ATTACHMENT I

Conditions Proposed by the Office of Surface Mining

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

817.42-(1)-DD/OSM1

The applicant shall provide 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.

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 central facilities, coal preparation plant and portal areas will meet all applicable State and Federal water quality effluent limitations.

817.45-.47-(2)DD/DWH/OSM3

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.

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 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.

817.56-(1)-DD/OSM5

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.

817.57-(2)-DD/OSM6

The applicant shall submit final detailed 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 any construction in the Fish Creek Canyon portal area. If the applicant cannot successfully demonstrate the feasibility of this approach, then the applicant will be required to submit for regulatory authority approval a plan for pad and culvert removal and restoration of the original drainage.

817.61-.68-(1)-SL/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 requirements of UMC 817.61-.68.

817.97-(1)-SL/OSM8

817.97-(1)-SL/OSM8 consists of the stipulations submitted by the Bureau of Land Management, incorporating U.S. Fish and Wildlife Service concerns. The BLM/FWS stipulations 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 the 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 the 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 the 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 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.

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 the 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 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).

h. 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, Februry 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.

i. 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 conditions:

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 determintion 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.

j. 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 conditions:

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 authoried 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.

k. 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.

817.97-(2)-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 DWR study (Utah Division of Wildlife Resources, 1982) on big game movements through, and general use of the chosen conveyor corriders. 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.

817.97-(3)-SL/OSM10

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 impact of mining on wildlife in the permit area. This mitigation plan must also address items a, e, f, g and i listed on page two of the May 12, 1983 U.S. Fish and Wildlife Service memorandum, "Review of Concerns - MRP, Sunedco, Sage Point-Dugout Canyon".

817.101-(1)-PGL/OSM11

The applicant has shown in Map D03-0085 the locations of the portal face cuts ("highwalls") that would remain after reclamation. A detailed description of the "highwalls" that will be left (in accordance with UMC 817.101(8)) and those which will be finally graded and reclaimed must be submitted to the regulatory authority for approval at least 120 days prior to any portal construction. 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?

817.121-(2)-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.

817.150-(1)-SL/OSM13

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.

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.

OSM15

Lots 3, 4, and the W1/2 of Section 5, T.12S, R.12E may not be mined until the permittee has obtained a Federal lease and a permit to mine this coal.

OSM16

Maps D03-0007 and D03-0008 show mining in the N1/2 of Section 13 and N1/2 of Section 18, T.13S, R.13E; since coal underlying this area is unleased and outside the permit area, this area of approximately 550 acres may not be mined under this approval.

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.

817.21-.25/OSM18

120 days prior to any surface disturbance the applicant shall provide a plan for regulatory authority approval which identifies the best available topsoil substitute material to utilize for final reclamation of the Fish Creek and Dugout Creek waste rock disposal sites, as required under UMC 817.22(e). In addition, and at the same time, the applicant shall provide a plan for seed bed preparation and planting materials to be used for revegetating the two waste rock disposal sites.

TECHNICAL ANALYSIS

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

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 independant 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.

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 (OAC_2) soils. The BY soils are weathered Mancos Shale and are void of topsoil. The NFD2 and OAC_2 soils have shallow A horizons that contain high amounts of salts, electrical conductivity (EC) 6 to 28 mmohs/cm and a high sodium adsorbtion ratio of 36 to 47. Approximately 17 acres of BY soils and 114 acres of OAC_2 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 (OAC_2) 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 (OAC_2) 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 drainge 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 nesessarily 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, resepctively, 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-feet 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 drainge 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.

Solider 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.

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 implacement. 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.

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 informtion is needed because actual quantitites 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 contigencies 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 incorporte 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 prepartion 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:1v.

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 activitiy 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 preapration 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.)

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values

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 imput 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 Enery 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 appliant 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 sarfely 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 sumitted 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 (mine development 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 producitivity 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 speices 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 facilites.

Applicant has stated that all roads will be designed according to the criteria as shown on pages 21-22, August 1981, ACR Response. The proposed locations of all access roads are shown on Maps D03-0020, -0021, -0022, -0024, -0025, -0026, -0035 and -0036. Drawings A03-0176 through A03-0185 show typical examples of contour ditching and temporary berms, temporary slope drains, sediment structures, check dams, drainage diversions, road sections and pipe outlets that will be utilized in road construction.

All roads in the permit area used for access or the transportation of coal will be removed at the conclusion of mining operations with the exception of the county roads. The county roads which will be left at the conclusion of mining are shown on Map D03-0002 (includes Dugout Canyon, Fish Creek and Soldier Creek roads). Immediately following the use of access or haul roads which are no longer needed for operations, reclamation or environmental monitoring, restoration will be implementated. All surfacing materials, bridges and culverts will be removed and disposed of in a dump or landfill. Slopes will be rounded and shaped to conform to adjacent terrain and to meet natural drainage patterns. Roadbeds will be scarified with cross drains, dikes or water bars as necessary to minimize erosion. Topsoil, subsoil or other plant growth medium will be redistributed on the regraded roadbed and revegetated. Typical surface configuration for the roads that will be removed and reclaimed is shown on Figure III-D.3. (MRP, pages 280, 287 and 304).

