatory authority, the land-managing agency (if the site is located on Federal lands), and the State Historical Preservation Officer, the operator shall confer with and obtain the approval of these agencies concerning the development and implementation of mitigation measures.
2. The operator shall submit to the regulatory authority and the SHPO, for review and approval, a mitigation plan for sites 42cbl72, 173, 196, 135, 185, 188, 186 & 202. When approved, the operator shall implement the mitigation procedures in strict adherence with the objectives, methods and techniques specified in the mitigation proposal. A

Letter to Melvin T. Smith
June 17, 1982
Page Two

draft report of the data recovery shall be submitted for review and approval to the regulatory authority and the SHPO no later than 4 months after completion of the data recovery. A final report shall be submitted within 4 months after receiving the comments and recommendations of the regulatory authority and the SHPO which incorporates those comments and recommendations.

Based on the company's acceptance of the above stipulations, we believe that approval of the Sage Point-Dugout Canyon Mine Plan should have "No Adverse Effect" to any site eligible for or listed in the National Register of Historic Places. Should you concur with our determination, we shall notify the Advisory Council on Historic Preservation of our joint concurrence as specified in the PMOA.

If you have any questions, please call Judy Shafer or Foster Kirby at (303) 837-5656. Thank you for your continuing cooperation.

Sincerely,



Allen D. Klein
Administrator
Western Technical Center

Enclosures



SCOTT M. MATHESON
GOVERNOR



STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

December 6, 1982

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

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

Division of Oil, Gas and Mining
Attn: Sue Lanier
1588 West North Temple
Salt Lake City, Utah 84116

RE: Sage Point-Dugout Canyon Mine Plan

Dear Ms. Lanier:

The Utah Preservation Office has received for consideration letters dated November 19, 1982, and June 18, 1982, outlining eligibility and effect questions for the Sage Point-Dugout Mine located in Carbon County, Utah.

After review of the material and consultation with the Division of Oil, Gas & Mining, the Utah Preservation Office concurs with the determination of eligibility and effect made by the Office of Surface Mining in their June 18, 1982 letter. During development of a mitigation plan to reach a determination of no adverse effect, our office would be willing to assist the applicant or the agency involved with any questions or help with development of a research design by the mining contractor.

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,

Melvin T. Smith
Director and
State Historic Preservation Officer

JLD:jr:D969/5246c

cc: Allen D. Klein, Administrator, Attn: Judy Shafer, Office of
Surface Mining, Brooks Tower, 1020 15th Street, Denver,
Colorado 80202



SCOTT M. MATHESON
GOVERNOR



STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

August 3, 1982

Division of
State History
(UTAH STATE HISTORICAL SOCIETY)

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

Jim Smith
Attn: Sally Keefer
Division of Oil, Gas, and Mining
1588 West North Temple
Salt Lake City, Utah 84116

RE: Sage Point-Dugout Canyon Mine Plan

Dear Ms. Keefer:

In reference to a mitigation plan for the Sage Point-Dugout Mine, the Office of Surface Mining has forwarded a letter dated June 18, 1982, which your office has, requesting concurrence with the determination of no adverse effect if the proper mitigation plan is presented in the context of the two stipulations outlined by the Office of Surface Mining.

Our office had believed that there was a mitigation plan submitted for the Sage Point-Dugout Canyon Mine and has not seen any review of that mitigation plan by the Office of Surface Mining. It is apparent from their letter that they are requesting either an update of the mitigation plan or a new mitigation plan to be submitted by the owners of the Sage Point-Dugout Canyon Mine. Our office is available for consultation on determination of no adverse effect.

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,

Melvin T. Smith
Director and
State Historic Preservation Officer

JLD:jr:8969/4179c

CC See SL
FILE 007/009



JUN 23 1982

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295-0699

FINDING OF NO SIGNIFICANT IMPACT

To All Interested Government Agencies and Public Groups:

As required by the EPA Regulation, "Preparation of Environmental Impact Statements for New Source NPDES Permits" (40 CFR 6.900), an environmental review has been performed on the proposed EPA action below:

Applicant: Sunoco Energy Development Company
Location: Carbon County, Utah
EPA Action: Issuance of a New Source NPDES water discharge permit
Application No: UT-0024031

Sunoco Energy Development Company has proposed to construct and operate four underground coal mines in Carbon County, Utah. The anticipated production of coal at full capacity is 5,220,000 tons per year. The mines will employ approximately 1,800 people.

Facilities proposed to be developed include:

- . four independent underground mines with portal facilities
- . office and warehouse facilities
- . conveyors
- . coal preparation plant
- . waste rock disposal areas
- . raw coal storage areas
- . diversion structures
- . sediment ponds
- . roads
- . loadout facility

JUN 20 1982
DENVER, CO
1860 LINCOLN STREET

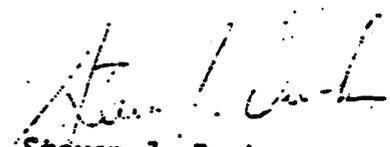
Approximately 446 acres of land will be disturbed by construction and operation of the facility. Some wildlife and vegetation habitats will be destroyed. Local topography will be permanently altered. Emissions and water discharges will meet New Source Performance Standards determined for this industrial category.

The review process indicated that no significant environmental impacts are expected from the proposed facilities. A site-specific analysis of this project (then called the Sage Point-Dugout Canyon Project) was contained in a final environmental impact statement, Development of Coal Resources in Central Utah, prepared under the leadership of the U.S. Geological Survey in 1979.

The decision has been made on the basis of a careful review of the environmental information and other supporting data which are on file in the office listed below and are available for public scrutiny upon request. This Agency will not take any administrative action on the project for at least 30 days from the above date.

Written comments on this decision may be submitted for consideration by EPA. Comments should be addressed to:

Samuel Berman
Chief, State Programs Management Branch
Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80295



Steven J. Durham
Regional Administrator

state of utah

file - 577007, 007
copy for Lec, Sally, Sue



DIVISION OF WILDLIFE RESOURCES

EQUAL OPPORTUNITY EMPLOYER

DOUGLAS F. DAY
Director

1596 West North Temple/Salt Lake City, Utah 84116/801-533-9333

August 31, 1981

Mr. Cleon B. Feight, Director
Division of Oil, Gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Attention: James Smith

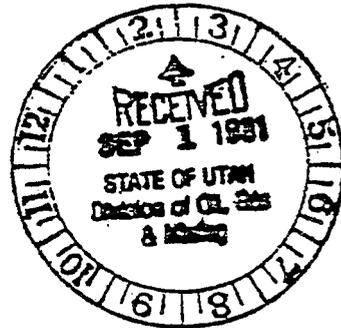
Dear Cleon:

We have reviewed the Addendum to the Mining and Reclamation Plan (MRP) for Eureka Energy Company's Sagepoint-Dugout Canyon mining project. Many of our comments on the original MRP are noted and the response is satisfactory. Some comments are not noted in the Addendum but nearly all of these are of a minor nature or, hopefully, will be answered as the ongoing "Deer-Mining Study" progresses. This study is being conducted in conjunction with this mining project, and we are hopeful that changes will be accepted in the operation if warranted by study results.

The Addendum addresses the most significant concerns we had and so we have no further comments.

Sincerely,

Douglas F. Day
Director





STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

DEE C. HANSEN
STATE ENGINEER

EARL M. STAKER
DEPUTY

200 EMPIRE BUILDING
231 EAST 400 SOUTH
SALT LAKE CITY, UTAH 84111
(801) 533-6071

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN
ROBERT L. MORGAN

January 5, 1981

Mr. James W. Smith, Jr.
Coordinator of Mined Land and Development
Utah Division of Oil, Gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Re: Eureka Energy Company, Sage Point-Dugout Canyon Project,
Carbon County, Utah

Dear Mr. Smith:

This office has completed its review of the water impounding structures associated with the above mentioned project. This letter will serve as approval for the small sedimentation structures associated with the portal areas, the central facilities, and the disposal sites (Saddle Valley, Boot Valley, Fish Creek, and Dugout Canyon). These structures are small and do not threaten life or property. The sewage lagoons do not have any drainage areas plus they do not threaten life or property. No approval will be required from this office on the lagoons. Approval for Anderson Dam and Dugout Dam cannot be given at this time. These are larger structures and the following are required:

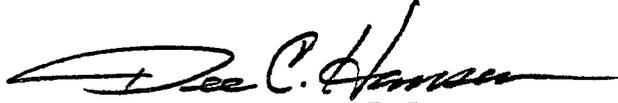
1. An approved water right for both structures.
2. Construction plans and specifications.
3. A design report which includes data on:
 - a. Hydraulics
 - b. Hydrology
 - c. Foundation Conditions
 - d. Embankment Materials
 - e. Concrete Structures
 - f. Foundation Treatment
 - g. Drainage and Seepage Control

OIL, GAS & MINING

Page 2
Mr. James W. Smith, Jr.
January 5, 1981

I would also request plans for the diversion structures. If you have any questions, please feel free to call me or Mr. Bob Morgan of my staff.

Sincerely,

A handwritten signature in cursive script that reads "Dee C. Hansen". The signature is written in black ink and is positioned above the typed name and title.

Dee C. Hansen, P.E.
State Engineer

DCH:RLM:sn

cc: Price Office



Handwritten notes and stamps in the top right corner, including a circled '1' and the date 'SEP 11 1981'.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RIGHTS

1636 West North Temple
~~200 EMPIRE BUILDING~~
~~231 EAST 400 SOUTH~~
SALT LAKE CITY, UTAH 84116
(801) 533-6071

DIVISION OF OIL, GAS & MINING

DEE C. HANSEN
STATE ENGINEER
EARL M. STAKER
DEPUTY

DIRECTING ENGINEERS
HAROLD D. DONALDSON
DONALD C. NORSETH
STANLEY GREEN
ROBERT L. MORGAN

JIM

September 4, 1981

SEP 05 1981

Mr. James W. Smith, Jr.
Utah Division of Oil, Gas, and Mining
1588 West North Temple
Salt Lake City, Utah 84116

RE: Eureka Energy Corp. ACR
Sage Point-Dugout Canyon
ACT/007/009
Carbon County, Utah

Dear Mr. Smith:

This office has completed its review of the Mining and Reclamation Plan Addendum. We find no reasons to alter our previous approval of the sedimentation ponds. As soon as the construction drawings and specifications for the large dam are submitted, we will start our review and approval process.

If you have any questions, please feel free to contact Bob Morgan of my staff.

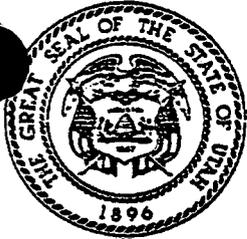
Sincerely,

Dee C. Hansen, P. E.
State Engineer

DCH/RLM/cpm

cc: Price Area Office
Eureka Energy Corp.

M. Matheson
Governor



STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

533-6146
February 5, 1981

Alvin E. Rickers, Director
Room 426 801-533-6121

MEMORANDUM

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS

Community Health Services
Environmental Health
Family Health Services
Health Care Financing
and Standards

OFFICES

Administrative Services
Health Planning and
Policy Development
Medical Examiner
State Health Laboratory

TO: Dennis R. Dalley, Associate Deputy Director *GRD*
Division of Environmental Health

THROUGH: Don A. Ostler, P.E., Chief *DAO*
Engineering & Construction Grants Section
Bureau of Water Pollution Control

FROM: Steven R. McNeal *SRM*
Public Health Engineer
Bureau of Water Pollution Control

SUBJECT: Eureka Energy Company, SMCRA Permit Application

I have reviewed the December 1980 Eureka Company Sage Point-Dugout Canyon Project Surface Mining Control and Reclamation Act Permit Application. This application discusses the conceptional location of a total containment lagoon for sanitary wastes and sediment ponds for each of the mine waste rock and central facility locations.

The locations of these wastewater facilities appear acceptable provided the soil conditions and groundwater conditions meet the requirements of the Utah Wastewater Disposal Regulations. Further information should be submitted so that a construction permit can be issued within a year of the commencement of continuous construction. For the sanitary system the information should include sewerline details, soil conditions to a depth of 4 feet below the lagoon bottom, maximum groundwater level, seepage rate, design parameters, plans, compaction specifications, etc.

Where possible, the sediment ponds should be designed to provide three feet of settling between the sediment level and a baffled outlet. Outlet baffles should not be perforated on the pond side. Soil conditions, seepage rate and compaction specifications will also need to be submitted for the sediment control ponds.

Iaf

DEPARTMENT OF HEALTH

DIVISION OF ENVIRONMENTAL HEALTH

150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110
533-6108

May 18, 1981

Alvin E. Rickers, Director
Room 426 801-533-6121



James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

Nicolas K. Temnikov
Eureka Energy Company
77 Beale Street
San Francisco, CA 94106

MAY 20 1981

DIVISION OF
OIL, GAS & MINING

Re: Air Quality Approval Order
for Construction and Operation
of Sage Point-Dugout Canyon
Coal Mine Project

DIVISIONS

Community Health Services
Environmental Health
Family Health Services
Health Care Financing
and Standards

OFFICES

Administrative Services
Health Planning and
Policy Development
Medical Examiner
State Health Laboratory

Dear Mr. Temnikov:

On April 13, 1981 the Executive Secretary published a notice of intent to approve your portal construction and surface operations for two coal mines in Fish Creek Canyon and two in Dugout Canyon in Carbon County. The 30-day public comment period expired May 12, 1981 and no comments were received.

This air quality approval order authorizes the surface operations as proposed in your notice of intent dated January 2, 1981 with the following conditions:

1. All emission control equipment shall be maintained in good operating condition and control procedures shall be performed as proposed.
2. Visible emissions from point sources shall not exceed 20% opacity as per Section 4.1.2, Utah Air Conservation Regulations (UACR). Emissions from diesel engines shall not exceed 20% opacity except for starting motion no farther than 100 yards or for stationary operation not exceeding 3 minutes in any hour as per Section 4.1.4, UACR.
3. Total annual production of coal from the four mines shall not exceed 5,200,000 tons without prior approval from the Executive Secretary per Section 3.1, UACR.
4. All conveyors shall be enclosed and water sprays shall be operated at all transfer points including transfers to other conveyors, storage piles and into a surge bin. The spray system shall utilize a wetting agent to the water for minimizing fugitive emissions as proposed.

5. The unpaved sections of roadway shall be water sprayed to minimize fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary. A record/log of treatments to include date, amount and treatment location shall be kept and made available to the Executive Secretary upon request.
6. The stack from each baghouse controlling emissions from the crusher, centrifuges and preparation plant conveyors shall be stack tested using EPA test methods 1-5 within 180 days after this approval date. The exhaust from each stack shall not exceed 0.02 gr/dscf. The Executive Secretary shall be contacted for technical input at least thirty days prior to the test(s) and State personnel shall be present for the test(s).
7. The rotary breaker in the preparation plant shall be controlled with water sprays with additives to minimize fugitive emissions.
8. The Executive Secretary shall be notified when start-up occurs as an initial compliance inspection is required.

As per Section 3.9, Utah Air Conservation Regulations, a fee for the cost associated with the processing of this approval order must be paid to the State of Utah upon receipt of this order. Enclosed is an itemized bill.

Sincerely,

Brent C. Bradford
Executive Secretary
Utah Air Conservation Committee

MRK:js

Enclosure

cc: Southeastern Dist. Health Dept.
EPA/Region VIII (N. Huey)
Div. of Oil, Gas & Mining (J. Smith)q/

Scott M. Matheson
Governor



STATE OF UTAH
DEPARTMENT OF HEALTH

DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

Alvin E. Rickers, Director
Room 426 801-533-6121

533-6108

June 9, 1981

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS

Community Health Services
Environmental Health
Family Health Services
Health Care Financing
and Standards

OFFICES

Administrative Services
Health Planning and
Policy Development
Medical Examiner
State Health Laboratory

Nicolas Temnikov
Eureka Energy Company
77 Beale Street
San Francisco, CA 94106

Re: Air Quality Approval Order for
Construction and Operation of
Sage Point-Dugout Canyon Mine
Dated May 18, 1981

Dear Mr. Temnikov:

Condition No. 6 of your air quality approval order is amended to
read as follows:

"The stack from each baghouse controlling emissions from the
crusher, centrifuges and preparation plant conveyors shall
be stack tested using EPA test methods 1-5 within 180 days
after startup. The exhaust from each stack shall not
exceed .02 grains/dscf. The Executive Secretary shall
be contacted for technical input at least thirty days
prior to the test(s) and State personnel shall be present
for the test(s)".

Enclosed you will find a copy of the additional road emissions which
you submitted on June 5, 1981. The additional 2.93 ton/yr will not
affect your permit conditions. Please be reminded, however, that
these additional roads must also be controlled with water spraying
as per condition No. 5.

Sincerely,

Brent C. Bradford
Brent C. Bradford
Executive Secretary
Utah Air Conservation Committee

DR:il

cc: Southeastern District Health Dept.
EPA/Region VIII (N. Huey)
Div. of Oil, Gas & Mining (J. Smith)

Enclosure

Scott M. Matheson
Governor



James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS

Community Health Services
Environmental Health
Family Health Services
Health Care Financing
and Standards

OFFICES

Administrative Services
Health Planning and
Policy Development
Medical Examiner
State Health Laboratory

STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

File 407/0070
Copy to Sally
Sally
Mar 2
JIM

Alvin E. Rickers, Director
Room 474 801-533-6121

FEB 03 1982

January 26, 1982

RECEIVED
FEB 02 1982

DIVISION OF
OIL, GAS & MINING

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

Re: Sage Point-Dugout Canyon Mine
Eureka Energy Company
Carbon County

Dear Mr. Smith:

In reviewing the information submitted in conjunction with the above referenced project, it appears that a public water supply system is being proposed to be developed to supply the mining facilities. Comments contained in this information indicates the company anticipates developing a surface water source to meet the culinary water demands for its employees. However, because the information submitted contained no plans or specifications, an engineering assessment is not possible.

Also, we still have not received detailed plans of the sanitary system and sediment ponds as indicated in our memo of February 5, 1981. This was attached to our letter to you of March 10, 1981.

Sincerely,

Dennis R. Dalley
Dennis R. Dalley
Assistant Director



M. MATHESON
GOVERNOR



STATE OF UTAH
DEPARTMENT OF COMMUNITY AND
ECONOMIC DEVELOPMENT

COMMUNITY DEVELOPMENT DIVISION

6233 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
(801) 533-4054

May 19, 1983

Ms. Shirley Lindsay, Project Leader
Sunedco-SP/DC Mine
U.S. Dept. of Interior
Office of Surface Mining
1020 - 15th Street
Denver, CO 80202

Dear Ms. Lindsay:

I would like to confirm our agreement with a draft stipulation to be included in the mine permit for the Sunedco Sage Point Mine. The stipulation, originally drafted by Sunedco and OSM, reads as follows:

"The applicant shall comply with all applicable federal, state and local laws, rules and regulations which impose duties with regard to socioeconomic analyses and/or mitigation plans that are required to be submitted prior to project construction.

Such analyses and plans shall be developed and implemented in consultation with affected local governments, the Utah State Department of Community and Economic Development, The Utah State Division of Oil, Gas and Mining, and OSM."

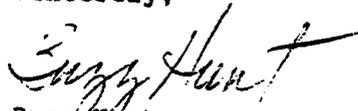
You will note that we have added the Utah Division of Oil, Gas and Mining as one of the consulting agencies with which socioeconomic analyses and mitigation plans shall be developed and implemented.

We support the stipulation, as modified above, and very much appreciate OSM's cooperation on this matter.

I would like to add that we have enjoyed an excellent working relationship with Sunedco in preparing for their proposed mine. We are following a mutually agreed upon process of analyzing impacts, reaching agreement on methods, assumptions, and analytical conclusions and negotiation of mitigation agreements. Although we are still working through this process, I believe Sunedco is proceeding in good faith and anticipate a mutually agreeable and amicable conclusion to our efforts.

Once again, we very much appreciate your cooperation and assistance.

Sincerely,


Buzz Hunt

BH: aw



CARBON COUNTY PRICE, UTAH 84501

June 20, 1983



Shirley Lindsay
Project Leader, Sunedco, Sage Point Mine
Office of Surface Mining
Brooks Towers
1020 15th St.
Denver, Colo. 80202

Dear Ms. Lindsay,

Carbon County wishes to express our approval of the Sunedco stipulation statement drafted by Sunedco and your staff. We feel that this particular project does not technically fit into the local planning process because of the way our ordinance is written. Therefore we are glad that your office has required that the Sunedco officials work closely with the local governments as far as socio-economic impacts are concerned. We would like to further stress that before construction is allowed to begin a Carbon County sign off letter be obtained stating that we feel comfortable with the mitigation plan which has developed and subsequent efforts to implement it.

The original socio-economic impact analysis which was done by Sunedco was a very good document, better than most which we have seen. However, it did have problems and we would like to see a mitigation plan based on some modified assumptions other than those presented in the original analysis. We have met with Sunedco in our planning and zoning commission and we agreed that the mitigation plan will really be the most important document because it will outline exactly what the company is willing to do to assist us in planning and providing for the Sunedco work force.

We hope we can continue the excellent dialogue we have had with your office into the future especially as it relates to impacts extremely important to our local governments.

Sincerely,

A handwritten signature in cursive script that reads "Richard E. Walker".
Richard E. Walker
County Planner

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING

This permit, UT0041 which incorporates Utah Permit ACT/007/009, is issued for the United States of America by the Office of Surface Mining (OSM) to

Sunedco Coal Company
7401 W. Mansfield Avenue
P.O. Box 35
Lakewood, Colorado 80235

for the Sage Point - Dugout Canyon mine. Sunoco Energy Development Company is the lessee of Federal Coal Leases U-07746; U-092147; U-0144820; U-07064-027821. The permit is not valid until a performance bond is filed with the OSM in the amount of \$611,875.00, payable to the United States of America and the State of Utah, and the OSM has received a copy of this permit signed and dated by the permittee.

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

Sec. 2 The permittee is authorized to conduct surface coal mining and reclamation operations on the following described Federal lands (as shown on ownership map) within the permit area at the Sage Point - Dugout Canyon situated in the State of Utah, Carbon County, and located:

T. 13. S., R. 12. E., Salt Lake Meridian; sec. 9, S1/2 SE1/4; sec. 10, S1/2; sec. 11, S1/2; sec. 14, All; sec. 15, All; sec. 16, E1/2; sec. 21, NE1/4; sec. 22, N1/2, SE1/4, N1/2 SW1/4, SE1/4 SE1/4 SW1/4, E1/2 NE1/4 SE1/4 SW1/4, E1/2 SW1/4 SE1/4 SW1/4; sec. 23, N1/2, SE1/4, N1/2 SW1/4; sec. 26, N1/2 NE1/4; sec. 27, NW1/4, NW1/4 NE1/4, N1/2 SW1/4, N1/2 S1/2 SW1/4; sec. 28, S1/2 N1/2 NE1/4, S1/2 NE1/4, S1/2 NE1/4 NW1/4, SE1/4 NW1/4 NW1/4, S1/2 NW1/4, NE1/4 NE1/4 SW1/4, N1/2 N1/2 SE1/4.

Road (County): T. 14. S., R. 11. E., Salt Lake Meridian; sec. 24, commence at Soldier Ck Rd SE1/4, SW1/4 NW1/4 thence thru sec. 3 and thru T. 14. S, R. 12. E., Salt Lake Meridian sections: 18, 17, 8, 5, 4, 3, and thence thru T. 13. S., R. 12. E., Salt Lake Meridian; sec. 34; and ending in sec. 27, SW1/4 SE1/4 SW1/4; for a distance of 7 miles with 100-foot width;

and to conduct surface and reclamation operations connected with mining on the foregoing described property subject to the conditions of the leases, the approved mining plan, and Utah State permit ACT/007/009, to be issued February 1984, including all conditions, and all other applicable conditions, laws and regulations.

- Sec. 3 This permit is issued for a term of 5 years commencing on the date the permit is signed by the permittee, except that this permit will terminate if the permittee has not begun the surface coal mining and reclamation operations covered herein within 3 years of the date of issuance.
- Sec. 4 The permit rights may not be transferred, assigned, or sold without the approval of the Director, OSM. Request for transfer, assignment, or sale of permit rights must be done in accordance with 30 CFR 740.13(e).
- Sec. 5 The permittee shall allow the authorized representatives of the Secretary, including, but not limited to, inspectors, fee compliance officers, and the Utah Division of Oil, Gas and Mining without advance notice or a search warrant, upon presentation of appropriate credentials, and without delay to:
- a. Have the rights of entry provided for in 30 CFR 840.12 and 842.13; and
 - b. Be accompanied by private persons for the purpose of conducting an inspection in accordance with 30 CFR 842, when the inspection is in response to an alleged violation reported by the private person.
- Sec. 6 The permittee shall conduct surface coal mining and reclamation operations only on those lands specifically designated as within the permit area on the maps submitted in the mining plan and permit application and approved for the term of the permit and which are subject to the performance bond.

- Sec. 7 The permittee shall minimize any adverse impact to the environment or public health and safety resulting from noncompliance with any term or condition of this permit, including, but not limited to:
- a. Accelerated monitoring to determine the nature and extent of noncompliance and the results of the noncompliance;
 - b. Immediate implementation of measures necessary to comply; and
 - c. Warning, as soon as possible after learning of such noncompliance, any person whose health and safety is in imminent danger due to the noncompliance.
- Sec. 8 The permittee shall dispose of solids, sludge, filter backwash, or pollutants removed in the course of treatment or control of waters or emissions to the air in the manner required by the approved Utah State Program and the Federal Lands Program which prevents violation of any applicable State or Federal law.
- Sec. 9 The lessee shall conduct its operations:
- a. In accordance with the terms of the permit to prevent significant, imminent environmental harm to the health and safety of the public; and
 - b. Utilizing methods specified as conditions of the permit by Utah Division of Oil, Gas and Mining and OSM in approving alternative methods of compliance with the performance standards of the Act, the approved Utah State Program, and the Federal Lands Program.
- Sec. 10 The permittee shall provide the names, addresses, and telephone numbers of persons responsible for operations under the permit to whom notices and orders are to be delivered.
- Sec. 11 The permittee shall comply with the provisions of the Water Pollution Control Act (33 U.S.C. 1151 et seq.) and the Clean Air Act (42 U.S.C. 7401 et seq.). Such compliance includes, but is not limited to obtaining an NPDES permit prior to any point source discharge.
- Sec. 12 Upon expiration, this permit may be renewed for areas within the boundaries of the existing permit in accordance with the Act, the approved Utah State Program and the Federal Lands Program.
- Sec. 13 If during the course of mining operations previously unidentified cultural resources are discovered, the applicant shall ensure that the site(s) is not disturbed and shall notify OSM. The operator shall ensure that the resource(s) is properly evaluated in terms of National Register Eligibility Criteria (36 CFR 60.6). Should a resource be found eligible for listing in consultation with the OSM, the land managing agency (if the site is located on Federal lands), and the State Historic Preservation Officer (SHPO), the operator shall confer with and obtain the approval of these agencies concerning the development and implementation of mitigation measures.

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

Sec. 15 SPECIAL CONDITIONS - In addition to the general obligations and of performance set out in the leases, Utah State permit ACT/007/009 and this permit, the permittee shall comply with the special conditions of Utah State permit ACT/007/009 and the conditions appended hereto.

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. These conditions may be revised or amended, in writing, by the mutual consent of the grantor and the permittee at any time to adjust to changed conditions or to correct an oversight. The grantor may amend these conditions at any time without the consent of the permittee in order to make them consistent with any new Federal or State statutes and any new regulations.

THE UNITED STATES OF AMERICA

By: _____

Date

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

Authorized Representative of
the Permittee

Date

Conditions

Sunoco Energy Development Company
Sage Point-Dugout Canyon Mine
Carbon County, Utah

Condition No. 1 (817.42-(1)-DD/OSM1)

The applicant shall provide data showing anticipated sediment influent concentrations characteristic of the undisturbed drainages so as to determine the quality of effluents from both waste disposal sites and undisturbed drainages. Final designs for sedimentation ponds must show evidence of compliance with UMC 817.42 through design criteria that will meet State and Federal water quality and effluent limitations. The final pond designs shall be submitted to the regulatory authority at least 120 days prior to planned sedimentation pond construction. Construction shall not begin until the plans have been approved by the regulatory authority.

Condition No.2 (817.43-.45-(1-2)-DD)

1. The applicant must submit, at least 120 days prior to planned portal construction, longitudinal cross sections and design calculations for culverts emplaced under the portal areas used to divert undisturbed runoff. Construction shall not begin until this information has been found to be satisfactory by the regulatory authority.
2. All culverts and diversions shall discharge onto a protected surface (i.e., riprap, conveyor belting, flexible downspouts, etc.) to prevent scouring and erosion.

Condition No. 3 (817.45-.47-(1)-DD/DWH/OSM2)

At least 120 days prior to planned sedimentation pond construction, the applicant must demonstrate to the regulatory authority that the final designs for the sedimentation ponds at the portal areas will meet all applicable State and Federal water quality effluent limitations. Construction shall not begin until this demonstration has been found to be satisfactory by the regulatory authority.

Condition 817.49-(1)-DD/DWH is the same as 817.45-.47-(1)-DD/DWH above.

Condition No. 4 (817.49-(2)-DD/DWH/OSM3)

Within 120 days of permit issuance the applicant shall submit information, to supplement the conceptual plan presented in the application, which demonstrates compliance with UMC 817.49(Hydrologic Balance: Permanent and Temporary Impoundments) insofar as the requirements of this section relate to the Dugout Reservoir, a permanent impoundment. The required information shall be submitted to the regulatory authority for approval. The construction of Dugout Reservoir is not authorized until the applicant has complied with the requirements of this condition.

Condition No. 5 (817.50-(1)-DD/OSM4)

At least 120 days prior to construction of the portals, the applicant shall submit for regulatory authority approval, a plan for handling and treating all mine water discharges. This plan will be in accordance with UMC 817.50. Construction shall not begin until this plan has been approved by the regulatory authority.

Condition No. 6 (817.56-(1)-DD/OSM5)

Prior to cessation of operations the applicant shall submit specific details of transfer of title to the Dugout Reservoir. This transfer agreement must incorporate any responsibilities the new owner will need to assume as part of reservoir maintenance.

Condition No. 7 (817.57-(1)-DD)

Prior to any construction in the area the applicant shall establish markers establishing a 100-foot buffer zone along the perennial and intermittent streams adjacent to approved activities.

Condition No. 8 (817.61-.68/OSM7)

At least 120 days prior to the construction of any surface facilities, the applicant shall submit to the regulatory authority documentation of compliance with the (blasting) requirements of UMC 817.61-.68. Construction shall not begin until the documentation has been found to be satisfactory by the regulatory authority.

Condition No. 9 (817.95-(1)-PGL)

The applicant shall submit a letter at least 120 days prior to initial construction stating that the conditions outlined in the Bureau of Air Quality conditional approval will be met. (Conditional-approval letter from Brent C. Bradford to Nicholas K. Temnikov dated May 18, 1981, attached to TA.)

Condition No. 10 (817.97-(1)-SL/OSM9)

At least 120 days prior to any conveyor construction, final detailed designs showing exact location of the conveyor corridor, height of the belt from the ground along the entire length of the conveyor and the location and design of any proposed big game crossings must be submitted to the regulatory authority for approval. The design must be correlated with data collected during the UDWR study (Utah Division of Wildlife Resources, 1982) on big game movements through, and general use of the chosen conveyor corridors. In no case shall minimum height of the conveyor above-ground surface be less than that approved in the Bureau of Land Management's Special Use permit for this conveyor. The applicant has committed, as part of a wildlife mitigation plan, to carry out a big game movement monitoring program post-construction. Design of this monitoring program must be submitted to the regulatory authority for review and approval at least 120 days prior to conveyor construction. Based on the results of this study, the applicant may also be required to carry out certain big game mitigation practices, including but not limited to the construction of one or more big game crossings.

Condition No. 11 (UMC 817.97-(2)-SL)

A final wildlife mitigation plan must be submitted to the regulatory authority at least 120 days prior to any construction (other than initial road upgrading) detailing all measures Sunedco will take to lessen impacts of mining on wildlife in the permit area.

Condition No. 12 (UMC 817.97-(3)-OSM8)

The following are the conditions submitted by the Bureau of Land Management, incorporating certain U.S. Fish and Wildlife Service (USFWS) concerns. The BLM/USFWS conditions are as follows:

- a. Widening of the existing roads along the riparian zone of Dugout Creek and Fish Creek shall be done opposite the side adjacent to the riparian zones to the maximum extent practicable as determined by the operator in consultation with BLM's authorized officer.
- b. Loss of riparian habitat on public lands through construction of facilities will be mitigated by upgrading adjacent riparian zones or establishing new riparian zones in conjunction with the Dugout Reservoir. Habitat upgrading will be accomplished by the operator prior to or during construction through coordination with BLM's authorized officer.

- c. Loss of critical winter habitat for deer by destruction or disturbance will be mitigated by upgrading adjacent winter range. Habitat upgrading will be accomplished prior to initiation of surface construction by the operator through coordination with BLM's authorized officer.
- d. Surface disturbances and facilities planned for the lease area shall be subject to Visual Resource Management considerations. Efforts shall be made to mitigate visual impacts by imitating the form, line, color and texture of the natural landscape to the greatest extent practical as determined by BLM's authorized officer. This will include painting of surface structures to blend with the surrounding terrain and minimal removal of vegetation in areas of proposed surface facilities.
- e. Speed of vehicular traffic associated with the mine project should be reduced to no more than 40 miles per hour throughout the mine project area (critical deer winter range) during the period November 1 through May 15 to minimize deer fatalities. The use of the Swareflex Wildlife Reflector Warning System (Streiter Corp.) is recommended to further minimize deer fatalities.
- f. Dugout Reservoir will be left intact at the end of mine life if such action is determined to be in public interest. The determination will be made by BLM's authorized officer at the end of mine life.
- g. An inventory of areas of proposed surface disturbances shall be performed by the operator in consultation with the BLM's authorized officer to determine the presence of migratory birds. Mitigating measures will be prepared by the authorized officer to protect the habitat of migratory birds.
- i. One active prairie falcon eyrie, one suspected prairie falcon eyrie and one golden eagle nest site (old) was documented by the USFWS and the UDWR. A buffer zone delineated on map 2 (attached) has been established for protection of these sites within which the following mitigating measures apply:

C. Prohibit all surface construction activities within the buffer zone (map 2) during the critical nesting period, March 15 to June 15. Surface construction may be initiated on June 1 if a nesting attempt has not been documented by the BLM's authorized officer in consultation with the USFWS. Surface construction may also be initiated on June 1 if a determination by the authorized officer, in consultation with the USFWS, shows the nesting attempt to be nonproductive. This determination may be ascertained by observed behaviors of the nesting pair or by presence or absence of eggs.

D. Coordinate all nest site visitations through the USFWS and/or the BLM's authorized officer to minimize disturbance to nesting activity.

j. Two Cooper's hawk nests have been documented as active by the BLM and the UDWR. A buffer zone shown on map 3 has been established for protection of these nest sites within which the following mitigating measures apply:

A. Coordinate all nest visitations with the USFWS and/or the BLM's authorized officer to minimize disturbance to nesting birds.

B. Prohibit all surface construction activities within the buffer zone during the critical nesting period, April 15 to July 15. Surface construction may be initiated on July 1 if a nesting attempt has not been documented by the BLM's authorized officer in consultation with the USFWS. Surface construction may also be initiated on July 1 if a determination by the BLM's authorized officer in consultation with the USFWS, shows the nesting attempt to be nonproductive. This determination may be ascertained by observed behaviors of the nesting pair or by presence or absence of eggs.

C. Protect all shrubs, trees, or other vegetation along the existing road shoulder (closest to the nest site) within the buffer zone.

Condition No. 13 (817.97-(4)-OSM10)

At least 120 days prior to construction of the portals, a final mitigation plan must be submitted to the regulatory authority which addresses items e, f, g and i listed on page 2 of the May 12, 1983 U.S. Fish and Wildlife Service memorandum, "Review of Concerns - MRP, Sunedco, Sage Point-Dugout Canyon". For reference, these items are listed below:

e) Stipulate that reference plots (or other suitable methods) be maintained in riparian habitats of Dugout Creek downstream from the planned diversion to monitor impacts from diversion of Dugout Creek flows. Require the Company to maintain flows adequate to maintain these riparian habitats.

f) Require the company to replace all lost sources of wildlife water, lost due to mining activity.

g) Require the company to mitigate by replacement and maintenance of lost cavity nest sites at a rate of two nest boxes/cavity lost or impacted (within 50 yards of roads or developments).

i) Identify areas that are vegetated by Hedysarum occidentale var. canone and minimize disturbances if possible.

Condition No. 14 (817.99-(1)-SL)

The applicant shall notify the regulatory authority of any slide or surface failures which may occur during operations.

Condition No. 15 (817.107-(1)-PGL)

A written commitment is needed from the operator that when rills or gullies deeper than nine inches form in areas that have been regraded or topsoiled, the rills and gullies shall be filled, graded or otherwise stabilized according to Section UMC 117.111-.117; or when rills and gullies form of a lesser size they will be stabilized and the area reseeded or replanted if the rills or gullies are disruptive to the approved postmining land-use or may result in additional erosion and sedimentation.

Condition No. 16 (817.121-(1)-TNT/OSM12)

Updated subsidence prevention plans must be provided to the regulatory authority for approval if deviation from forecasts in the MRP are developed. Should any surficial damage or fractures become apparent which may constitute a hazard, subsidence prevention plans must be updated immediately.

Condition No. 17 (817.122-.126-(1)-TNT)

Each owner of property or resident within the area above the underground workings and adjacent area that would be affected by subsidence if it occurred must be notified by mail at least six months prior to mining. The notification shall contain as a minimum:

- a. Identification of specific areas in which mining will take place;
- b. Dates of underground operations that could cause subsidence and affect specific structures; and
- c. Measures to be taken to prevent or control adverse surface effects.

Condition No. 18 (817.150-(1)-SL)

At least 120 days prior to initiation of construction, the applicant must submit to the regulatory authority for approval final detailed designs for all proposed class II roads. Designs must include detailed drawings of road alignment, grades and sizing and location of culverting. Construction shall not begin until final designs are found to be acceptable by the regulatory authority.