Compliance

Applicant will comply when detailed designs for Class II roads are submitted and approved.

Stipulation 817.150-(1)-SL

1. At least 150 days prior to initiation of construction, the applicant must submit to the regulatory authority for approval detailed designs for all proposed Class II roads. Designs must include detailed drawings of road alignment, grades and sizing and location of culverting. The designs must comply with the criteria the applicant submitted on pages 21-22, August 1981 MRP Addendum.

UMC 817.180 Other Transportation Facilities

Applicant's Proposal

A railroad loop and train loadout facility will be constructed as part of the central facilities area. The loop will be the termination of the railroad spur line to be constructed and operated by D&RGWRR (see Map D03-0002, Volume I and Map D03-0170, Addendum). The portion of the railroad spur to be

permitted includes the loadout area, the rail loop and the portion of the railroad spur in the immediate area of the minesite (Volume I, page 114). The railroad corridor will be reclaimed after cessation of all operations. All track, tie and associated materials, including gravel fill, will be removed (Volume I, page 311).

Conveyors will be constructed to transport coal underground from the working face to the portals and from the portals to the central facilities. During initial mine development and early mining, trucks will be used to transport coal until construction of conveyors has been completed. Location of conveyors is shown on Maps D03-0002 and D03-0020 through -0023. The conveyor system is discussed in Volume I, pages 82-87. All conveyor systems will be removed after cessation of all operations.

Compliance

Applicant will comply with 817.180.

Stipulations

None.

UMC 817.181 Support Facilities and Utility Installations

Applicant's Proposal

Structures that will be constructed at each of the portal areas are listed in Volume I, page 81 and shown on Maps D03-0026 and D03-0027. The central facilities will include offices, a coal preparation plant and a train loadout. All facilities and their uses are discussed in Volume I, pages 52-56.

The proposed project will receive its electrical power from Utah Power & Light and a telephone system will be installed by Mountain Bell (Volume I, pages 155-156).

Compliance

Applicant will comply with 817.181.

Stipulations

None.

UMC 822.1-.14 Alluvial Valley Floors

Applicant's Proposal

The applicant has mapped all active flood plains within the permit area. Also areas underlain by unconsolidated materials were mapped where identifiable stream channels were present. The total areal extent of stream-laid deposits was mapped, with the upslope contact drawn where the flat-lying deposits encounter sloping deposits of surrounding hillsides.

All areas which are presently or were historically flood irrigated were mapped for those areas identified on the above maps. In addition, areas were mapped where agricultural activities involve special management of the valley floor, such as cropped or harvested lands.

A determination of irrigable land was made, which also included those areas that are capable of being flood irrigated. Vegetation characteristics were examined to determine possible subirrigation. The assessment included a survey of vegetation and use of aerial photography. Possible subirrigation was also assessed on the basis of seepage and stream flow. Water rights were examined to determine whether the potential AVF could presently be flood irrigated.

Four major drainages are located in the permit 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 botton 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 may be affected by surface facilities. Consequently, the study focused on the central facilities area near Soldier Creek and the corresponding alluvial deposits. No other areas approximate the conditions required for an AVF.

Currently, the only cultivated lands in the permit area 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.

The area of investigation is generally arid and sparsely vegetated. It is dominated by a greasewood-sagebrush plant community (see Section IV-F, Vegetation). This community is found throughout the region in valley bottoms where fill overlies Mancos Shale. Greasewood (Sarobatus vermiculatus) is dominant where the soils and available water are alkaline. Alkalinity results when surface or ground water comes in contact with the Mancos Shale after leaving the overlying Mesa Verde formations. Subirrigation of this plant community is not significant. The stream is incised into the alluvium several

tens of feet in most places. During late summer in 1978, the entire Soldier Creek drainage was walked by a trained geologist to note flow conditions and seepage zones. The creek was dry below its diversion point to Anderson Reservoir until the lower (southern) end of the flood irrigated land was reached. Here return flow from irrigation seeped into the stream in quantities sufficient to cause a small surface flow. Had there been a significant subirrigation flow, bank seepage and a small flow in the creek bed should have been present in the dry reach of the creek.

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.

Limited water availability, in both the physical and legal senses, and poor productivity appear to explain the limited acreage in cultivation today. The uppermost and eastern (across Soldier Creek) fields were irrigated without proper water rights; subsequently, they had to be abandoned because sufficient water was lacking to keep all of the irrigated lands in the area in cultivation.

Although accurate data of historical flow in Soldier Creek are not available for more than four years, the amount of potentially irrigable acreage adjoining the stream is far in excess of the total amount of water that is available for irrigation. Accordingly, the lands which have been irrigated over the past five years are the best indicator of the maximum amount of land that can be irrigated along Soldier Creek and the general areas that are best suited for such irrigation. These lands should be considered to approximate the area of alluvium along the Soldier Creek drainage within the permit area which is capable of being flood irrigated.

Impacts to the potential AVF described above will be limited to surface effects. Of the areas designated as alluvium in the permit area, the only area which would be directly affected lies just inside the south boundary of the permit area along the Soldier Creek drainage. A service road will cross this area, disturbing approximately nine acres. This superficial impact would have no effect on the physical integrity of an AVF. In addition, any such impacts would be greatly limited in areal extent.