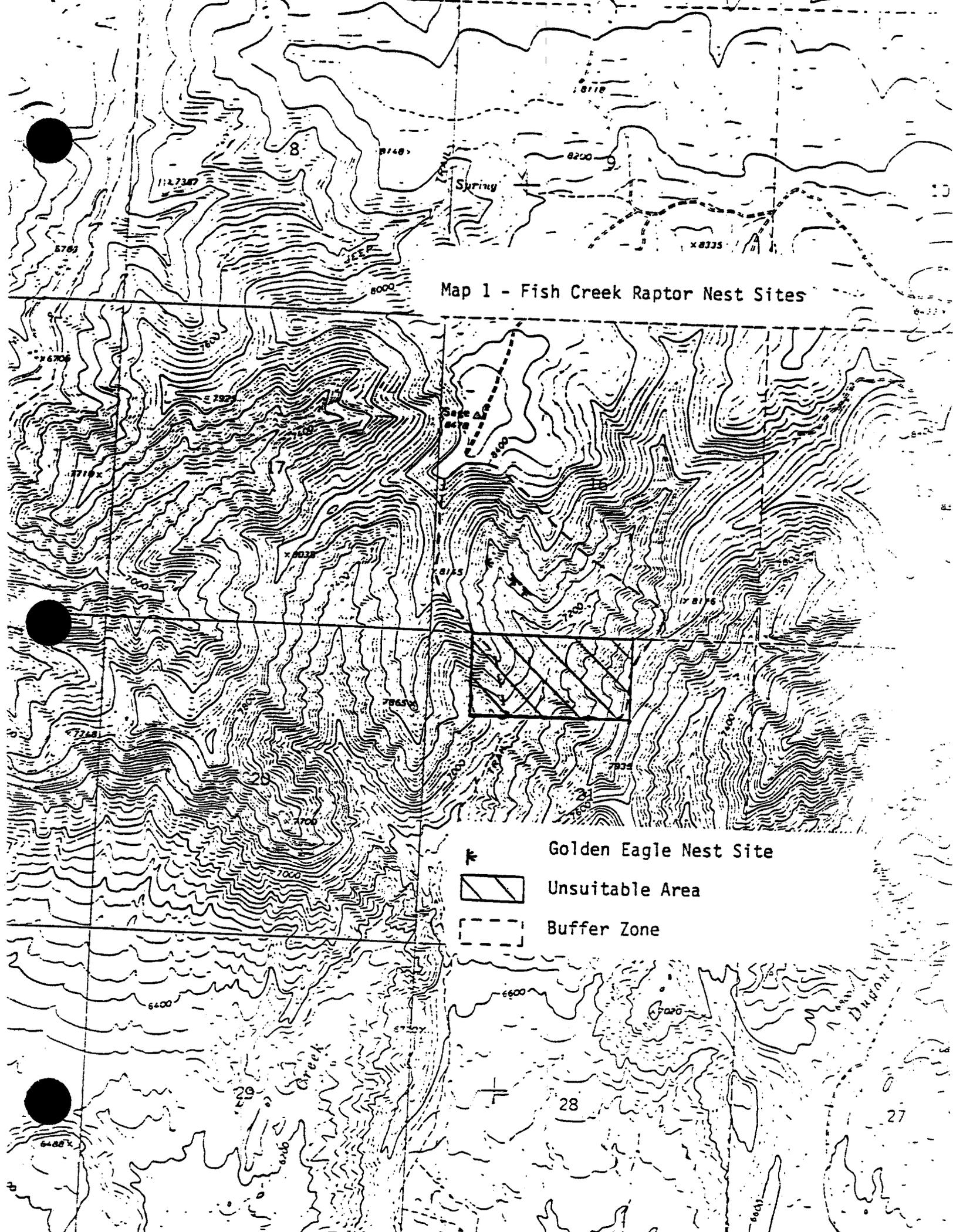
Condition No. 19 (OSM14)

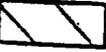
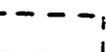
The applicant shall comply with all applicable Federal, State and local laws, rules and regulations which impose duties with regard to socioeconomic analyses and/or mitigation plans that are required to be submitted prior to project construction. Such analyses and plans shall be developed and implemented in consultation with affected local governments, the Utah State Department of Community and Economic Development, the Utah State Division of Oil, Gas and Mining, and OSM.

Condition No. 20 (OSM17)

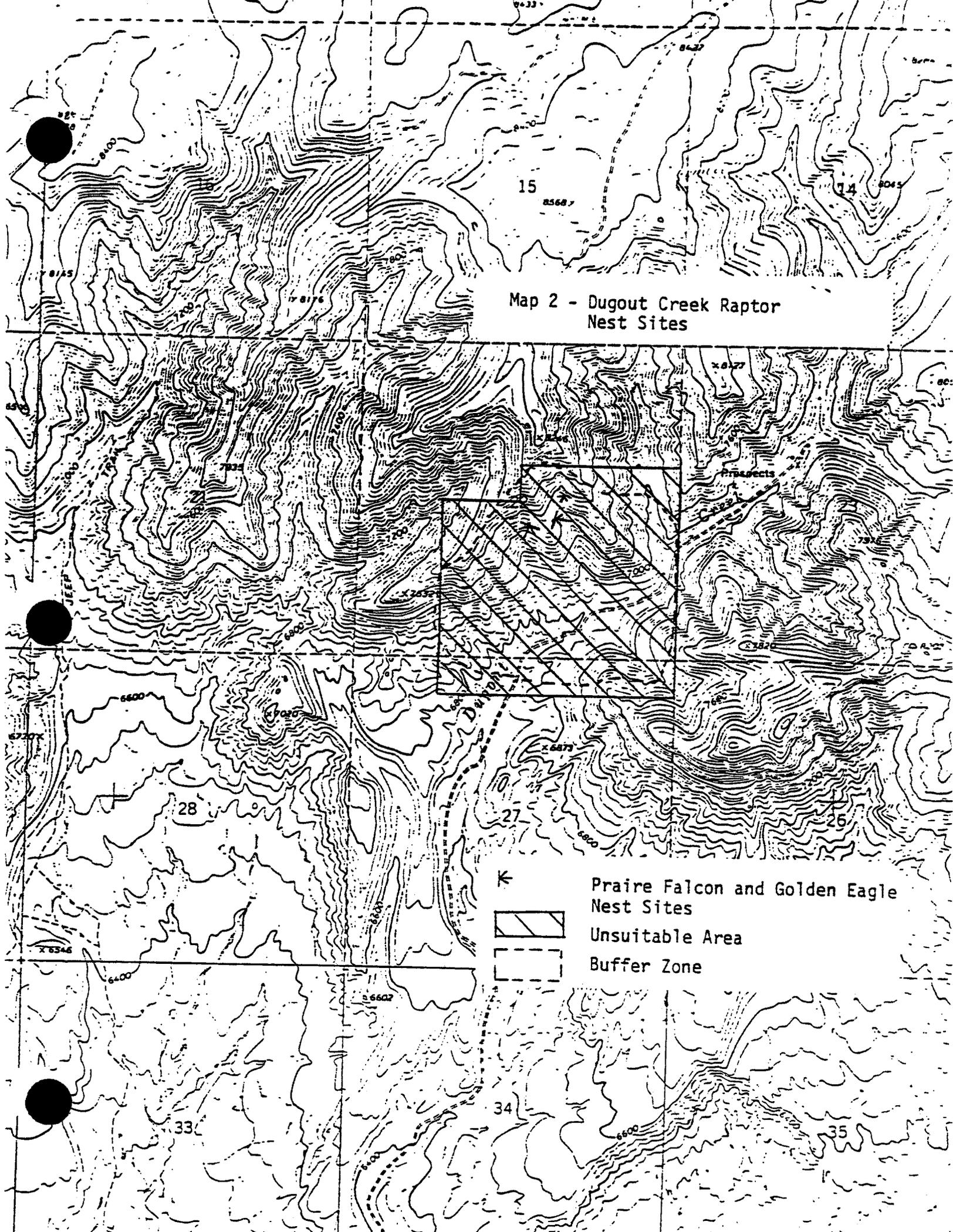
The operator shall submit to the regulatory authority and the SHPO for review and approval, a site-specific mitigation plan for sites 42 Cb172, 173, 196, 135, 185, 188, 186 and 202. When approved, the operator shall implement the mitigation specified in the mitigation proposal. A draft report of the data recovery shall be submitted for review and approval to the regulatory authority and the SHPO no later than 4 months after completion of the data recovery. A final report shall be submitted within 4 months after receiving the comments and recommendations of the regulatory authority and the SHPO which incorporates these comments and recommendations. No surface disturbance activities related to mining will take place within 100 feet of these sites until mitigation and the resulting report has been approved.

Map 1 - Fish Creek Raptor Nest Sites



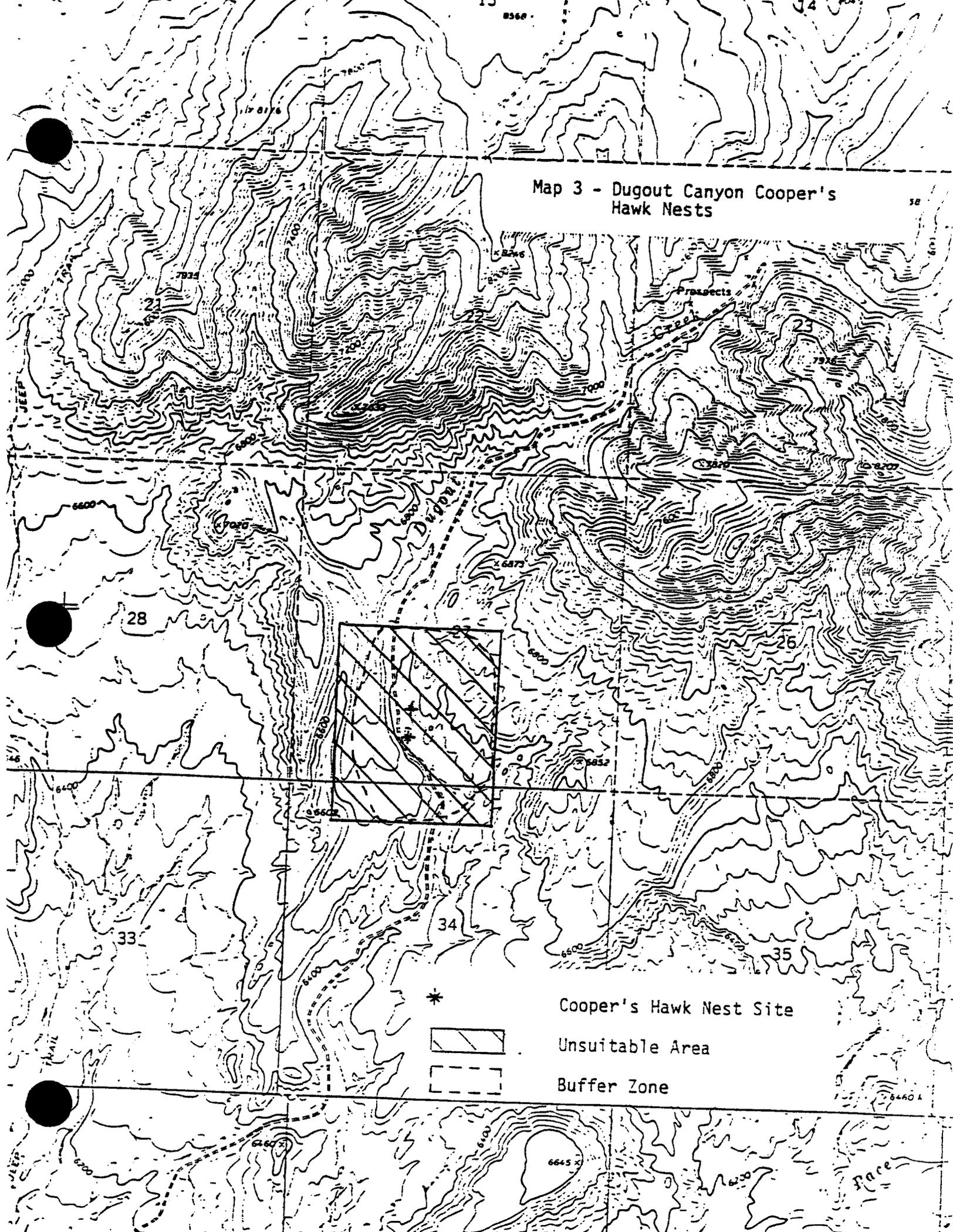
-  Golden Eagle Nest Site
-  Unsuitable Area
-  Buffer Zone

Map 2 - Dugout Creek Raptor
Nest Sites



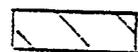
- ↖ Prairie Falcon and Golden Eagle Nest Sites
- ▨ Unsuitable Area
- - - Buffer Zone

Map 3 - Dugout Canyon Cooper's Hawk Nests



*

Cooper's Hawk Nest Site



Unsuitable Area



Buffer Zone

Face

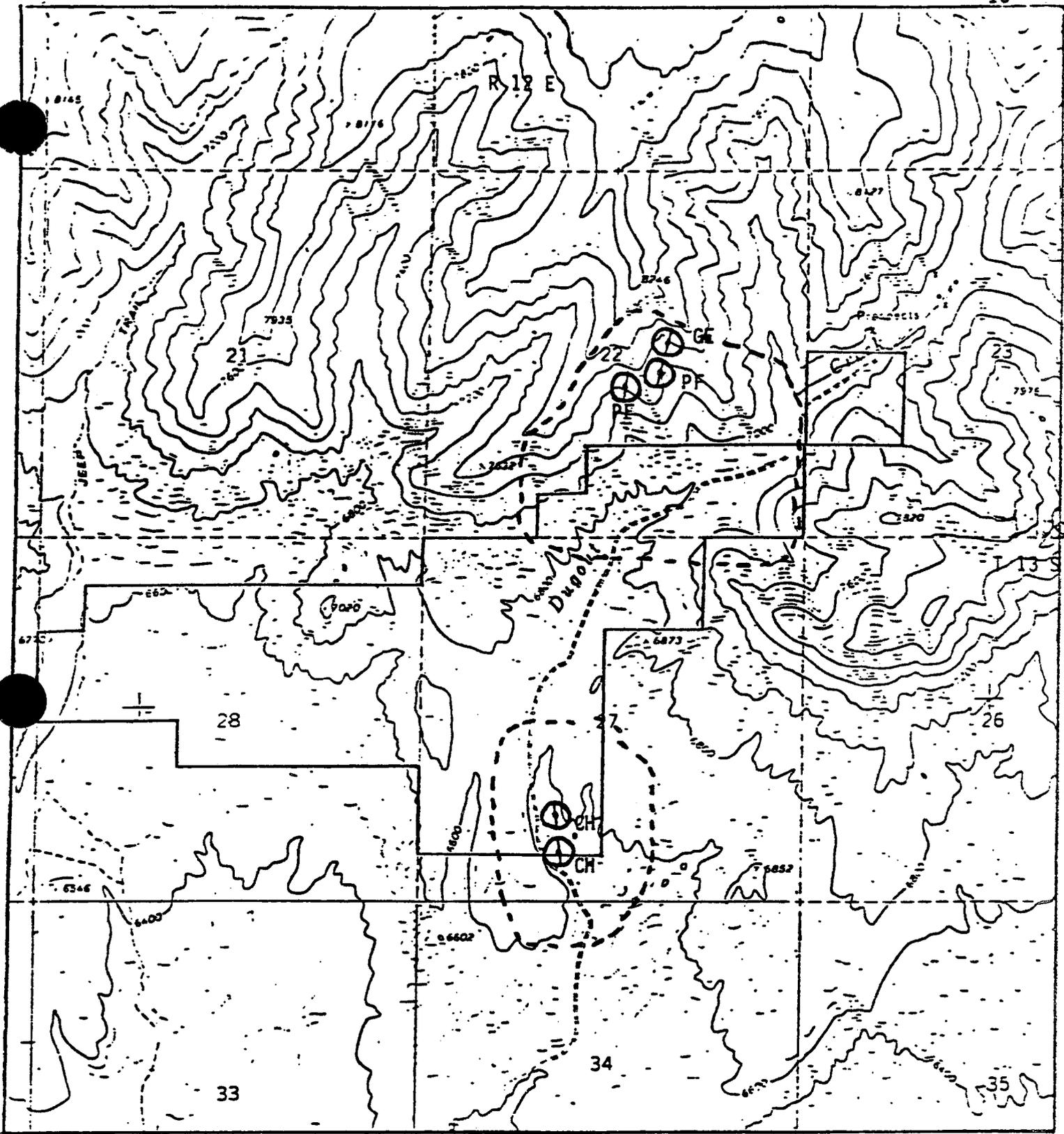


Figure 4. Raptor Nest Buffer Zones

- CH Cooper's Hawk Nest
- PF Prairie Falcon Seraps
- GE Golden Eagle Nest
- Buffer Zone

2920
U-52808
(U-066)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

INDUSTRIAL OCCUPANCY LEASE
Serial Number U-52808
Federal Land Policy and Management Act of 1976
(90 Stat. 2743, 2762; 43 U.S.C. 1732)

SECTION 1 - BASIC AGREEMENT

The United States of America acting through the Authorized Officer, Bureau of Land Management hereby leases to Sunoco Energy Development Company, a Delaware Corporation, called the lessee, the parcels of public land described below for a period of thirty (30) years commencing on the date of lease execution by the Authorized Officer. The leased lands are to be used by the lessee for the construction, operation, and maintenance of the following mine related facilities: 1) Reservoir, 2) roads, 3) water pipeline, 4) sewage pipelines, 5) water diversion ditches, 6) sewage lagoon, 7) telephone lines, 8) powerline, 9) conveyor, 10) topsoil stockpile areas, 11) sedimentation ponds, and 12) rock waste disposal site.

The lease may be renewed if the public lands are not needed for another use. Terms and conditions are subject to revision at the time of renewal.

Legal Description of Leased Area:

Salt Lake Base and Meridian, Utah,
Township 13 South, Range 12 East,
Section 22, E $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$;
Section 23, NW $\frac{1}{2}$ SW $\frac{1}{4}$;
Section 27, NW $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ S $\frac{1}{2}$ SW $\frac{1}{4}$;
200 Section 28, S $\frac{1}{2}$ N $\frac{1}{2}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$,
N $\frac{1}{2}$ N $\frac{1}{2}$ SE $\frac{1}{4}$.

The area described aggregates 740 acres.

SECTION 2 - RENT

A. This lease is issued subject to a subsequent appraisal by an appraiser of the Bureau of Land Management. The lessee agrees to pay the Bureau of Land Management, upon demand, those fees determined in the appraisal to represent the

fair market rental for the use of the public lands involved in this land-use authorization.

Yearly adjustments of rent may be made to compensate for inflationary trends. Such rental shall be determined by dividing the consumer price index for the month preceding the commencement of each subsequent year of the lease by the consumer price index for the month of (preceding month), being the month on which the lease commenced and then multiplying that amount by the fair market value. The consumer price index referred to is published by the Bureau of Labor Statistics, U. S. Department of Labor.

B. The lessee shall pay the Bureau of Land Management, Moab District, P. O. Box 970, Moab, Utah 84532 the yearly rent within thirty (30) days of receipt of the statement. Late payments will be subject to a charge of 0.75 percent per month of the unpaid amount or \$15 per month whichever is greater. Failure to pay the rental fee will be cause for cancellation of this lease.

C. The rental is subject to review and adjustment every five (5) years to reflect current fair market value as provided by 43 CFR 2920.8(a)(2).

SECTION 3 - CONDITIONS OF USE

The Lessee Agrees to:

A. Comply with all local, State, and Federal laws, regulations and ordinances pertaining to water quality, public health and safety and environmental protection. Compliance shall be made with State standards when those standards are more stringent than Federal standards.

B. Comply with local, State and Federal laws and regulations issued thereunder, existing or promulgated, affecting in any manner, construction, operation, or maintenance or termination of facilities located on the lease to include all applicable regulations in 30 CFR Chapter VII and regulations developed to implement the Coal Mining Reclamation Act of 1978 (U.C.A. 40-10-1 et. seq.) Chapter I Parts U.M.C. 700-845.

C. Construct and maintain lease facilities and structures in strict conformity with the descriptive and technical data which it has heretofore furnished the Bureau of Land Management in connection with its application. Activities which are not in accord with such data may not be initiated without the prior written approval of the lessor. Approval of variances will not be given unless the need therefore, is fully justified by the lessee.

D. Not utilize the lease for any purpose other than for what this lease is issued.

E. To take all reasonable precautions to prevent and suppress forest, brush, grass, and other fires that may result in damage and extinguish all fire before leaving the premises unattended.

F. Not to enclose or obstruct in any manner, or erect or maintain signs on any road or trail commonly used for public travel without the written approval of the lessor.

- G. To remove and dispose of all waste material including trash, oil, grease, chemicals, and similar substances in accordance with local, State, and Federal laws and regulations. Under no circumstances shall waste material be disposed of on public lands without the written approval of the lessor.
- H. The lessee shall provide a qualified cultural resource specialist (approved by the BLM) to intensively survey surface disturbed areas for the presence of cultural resources. All known cultural sites and those located during inventory that are of significant value shall be avoided where feasible as provided for in 36 CFR, part 800, "Protection of Historical and Cultural Properties" and the Coal Programmatic Memorandum of Agreement between the President's Advisory Council on Historic Preservation, OSM, BLM, and SHPO. Impacts to all unavoidable sites shall be mitigated using data recovery techniques, such as collection and/or excavation. The lessee shall be responsible for mitigation. The cultural resource specialist and salvage techniques used shall be subject to approval by the Bureau of Land Management.
- I. Surface disturbances and facilities planned for the lease area shall be subject to Visual Resource Management considerations. Efforts shall be made to mitigate visual impacts by imitating the form, line, color and texture of the natural landscape to the greatest extent practical as determined by the Authorized Officer. This will include painting of surface structures to blend with the surrounding terrain and minimal removal of vegetation in areas of proposed surface facilities.
- J. After coal mining activities have concluded, rehabilitation shall be accomplished to restore the landscape to its former character to the greatest extent possible. Rehabilitation requirements may include terrain alterations to blend better with natural slopes; alteration, concealment, revegetation of cut-and-fill slopes; and removal of construction debris.
- K. Widening of the existing roads along the riparian zone of Dugout Creek shall be done opposite the side adjacent to the riparian zones to the maximum extent practicable as determined by the operator in consultation with the lessor.
- L. Loss of riparian habitat on public lands through construction of facilities shall be mitigated by upgrading adjacent riparian zones or establishing new riparian zones in conjunction with the Dugout Reservoir. Habitat upgrading shall be accomplished by the operator prior to or during construction through coordination with the lessor.
- M. Loss of critical winter habitat for deer by destruction or disturbance shall be mitigated by upgrading adjacent winter range. Habitat upgrading will be accomplished prior to initiation of surface construction by the operator through coordination with the Authorized Officer.
- N. Speed of vehicular traffic associated with the mine project shall be reduced to no more than 40 miles per hour throughout the lease area (critical deer winter range) during the period November 1 through May 15 to minimize deer fatalities. The use of the Swareflex Wildlife Reflector Warning System (Streiter Corp.) is recommended to further minimize deer fatalities.

O. An inventory of areas of proposed surface disturbances shall be performed by the lessee in consultation with the lessor to determine the presence of migratory birds. Mitigating measures may be prepared by the lessor to protect the habitat of migratory birds as required by 43 CFR 3461.1(n)(1).

P. At least 120 days prior to any conveyor construction, final detailed designs showing exact location of the conveyor corridor, heights of the belt from the ground along the entire length of the conveyor and the location and design of any proposed big game crossings shall be submitted to the Authorized Officer for approval. The design shall be consistent with data collected during the UDWR study (Utah Division of Wildlife Resources, 1982) on big game movements through, and general use of the chosen conveyor corridors. The lessee has committed, as a part of a wildlife mitigation plan, to carry out a big game movement monitoring program post-construction. Design of this monitoring program shall be submitted to the regulatory authority for review and approval at least 120 days prior to conveyor construction. Based on the results of this study the applicant may also be required to carry out certain big game mitigation practices, including but not limited to the construction of one or more big game crossings.

Q. Two Cooper's hawk nests have been documented as active by the BLM and the UDWR. A buffer zone established for the protection of these nest sites is outlined on Figure 4 (attached) and is unsuitable under Criterion 13. An exception can be applied with the following stipulations:

- 1. Coordinate all nest visitations with the FWS and/or the Authorized Officer to minimize disturbance to nesting birds.
- 2. Surface construction activities may be prohibited within the buffer zone during the critical nesting period, April 15 to July 15. Surface construction may be initiated on July 1 if a nesting attempt has not been documented by the lessor in consultation with the FWS. Surface construction may also be initiated on July 1 if a determination by the lessor in consultation with the FWS, shows the nesting attempt to be nonproductive. This determination may be ascertained by observed behaviors of the nesting pair or by presence or absence of eggs.
- 3. Protect all shrubs, trees or other vegetation along the existing road shoulder (closest to the nest site) within the buffer zone.

R. One active prairie falcon eyrie, one suspected prairie falcon eyrie and one golden eagle nest site (old) were documented by the FWS and the UDWR. A buffer zone delineated on Figure 4 identifies the area considered unsuitable according to Criteria 11 and 13 of the Unsuitability Criteria. An exception can be applied to allow limited surface disturbance based on the following stipulations:

- 1. Surface construction activities may be prohibited within the buffer zone (Figure 4) during the critical nesting period, March 15 to June 15. Surface construction may be initiated on June 1 if a nesting attempt has not been documented by the lessor in consultation with the FWS. Surface construction may also be initiated on June 1 if a determination by the lessor, in consultation with the FWS, shows the nesting attempt to be nonproductive. This determination

may be ascertained by observed behaviors of the nesting pair or by presence or absence of eggs.

2. Coordinate all nest site visitations through the FWS and/or the lessor to minimize disturbance to nesting activity.

5. A final mitigation plan shall be submitted and approved by the lessor at least 120 days prior to any construction, detailing all measures the lessee will take to lessen impacts of mining on wildlife within the lease area.

SECTION 4 - RESERVATIONS BY THE UNITED STATES

The United States reserves:

A. All the coal, oil, gas, geothermal, and other mineral deposits in the leased land together with the right to enter upon the land and prospect for mine and remove the same.

B. The right to issue rights-of-way, permits, and grazing licenses over the lease area. Such uses, however, shall not impair the use of said lands for authorized purposes nor damage authorized improvements therein.

C. The right to inspect the leased land at any time to ensure compliance with the terms and conditions of the lease.

SECTION 5 - LEGAL RESPONSIBILITY OF THE TENANT

The Lessee agrees:

A. To save the United States harmless from and indemnified against any liability for damages to life, person, or property arising from the operations under this lease.

B. To have in force public liability insurance covering property damage in the minimum amount of \$500,000 and damage to persons in the minimum amount of \$1,000,000 in the event of death or injury to one individual and the minimum amount of \$1,000,000 in the event of death or injury to more than one individual for which the lessee may be liable because of the occupancy or use of the structures, facilities, or equipment authorized by this lease. The liability policy will name the United States as an insured or include a rider which affords the United States the same protection. The lessee shall require the insurance company to send an authenticated copy of this insurance policy to the Bureau of Land Management immediately upon its issuance. This policy shall contain a specific provision or rider to the effect that the policy will not be canceled or its provisions changed or deleted before thirty (30) days written notice to the District Manager, Moab District, P. O. Box 970, Moab, Utah 84532.

C. To file a performance bond with the lessor in the form of corporate surety, cash, or negotiable securities of the United States in the amount of \$225,000. The bond shall be in affect prior to construction of authorized facilities on the lease.

SECTION 6 - CANCELLATION BY THE UNITED STATES

- A. This lease may be terminated under the following circumstances:
- 1) Failure of the lessee to construct authorized facilities within five (5) years from the date of lease execution.
 - 2) Noncompliance with applicable law, regulations or terms and conditions of the lease where default continues for thirty (30) days after written notice by the lessor.
 - 3) Failure of the lessee to use the lease for the purpose for which it was authorized.
 - 4) Mutual agreement that the lease should be terminated.
 - 5) Nonpayment of rent for two (2) consecutive months following notice of payment due.
 - 6) Failure to use the lease area for any continuous 2-year period shall constitute a presumption of abandonment and termination.
- B. Upon the termination, cancellation, or expiration of this lease, the lessee will be allowed sixty (60) days to remove improvements from the land, or to make other disposition thereof. Upon his failure to do so, the improvements will become the property of the United States.

SECTION 7 - GENERAL PROVISIONS

- A. This lease is issued subject to any existing valid right, including valid mining claims.
- B. No member of, or delegate to, the Congress, or Resident Commissioner, after his election or appointment, and either before or after he has qualified, and during his continuance in office, and no officer, agent, or employee of the Department of the Interior, except as otherwise provided in 43 CFR Part 7, shall be admitted to any share or part of this lease, or derive any benefit that may arise therefrom, and the provisions of Title 18, U.S.C., Sections 431-433, relating to contracts, enter into and form a part of this lease, so far as they may be applicable.
- C. The lease shall be binding upon and in ure to the benefit of the heirs, executors, administrators, successors, and assigns of the parties hereto.
- D. This lease shall not be transferred without the written approval of the lessor.
- E. This lease shall not be subleased without the written approval of the lessor.
- F. This lease shall take full force and effect upon signing by both the lessee and the Authorized Officer and shall remain in effect until expiration or it is otherwise cancelled as provided for in the above stipulations.

G. This lease is subject to the provision of Executive Order No. 11246 of September 24, 1965, as amended, which sets forth the non-discrimination clauses. A copy of this order may be obtained from the signing officer.

SUNOCO ENERGY DEVELOPMENT COMPANY

BY S. O. Ogden

TITLE Vice President

DATE December 27, 1983

THE UNITED STATES OF AMERICA

BY Renneth V. Rhee

TITLE Associate District Manager

DATE Jan 4, 1984

PREFACE TO THE TECHNICAL ANALYSIS
for
SUNOCO ENERGY DEVELOPMENT CO. (SUNEDCO)

SMCRA PERMIT APPLICATION

March, 1984

In December 1982, Sunedco resubmitted a permit application package (PAP) for approximately 40 years of underground coal mining near Wellington, Utah. 1/ Several letters were sent to the applicant by the regulatory authorities in 1983 which resulted in Sunedco submitting PAP revisions in June and December 1983 and January 1984. On November 2, 1983, after considerable discussion with Sunedco and UDOGM, OSM indicated that four outstanding problems remained with Sunedco's PAP. These deficiencies were as follows:

The application must show that Sunedco has obtained a right-of-way lease from the BLM granting surface access for that portion of their proposed mining plan and permit area that includes the Dugout Canyon Reservoir, the Dugout Canyon waste disposal site, the sewage lagoon, and all associated pipelines. (Note: As of 9/27/83, Sunedco had not received 8 special-use permits from the BLM that would be required before operations could begin in their life-of-mine area.)

The application must state that Sunedco will not use water from Soldier Creek sufficient to irrigate 60 acres of alluvial valley floor, and it must state that Sunedco will replace water utilized by offsite water users whose supply may be adversely affected by mining or mining-related activities.

The application must include a plan, satisfactory to the regulatory authority, to revegetate the Dugout Canyon waste rock disposal area as required under UMC 817.111.

The application must include additional design information satisfactory to the regulatory authority for the Dugout Canyon "portal" highwalls.

On December 21, 1983, and on January 4, 1984, Sunedco responded to OSM's November letter by substantially revising their SMCRA permit application. This revision provided for a greatly reduced scale of operations. The area of initial SMCRA permit approval being sought was reduced from 18,242 acres (476.5 acres of surface disturbance) to 4,475 acres (70 acres of surface disturbance). Sunedco removed the proposed central facilities area and proposed Fish Creek mine portals area and accompanying facilities from their proposed initial permit area and considerably lessened the area from which they initially planned to remove coal. (See Location Map section.)

1/Sunedco was resubmitting an application originally submitted in December 1980 by Eureka Energy Co. (See TA which follows for a more complete explanation.)

By excluding the central facilities area from their initial SMCRA permit area, Sunedco removed the need (at least temporarily) to satisfy the alluvial valley floor concerns raised in OSM's November 2, 1983 letter. Sunedco's December 21, 1983 and January 4, 1984 submittal specifically included:

Updated right-of-way information for the initial (4,475 acre) SMCRA permit area, including documentation that the company had been issued industrial occupancy lease #U-52808 by the BLM. This 740-acre right-of-way lease allows Sunedco to disturb the surface in portions of Township 13 S, Range 12 E, Sections 22, 23, 27, and 28 for the construction of the facilities needed to initially commence mining activity in the Dugout Canyon area (See copy of lease placed behind permit in chapter 8 of this decision document and pp I-34 ff, vol. I of the PAP.)

Revised permit term information indicating that while the applicant eventually proposed to operate the Sage Point-Dugout Canyon project for 40 years (18,242 acres), the subject PAP is only for 5 years (4,475 acres). The December 21, 1983 submittal states that within the initial SMCRA permit area, no mine-related activity will occur on the Soldier Creek alluvial valley floor and sufficient water will continue to be available to irrigate this area. Revised permit maps were also submitted. (See pp I-41 ff, vol. I and maps D03-0002 A and B of the PAP).

An exact legal description of the Dugout Canyon County road that will be permitted for mine access in this permit term (see pp I-39a, vol. I of PAP.)

Revised alternative water supply information justifying that coal mining and related activities would have no adverse effects on the quality of the water supply in the project area (see p II-17, vol. II, of PAP.)

Revised reclamation procedures and related information for the Dugout Canyon waste rock disposal site. This information included: final slope configurations for the durable rock fill, soil descriptions, soil salvage depths and procedures 2/, soil replacement procedures, revegetation methods, the methods by which the fill would be constructed, revised drawings of the fill, and the revised cost estimates for reclamation of the fill area. (See pp. I-314, I-330, I-349, I-404, II-207 ff, II-217 ff, II-221 ff, II-227, II-302, II-308, II-338 ff, and II-345 of the PAP.)

A geotechnical analysis of the highwall stability of the Dugout Canyon portal (see p. I-72 through I-75 of the PAP).

The BLM industrial occupancy lease (#U-52808) cleared up the only remaining right-of-entry problems within Sunedco's initial SMCRA permit area. (See Permit Boundaries Map.) Sunedco still, however, has not obtained all the Federal surface leases that would be necessary for the construction of the central facilities area originally proposed for their life-of-mine operations.

2/Note: The proposed Dugout Canyon waste-rock site will be reclaimed with excess soils salvaged from the proposed Dugout Canyon Reservoir site.

Major areas of disturbance within the initial SMCRA permit area all occur within Township 13 South, Range 12 East, Salt Lake Meridian and Baseline as indicated on the accompanying permit boundaries map. These disturbances include the 2 Dugout Canyon portals and portal pad (section 23), the Dugout Road, the Dugout Reservoir (Section 27), the Dugout sewage lagoon (section 28), the Dugout Canyon rock disposal (sections 22 and 27), and the associated powerlines, waterlines and sewage line.

An overland conveyor will eventually be built from the Dugout Canyon portals; however, this is not a part of Sunedco's initial SMCRA permit. The Dugout Canyon conveyor was, however, authorized subject to final design and location approval by the BLM in the recent Industrial Occupancy lease issued to Sunedco on January 4, 1984. When built, this conveyor will link the Dugout Canyon portal area with the central facilities area proposed for the life of the mine (see Life-of-Mine Map).

Portions of 4 Federal coal leases are included within the initial SMCRA permit area. These include U-7746; U-092147; U-0144820; U-07064-027821. In addition, there are 2 areas of fee (private) coal within the initial SMCRA permit area (See Permit Boundaries Map). Federal coal constitutes 86.5 percent of the coal that is proposed for mining in the initial SMCRA permit area and fee coal constitutes 13.5 percent. The surface ownership of the initial SMCRA permit area is 42.7 percent Federally-owned (1910 acres), 55.4 percent privately-owned (2480 acres) and 1.9 percent (85 acres) is owned by Carbon County (the Dugout Canyon Road). For a more complete description of these acreages, see the mine plan information form placed behind Location Maps in this decision document.

Sunedco's proposed area of mining plan approval (re: Mineral Leasing Act), is 3,080 acres and constitutes those portions of the 4 Federal coal leases included within the initial SMCRA permit area. A portion of a 5th Federal lease (#U-089096) is included within the life-of-mine area but not within the initial SMCRA permit area.

The Solid Minerals Division of the BLM found Sunedco's original life-of-mine permit application to be in compliance with 30 CFR 211.10(b) on April 22, 1983. The Resource Recovery and Protection Plan approval involved Federal coal lease numbers U-07746, U-089096, U-092147, U-0144820 and U-07064-027821. The BLM found Sunedco's revised PAP for this initial permit area to be in compliance with 30 CFR 211 on March 15, 1984. Sunedco's revised PAP does not alter the sequence of coal removal in time or location for the first 5 years of mining from that approved by the BLM in April 1983. (See maps D03-006, D03-007 and D03-008, vol. 11 of the PAP.)

On March 19, 1983, UDOGM submitted a TA to OSM on Sunedco's PAP. This initial TA was prepared for Sunedco's proposed life-of-mine plan for this Sage Point-Dugout Canyon operation and it has subsequently been revised three times at the request of OSM and as a result of PAP revisions submitted by Sunedco. The Index on the next page summarizes the contents of the original TA and its three addendums and supplements.

The most recent TA supplement was prepared by UDOGM on January 17, 1984, and was in response to the PAP revisions submitted on December 21, 1983 and January 4, 1984. This supplement demonstrates that Sunedco will be fully in compliance with the Utah State Program now that the company has satisfactorily made the changes suggested in OSM's November 2, 1983 letter.

Some portions of the March TA, the July TA addendum, and the September supplement address regulatory compliance for areas that are no longer a part of Sunedco's 5-year SMCRA permit application. Also, some of the proposed permit conditions proposed in the March TA for a life-of-mine permit are not included in the initial SMCRA permit. This is because they are conditions only applicable to areas that have been withdrawn from the initial permit area or because they were made unnecessary by Sunedco's December 1983 and January 1984 PAP revisions. OSM decided to leave these proposed life-of-mine conditions in the TA because Sunedco has indicated that it intends to submit a revised PAP for the life-of-mine area within 2-3 years after receiving initial SMCRA permit approval. OSM and UDOGM would, therefore, have a substantial headstart in preparing the TA, EA and other aspects of the decision document for this new life-of-mine PAP. Sunedco has also indicated that before they reapply they will attempt to resolve all of the proposed conditions included in the March 1983 TA that are still applicable to their revised life-of-mine PAP.

Index to the Technical Analysis
Sunedco's
Sage Point-Dugout Canyon Mine

Date	Title	Purpose
March 16, 1983	Technical Analysis	Evaluation of Sunedco's life-of-mine (40 yrs) PAP, as submitted in December 1982, with the Utah State Coal Program permitting requirements. This original TA analyzed some disturbances that were eventually excluded in Sunedco's December 1983 revised PAP such as the proposed central facilities area, the Fish Creek portals, and the Fish Creek and Dugout Canyon conveyors.
July 14, 1983	Technical Analysis Addendum	Reevaluation of Sunedco's life-of-mine PAP, as revised through June 13, 1983, with the Utah permitting requirements. Sunedco's revisions were made in response to OSM and UDOGM's concerns regarding the extremely long list of stipulations proposed in the March TA.
September 15, 1983	Supplement No. 1 Technical Adequacy Determination	Prepared as a result of OSM's determination that several UDOGM regulations had been illegally suspended or remanded by the State of Utah because the rule changes did not receive Secretarial approval. UDOGM reevaluated Sunedco's life-of-mine PAP as revised through July 1983 to determine if those regulations found to be still in effect were adequately addressed.
February 17, 1984	Supplement No. 2 Technical Adequacy Determination	Reevaluation of Sunedco's PAP as revised through January 4, 1984. Supplement No. 2 consists of an evaluation of the 4 areas of Sunedco's PAP that changed as a result of Sunedco's desire to greatly reduce their initial scale of operations. These 4 areas included alternative water supply and water rights replacement, revegetation of the Dugout Canyon waste rock disposal area, stability of the Dugout Canyon portal faces, and the applicability of the Soldier Creek alluvial valley floor to the initial SMCRA permit area.

TECHNICAL ANALYSIS^{1/}

Sunoco Energy Development Company
Sage Point-Dugout Canyon Mine
ACT/007/009, Carbon County, Utah
March 1983

INTRODUCTION

The Sage Point-Dugout Canyon Underground Mine Project is proposed by the Sunoco Energy Development Company (Sunedco), a subsidiary of Sun Company, Inc., of Radnor, Pennsylvania. The project will be located just south of Wellington, Utah, in two box canyons, Dugout and Fish Creek, which intersect the Book Cliffs. The project will include four independent underground mines. Two of the mines will be located in Fish Creek Canyon and two in Dugout Canyon. There will be a mine portal on each side of the two canyons. The Fish Creek Canyon Mines will operate in the Sunnyside, Rock Canyon and Gilson Seams, while the Dugout Creek Mines will operate only in the Rock Canyon and Gilson Seams.