Compliance

On March 17, 1981, the Region V, OSM requested an opinion from the Solicitor's Office in Washington, D. C., concerning this alluvial valley floor (AVF) issue. On May 14, 1981, a memorandum was provided to Mr. Donald Crane, Region V Director, from Suellen F. Keiner, Assistant Solicitor of the Washington office. This memo referenced another (March 3, 1981) memorandum to John Hardaway concerning an oral request from Mike Bishop for an informal opinion on the same AVF question.

The March 3 memorandum indicates that the proposed operation could obtain a permit in compliance with the Surface Mining Act if the following conditions are satisfied:

1. The operator demonstrates that the hydrologic balance of the downstream AVF will be preserved (Section 510[b][5][B] of the Act).

2. The proposed operations would not materially damage the quantity and quality of water in surface and underground water systems that supply those AVF's (30 CFR 785.19[e][1][ii]).

*This regulation was remanded for revision to exempt from its requirements undeveloped range lands and small farm acreage.

"Therefore, if the operator demonstrates that the diversion will not affect ongoing or prospective agricultural activities which are significant to farming on AVF lands (except undeveloped rangelands and small farm acreage), then the operator may obtain a permit."

3. "Although a priority right was created, this does not grant the operation unlimited use of the water. Limitations to that use will depend on the individual State's water law. Irrespective of the protection provided in the performance standards of the Act and the Department's regulations, actual diminution of water supply becomes a matter to be decided between users under State laws, as provided in Section 717(a) of the Act."

On May 7, 1981, the Division received a letter from Donald Crane to James Smith which presented a preliminary determination based upon a draft technical analysis of an AVF determination prepared by the OSM (see letter and draft TA attached).

The preliminary OSM determination suggested that the AVF to be affected by mining operations is significant to farming.

The significance determination was based upon a formula developed in Wyoming by the Department of Environmental Quality to determine at what point production loss is considered to be a negligible impact to a Wyoming farm. Application of this formula to the Utah farm yields a 27.5 percent loss of productivity from the entire ranching operation if the total section of irrigated land (38.1 acres) is removed from production. This is based on a comparison of productivity from the AVF versus the entire grazed parcel (@ 18,407 acres rangeland). A production loss of 10 percent or greater is assumed to be significant to the farm production.

It is the Division's opinion that the basic farming practices and conditions upon which the Wyoming forumla is based are not necessarily representative of the conditions in Utah and consequently the use of this formula may not be directly applicable.

Perhaps the significance formula should take into account a factor for weighing or measuring how directly or indirectly the farmer's livelihood is dependant upon the farming operation?

It is the Division's opinion that the operator has satisfied the basic requirements pursuant to the conditions as outlined in the OSM solitor's memorandum and the regulations.

There apparently are a few other legal questions which may still require resolution. Among them one might consider the status of current land and water right ownership versus the temporary permit or agreement between the operator and the farmer which apparently allows continued use of the irrigable acreage to the extent possible for the interim period.

The DOGM has taken the position that the Act was not intended to adjudicate state water rights, which is a function performed by the State Engineer's Office, Division of Water Rights, and that the final decision and ultimate resolution to the issue at hand will most likely require a ruling by that office.

* * *

OSM has designated Soldier Creek as an alluvial valley floor. The designated area includes all areas mapped as alluvium (Qal) and colluvium (Qco) in the Soldier Creek drainage as shown on Figure #2, titled "Alluvial Valley Floor Determination: Alluvial Deposits" submitted to OSM on June 21, 1982 by Sunedco (file number UT0041-31). Areas of colluvium were included because the applicant did not provide sufficient data to prove that the colluvial areas were not underlain by, or mixed with, alluvial material.

The Soldier Creek AVF contains 158 acres of historically irrigated land, of which 58.1 acres have been irrigated within the past five 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 will result in a 5.4% decrease in the farm's productivity, calculated as follows:

Significance Test

Soldier Canyon Grazing Allotment consists of 835 animal unit months (AUMs)
Productivity of the farmland is 8.33 AUM/acre (SCS, 4/21/81)

Production = 835 + (58.1)(8.33 AUM/acre)
= 835 + 484
= 1319 AUM

Lost acreage = 8.6 acres
Lost production = (8.6 acres)(8.33 AUM/acre)
= 71.6 AUM
% of production loss:
1 - (1319-71.6)/1319 = 5.4%

OSM considers this decrease in production 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 operator has demonstrated in the MRP 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. The central facilities will not impact the hydrologic function of the AVF and after mining the site will be reclaimed to the prior land use. There are no developed downstream agricultural practices which depend on the water which will be used by the operator, and the mining operations will not preclude farming off the permit area.

The operator will only divert that amount of water to which he has a water right. Since Sunedco has purchased rights to the water that had been used to irrigate this land, this would mean that approximately 58 acres of land previously irrigated in the past five years will not be utilized for agricultural purposes. This will not affect the capacity of this land to be used for agriculture in the future, by whomever holds the water rights in question. The use of this water by Sunedco will not affect the hydrologic function of the valley, and since there are no subirrigated lands in the valley, the potential agricultural value of the AVF remains intact.

Best available control technology will be implemented to protect and prevent the occurrence of adverse impact(s) to the hydrologic regime during operations and appropriate reclamation practices are proposed after cessation of operations to provide continued long-term protection.

Stipulation

None.

UMC 823.2-.15 Prime Farmland

Applicant's Proposal

A soil survey for the proposed permit area has been completed. It was carried out according to the standards of the National Cooperative Soil Survey.

Soil and land use investigations indicated that two mapping units within the proposed mine area could be prime farmlands. Both these units, HAC and HBC, have been historically used as cropland and have a dependable irrigation water supply. Both units are slope phases of the Haverson soil series. The Soil Conservation Service was contacted to determine whether any of these areas met the minimum requirements for prime farmlands. The Service found that "Field 2 - E1/2 of Sec. 1, T. 14 S., R. 11 E. (has) soil characteristics and qualities suitable for prime land."

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 (Fish Creek Ridge Road). This road will originate at Soldier Creek Road, proceeding to the east across the remainder of Section 1. The area of disturbance caused by the road within Section 1 will be less than two acres. The operations and reclamation plan for this area were designed to comply with the requirements of 30 CFR and UMC 785.17. The operation and reclamation plan for prime farmland has been approved by the Soil Conservation Service (see letter attached to TA).

Construction of Fish Creek Ridge Road (50 foot total disturbance width) will cross 1,500' of prime farmlands and disturb 1.72 acres (see Figure IV-C.1). Prime farmlands soil will be stockpiled separately as described below.

Immediately prior to road construction, soil materials will be salvaged from the road crown, shoulder, and borrow pits. Stripping will be accomplished with the use of motorized scrapers.

Soil will be salvaged by soil series according to the depths indicated in the following table. To facilitate salvage, the soil series boundaries will be staked prior to removal. Salvage depth stakes will also be placed on the area to assure soil salvage to the identified depth (Robbins, 1980).

Salvaged soil will be taken immediately to designated (prime farmland soils only) stockpile areas (see Map D03-0134) and protected from wind and water erosion by methods specified in Section IV-C.4.1.4, Topsoil Stockpile Protection and Stabilization. First and second lift soil materials will be segregated and stockpiled separately; different soil series may be mixed within a lift, but not mixed between lifts. All unnecessary compaction and contamination of stockpiles will be eliminated through limited soil handling and stockpile segregation. Once stockpiled, these soil materials will not be rehandled until reapplied prior to revegetation. The soils will be used only for reapplication to areas designated for prime farmland revegetation.

Following abandonment of the road, all cut and fill materials down to the level of the original soil will be hauled from the site. The soil surface will then be ripped to 24 inches by a dozer equipped with a ripper or a tractor and spike-tooth harrow (depending on site conditions) to eliminate compaction. The ripped soil surface will be graded level for application of soil materials.

Soils will then be reapplied in two lifts. Soil materials will be replaced in as thick lifts as possible to decrease compaction (Robbins, 1980). During resoiling operations, soil materials will be spread and graded in a manner which: achieves uniform thickness; minimizes compaction, erosion, and contamination of soil materials; and, minimizes deterioration of the biological, chemical, and physical properties of the topsoil.

During resoiling, each lift replaced (and the endemic subsoil) will be tested for excessive compaction (pending Federal regulation changes) by determining the field moist bulk density using the water balloon method. Compaction will be considered excessive if, on more than 10 percent of the area, any layer of reconstructed soil has a moist bulk density of 0.1 gram per cubic centimeter more than values on adjacent undisturbed prime farmland of the same soil type. Two moist bulk density samples shall be taken per acre for each soil layer. Soil lifts shall be ripped, disced, or harrowed to alleviate compaction where it is detected.

Following grading, compaction tests, and any required compaction alleviation measures, revegetation will begin. Phosphorus fertilizer will be broadcast on the soil surface, (and nitrogen fertilizer if crop planting will occur immediately after seedbed preparation) in amounts based on the soil tests conducted on these soils following soil application. The soil surface will be disced and harrowed to prepare a proper seedbed and incorporate fertilizer into the soil (USDA-FS, 1979). The soil will then be cultipacked. Drill seeding of the vegetation crop, using conventional drilling methods, will follow seedbed preparation. The area will then be straw mulched; the mulch will be anchored between the rows of the seeded crop.

Planting specifications for prime farmlands in the project area vary with the season of the year, seed availability, and postmining land use objectives at the time of revegetation. Prior to road abandonment, the Applicant will determine planting specifications. These specifications will include species mixture and planting rate, seeding depth, drill row spacing, fertilization method, and season of planting. The applicant will adopt these specifications as determinants for seeding the perennial mixture on affected prime farmlands. The target production rate to be attained on these lands is two tons of hay per acre based on production of adjacent undisturbed prime farmland.

To determine revegetation success, test plots will be established on the revegetated area. Production within these plots will be compared with production on established "comparison areas." Comparison areas will be sited on an adjacent undisturbed prime farmland such that comparison between the test plots and the comparison area will be representative of the same soils, and other pertinent characteristics in the immediate vicinity of the disturbance. Standard sampling and statistical methods for determining productivity on reclaimed prime farmlands will be used.

Compliance

Applicant has shown compliance with this section.

Stipulations

None.