The original applicant was Eureka Energy Company, a subsidiary of Pacific Gas & Electric of San Francisco, California. An application for a mining permit was received by the Division of Oil, Gas and Mining (DOGM) on December 12, 1980. An Apparent Completeness Review (ACR) was prepared jointly by DOGM and the Office of Surface Mining (OSM) and sent to the applicant on June 1, 1981. Eureka Energy Corporation responded to the review with an Addendum to the Mining and Reclamation Plan, submitted on August 7, 1981. The application was declared complete on December 31, 1981 and newspaper advertisement of the application was published on December 30, 1981 and January 13, 20 and 27, 1982 in the Price, Utah, Sun Advocate newspaper.

On February 10, 1982, Eureka Energy Corporation executed a definitive coal property sale and purchase agreement to sell the Sage Point-Dugout Canyon coal properties to Sunedco. A draft Technical Analysis was prepared by DOGM and sent to OSM on April 28, 1982. The purchase of the property by Sunedco was completed on May 13, 1982 with the completed reassignment of all Federal leases. Sunedco republished the application June 9-30, 1982 (see publication notice attached to the TA). Since the regulatory authority was not certain that Sunedco would adopt the entire application as it stood at the time of purchase, the permitting process was put on hold until the Sunedco staff had time to completely review the application. On December 20, 1982, Charles Durrett, Environmental Coordinator of Sunedco Coal Company (a subsidiary of Sun Energy Development Company) indicated in a letter to DOGM that no major modifications to the application had been identified and requested that the permitting process proceed. DOGM and OSM concurred on January 7, 1983 and January 19, 1983, respectively. The applicant has committed to submit final details on any proposed changes at least 120 days prior to construction. It is anticipated that construction will begin in March of 1984.

^{1/}This technical analysis was prepared by the Utah Division of Oil, Gas, and Mining in March 1983 on Sunedco's proposed life-of-mine permit application (40 yrs - 18,242 acres). All references herein to the permit area or mine plan area refer to the life-of-mine. In December 1983, Sunedco revised this PAP to include only 4,475 acres in the initial permit area. Accordingly, portions of this March 1983 TA have been changed to reflect Sunedco's revised PAP (see following addendums and revisions).

The major potential disturbances of the proposed coal mines will occur discontinuously on four sections. They are located in Township 13 South, Range 12 East, Section 29, 30, 31 and 32, Salt Lake Meridian and Baseline (See central facilities aerial photo and Map D03-0002 in Location Maps section). They include corridors 100 feet wide for utility lines and for conveyor belts leading from the proposed central facilities to the planned mine portals. The total surface disturbance over the life of the mine will be 476.5 acres. The portal pads will provide level areas for the parking, storage facilities, maintenance building and changehouses necessary to support the two mines in each canyon.

The mineral leases are 83 percent Federal and 17 percent State and fee. Surface ownership is 38.4 percent Federal. Total acreage of the permit area is 18,241.62 acres. At the point of full operations, Sunedco will employ 775. The maximum annual production for the complex of mines, nearly five million tons, will not be reached until the 14th year of mine operations. The anticipated life of the mine complex is 40 years. Both room and pillar and long wall mining methods will be utilized. A preparation plant and loadout facility will be constructed to further enhance the goal of maximum coal recovery. An overland conveyor system extending from each portal area will carry the coal to the preparation facility. A railroad spur and loop will be constructed from a future Denver and Rio Grande Western Railroad line originating southeast of Wellington. This will provide access for unit trains to be used for transporting coal out of the permit area.

Existing Environment

The striking features of the landscape of the project area are the pediment (bench) surface capped by sandstone sediments two or more meters thick over Mancos Shale. These surfaces support mature stands of juniper and pinyon with little understory.

Other community types on the permit area include Douglas fir, mixed conifer-mountain brush, shrub-grass-juniper, greasewood-sagebrush, mixed conifer and deciduous streambank (riparian). Four parcels of cultivated lands lie in the permit area. The primary crop raised is alfalfa. No threatened or endangered species have been found in the permit area.

Structurally, the permit and adjacent areas lie along the northern extent of the San Rafael Swell and the southern flank of the Uintah Basin. Faulting in the permit area is minor. Some subsidence is expected to occur, which should affect land used for grazing and recreation. A natural gas pipeline and dirt road pass through the subsidence area, but are not expected to be impacted. Streams or springs should not be affected. Six small drainage basins are contained within the permit area. Soldier, Pine and Dugout creeks flow year-round except during periods of unusually low precipitation. The upper reaches of Pace, Fish and Corbula creeks are maintained by springs that flow in direct response to precipitation.

The current land use for the project area is open range for cattle and wildlife with limited agricultural activity occurring in the vicinity of the proposed central administration facilities. Previous coal mining has occurred on the permit area. In the Dugout Canyon area, the Knight Ideal Coal Company mined the Rock Canyon and Gilson coal seams located in both sides of the canyon. The mine opened in 1940 and closed in November 1965. Total coal extracted from the two seams was approximately 1,320,000 tons by conventional room and pillar methods.

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

Applicant's Proposal

There are no oil or gas wells within the mine plan area or within 1,000 feet of the mine plan area.

Temporarily inactive mine entries will be protected by barricades or other covering devices, fenced and posted with signs to prevent access into the entry and to identify the hazardous nature of the opening.

Final reclamation of all entry ways and other openings including portals will be constructed to prevent access to the mine workings by people, livestock, and wildlife. The permanently sealed entries will also keep any potential drainage from entering surface waters. A seal of at least 12 inches of reinforced concrete keyed 12 inches into the coal or rock contact will be applied. Earth fill will extend into each portal opening a distance of at least 12 feet. Exposed coal outcrops will be covered with a minimum of four feet of noncombustible earth material to protect against spontaneous combustion. Figure III-D.1 on page I-283 illustrates this description. Gravity discharges of water will not be permitted.

Shafts will be sealed, capped or filled in accordance with 30 CFR 75.1711-1. Filling will consist of noncombustible material for the first 50 feet from the bottom of the coal seam and complete filling of the entire depth above will occur. Caps will consist of six inch thick slabs of concrete and other types as needed.

Each exploration hole, or other bore hole, well or exposed underground opening (excluding blasting holes) will be cased and sealed. Holes within the permit area will be filled with cuttings or inert material until level with the surface. Flowing holes or possible flowing holes will be cemented or cased. Water monitoring wells and water supply wells will be sealed as described above when they are no longer needed.

Compliance

The applicant has complied with these sections based upon the resubmittal of information January 18, 1983.

Stipulations

None.

UMC 817.21-.25 Topsoil

Applicant's Proposal

The soils in the permit area range in elevation from approximately 5,000 feet to 8,000 feet. The soil orders encountered in the permit area include mollisols, entisols and aridisols.

Field investigations were conducted on these study areas during September and October 1979. The soil survey was designed to meet the requirements of an Order II (detailed) Survey.

The striking features of the landscape of the project area are the pediment (bench) surface capped by sandstone sediments two or more meters thick over Mancos Shale. These surfaces support mature stands of juniper and pinyon with little understory. The Ildefonso soils on the pediment surfaces are calcareous, moderately alkaline and sand; they contain numerous boulders and stones. Fluves (drainage ways) are entrenched into the shale and support stands of grasses and shrubs. Some areas are saline and sodic; these areas support greasewood and shadscale. The soils on these sites are represented by the Haverson, Lockerby, Cragola and Harvey series. Some phases of Haverson soils are used for alfalfa cropland. The bench edges have shallow, stony soils; little vegetation occurs where the shale is exposed. Shingle soils and Badlands are common on these sites.

Prior to any disturbance, topsoil will be removed from areas other than the Fish Creek durable rock fill Badlands (BY) soils, Dugout Creek durable rock fill (BY) soil and the preparation plant Shingle (NFD2) and Haverson alkali (OAC₂) soils. The BY soils are weathered Mancos Shale and are void of topsoil. The NFD2 and OAC₂ soils have shallow A horizons that contain high amounts of salts, electrical conductivity (EC) 6 to 28 mmohs/cm and a high sodium adsorption ratio of 36 to 47. Approximately 17 acres of BY soils and 114 acres of OAC₂ and NFD2 soils will be disturbed without topsoil removal.

Soil material that is to be salvaged will be removed in two lifts. The first will include the topsoil layer when it is at least six inches thick or the topsoil layer and subsurface layer up to a depth of six inches if the topsoil layer is less than six inches thick. The second lift will include soil that is not suitable for a seed bed material but will be useful as a spoil cover material and increase the water holding capacity of the reclaimed area.

Topsoil and subsoil will be removed from each phase of operation prior to construction. If possible, the topsoil and subsoil will be immediately redistributed on areas to be reclaimed that have been prepared for topsoil application. If stockpiling is necessary, the topsoil and subsoil will be stockpiled separately, protected from erosion by wind and water, compaction or contamination. Stockpiles will not be disturbed or rehandled until the soil material is to be redistributed on regraded areas.

At the time of final reclamation, surface facilities will be removed and the disturbed areas graded to blend with the natural contours. The areas will be ripped to a depth of approximately 24 inches before soil redistribution.

The soil materials will be applied in two lifts, subsoil application followed by topsoil. Following soil application, fertilizer elements will be broadcast and disked in to aid in the preparation of a proper seedbed.

If circumstances arise that necessitate the use of soil material other than topsoil which is available on-site, for a plant growth medium, the application will comply with the provisions of UMC 817.22(e), Topsoil Substitute.

Compliance

The applicant has requested a variance under UMC 817.22(e), Topsoil Substitute and Supplements, for nonremoval of topsoil from the Badland (BY), Shingle (NFD2) and the Haverson alkali (OAC₂) soils. Based on laboratory data submitted as part of the mine plan and an on-site inspection by the Division staff, a variance for removal of topsoil from the (BY) soils at the Fish Creek durable rock fill and the Dugout Canyon durable rock fill along with the Shingle (NFD2) and Haverson alkali (OAC₂) at the preparation plant site is granted.

The applicant is in compliance with this section.

Stipulation

None.

HYDROLOGY/GEOLOGY

Description of the Existing Environment

Geology Information

The permit and adjacent areas of the Sage Point-Dugout Canyon Project lie in the northern Colorado Plateau. The project area traverses the boundary between the Book Cliffs-Roan Plateau and the Mancos Shale Lowland physiographic provinces (Stokes 1977). Elevations in the Book Cliffs-Roan Plateau range from 6,700 feet to 10,185. The Mancos Shale Lowland is a long

strip of gently sloping terrain eroded in the Mancos Shale Formation. It extends from central Utah into western Colorado. Clark Valley, a broad open area in the Mancos Shale Lowland, borders the adjacent area to the south and separates the Book Cliffs from the large domal feature of the San Rafael Swell to the south. Pediments with gravel veneers are especially well developed in the Mancos Shale Lowlands, below the Book Cliffs. They range from west to east across the general area, varying in elevation and age. Elevations range from 4,200 feet to 6,700 feet.

Structurally, the permit and adjacent areas lie along the northern extent of the San Rafael Swell and the southern flank of the Uinta Basin. South of the permit and adjacent areas is the Farnham anticlinal structure with several associated faults.

Coal is the chief economic commodity in the region, followed by uranium. Coal deposits lie in the Book Cliffs; uranium is found south of the permit and adjacent areas in the San Rafael Swell. There has been exploration for oil and gas in the northern extension of the Farnham anticline, but no significant finds have been recorded.

The outcropping rocks of the permit and adjacent area include, from oldest to youngest, the Mancos Shale, Star Point Sandstone, Blackhawk Formation and Price River Formation. All are included in the Mesaverde Group except for the Mancos Shale. Overlying the Mesaverde Group is the North Horn Formation. Above the North Horn Formation, in sequence, are the Flagstaff Formation, Colton Formation and the Green River Formation. There are no major disconformities in the area.

The Blackhawk Formation is the major coal-bearing unit of the Book Cliffs escarpment. The San Rafael Swell and the Farnham anticline locally influence the structure of the area. Both features are south of the permit area.

The dip is north or northeast averaging about eight degrees across the permit area, but has a range of 6.2 to 11.5 degrees.

Faulting

Faulting in the permit and adjacent area is minor. There are numerous very small faults along the coal outcrop section. These faults appear to be related to the burning and subsequent slumping of the outcrop near the burned area. Geotechnical studies and field investigations have indicated that this faulting is strictly surficial and does not extend past the burned coal at depth.

The mine plan area contains no known faults in areas planned for coal recovery. All faulting appears to be confined to the burned outcrop and to areas in the Roan Cliffs. Neither of these areas will be mined.

Fractures

Fracturing parallels the structure and is the result of upwarping of the San Rafael Swell and isostatic adjustments. Pine Canyon and lineations in and behind the Roan Cliffs are the most prominent topographic expression of the fracture pattern. Rose diagrams were used to designate the fracture pattern found in the permit area. Fractures shown on diagrams all have a dip within five degrees of vertical. Most fracturing tends to exhibit a northwest to west northwest pattern.

Pyrite, Clay and Alkalinity

Three coal zones of five will be mined in the project area: Gilson; Rock Canyon; and, Sunnyside. The strata immediately (within 10 feet) above and below the coal seams show extreme lithologic variability. The variability is an inherent part of the geology of the coal seams in the Blackhawk Formation.

The roof and floor rock of all three seams, located in the middle of the Blackhawk Formation, contain small amounts of disseminated pyrite. Detailed logging seems to indicate a direct correlation between the amount of carbonaceous material and the pyritic content. Consequently, coal has the greatest pyritic content, followed by bone coal and carbonaceous mudstone. Average sulfur content in the mineable coal seams in the permit area is 0.65 percent, 0.10 percent is pyrite. The roof and floor contain considerably less pyrite.

The roof and floor rocks may produce a moderately alkaline leachate. The geologic section chiefly responsible for strong alkalinity is the Mancos Shale and its associated high content of gypsum. Most of the natural surface and ground waters in the permit area found stratigraphically above the Mancos Shale have a pH near or slightly above 8. Water moving through the roof and floor rocks in the permit area have similar alkalinities (@ pH 8.0).

Ground Water Information

Existing Resources

Ground water in the Sage Point-Dugout Canyon Project area, like ground water in other parts of the Price River drainage basin, occurs under both confined and unconfined conditions. Unconfined water exists primarily in shallow alluvial or colluvial deposits along the largest perennial and intermittent streams. It also exists in the soil mantle and the upper few tens of feet of the underlying consolidated rocks where the rocks have been extensively weathered and fractured. Confined water exists at greater depths where a relatively impermeable bed overlies a more permeable water-bearing bed. These confined aquifers generally have their source of recharge in an outcrop area some distance up-gradient. Perched aquifers exist where a relatively impermeable bed lies beneath a water-bearing bed. There may be some leakage through either or both overlying and underlying confining beds. Where such leakage occurs, the aquifer may be a source of recharge to other overlying and underlying aquifers lying below the potentiometric surface.

Regional Ground Water Hydrology

The occurrence and availability of ground water in the general mine area is controlled principally by its geology. Unconsolidated deposits of Quaternary age are the most permeable formations; but consolidated sediments of Cretaceous and Tertiary age contain the most extensive water-bearing beds. Sandstones serve as the principal water-bearing strata in consolidated rocks. Their ability to yield water is controlled not only by the size of the sand grains, the amount of cementation and the degree of fracturing, but more importantly by the existence of numerous relatively impermeable interbedded shale and mudstone stringers. These stringers inhibit significant recharge from much of the overlying lands and from vertical movement of the water in the water-bearing beds.

The available regional ground water data suggest that most of the recharge is from direct infiltration in the upland areas and that the recharge rate is probably less than five percent of the annual precipitation (USGS 1979). Unconfined or water-table conditions may occur in alluvium and in the upper few feet of weathered bedrock. Where these materials are underlain by relatively impermeable beds, the water may be perched.

Water flows from the recharge areas at the higher elevations to discharge areas at the lower elevations. The types of geologic formations through which the water in the regional system is moving suggests that the maximum rate of movement is only a few feet per year.

Ground Water Use

In the affected area, there has been no development of ground water in either the perched aquifers or the regional (areal) aquifer. Three wells were drilled in the north adjacent area, but these wells were for monitoring purposes only. Discharge occurs from natural sources such as widely scattered springs, seepage into streams and evapotranspiration by native vegetation. If the water supply of any owner of vested water right is injured as a result of the mining activities, the applicant will replace that water supply in a manner consistent with applicable State law.

Ground Water Quality

The quality of ground water in the Price River drainage is not well established. The quality varies greatly, depending on geology, physiography and elevation. The best quality occurs in or near mountain recharge areas and the poorest quality in lowland areas. Along the fringes of the plateau and in the Book Cliffs, dissolved solid concentrations are generally 500 to 1,000 milligrams/liter. In the bedrock of the rest of the area, concentrations are generally 500 to 1,000 milligrams/liter, except in the Mancos Shale and soils derived from it, where concentrations usually exceed 1,000 milligrams/liter.

As indicated by the long period of time required for ground water levels to stabilize following well perforation (see Table IV-B.7), the permeability of the aquifers is low. This low permeability makes well sampling difficult and precludes the collection of good ground water quality data from wells in the permit area. Consequently, the applicant has assessed the quality of ground water in the permit area by collecting and analyzing water samples from a wide variety of springs. Because the samples were taken immediately after the water emerged from the aquifer, the data provide a good indication of the quality of water within the aquifer.

Also, three samples were taken from abandoned mines in Dugout Canyon, when the mines were opened up for an inspection of the old workings.

Ground Water Hydrology

Ground water parameters studied in the permit area include recharge, movement, storage, water level fluctuations and discharge. Data were collected from five monitoring wells.

Recharge

The exposed sandstones in the Book Cliffs provide recharge areas for the regional (areal) ground water system through direct infiltration of precipitation and streams. The alluvium and soil mantle provide recharge areas for local perched ground-water systems. Water enters the sandstone from direct precipitation on the outcrops and as seepage from streams that flow across them. Precipitation that enters the soil mantle and alluvial deposits recharge small local basins. This water moves a few thousand feet, at most, before it infiltrates the underlying bedrock. Some of the water in the sandstone moves into the regional ground water system. The remainder is discharged at springs where the sandstone aquifers have been deeply incised by canyons.

The annual recharge from precipitation (the only source of recharge in the mine area) in the six small drainage basins that compose the project area was computed using a five percent recharge rate (USGS 1979). The estimated rate is probably greater than the true rate, because it is a probable maximum. Moreover, impermeable outcrops of shales and mudstones cover large tracts in the study area, thus preventing or greatly limiting recharge. The computed average annual recharge is about 2,200 acre-feet in the hydrologic area monitored by the applicant, which approximates the permit area.

Movement

Ground water moves from the recharge areas down-gradient in the direction of the slope of the water table or potentiometric surface and approximately at a right angle to the water-level contours. The general direction of ground water movement in the regional aquifer is northward, but the direction may differ locally because of changes in rate of discharge or geology. Local

fractures, faults or other geologic phenomena may cause a change of permeability which, in turn, may cause a local deviation in the direction of ground water flow. A contour map of the potentiometric surface was prepared from ground water levels measured in the general area (refer to page III-118a, Wahler Associates Report). An interpretation of the available data in conjunction with the geology of the general area suggests that the water in the consolidated rocks move northward in the direction of, but not necessarily at the same gradient, as the dip of the beds.

Ground water is not present everywhere in the soil mantle and alluvium. There are no wells in the alluvial aquifers. The alluvial deposits in the bottom of canyons, are long and narrow and of limited extent. The body of water in a deposit of alluvium may extend beyond the limits of the alluvium into the weathered upper part of the consolidated rocks. Where unconfined ground water is present in the alluvium and weathered bedrock, it generally moves in the direction of the slope of the overlying land surface. The direction of movement of the unconfined water is toward the bottom of the canyons and then down the axis of the canyons.