LITERATURE CITED

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USDA-FS. 1979. User guide to soils - mining and reclamation in the west. Intermountain Forest and Range Experiment Station. Ogden, Utah. 85 pp.

U. S. Geological Survey. 1979. Development of coal resources in central Utah, Final Environmental Statement.

Utah Division of Wildlife Resources. January, 1982. Study to determine the effects of coal development on wildlife in southeastern Utah. 2nd annual report. 141 pp.

BOND ESTIMATE
SUNEDCO
Sage Point-Dugout Canyon Mine
ACT/007/009, Carbon County, Utah

	No. of Disturbed Acres	Backfilling and Grading	Ripping	Subsoil	Topsoil	Seal Shaft	Backfill & Seal Entries	Remove Footings & Foundations	Remove Asphalt & Base	Fertilizer
Dugout Canyon Portal Area	17	$118,584.00	$1,534.00	$15,413.00	$23,192.00		$17,319.00	$1,948.00	$1,389.00	$1,624.00
Conveyor-Dugout Canyon Portal Area to Central Preparation Plant Waste Conveyor	9.1									
Water and Sewer Lines	7.9				754.00					754.00
Big Hole Road	11.4	14,850.00	1,433.00		9,120.00				6,578.00	1,089.00
Fish Creek Ridge Road	11.3	13,500.00	1,295.00		8,240.00				6,878.00	984.00
Sewage Lagoons	15	19,710.00	1,885.00		13,605.00					1,433.00
Preparation Plant	22	35,775.00	2,862.00	26,262.00	13,135.00			2,413.00	1,515.00	2,101.00
Administrative Offices	9	14,850.00		4,901.00	2,450.00			2,091.00	1,515.00	860.00
Railroad Corridor	1.7	2,400.00	158.00	567.00	648.00		(Ballast & Ties)	8,929.00		162.00
Waste Disposal Areas Dugout Canyon Durable Rock Fill	6.6	21,600.00								512.00
Anderson Reservoir	2.8				8,632.00					217.00
Monitoring (Vegetation & Water)										
TOTAL	113.8									

	Prepare Seed Bed	Seed & Plant	Mulch	Irrigation	Gabion Riprap	Remove CMP	Prime Farm Land Addition	Total Cost	Cost Per Acre
Dugout Canyon Portal Area (17 ac)	$1,199.00	$24,847.00	$6,442.00	$8,480.00	$4,166.00	$1,808.00		$227,946.00	$13,408.00
Conveyor-Dugout Canyon Portal Area to Central Preparation Plant Waste Conveyor (9.1 ac)	819.00	13,040.00						16,335.00	1,795.00
Water and Sewer Lines (7.9 ac)	344.00	11,261.00	1,126.00					14,239.00	1,802.00
Big Hole Road (11.4 ac)	496.00	7,450.00	1,625.00					42,641.00	3,740.00
Fish Creek Ridge Road (11.3 ac)	448.00	13,282.00	1,468.00				$64.00	46,159.00	4,085.00
Sewage Lagoons (15 ac)	653.00	9,803.00	2,138.00					49,227.00	3,282.00
Preparation Plant (22 ac)	957.00	39,875.00	3,135.00					128,030.00	5,820.00
Administrative Office (9 ac)	392.00	16,313.00	1,283.00					44,655.00	4,962.00
Railroad Corridor (1.7 ac)	74.00	275.00	242.00					13,799.00	8,117.00
Waste Disposal Areas Dugout Canyon Durable Rock Fill (6.6 ac)		1,234.00						23,346.00	3,537.00
Anderson Reservoir (2.8 ac)	252.00	437.00	399.00					9,973.00	3,562.00
Monitoring (Vegetation & Water)								127,000.00	
							SUBTOTAL	$743,350.00	
							10% Contingency	74,335.00	
							TOTAL	$817,685.00 (1983)	

1984 - $899,452; 1985 - $989,398; 1986 - $1,088,337; 1987 - $1,197,171; 1988 - $1,316,888.

9.2.2 UNIT COSTS

Equipment*

Caterpillar D8K Crawler Tractor

$93/hr rental

$15/hr operator

$108/hr

Caterpillar 966C Loader

$55/hr rental

$15/hr operator

$70/hr

Caterpillar 627-B Scraper

$133/hr rental

$15/hr operator

$148/hr

Caterpillar 14-G Motor Grader

$67/hr rental

$15/hr operator

$82/hr

Caterpillar 980-B Loader

$60/hr rental

$15/hr operator

$75/hr

Labor

Equipment Operator - $15.00/hour

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*Rental includes operating cost of equipment per hour.

SUNEDCO TECHNICAL ANALYSIS ADDENDUM

Sunedco Coal Company
Sage Point-Dugout Canyon
PRO/007/009, Carbon County, Utah

July 14, 1983

On June 13, 1983, Sunedco Coal Company submitted a number of revised pages to be inserted into the Mining and Reclamation Plan (MRP) for the Sage Point-Dugout Canyon Project. These revisions were made in response to issues discussed in a joint meeting between OSM, DOGM and Sunedco Coal Company on June 1, 1983. The issues raised at this meeting related to the stipulation list for the Sage Point-Dugout Canyon mining and reclamation plan approval. The applicant was asked to provide additional information in the MRP so that both the number and scope of stipulations could be reduced. This Addendum to the Technical Analysis evaluates Sunedco's June 13, 1983 MRP changes and documents the rationale for the resulting changes to the stipulation list originally generated by DOGM's Technical Analysis.

Section UMC 817.21-.25 Addendum

OSM found that the applicant had not addressed the requirements of UMC 817.22(b), (e), and (g). In particular, while OSM agrees that the Badlands, Shingle, and Haverson alkali soils are not adequate for salvage (TA. pg. 4), the applicant did not discuss use of topsoil substitutes required by UMC 817.22(e). This section must be addressed in order for the applicant to demonstrate that it will be possible to reclaim the Dugout Creek and Fish Creek rock waste disposal sites.

Final Stipulation 817.21-.25/OSM18

> 120 days prior to any surface disturbance the applicant shall provide a plan for regulatory authority approval which identifies the best available topsoil substitute material to utilize for final reclamation of the Fish Creek and Dugout Creek waste rock disposal sites, as required under UMC 817.22(e). In addition, and at the same time, the applicant shall provide a plan for seed bed preparation and planting materials to be used for revegetating the two waste rock disposal sites.

Section UMC 817.42 Addendum

Original 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 drainage 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.

The first sentence of Stipulation 817.42-(1)-DD was deleted from the Final Stipulation, since it merely restated an already established fact and was not necessary for the understanding of the rest of the stipulation's text. The clarified stipulation reads:

Final Stipulation 817.42-(1)-DD/OSM1

1. The applicant shall provide 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.

Section UMC 817.43-.45 Addendum

Original Stipulations 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. (The Division suggests that the Dugout Creek culverts be sized to transmit at least a 50-year, 24-hour 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.

On revised pages I-295 and I-296 of the MRP, the applicant committed to fit culverts emplaced under the portal areas with trash racks at the inlet and to install culverts sized to transmit runoff from a 100-year, 24-hour precipitation event. Therefore, the last two sentences of the original Stipulation 817.43-.45-(1)-DD were removed from the Final Stipulation. OSM found that the additions to the MRP satisfactorily addressed the requirements of 817.43-.45-(1)-DD, therefore this stipulation was dropped from the OSM stipulation list.

Final Stipulation 817.43-.45-(1)-DD

1. The applicant must submit, at least 120 days prior to planned portal constuction, longitudinal cross-sections and design calculations for culverts emplaced under the portal areas used to divert undisturbed runoff.

Stipulation 817.43-.45-(2)-DD was not changed. OSM found that the requirements of 817.43-.45-(2)-DD are covered by regulation, therefore this stipulation was dropped from the OSM stipulation list.

Section UMC 817.45-.47 Addendum

Original 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.

The final sentence of Stipulation 817.45-.47(1)-DD/DWH/OSM2 was found to be redundant, since it merely states the Stae of Utah's effluent limitations, which the applicant is required to meet in the previous sentence. Therefore, the last sentence was removed from the Final Stipulation.

Final Stipulation 817.45-.47-(1)-DD/DWH/OSM2

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.

Stipulation 817.45-.47-(2)-DD/DWH/OSM3 was not changed.

On revised page I-138 of the MRP (revised June 2, 1983) the applicant committed to have the design of the sewage lagoon approved by the Division of Environmental Health (DEH) prior to construction, and to forward the DEH approval letter to the regulatory authority upon receipt. Therefore, Stipulation 817.45-.47-(3)-DD/DWH was removed from the Final Stipulations List.

On revised page I-139 of the MRP (revised JUne 2, 1983), the applicant committed to dispose of dregs and waste from sedimentation ponds, emergency surge ponds and sewage ponds in rock waste disposal sites, provided they are nonacid-forming and nontoxic and nonalkalinity producing. (The applicant has included rock waste disposal sites of adequate design and volume in the MRP.) Therefore, Stipulation UMC 817.45-.47-(4)-DD/DWH was removed from the Final Stipulations List.

On revised page I-140 of the MRP (revised June 2, 1983), the applicant commits to construct diversion ditches as required under stipulation 817.45 .47-(5)-DD/DWH. Therefore, this Stipulation was removed from the Final Stipulations List.

On revised page I-116 of the MRP (revised June 2, 1983) the applicant committed to obtain all necessary approvals as required for all ponds, dams and reservoirs, and to supply copies of such approvals to the regulatory authority prior to construction. Therefore, Stipulation 817.45-.47-(6)-DD/DWH was removed from the Final Stipulations List.

Section UMC 817.49 Addendum

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

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

Stipulation 817.49-(1)-DD/DWH was modified to read the same as Final Stipulation 817.45-.47-(1)-DD/DWH.

Stipulation 817.49-(2)-DD/DWH was not changed.

Section UMC 817.50 Addendum

Original Stipulation 817.50-(1)-DD/OSM4

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.

Stipulation 817.50-(1)-DD/OSM4 was not changed.

Section UMC 817.54 Addendum

Original 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.

On revised page I-115 of the MRP (revised June 2, 1983) the applicant committed to submit copies of all appropriate water rights to the regulatory authority prior to development of such water rights. Therefore, stipulation 817.54-(1)-DD was removed from the Final Stipulation list.