The average permeability and porosity values of the well core samples were used to estimate the velocity of ground water in the regional aquifer to be 0.8 feet/year (see revised Wahler Report submitted February 4, 1983).

While this velocity is a rough estimate, it suggests that the average velocity of water in the regional (areal) aquifer (the consolidated rocks) is very slow. The velocity of ground water may differ locally in fractures and along bedding planes.

In order to obtain more accurate permeability data, slug injection aquifer tests were done on three wells in the mine area. The results of these aquifer tests are presented in the report prepared by Wahler Associates (refer to page II-118a of the MRP).

Water Level Fluctuations

Measurements of ground water levels in the permit area began in November 1979. Water levels in five exploration holes and in two idle mines in Dugout Canyon are measured at monthly intervals.

Water levels in the observation wells are still recovering from the initial perforation, but some seem to be approaching the true static level (Table IV-B.7, page II-83).

Water levels in the unconfined alluvial aquifers, including the upper few feet of saturated weathered bedrock, closely follow the fluctuation in the rate of spring discharge. The high and low ground water levels precede and lag behind, respectively, the peak and low flow rates of spring discharge. The time period between a peak water level and a maximum rate of spring discharge depends on the distance between a given point in the aquifer and a spring which drains the aquifer.

The fluctuations in water levels and discharge may vary somewhat from one year to another. The variations result in response to the amount of winter precipitation and to the variability, in both time and length, of the snowmelt period. In the Sage Point-Dugout Canyon project area, the peak water levels in the unconfined aquifer should occur between late April and early June, approximately coinciding with or shortly following the peak snowmelt and runoff period.

Conversely, water-level fluctuations in the areal aquifer respond principally to long-term precipitation patterns. Recharge to this aquifer probably occurs at a much more constant rate than to the alluvial aquifers, because the very low permeability of the rocks restricts and evens out the rate of movement of the infiltrating water. Better data regarding the water level fluctuations of the areal aquifer will be acquired as the water levels in the observation wells are measured over the next several years.

Discharge

Nearly all the water discharged from the areal aquifer in the project area is subsurface flow that moves beyond the boundaries of the project area.

The quantity of underflow is estimated at 90 acre-feet/year. The actual quantity is probably less than this because the average permeability (K) of the saturated materials is smaller than that used in the computations. The K that was used is from laboratory measurements of a three-foot section of sandstone, whereas much of the aquifer is composed of shales and siltstones which have lower permeabilities. A reasonable estimate of underflow moving out of the project area in the areal aquifer seems to be in the range of 10 to 90 acre-feet/year.

Surface Water Information

Existing Resources

The Sage Point-Dugout Canyon Project is located in the Price River drainage basin of the high plateaus of the Utah section of the Colorado Plateaus Province. The Price River basin is hydrologic unit 14060007 in the national drainage basin cataloging program of the Office of Water Data Coordination within the United States Geological Survey (USGS).

The headwaters of the basin are about 40 miles west of the proposed coal mines. The Price River meets the Green River about 40 miles southeast of the proposed project. The Green River flows southward from its confluence with Price River approximately 75 miles, until it discharges into the Colorado River. The Price River drainage basin contains some 1,900 square miles, including 61.54 square miles in the smaller basins which drain the project area.

The project area is located on the north central flank of the Price River drainage basin. The Soldier Creek drainage, including Fish and Pine creeks (two principal tributaries), contains the western half of the project area. The confluence of Soldier Creek and the Price River is about six miles downstream from the southern edge of the project area and about two miles east of the town of Wellington. Dugout, Pace and Corbula creeks are the principal streams that drain the eastern half of the project area. These three streams merge near the south edge of the area and continue on until they discharge into Grassy Trail Creek, seven miles southeast of the project area. The confluence of Grassy Trail Creek and Price River is downstream another 15 miles, about 10 miles upstream from Woodside.

The streams which drain the project area discharge into the Price River only during spring-snowmelt runoff periods and when occasional floods result from summer rainstorms. For most of the year, water in these streams is dissipated below the foot of the Book Cliffs, well above the confluence with the Price River. The water is consumed by evaporation from the streams and by transpiration from streambank vegetation. The only exception is a diversion from Soldier Creek in SW1/4, Section 19, Township 13 South, Range 12 East. This water is diverted into Anderson Reservoir for irrigation of lands near the south side of the project area. In addition, some water has been diverted in past years from other streams into small, less than 10 acre-foot capacity, stock and irrigation ponds.

The average altitude of the drainage basins is moderately high, ranging from 6,779 feet in the Corbula Creek drainage to 7,943 feet in the Pine Creek drainage. The topography above the foot of the Book Cliffs is rugged, with as much as a 3,280 foot difference between the minimum and maximum altitudes. There are many steep slopes in streams and on hillsides.

Watershed Characteristics

The aggregate drainage area of the six small basins that may be affected by the construction and operation of the Sage Point-Dugout Canyon Project is 61.54 square miles. The basins range in size from 3.53 square miles for Pine Creek (a tributary of Soldier Creek) to 29.91 square miles for Soldier Creek and its tributaries (physical conditions of drainage basins, Table IV-B.9).

Corbula Creek

The Corbula Creek headwaters are located in the Book Cliffs in the south-central part of the project area. The stream flows generally southward and eventually discharges into Dugout Creek.

Corbula Creek has a short perennial reach near springs at hydrologic data sites 61 and 62 (see Hydrology Map, G03-0148).

Dugout Creek

Dugout Creek has its headwaters in the Roan Cliffs near the northeastern side of the project area. It flows southwestward to the lower edge of the Book Cliffs and then generally southward to hydrologic data site 69, near where it joins Pace Creek. The combined stream continues southward another five miles, where it is joined by Corbula Creek. After flowing southward another two miles, it discharges into Grassy Trail Creek, which flows southeastward until it discharges into Price River.

Dugout Creek is usually perennial above site 69. However, flow may cease in the fall and winter when late summer and fall precipitation has been light and when cold weather freezes the stream.

Fish Creek

Fish Creek has its headwaters in the Book Cliffs near the central part of the project area. It flows generally south-westward then joins Soldier Creek.

The creek is intermittent, having several alternate flowing and nonflowing reaches. Water flows in this upper reach where the cross-sectional area of underlying alluvium is small or missing, and the stream disappears into the alluvium where the cross-sectional area is larger. The lengths of the reaches having flowing water increase and decrease depending upon antecedent weather conditions. The lower reach is usually dry most of the year.

Pace Creek

Pace Creek has its headwaters in the Roan Cliffs located northeast of the project area. It flows southwestward across the east end of the project area to hydrologic data site 70, near the confluence of the two streams which are at the lower end of the monitored part of the drainage basin. The combined streams continue on toward Price River.

Pace Creek is a perennial stream above the Book Cliffs escarpment and intermittent below the cliffs. Flow may cease in the fall and winter when late summer and fall precipitation has been light and when cold weather freezes the stream.

Pine Creek

The headwaters of Pine Creek are located in the area between the Book Cliffs and the Roan Cliffs near the north-central part of the project area. It flows in a generally westward direction and eventually discharges into Soldier Creek 35 meters (120 feet) below hydrologic data site 23. The combined streams continue to the Price River as described for Soldier Creek.

Pine Creek usually contains water throughout its entire length. However, during periods of unusually low precipitation there are dry reaches between springs that feed the stream.

Soldier Creek

The headwaters of Soldier Creek are located in the Roan Cliffs and in Whitmore Park, which is between the Book Cliffs and the Roan Cliffs in the northwest part of the project area. It flows southward to hydrologic data site 68. Soldier Creek discharges into the Price River about six miles south of hydrologic data site 68 (see Map G03-0148).

Anderson Reservoir, which is on a small tributary of Soldier Creek, is used to store water that is diverted from Soldier Creek. Most of the stored water is runoff from snowmelt, but some water is diverted to the reservoir throughout much of the year.

Soldier Creek is a perennial stream in certain sections and intermittent in others. The reach between the diversion and site 68 would be perennial during most years if the water were not diverted for irrigation during the low-flow period.

Springs

An inventory of springs located in the project area was made between 1976 and 1981.

All of the larger springs and a majority of the smaller springs were sampled; springs representing all geologic conditions were sampled (for locations see Map G03-0148).

Most of the springs issue at or near the bottom of stream channels. Some springs issue from fractures and bedding planes in consolidated formations. A few small springs with flows of less than one gallon/minute issue at seepage areas along some canyon walls.

The wide variability of discharge rate, temperature, and specific conductance of most springs suggest a local body of ground water near the surface. The magnitude and duration of large discharges from springs occurs in early spring only after appreciable winter precipitation. Recharge derived from snowmelt is rapid, suggesting both high permeability and shallow depths to the water table. In addition, the large range in discharge rate over a short period of time, with a very low minimum in the summer, suggests that the body of ground water supplying the spring is small.

The seasonal fluctuation in temperature also suggests that the body of ground water supplying the spring is small. The water temperature changes parallel the seasonal air temperature. This relationship indicates that the water table is near the land surface and that the body of ground water is relatively thin (Table IV-B.11 and 11a).

The quality of the spring water, as measured by specific conductance, fluctuates seasonally and approximately in synchronization with the fluctuations in discharge. The water quality is best when the discharge rate is largest and poorest when the discharge rate is smallest. The quality-discharge relationship also indicates that the aquifers supporting the springs are small. Some springs appear to discharge totally or in part from consolidated rocks rather than from alluvium. In some areas, the upper few feet of the consolidated rocks underlying the soil and alluvium is highly weathered and fractured. Water in the weathered and highly fractured parts of the unconsolidated rocks may move as freely as it does in the alluvium. Most of the recharge does not infiltrate the consolidated rocks beyond a few feet, because the rocks are only slightly permeable below the weathered zone. This is not inconsistent with the conclusion that most of the spring discharge in the project area is from several small, local unrelated near-surface aquifers.

Some or all of these aquifers are perched, and thus they have limited or no direct hydraulic connection with the underlying areal aquifer. The water table in a perched aquifer near well 5-1 is at approximately the same level as the bottom of the stream channel.

In the project area, the only spring improvements are a few small earthen ponds and two short pipelines to stock watering-troughs, all in various stages of disrepair.

Water Quantity

The data from periodic measurements at 12 surface water monitoring sites in the project area are presented in the MRP. The data from recorder measurements taken on-Soldier Creek and Dugout Creek suggest a mean annual flow estimated at 1,000 acre-feet per year and 558 acre-feet per year, respectively.

The minimum uncontrolled flow in all reaches of all streams in the project area is less than one cubic foot per second for several months of the year. Maximum flows occur during spring snowmelt and summer torrential rainstorm periods.

Water Quality

Water sampling in the project area was initiated in July 1976, to determine baseline chemical constituents and suspended sediment in streams. Chemical and suspended sediment analyses for samples collected at 13 stream sites during 1976-81 are reported in the MRP.

The quality of the surface water in the project area is better than that of the Price River. The observed range of dissolved-solids concentration in streams in the project area was 215 to 3,375 milligrams/liter, whereas in the Price River at Woodside during water years 1976-78, the observed range was 1,150 to 6,990 milligrams/liter. The difference is primarily a result of the

concentration of sulfate which was 25 to 980 milligrams/liter in the project area streams and 640 to 4,300 milligrams/liter in the Price River. These higher concentrations of dissolved-solids and sulfates in the Price River are caused by the tributary streams dissolving sulfate (and to a lesser extent other constituents) as they flow across Mancos Shale or soils which are largely derived from that shale.

The suspended sediment concentrations in streams in the project area during water years 1976-78 ranged from 0.2 to 8,353 milligrams/liter. By way of comparison, for the same period of time the concentration range in the Price River at Woodside was 19 to 69,600 milligrams/liter.

The observed range of pH in project area streams is 7.9 to 8.9. The bicarbonate range is 271 to 514 milligrams/liter. Both measurements indicate alkaline water.

Total iron concentrations ranged from 8 to 39,500 micrograms/liter, in contrast to dissolved iron, which was 10 to 4,430 micrograms/liter. The observed range of total manganese was 6 to 2,500 micrograms/liter, in contrast to dissolved manganese, which was 4 to 1,930 micrograms/liter. The change in concentration of both iron and manganese varies together. The high total concentrations of both is probably associated with sediment in the water samples.

Water quality data for 1980 include four seasonal measurements for Dugout Creek, Pine Creek, Pace Creek and Soldier Creek, the four streams having the largest discharge in the project area.

For the parameter total dissolved solids, each stream has the lowest value in spring and highest in winter, which correspond to the times of high and low discharge, respectively.

For the parameter pH, no regular pattern of seasonal variation is apparent. However, pH generally fluctuates within a narrow range of alkalinity. For almost every stream, the difference between the highest and lowest measurements over a period of four years was only 0.5 pH units.

Total iron has a peak value during the spring runoff, with lower values throughout the rest of the year. No regular pattern of variation is apparent for the rest of the year, but the values do not fluctuate greatly in comparison to the spring peak value. Dissolved iron has low values throughout the year, almost always less than 100 micrograms/liter, with no regular pattern of variation.

Total manganese, like iron, has a peak value during spring runoff. Again, values for the remainder of the year are low, with the minimum value occurring sometime in summer or early fall.

UMC 817.41 Hydrologic Balance: General Requirements

Applicant's Proposal

The applicant proposes to control surface runoff from the disturbed and undisturbed areas by utilizing a combination of structures; i.e., diversion channels, culverts and sedimentation ponds. Runoff from disturbed areas will be routed through the sedimentation ponds. Undisturbed drainage will bypass the operation via temporary diversions. Processing and associated operational waste will also be controlled through use of evaporative/sewage treatment lagoons.

Impacts to the ground water system will be minimal and will be monitored via a series of observation wells, in-mine sampling and spring sampling which is part of the ground water monitoring program.

Any impacts of the mining operation on the surface water system will be determined through implementation of the surface water monitoring plan and analysis of the data collected. All discharges to receiving waters must be in compliance with applicable State and Federal water quality regulations and effluent limitations.

Sunedco will minimize changes or impacts to the hydrologic balance by controlling channel velocities, riprapping appropriate channel sections, providing contemporaneous revegetation and by preventing acid- or toxic-forming materials from entering and contaminating the hydrologic system.

Compliance

The operator has proposed designs utilizing best technology control practices to minimize changes to the prevailing hydrologic balance in both the mine plan and adjacent areas. The following sections (UMC 817.42-.57) describe specific design details for the hydrologic facilities proposed.

Reclamation practices will also be instituted to minimize changes to the hydrologic regime.

The applicant's proposal will meet the general requirements for this section when the stipulations in the following sections are met.

UMC 817.42 Water Quality Standards and Effluent Limitations

Applicant's Proposal

The applicant proposes to mitigate impacts to receiving streams below disturbed areas by employing sedimentation ponds, diversions, grading slopes and seeding and planting disturbed areas. Structures controlling water quality will be installed prior to construction and maintained until the

disturbed area has been restored and revegetation requirements of UMC 817.111-817.117 are met and quality of the untreated discharge from the disturbed areas meet the State and Federal water quality standards and effluent limitations of receiving streams for all sedimentation ponds.

It is not anticipated that there will be any discharge from underground workings. All water encountered will be used within the mines.

Compliance

The information presented in the mine plan does not indicate that effluent limitations established by UMC 817.42 will be met. It does show the degree of entrapment that will take place within sedimentation ponds at the coal and rock waste disposal sites during a 10-year, 24 hour precipitation event. Although the sizing of the ponds at the coal and rock waste disposal sites meet the volume capacity of a 10-year, 24-hour event in accordance with the remanded version of UMC 817.46, it appears that discharge will take place during that event which will exceed State and Federal effluent limitations.

Remedial measures will have to be instituted to meet water quality standards. In the event that unpredictable quantities of water are encountered underground which cannot be contained in the mine, such measures may involve enlarging sedimentation ponds to contain mine discharge, using flocculents or other treatment methods to settle suspended and dissolved solids as necessary.

Stipulation 817.42-(1)-DD

1. The applicant has established the degree of sediment entrapment that will take place at the coal and rock waste disposal sites during a 10-year, 24-hour precipitation event. The applicant shall also provide an estimate of anticipated sediment influent concentrations characteristic of the undisturbed drainages so as to determine the quality of effluents from both waste disposal sites and undisturbed drainages. Final designs for sedimentation ponds must show evidence of compliance with UMC 817.42 through design criteria that will meet State and Federal water quality and effluent limitations. The final pond designs shall be submitted to the regulatory authority at least 120 days prior to planned sedimentation pond construction.

UMC 817.43-.45 Diversion and Conveyance of Overland Flow, Stream Channel Diversions and Sediment Control Measures

Applicant's Proposal

Several diversions will be employed within the permit area to divert perennial sections of streams, to protect fills and property and to avoid danger to public health and safety. Appropriate sediment control measures will be instituted to prevent additional contributions of suspended solids to

streamflow and runoff outside the permit area. These measures will consist of, but not be limited to; maintenance of appropriate gradients, lining channels and revegetating. The use of energy dissipators will be employed as necessary to reduce velocities and prevent erosion at discharge points.

The mine plan calls for two permanent diversions, one on Soldier Creek and one on Dugout Creek. The Soldier Creek diversion will divert flow from Soldier Creek to the proposed Anderson Reservoir at a maximum rate of 20 cfs. The Dugout Creek diversion will divert flow from Dugout Creek to the proposed Dugout Reservoir at a maximum flow rate of 10 cfs. The two diversions will be designed to pass a 100-year, 24-hour flood.

Temporary diversions will be installed to divert flow away from disturbed areas. These diversions will be removed upon final reclamation. Two diversions will be constructed above the central facilities which will empty into natural drainage ways. Flow from these diversions will eventually enter Soldier Creek.

Three diversions will be constructed to divert runoff away from the preparation plant. The system employs the use of check dams placed in natural drainage ways to restrict and direct the flow from the undisturbed areas into diversions. The flow will eventually enter Soldier Creek. Diversions will be placed on the uphill slopes of both Fish Creek Canyon and Dugout Canyon portal areas to divert runoff away from the portal facilities. They will be located at the bottom of the first cut or on cuts constructed during exploration to minimize additional disturbance. The diversions will direct the runoff into existing natural drainages and into culverts underlying the portal areas. The flow from the undisturbed areas will eventually discharge into the main channels of Fish and Dugout creeks. These designs will be temporary structures, to be reclaimed after mining ceases. They will be designed to transmit flows generated by a 10-year, 24-hour precipitation event.

Surface runoff from areas above the rock waste disposal sites will be directed away from the fill and sedimentation ponds by diversions (Dugout diversions #1 and #2) designed to pass a 100-year, 24-hour flood with a maximum allowable velocity of five feet per second (fps). One diversion will be constructed above the Fish Creek disposal site and two diversions constructed above the Dugout Creek waste disposal site. A third diversion (Dugout Canyon diversion #3) will be designed to convey the 25-year, 24-hour runoff from within the disturbed area to a sedimentation pond.

Six diversion structures will be constructed to control surface runoff near the preparation plant waste disposal areas (D03-0165). Saddle Valley diversions #1 and #2 and Boot Valley diversion #1 are intended to divert runoff away from the preparation plant waste. The diversions will be designed to convey a 100-year, 24-hour flood with a maximum velocity of 5 fps. Saddle Valley diversion #3 and Boot Valley diversion #2 and #3 will be constructed to direct surface runoff from the fill area into sedimentation ponds. These diversions will be designed to pass a 25-year, 24-hour flood.

The undisturbed drainage above the Fish Creek portal area will be routed under the portal sites through large culverts. The culvert diversion is designed to carry the runoff from a 100-year, 24-hour precipitation event.

Compliance

The applicant has supplied conceptual designs for all culverts and diversions. Final designs will be submitted by the applicant 120 days prior to construction.

Stipulations 817.43-.45-(1, 2)-DD

1. The applicant must submit, at least 120 days prior to construction, longitudinal cross sections and design calculations for culverts emplaced under the portal areas used to divert undisturbed runoff. (The Division suggests that the Dugout Creek culverts be sized to transmit at least a 50-year, 24-year event.) Culverts shall be fitted with trash racks at the inlet to help prevent plugging.
2. All culverts and diversions shall discharge onto a protected surface (i.e., riprap, conveyor belting, flexible downspouts, etc.) to prevent scouring and erosion.