Section UMC 817.55 Addendum

Original 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 related to mine development), 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 Gilson workings depicting the location of water in the mine.

The applicant committed to Stipulation 817.55-(1)-DD on revised page I-131 of the MRP (revised June 2, 1983). Therefore, this stipulation was removed from the Final Stipulations list.

Also, on revised page I-131 of the MRP, the applicant committed to provide the regulatory authority with MSHA approval for discharge of water into the mine, at least 120 days prior to construction related to subsurface development. Therefore, Stipulation 817.55-(2)-DD was removed from the Final Stipulations list.

On June 13, 1983, the applicant submitted map D03-0010A showing the extent of water in the abandoned Gilson workings. Therefore, Stipulation 817.55-(3)-DD was removed from the Final Stipulations list.

Section UMC 817.56 Addendum

Original Stipulation 817.56-(1)-DD/OSM5

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.

Stipulation 817.56-(1)-DD/OSM5 was not changed.

Section UMC 817.57 Addendum

Original Stipulation 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.

Stipulation 817.57-(1)-DD was not changed. OSM found that the requirements of 817.57-(1)-DD are met by regulation, therefore this stipulation was dropped from the OSM stipulation list.

The regulatory authority was concerned about the long-term postmining reclamation stability and feasibility of the proposed drainage channel across the portal pad in Fish Creek Canyon. Since final designs cannot be submitted at this time it was determined that the applicant should commit to restore the original drainage if the feasibility of this approach could not be successfully demonstrated to the RA at a later date. The applicant made this committment and has described the restored drainage (if such will be required) on revised pp-I-297, I-312, I-326 (revised June 2, 1983). The revised stipulation reads:

Final Stipulation 817.57-(2)-DD/OSM6

2. The applicant shall submit final detailed 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 any construction in the Fish Creek Canyon portal area. If the applicant cannot successfully demonstrate the feasibility of this approach, then the applicant will be required to submit for regulatory authority approval a plan for pad and culvert removal and restoration of the original drainage.

Section UMC 817.61-.68 Addendum

Original Stipulation 817.61-.68-(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 UMC 817.61.-68.

It was found that the language of the original stipulation was too narrow, as the applicant should address all parts of UMC 817.61.-68, therefore this stipulation was rewritten accordingly.

Final Stipulation 817.61-.68-(1)-SL/OSM7

1. At least 120 days prior to construction of any surface facilities, the applicant shall submit to the regulatory authority documentation of compliance with the requirements of UMC 817.61-.68.

Section UMC 817.86-.87 Addendum

Original 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.

On revised page I-266 of the MRP (revised June 2, 1983), the applicant committed to comply with UMC 817.86-.87 and with MSHA regulations. A copy of MSHA approval will be sent to the regulatory authority upon receipt. Therefore, Stipulation 817.86-.87-(1)-SL was removed from the Final Stipulations List.

Section UMC 817.95 Addendum

Original Stipulation 817.95-(1)-PGL

1. 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 date May 18, 1981, attached to TA).

Stipulation 817.95-(1)-PGL was not changed. OSM found that the requirements of 817.95-(1)-PGL will be met under Bureau of Air Quality regulations, therefore this stipulation has beean dropped from the OSM stipulation list.

Section UMC 817.97 Addendum

Original Stipulations UMC 817.97-(1-3)-SL

1. (This stipulation will be re-written based on new BLM, FWS letters).

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.

Final Stipulation 817.97-(1)-SL/OSM8 consists of the stipulations submitted by the Bureau of Land Management, incorporating requirements of the U.S. Fish and Wildlife Service as stated on page 1 of their May 12, 1983 letter. The BLM/FWS stipulations are shown in the attached stipulation list. (Standard archaeological stipulations Nos. 5 and 6 have been removed from the BLM stipulation list, as agreed upon by Blaine Miller of the BLM Price office on 9/13/83).

The regulatory authority was concerned that any approval granted for the conveyor be consistent with the Bureau of Land Management's Special Use Permit for the conveyor. Therefore, a sentence was added to Stipulation 817.97-(2)-SL/OSM9 denoting the need for permitting consistency.

Final Stipulation 817.97-(2)-SL/OSM9

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 corriders. 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.

The applicant revised pages II-407, II-408, II-409, II-410, II-411, II-414 and II-418 of the MRP (revised June 2, 1983) to remove all indefinite statements in the wildlife mitigation plan. Therefore, the last sentence of Stipulation 817.97-(3)-SL was removed from the Final Stipulation. In addition, OSM must respond to the concerns expressed in the FWS letter of May 12, 1983. The FWS requirements on page one of this letter are covered by BLM stipulations; certain additional concerns expressed by the FWS on page two of their May 12, 1983 letter must also be addressed. OSM found that of the ten items listed, items b, d and j were covered by BLM stipulations, item c is covered in the MRP, and item h is covered by MMS review and concurrence. Therefore OSM has required the applicant to address items a, e, f, g and i in their final wildlife mitigation plan.