UMC 817.45-.47 Sediment Control Measures, Sedimentation Ponds and Discharge Structures

Applicant's Proposal

Sedimentation ponds will be used to minimize and control the sediment associated with runoff from disturbed areas. The proposed sedimentation ponds will be constructed to contain the expected runoff and sediment load from a 10-year, 24-hour precipitation event in the area. Each pond will be designed and constructed under the supervision of a qualified, registered professional engineer. The sedimentation ponds will be constructed before any disturbance of the undisturbed area to be drained into the pond. The top width of the embankments shall not be less than $(H + 35)/5$, where H is the height of the embankment. The embankment upstream and downstream side slopes will not be steeper than 1v:2h. All pond structures will be regularly inspected by a licensed individual as required by regulation. Measuring devices will be installed to determine when the ponds have filled with sediment to their clean out level. Water monitoring stations will be established at the outlets of the ponds.

The applicant plans to construct a total of sixteen sedimentation ponds to contain and settle sediments associated with runoff from disturbed areas. A dual-celled sedimentation pond will be constructed at Fish Creek and Dugout Creek portals. A single cell sedimentation pond will be incorporated at the central facilities and coal preparation plant. The rock waste disposal site

at Fish Creek will utilize two sedimentation ponds and the rock waste disposal site at Dugout Creek will utilize three sedimentation ponds. There will be seven sedimentation ponds employed at the two coal waste disposal sites, four sedimentation ponds at the Saddle Valley site and three at the Boot Valley site.

The applicant plans to install an emergency surge pond to contain slurry waste discharged from the coal preparation plant if an emergency situation occurs.

A three-celled total containment sewage pond (sewage lagoon) will be constructed to process waste water produced at the portal sites, central facilities and coal preparation plant.

The applicant proposes to construct settling ponds to contain coal fines that are washed from the drive and transfer stations on the conveyor system. The ponds will be cleaned periodically by a front-end loader.

The applicant plans to reclaim all areas. Upon completion of mining operations the settling ponds, emergency pond and sewage ponds will be cleaned, leveled, covered with top soil and revegetated. The sedimentation ponds will remain until the quality of the untreated discharge from disturbed areas meets the State and federal water quality standards and effluent limitations of receiving streams.

Compliance

Preliminary conceptual designs and calculations have been included for the majority of the hydrologic structures to be implemented on the project area. However, the actual final designs were not included in the plan.

The Division received a statement from the applicant in April of 1982, setting forth the date November 30, 1982 when final designs would be submitted for runoff control structures. These final designs have not been received to date. It is the Division's understanding that some minor revisions may be proposed by Sunedco which could change the final designs somewhat. Consequently, the Division will require submission of the final designs a minimum of 120 days prior to the onset of planned construction. This should allow ample time for regulatory review and revision if necessary.

Stipulations 817.45-.47-(1-6)-DD/DWH

1. At least 120 days prior to planned sedimentation pond construction, the applicant must demonstrate to the regulatory authority that the final designs for the sedimentation ponds at the central facilities, coal preparation plant and portal areas will meet all applicable State and Federal water quality effluent limitations. There shall be no outflow through the emergency spillway during the passage of runoff resulting from a 10-year, 24-hour or lesser precipitation event.

2. At least 120 days prior to surge pond construction, the applicant must submit for regulatory authority approval, final designs demonstrating that the emergency surge pond for the preparation plant is sized to contain the working volume of treatment fluids, with the appropriate freeboard, and constructed to meet design criteria for embankments and sediment removal designated in UMC 817.46.
3. Design of the sewage lagoon must be approved by the Division of Environmental Health. Prior to start of construction, the DEH letter must be forwarded to the regulatory authority.
4. At least 120 days prior to any pond construction, the applicant shall design and submit for regulatory authority approval, a plan for the disposal of dregs and waste from the sedimentation ponds, emergency surge ponds and sewage ponds. (The Division recommends disposal of this material at the coal or rock waste disposal sites, however, alternative methods may be suggested.)
5. The applicant shall construct diversion ditches to direct runoff away from settling ponds at drive and transfer stations pursuant to design standards of UMC 817.43. These diversion ditches must be constructed at the same time as the settling ponds.
6. The applicant shall obtain approvals from both the State Division of Water Rights, the Division of Environmental Health (Bureau of Water Pollution Control) and the Federal MSHA (30 CFR 77.216 regulations) as required for the construction of those ponds, dams and reservoirs (i.e., Anderson & Dugout reservoirs) which meet or exceed the appropriate regulation requirements. The applicant shall provide the regulatory authority with copies of the approvals prior to the construction of the same.

UMC 817.48 Acid-forming and Toxic-forming Materials

Applicant's Proposal

Mining practices will be carried out in such a manner as to avoid pollution of ground waters and surface waters from acid and toxic-forming materials. All foreseen instances will be abated by implementing diversions, slope shaping and impoundments. Samples will be taken in accordance with an approved monitoring program at all point source discharge outlets to insure effluent limitations are met. The results of chemical analyses for overburden and coal samples are presented on pages II-39, 40, Section 4.2, Volume II of the MRP.

Compliance

The applicant has had roof, floor and coal samples chemically analyzed which would indicate a low potential for contamination problems due to acid- or toxic-forming materials. Other coal mining operations in the region have

not identified significant problems with any acid- or toxic-forming materials to date. The applicant has committed to demonstrate the nontoxicity and suitability of the sludge which will be contained in the containment lagoons before any is used for reclamation purposes.

Stipulations

None.

UMC 817.49 Permanent and Temporary Impoundments

Applicant's Proposal

The mine plan calls for the construction of two permanent reservoirs and several temporary sedimentation ponds. The two permanent dam structures will be designed by a registered professional engineer. A new dam structure will replace the existing dam at Anderson Reservoir. The new Anderson Reservoir will have an active storage capacity of 1,675 acre-feet with a sediment storage of 135 acre-feet and a flood stage of 120 acre-feet. The new Dugout Reservoir dam will be constructed west of Dugout Road. It will have an active storage of 525 acre-feet, a sedimentation storage of 20 acre-feet and a flood stage of 80 acre-feet.

UMC 817.49(1)
Water from reservoir storage will be suitable for its intended use within the mines and at the central facilities areas for coal processing. A portion of the raw water will be diverted to treatment plants for potable use. It is anticipated that diminution of the stream will not occur below the stream diversions or reservoirs as a result of their placement. The maximum amount of water diverted to the reservoirs will be limited to the applicant's water rights, which are 20 cubic feet per second (cfs) for Soldier Creek and 10 cfs for Dugout Creek. Runoff in excess of these amounts will continue to flow down the existing stream channel. *what is intended use*

All dams, embankments and other impoundments, with the exception of the Anderson Dam, the Dugout Canyon Dam, and their associated diversion structures, will be completely removed and reclaimed upon cessation of mining activities. Sedimentation ponds will be removed last.

The reservoirs, along with the water rights, will be sold upon completion of mining and reclamation activities.

Compliance

The applicant has submitted preliminary conceptual designs for the proposed reservoirs and sedimentation ponds. These designs have been determined to be acceptable as conceptual plans. However, the final designs must be reviewed and approved by this Division, the State Engineer's Office and the State Division of Environmental Health. All sedimentation ponds or impoundments meeting the size requirements of 30 CFR 77.216 must comply with the requirements of that section.

Stipulations 817.49-(1, 2)-DD/DWH

Same as Stipulations 817.45-.47-(1, 2)-DD/DWH.

UMC 817.50 Underground Mine Entry and Access Discharges

Applicant's Proposal

The applicant has stated that limited amounts of ground water are expected to be contacted underground during mining operations and that no mine discharge should occur.

Compliance

After researching the possible ground water quantities that could be produced in the mine, the Division concludes that ground water will be contacted during mining operations. Although low quantities are expected to be intercepted, actual quantities cannot be predicted at this time by either the Division or Sunedco. Therefore, Sunedco's inference that no ground water will be discharged should be modified to provide information on how underground mine effluent will be treated in accordance with UMC 817.50 in the event that larger quantities of ground water are contacted than can be utilized underground.

Stipulation 817.50-(1)-DD

1. At least 120 days prior to construction of the portals the applicant shall submit for regulatory authority approval, a plan for handling and treating all mine water discharges. This information is needed because actual quantities of ground water intercepted cannot be predicted at this time. This plan will be in accordance with UMC 817.50.

UMC 817.52 Surface and Ground Water Monitoring

Applicant's Proposal

Sunoco Energy Development Company has used the DOGM's guidelines as a basis for establishing a surface and ground water monitoring plan for the proposed mine operation.

Baseline monitoring for most springs and streams was initiated in June of 1976. Five ground water observation wells were established in 1979. Sufficient baseline information has been collected to establish general baseline trends for the mine plan area. Operational monitoring data will be forwarded to the Division in January (includes an annual summary), April, July and October. Postmining monitoring results will be continued and results submitted to the Division until release of bond.

The applicant has surface water monitoring stations above and below the surface facilities on Dugout Creek, Fish Creek, Soldier Creek and Pace Creek. Additional surface monitoring sites are located on Pine Creek and Little Pine Creek for a total of 13 sites. Discharge and field data (pH, dissolved

oxygen, specific conductance, air temperature and water temperature) will be collected monthly from April through November. Flow measurements may not be made from December to March due to ice and snow problems (difficult access and interpretation of data complications). This plan will adequately address impacts to surface waters due to surface facilities in the permit area.

Ground water monitoring stations include five wells and 10 springs. The water levels in the five wells will be checked monthly from April through November and once in winter in early February. Discharge and field data will be collected from the spring sites quarterly (February, May, August and November). Chemical water quality parameters will also be checked for two of the springs during high and low flows. One spring site represents the perched aquifer and the other represents the areal aquifer. It is expected that this plan will adequately reflect impacts to the ground water resources due to underground mining.

The water monitoring program and boundaries of the study area were established to include the proposed permit area, mine plan area and enough adjacent territory to include any areas that may be indirectly impacted by the mines.

A NPDES permit has been applied for and issued to Sunoco Energy Development Company (Sunedco), #UT-0024031, as of June 1982 for any potential discharges from the sedimentation ponds and mines (see attached approval letter).

Compliance

The applicant's plan for the monitoring of surface and ground water resources will be adequate to identify significant changes or impacts to the prevailing hydrologic balance should any occur during or after mining and reclamation activities. The applicant's proposal will comply with this section.

Sunedco has presented sufficient data in their mine plan to define the seasonal variation in quantity and quality of springs and streams within and adjacent to the proposed mine plan area.

Stipulations

None.

UMC 817.53 Transfer of wells

Applicant's Proposal

The applicant plans to use the observation wells on the mine plan property as monitoring sites during mining. It is not anticipated that the applicant will transfer these wells in the near future. Upon cessation of operation and monitoring requirements, the wells will be plugged or transferred according to the applicable State and Federal regulations.

Compliance

The applicant's proposal will comply with the general requirements of this section.

Stipulations

None.

UMC 817.54 Water Rights and Replacement

Applicant's Proposal

The applicant owns or will own all the water rights on the proposed mine plan property. It is anticipated that mining will not diminish or interfere with the hydrologic regime. If a water supply of any owner of vested water right is damaged as a result of the mining activities, the applicant will replace that water supply in a manner consistent with applicable State law.

Compliance

The applicant's plan will comply with the general requirements of this section when the following stipulation is met.

Stipulation 817.54-(1)-DD

1. The applicant must submit to the regulatory authority copies of all appropriate water rights prior to development of such water rights.

UMC 817.55 Discharge of Water into an Underground Mine

Applicant's Proposal

The applicant states that surface water will be introduced into underground workings from water distribution systems at the portal areas. Surface water will be released from Anderson and Dugout reservoirs to pump houses where it will be pumped to the distribution systems at the portal

areas. The distribution systems will consist of handling and storage systems and afford water for fire protection, industrial use and potable water to the mines. During the first 10-12 years, potable water used for Dugout Canyon portal will be obtained from the abandoned Gilson Mine workings.

Compliance

Surface water utilized in the proposed mines will be apportioned from the water rights permits issued to the applicant for diversion of surface water from Soldier and Dugout creeks. Water discharged into the mine will be of proper quality for its intended use as a result of settling or, as in the case of potable water, by treatment. Other information will be required as mentioned in the stipulation.

Stipulations 817.55-(1-3)-DD

1. The applicant shall maintain and monitor a controlled flow rate into the mines and report flow rates (quantity) and quality of water discharged into the mine on a quarterly basis.
2. At least 120 days prior to initial construction (any construction within the permit area), the applicant shall provide to the regulatory authority the proper approval from MSHA.
3. At least 120 days prior to portal construction, the applicant shall submit an underground map of the old Gilson workings depicting the location of water in the mine.

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

Applicant's Proposal

The only permanent hydrologic structures remaining on the abandoned permit area will be Anderson and Dugout reservoirs and their respective diversions. The operator plans to sell these structures at the cessation of mining and reclamation operations with contingencies which hold the buyer liable for renovation of the structures. In the event these properties cannot be sold, the operator will be responsible for the renovation or reclamation of these properties.

Compliance

The applicant's plan will comply with the regulations set forth in UMC 817.56. However, the specifics of the future state approved transfer of water rights and owner liabilities must be provided to the Division upon cessation of operations.

Stipulation 817.56-(1)-DD

1. Prior to cessation of operations the applicant shall submit specific details of transfer of title to the Anderson and Dugout Reservoirs. This transfer agreement must incorporate any responsibilities the new owner will need to assume as part of reservoir maintenance.

UMC 817.57 Stream Buffer Zones

Applicant's Proposal

The applicant plans to disturb areas along Fish and Dugout creeks for the purpose of constructing mine portal pad areas. During operation, overland flow from undisturbed runoff will be directed underneath the portal pads via culverts. The applicant has submitted maps and cross-sections which detail pre- and postmining contours of the stream channels. The applicant plans to reclaim both of these areas. Plans call for the removal of the culvert from Dugout Creek, however, the applicant proposes backfilling the culvert in Fish Creek with concrete, gravel, earth or other suitable material to prevent collapse resulting from decay or other causes. Drainage will be allowed to cascade over the outslope of the portal pad (page I-296). This was proposed because the applicant concludes that removal of the culvert and recontouring would result in far greater disruption than would result from leaving the culvert in.

Compliance

The applicant does not plan to disturb any areas within 100 feet of stream channels except as described above.

Wildlife studies show that there are no fisheries in either stream.

More details are need on the reclamation of Fish Creek portal area to determine its feasibility. Diminution of water quality or quantity should not occur since the undisturbed runoff will not come in contact with the disturbed runoff or area.

Stipulations 817.57-(1, 2)-DD

1. Prior to any construction in the area the applicant shall establish markers establishing a 100 foot buffer zone along the perennial and intermittent streams adjacent to approved activities.
2. The applicant shall submit plans and calculations on long-term postmining reclamation stability and erosion control for the drainage channel of Fish Creek Canyon across and over the outslope of the portal pad to the point where it enters the natural drainage again. The plan will be submitted at least 120 days prior to construction of any discharge structures and/or erosion control measures.

UMC 817.59 Coal Recovery

Applicant's Proposal

Applicant will utilize both the longwall and room and pillar methods for mining coal. Equipment used in both methods will be equipped with the most modern, technically advanced supports and machinery available. The preparation plant will assure maximum recovery of coal and distribution over a wider market.

Compliance

Applicant is in compliance with this section.

Stipulations

None.

UMC 817.61-.68 Explosives

Applicant's Proposal

Minimal use of explosives is anticipated due to the mining methods proposed. Where use of explosives in underground construction activities is mandatory, Sunedco proposes to comply with state and federal laws concerning storage, transportation and handling.

The applicant does intend to utilize explosives for shaft development and overcasts which are subject to the requirements of UMC 817.61-.68.

Compliance

The applicant will be in compliance when a plan for storing, transporting and handling explosives is provided to the Division.

Stipulation 817.61-.68-(1)-SL

1. At least 120 days prior to construction of any surface facilities, the applicant shall submit a plan for approval by the regulatory authority for storage, transportation and handling of explosives addressing the requirements of 817.61-.68.

UMC 817.71-.74 Disposal of Underground Development Waste and Excess Spoil and Nonacid and Nontoxic-forming Coal Processing: General Requirements

Applicant's Proposal

Total coal waste from the preparation plant facility is estimated to be 807,000 TPY (tons per year). See Section UMC 817.81-.85.

Underground development waste from the Fish Creek and Dugout Canyon mines was determined to meet the definitive requirements of durable rock and will be disposed of in two durable rock fill sites located in Fish Creek and Dugout canyons, respectively.

Waste rock will be hauled by end-dump trucks to the disposal sites. Rock waste, at a maximum eight inch diameter, will be spread in two-four foot lifts followed by compaction. As the thickness of the fill increases, the fill will be benched into slightly weathered silt stone.

The maximum grade on the outslope of the fill will be 2h:1v. Twenty inch wide drainage terraces will be created on the fill at 40 feet vertical intervals. The terraces will be graded to a slope of 20h:1v toward the embankment. Any runoff collected on the benches will be routed downslope toward perimeter diversion ditches.

Underdrains consisting of colluvial sandstone material will be installed below both rock fill sites to allow free-flow movement of subsurface drainage.

The minimum static factor of safety for both rock disposal areas was determined to exceed that required in UMC 817.74. A qualified inspector will examine the rock fills throughout the construction, operation and reclamation phases. Periodic reports on the rock fill construction status will be submitted to DOGM.

A continuous drainage terrace at each fill site will be used as access for vehicles maintaining the equipment working on the fill surface. These drainage terraces will be used and maintained as Class III roads.

Compliance

Applicant had adequately addressed the requirements of 817.71-.74.

Stipulations

None

UMC 817.81-.85 Coal Processing Waste Banks

Applicant's Proposal

The applicant has selected two sites for coal preparation plant waste disposal. These areas are the Saddle Valley and Boot Valley waste dumps. Four sediment ponds are proposed for containing the runoff from the Saddle Valley area and three ponds for Boot Valley. Surface runoff diversions have been designed to divert upslope surface runoff away from the preparation plant waste. Other diversions within the waste areas will route disturbed runoff to the sedimentation ponds. The coal preparation waste will be transported by conveyor belt to the northern end of the Boot Valley coal waste disposal site and be trucked to the Saddle Valley site or placed into the Boot Valley fill. The coal waste will be spread in lifts of less than 24 inches and compacted. Inspections by qualified personnel are planned at least quarterly throughout the construction phase. Copies of inspection reports will be retained at the minesite.

The waste material will be terraced, with the terraces sloped toward the embankment and graded to route drainage to sedimentation ponds. The average gradient of the fill slopes including the terraces is 3h:lv.

An underdrain consisting of durable sandstone will be constructed to conduct infiltrated water to the sedimentation ponds. No springs or seeps are present in the area.

Compliance

The applicant complies with Sections 817.81-.85.

Stipulations

None.

UMC 817.86-.87 Burning and Burned Waste Utilization

Applicant's Proposal

The operator has stated that a minimization for potential of spontaneous combustion of the processing waste material will be achieved if placement and compaction of the waste is carried out as specified under 817.85.

Compliance

Compliance will be achieved when a plan for extinguishing coal waste fires is submitted.

Stipulation 817.86-.87-(1)-SL

1. The applicant shall provide, for approval by the regulatory authority, an operational plan for extinguishing potential waste fires in accordance with UMC 817.87 and MSHA regulations. This must be submitted 120 days prior to initial construction.

UMC 817.88 Return to Underground Workings

Not applicable.

UMC 817.89 Disposal of Noncoal Wastes

Applicant's Proposal

Noncoal solid wastes generated from mining activity will be disposed of in large trash dumpsters located at the portal pads and central facilities. A garbage hauling service will be contracted to pick up and haul the garbage to a nearby dump or landfill.

All salvageable metal materials will be stored in a semi-trailer and periodically delivered to a scrap dealer.

There will be no abandonment of equipment.

Compliance

Applicant is in compliance with this section.

Stipulations

None.

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

Applicant's Proposal

The applicant has not proposed using coal processing waste in either dams or embankments.

Compliance

Any planned use of coal processing waste in dams or embankments will need to be submitted in final designs and in accordance with Stipulation 817.45-.47(6).

Stipulations

None.

UMC 784.26 and 817.95 Air Resources Protection

Applicant's Proposal

The applicant has proposed a plan to control fugitive dust at the Sage Point-Dugout Canyon Mine. The plan consists of: covered conveyors, paved roads, water spray with wetting agent at conveyor transfer points, and water and bag house at coal preparation facilities.

The applicant received a PSD permit from EPA in December, 1979 and a conditional permit from the Utah Bureau of Air Quality in May, 1981.

Compliance

The fugitive dust control plan has been evaluated and found to be in compliance. The applicant must comply with the conditions of the Bureau of Air Quality approval.

Stipulation

The applicant shall submit a letter at least 120 days prior to initial construction stating that the conditions outlined in the Bureau of Air Quality conditional approval will be met. (Conditional approval letter from Brent C. Bradford to Nicolas K. Temnikov dated May 18, 1981, attached to TA.)

Applicant's Proposal

A wide variety of wildlife species utilize habitats within and adjacent to the permit area. Economically important and high interest species include mule deer, elk, pronghorn, mountain lion, bobcat, black bear, coyote, blue grouse, ruffed grouse, sage grouse, snowshoe hare, mountain cottontail and desert cottontail. Twenty-four species of raptorial birds have potential to inhabit the area at some time. Ten species have been observed on the permit area, and golden eagle, prairie falcon and Cooper's hawk nests have been found on-site.

Aquatic habitat is limited in the project area. None of the streams on the project area are considered to be of value as a sport fishery, but nongame species do inhabit them. It was jointly determined by DOGM and OSM, with input from the U. S. Fish & Wildlife Service (USFWS) and the Utah Division of Wildlife Resources (DWR), that further aquatic macroinvertebrate study was not needed due to results obtained during a DOGM field investigation (see documentation in Permit Application Addendum, pages I-414A[3]-[6]). Physical and chemical characteristics of the streams that will be disturbed by mining activities were measured for the purpose of developing stream reclamation plans.

Construction of surface facilities will disturb approximately 335 acres of critical mule deer winter range. This is roughly three percent of the designated critical winter range in deer herd unit 27b, which encompasses the permit area. During a winter deer study on the permit area, heavy use was found in pinyon-juniper habitat and in areas adjacent to agricultural fields near proposed surface facilities. However, heavy snowfall forced the animals to move south of the proposed central facilities area into lower elevations.

Special habitats such as riparian areas, pinyon-juniper and alfalfa fields will be disturbed during construction or operation of surface facilities. The Book Cliffs provide nesting areas for several species of raptors, including golden eagles. Three raptor nesting areas, including an "active" (USFWS definition) golden eagle nest, have been found to be in areas that will be impacted by mining and associated activities. The Bureau of Land Management (BLM) and the USFWS have made recommendations to mitigate potential conflicts (see attachments to TA).

Conveyors will be constructed to carry coal from the mine portals to the preparation plant. These conveyors, if not constructed properly, could impede passage of large mammals, particularly in areas of critical winter range. Eureka Energy Corporation participated in funding a study undertaken by DWR to determine the Effects of Coal Development on Wildlife in Southeastern Utah. One portion of this study was the documentation of premining use of conveyor corridors by big game animals. Preliminary data do not indicate a definitive

migrating movement, but rather daily feeding movements, around the conveyor. The conveyor system as proposed has been designed so that there will be 12 feet or more of clearance between the conveyor belt and the ground through the majority of its route.

Other impacts to wildlife may occur due to road kills, particularly where main roads intersect big game winter range and human impacts such as harrassment and poaching.

The applicant has submitted a preliminary plan to mitigate adverse effects of the proposed project on wildlife (Permit Application Vol. II-407 to II-419 and Addendum). The applicant has committed to promptly reporting any sightings of threatened or endangered wildlife on the permit area, to constructing power lines to be raptor-proof, to prohibit firearms within mine boundaries and to try to avoid blasting and major earthwork during the critical wildlife breeding season of May and June. The conveyor system will be constructed so as not to create barriers to wildlife migration. The applicant has committed to carefully regulate the use of pesticides and to prevent fires.

Other potential mitigation measures include enhancing wildlife habitat adjacent to disturbed areas, carrying out an education program for mine personnel, carrying out measures to minimize wildlife-vehicular accidents and fencing areas potentially injurious to wildlife.

The applicant has stated that following mining, high value habitats will be restored, or even enhanced beyond their premining condition. Revegetation species selection, planting patterns and other specifications were designed to restore wildlife habitat as the principal postmining land-use. A variety of native species will be seeded or transplanted on the different disturbed areas, depending on premining habitat type, and a variety of cultural treatments will be used to enhance reclamation success. A complete revegetation plan including species lists for each vegetation type and site-specific revegetation procedure is given in Volume II, Section III-F.5 of the permit application.

The only threatened or endangered species which the applicant identified as having potential to appear on site is the black-footed ferret. The Utah Division of Wildlife Resources carried out a ground search for prairie dog colonies (ferret habitat) during late April and mid-May.

Compliance

The applicant has complied with Section UMC 817.97 for the most part. However, in some areas information is still lacking or specific commitments have not yet been made by the applicant. The applicant has not responded to recommendations made by the USFWS and the BLM to mitigate disturbance of nesting raptors. The applicant has not submitted final designs for the conveyor belts. The applicant has informed DOGM (pers. com., Charles Durrett, May, 1982) that post-construction studies of deer movements in relation to the conveyors would be undertaken.

At this time, the applicant does not have a finalized plan to mitigate disturbances of general mine-related activities to wildlife. When the following stipulations have been satisfactorially addressed, the applicant will be in compliance with this section.

On December 23, 1982 the Endangered Species Office of the U. S. Fish and Wildlife Service provided a memorandum stating that no species currently listed by the FWS as threatened or endangered will be affected by the Sage Point/Dugout Canyon Mine. The Endangered Species Office did point out that the rare plant species Hedysarum occidentale var. canon may be affected by the proposed action. This species is currently under review for possible listing as an endangered species.

Stipulations UMC 817.97-(1-3)-SL

1. WAITING FOR USFWS & BLM STIP ON RAPTOR PROTECTION
2. At least 120 days prior to any conveyor construction, final detailed designs showing exact location of the conveyor corridor, height of the belt from the ground along the entire length of the conveyor and the location and design of any proposed big game crossings must be submitted to the regulatory authority for approval. The design must be correlated with data collected during the DWR study (Utah Division of Wildlife Resources, 1982) on big game movements through, and general use of the chosen conveyor corridors. The applicant has committed as a part of a wildlife mitigation plan to carry out a big game movement monitoring program post-construction. Design of this monitoring program must be submitted to the regulatory authority for review and approval at least 120 days prior to conveyor construction. Based on the results of this study the applicant may also be required to carry out certain big game mitigation practices, including but not limited to the construction of one or more big game crossings.
3. A final mitigation plan must be submitted to the regulatory authority at least 120 days prior to conveyor construction detailing all measures Sunedco will take to lessen impacts of mining on wildlife in the permit area. All sections of the proposed mitigation plan which were indefinite in the permit application must be committed to, or taken out of the plan.

UMC 817.99 Slides and Other Damage

Applicant's Proposal

Applicant does not anticipate the occurrence of slides in the mine area. The assumption is based on geotechnical studies of foundation materials for roads and waste storage areas.

Compliance

The applicant has not stated that the requirements of 817.99 will be met.

Stipulation

1. The applicant shall notify the regulatory authority of any slide or surface failures which may occur during operations.

UMC 817.101 Backfilling and Grading Plan

Applicant's Proposal

The applicant states that some of the portal face cuts should remain as part of the post-mining topography because there could be excessive erosion, a static factor of safety at 1.3 would be difficult to meet, backfilling to a lesser angle would be impractical because there would not be sufficient material from the original cut to achieve the desired slope, and that handling the needed backfill material in from other sites would only create additional disturbance.

Compliance

817.101(1) (Remanded)

817.101(8) (Refers to 817.101(1))

Requires that "all spoils shall be ... graded to eliminate highwalls ... except ... where the underground mining activity is in steep slope terrain, reduce highwalls to achieve the requirements of this Paragraph. All applicable requirements for insuring a static safely factor of 1.5 ... shall be met.

The applicant is not in compliance with the requirements of this section.

Stipulation 817.101-(1)-PGL

1. The applicant stated that some of the portal face cuts ("highwalls") would remain, but not all. A clear description (maps and cross sections with text) of which "highwalls" will be left and which will be graded and reclaimed must be submitted to the regulatory authority for approval at least 120 days prior to any portal construction. The description will include stability analyses of representative slopes for each of the highwall areas. Further, the applicant shall evaluate in these analyses the potential for use of material from other areas (minedevlopment waste rock areas) to achieve lesser slope angles and acceptable slopes with a minimum static safety factor of 1.5. Since the portal areas to be reclaimed will be "graded before topsoil placement along the contour unless site-specific slope conditions would cause a safety hazard to the operator," a contingency plan for these described conditions must be submitted. Exactly how will a portal face be reclaimed where slope conditions are hazardous?

UMC 817.107 Regrading or Stabilizing Rills and Gullies

Applicant's Proposal

Not addressed.

Compliance

Although 817.107 is not addressed in the MRP, the applicant will be required to regrade and topsoil rills and gullies deeper than nine inches, as required by 817.107.

Stipulation

1. A written commitment is needed from the operator that when rills or gullies deeper than nine inches form in areas that have been regraded or topsoiled, the rills and gullies shall be filled, graded or otherwise stabilized according to Section UMC 817.111-.117; or when rills and gullies form of a lesser size they will be stabilized and the area reseeded or replanted if the rills or gullies are disruptive to the approved postmining land-use or may result in additional erosion and sedimentation.

UMC 817.111-.117 Revegetation

Applicant's Proposal

Nine vegetation community types have been identified as existing in areas of proposed disturbance. Communities present are Douglas fir, mixed conifer-mountain brush, pinyon-juniper, shrub-grass-juniper, greasewood-sagebrush, mixed conifer, deciduous streambank, Rush-grass and salt cedar-willow (described on pages II-285 through II-289). In addition to these, a farmland-weed community exists in an area of previous disturbance. This community was not sampled since data thus acquired would not be useful for revegetation.

Each of the first seven communities listed above were sampled for total vegetative cover, total ground cover, cover by species, productivity by life form and by species, tree density and species composition, size classes and tree stand maturity, shrub height and shrub density (pages II-290 through II-295). Statistical adequacy was achieved for all sampling data.

Reference areas were chosen to correspond with all disturbed community types, except for the Rush-grass and salt cedar-willow types. Both of these types are small in extent, and non-natural in occurrence, owing their existence to proximity to a reservoir. The farmland-weed community will be revegetated as the shrub-grass-juniper type, the original vegetation in the area. Reference areas were shown to be statistically similar to the corresponding affected communities, with the exception of the productivity parameter in the deciduous streambank community. This is due to a difference in grazing pressure, with the reference area having been heavily grazed in the past. No other area within several miles of the mine is large enough or similar enough to the potentially disturbed community to serve as a reference area. The applicant has proposed to use the canopy cover of the deciduous streambank community reference area as the revegetation success standard for the affected area. Since the canopy cover is primarily composed of mature trees, this will be difficult to achieve during the responsibility period of reclamation. A recommended alternative is to use the tree density and herbaceous cover data collected for the affected area as the revegetation success standard. This approach is similar to the "baseline data" method as outlined in DOGM vegetation information guidelines.

No species currently listed as threatened or endangered has been found to occur on the project area. However, the Endangered Species Office of the USFWS has pointed out that the rare plant species Hedysarum occidentale var. canon may be affected by the proposed action.

The applicant has submitted a complete revegetation plan (pages II-303 through II-346). This plan adequately addresses timing of revegetation, species and seeding rates, planting methods and mulching techniques for both permanent and contemporaneous reclamation. Introduced species are only used to add stabilization and species diversity to the species mix, or substituted for another species of the same growth form for which seed is not commercially available. Irrigation will be used only on steep slopes and preparation plant waste disposal sites (pages II-339 through II-340). Anderson and Dugout reservoirs will be left as permanent features.

Feasibility of Reclamation

The Sage Point-Dugout minesite receives 12-16 inches of precipitation annually. This amount is sufficient for the establishment of many of the native species of the area. Soldier Creek Coal Company has had good success with contemporaneous reclamation at their Soldier Canyon Mine, which is adjacent to the Sage Point-Dugout property.

Compliance

The applicant has complied with these sections, with the following exception. The revegetation plan as described in the permit application applies to areas which will be topsoiled. The applicant has been released from retopsoiling the Dugout and Fish Creek Canyon waste rock disposal sites because the soils on these sites are not salvageable (see UMC 817.21-.25). The applicant must still submit complete reclamation plans for these two waste rock disposal areas. The permit application will comply with these sections when the following stipulations are met.

Stipulations 817.111-.117-(1, 2)-SL

1. At least 120 days prior to initial construction, the applicant must submit to the regulatory authority for approval a detailed plan for seed bed preparation and seeding for the waste rock disposal areas.
2. At least 120 days prior to initial construction, the applicant shall convey in writing to the regulatory authority its decision to utilize either the revegetation success standard proposed in Section 817.117 of the TA for the affected deciduous streambank community, or any alternative standard which can be demonstrated to be a practical way to measure success on this vegetation type. If the applicant elects to propose an alternate success standard, such proposal shall be submitted at least 120 days prior to initial construction.

UMC 817.121 Subsidence Control: General Requirements

Applicant's Proposal

Grazing lands used for cattle should not be affected by subsidence. Potential subsidence effects will not impede the recreational use of the land which is mainly for deer hunting. Selective mining will be employed providing for 50 percent or less extraction within a 25° angle of draw beneath a Mountain Fuel Supply Company pipeline and no subsidence effects are anticipated (refer to I-250A, I-261A[1] and [2], drawings A03-0186, -0187, -0188, figure IIIC.36A). This mining is projected to occur between years 6 and 25 of the life of mine (see D03-0006, 7, 8). Monitoring stations will be established to monitor the possible subsidence in the vicinity of the pipeline as well as near Soldier and Pine creeks, the only streams which may potentially experience any measureable subsidence. Uniform lowering of the surface area (less than three feet of total elevation decrease) may occur due to longwall mining, but no fracturing should occur. Possible subsidence effects which may occur to a single dirt road passing through the subsidence area will be slight and easily repaired.

Along with partial extraction methods being employed, barrier pillar columnization and harmonic extraction will be utilized to avoid surface subsidence effects while multiple seam mining practices are used.

The operator has prepared a subsidence control plan (page I-243) pursuant to UMC 784.20.

In addition, natural features such as the 200 + foot thickness of the massive Castlegate sandstone and the extensive (generally 1,000'-2,500') depth of overburden should preclude the transference of subsidence effects to the surface.

The operator has proposed four alternatives to mitigate any potential subsidence damage to surface structures such as the pipeline (see Addendum page I-261A[1] and [2]).

Compliance

The operator has satisfactorily supplied information covering this section, however, due to the nature of possible ramifications caused by potential subsidence damage to the Mountain Fuel Supply pipeline compliance with this section will not be complete until the following stipulation has been met.

Stipulations 817.121-(1, 2)-TNT

1. At least 120 days prior to initial construction, the applicant must provide to the regulatory authority a letter stating that the Mountain Fuel Supply Company has been made aware of potential subsidence under their pipeline.
2. Updated subsidence prevention plans must be provided to the regulatory authority for approval if deviations from forecasts in the MRP are developed. Should any surficial damage or fractures become apparent which may constitute a hazard, subsidence prevention plans must be updated immediately.

UMC 817.122-.126 Subsidence Control: Public Notice

Applicant's Proposal

The operator has not provided evidence that all owners of property or residents in the areas adjacent to the land which may be affected by subsidence have been notified by mail of the proposed mining schedule.

Compliance

When the following stipulation has been met, the operator will have achieved compliance with these sections.

Stipulation 817.122-.126-(1)-TNT

1. Each owner of property or resident within the area above the underground workings and adjacent area that would be affected by subsidence if it occurred must be notified by mail at least six months prior to mining. The notification shall contain as a minimum:
 - A. Identification of specific areas in which mining will take place;
 - B. Dates of underground operations that could cause subsidence and affect specific structures; and
 - C. Measures to be taken to prevent or control adverse surface effects.

UMC 817.131-.132 Cessation of Operations

Not applicable at this time.

UMC 817.133 Postmining Land-Use

Applicant's Proposal

In the area of the proposed mine, cattle grazing is the primary land use. Alfalfa cultivation, recreation and hunting and coal mining also occur in the immediate vicinity. A map (603-0147) showing premining land-use is included as part of the mine plan.

Previous coal mining has occurred on the permit area. In the Dugout Canyon area, the Knight Ideal Coal Company mined the Rock Canyon and Gilson coal seams located in both sides of the canyon. The mine opened in 1940 and closed in November 1965. Total coal extracted from the two seams was approximately 1,320,000 tons by conventional room and pillar methods.

Anderson Reservoir, Dugout Canyon Reservoir and their associated diversion structures will remain on the permit area as permanent features after the completion of underground mining activities. The county roads which were in existence prior to the development of the underground mine (Soldier Creek and Dugout Canyon roads) will also remain at the conclusion of the underground mining activities. Fish Creek Road, a new county road, Dugout Canyon Road and Soldier Creek Road will remain as paved roads.

The waste rock fills in Fish Creek and Dugout canyons as well as the preparation plant processing waste sites in Saddle and Boot valleys will be constructed as permanent features to blend into the existing topography. These areas will be contoured and revegetated upon completion of operations.

The applicant proposes to return the areas designated for reclamation to the premining land-uses. In areas of surface disturbance, soil reclamation and revegetation will restore the areas to usefulness as rangeland and wildlife habitat. The value of present cropland will be restored or enhanced following mining, since Anderson Reservoir will be enlarged and water availability may increase.

Compliance

Applicant complies with this section.

Stipulations

None.

UMC 817.150-.76 Roads

Applicant's Proposal

Three county roads will be used in connection with the applicant's mine facilities: Soldier Creek Road; Dugout Canyon Road; and, Fish Creek Road. All roads are shown on Map D03-0002 in the permit application. The Soldier Creek Road will be used by miners and trucks hauling supplies to the central facilities and the Soldier Creek Mine area. The road is 30 feet wide and paved. The Dugout Canyon Road is an existing gravel road and will be upgraded and paved as shown on plans submitted December 1981. Road improvement will be performed under the auspices of Carbon County through the Utah Department of Transportation with funds provided by the applicant. The road will be used by miners, supply trucks and coal haulage (prior to conveyor construction) to and from the Dugout Canyon Mine portals. The Fish Creek Road is a new road which will be constructed under the auspices of Carbon County through the Utah Department of Transportation as an addition to the State County Collector Road System. The applicant will finance construction through the prepayment of sales and use taxes. Plans for the road were submitted in December 1981. This road will provide access from the Dugout Canyon Road to the Fish Creek portal area and will be used by mine employees and maintenance vehicles.

Public notice of the use of the mine haul roads was given in the Salt Lake Tribune and the Price City Sun Advocate on October 21, 1981.

In addition to the three county roads, the applicant is proposing the construction of 11 (eleven) Class II access roads. Road uses are described in detail on pages 109-111, Volume I, MRP. Roads include access to the Fish Creek fan portal, sewage lagoon, Fish Creek rockfill, Fish Creek Ridge Road, Big Hole Road, Dugout Reservoir, Dugout Canyon rockfill, Anderson Reservoir, Anderson Dam, prep plant waste area and the central facilities.