Final Stipulation 817.97-(3)-SL/OSM10

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 impact of mining on wildlife in the permit area. This mitigation plan must also address items a, e, f, g and i listed on page two of the May 12, 1983 U.S. Fish and Wildlife Service memorandum, "Review of Concerns - MRP, Sunedco, Sage Point-Dugout Canyon".

Section UMC 817.99 Addendum

Original Stipulation 817.99-(1)-SL

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

Stipulation 817.99-(1)-SL was not changed. OSM found that the requirements of 817.99-(1)-SL would be met by regulation, therefore this stipulation was dropped from the OSM stipulation list.

Section UMC 817.101 Addendum

Original 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 (mine development waste rock areas) to achieve less 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?

On revised page I-295 (revised June 2, 1983), the applicant committed to submit stability analyses of representatives slopes for each of the highwall areas and to evaluate potential use of material from other areas to achieve acceptable slopes. A revised Map D03-0085 was also submitted showing which highwalls would remain following mining. Accordingly, these requirements were removed from Final Stipulation 817.101-(1)-PGL/OSM11.

Final Stipulation 817.101-(1)-PGL/OSM11

The applicant has shown in Map D03-0085 the locations of the portal face cuts ("highwalls") that would remain after reclamation. A detailed description of the "highwalls" that will be left (in accordance with UMC 817.101(8)) and those which will be finally graded and reclaimed must be submitted to the regulatory authority for approval at least 120 days prior to any portal construction. 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?

Section UMC 817.107 Addendum

Original Stipulation 817.107-(1)-PGL

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.

Stipulation 817.107-(1)-PGL was not changed. OSM found that the requirements of 817.107-(1)-PGL would be met by regulation, therefore this stipulation was dropped from the OSM stipulations list.

Section UMC 817.111-.117 Addendum

Original 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 revegation success standard proposed in Section UMC 817.117 of the Technical Analysis 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, the concurrence of the regulatory authority must be obtained within the 120 day period.

The applicant revised pages I-299, I-314, II-308 and II-339 of the MRP (revised June 2, 1983) to indicate that waste rock disposal areas would not be seeded. This was accepted by the regulatory authority since a variance to retopsoiling waste rock disposal areas was already granted (TA Section 817.21-.25). Therefore, Stipulation 817.111-.117-(1)-SL was removed from the Final Stipulation List.

On revised pages I-324 and II-300 of the MRP (revised June 2, 1983), the applicant committed to use the success standard proposed in Section UMC 817.11-.17 of the Technical Analysis for the affected deciduous streambank community. Therefore, Stipulation 817.111-.117-(2)-SL was removed from the Final Stipulation List.

Section UMC 817.121 Addendum

Original Stipulations 817.121-(1, 2)-TNT

1. At least 120 days prior to initiation of mining, 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 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.

On revised page I-244 of the MRP (revised June 2, 1983), the applicant committed to notify Mountain Fuel Supply Company of potential subsidence under the pipeline at least one year prior to initiation of mining under the pipeline, and to provide the regulatory authority with a letter documenting notification. Therefore, Stipulation 817.121-(1)-TNT was removed from the Final Stipulation List.

Stipulation 817.121-(2)-TNT/OSM12 was not changed.

Section UMC 817.122-.126 Addendum

Original 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.

Stipulation 817.122-.126-(1)-TNT was not changed. OSM found that the requirements of 817.122-.126-(1)-TNT would be met by regulation, therefore Stipulation 817.122-.126-(1)-TNT was dropped from the OSM stipulation list.

Section UMC 817.150 Addendum

Original Stipulation 817.150-(1)-SL

1. At least 150 days prior to initiation of construction, the applicant must submit to the regulatory authority for approval detailed designs for all proposed Class II roads. Designs must include detailed drawings of road alignment, grades and sizing and location of culverting. The designs must comply with the criteria the applicant submitted on pages 21-22, August 1981 MRP Addendum.

The time frame of Stipulation 817.150-(1)-SL was changed to 120 days to make all stipulations consistent. The last sentence of this stipulation was removed from the Final Stipulation since the applicant had already committed to comply with the referenced criteria.

Final Stipulation 817.150-(1)-SL/OSM13

1. 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.

Cultural Resources

A. Description of Existing Environment 783.12(b)

Three cultural resources investigations have been performed for the previous owner of this property, Eureka Energy Company. Dale Berge (1976) outlined the potential for locating cultural resource sites. AERC (1980) performed an intensive inventory of 3,428 acres plus 30 linear miles of corridor right-of-way. During this survey 33 sites were located within the permit area. And in 1981, AERC performed an historic site evaluation.

Nine historic sites, 23 prehistoric and one prehistoric/historic sites were located. Of the 23 prehistoric sites five were temporary camps, fifteen were lithic scatters, two were petroglyh-pictograph sites, one rockshelter and one storage site. A number of isolated finds were also located. Sites were found in the greatest densities along the creeks and tributaries within the project area. Additionally there appeared to be a clustering or concentration of sites which were located within the Pinyon-Juniper ecozone of the lower foothills. Soldier Creek appears to have served as a main avenue of movement both prehistorically and historically.

The Post Archaic/Fremont is best represented culturally, however, there is some evidence of earlier Archaic and later Shoshonean occupations.

B. Description of Applicants Proposal 781.17

Cultural resource surveys were conducted by Archaeological Environmental Research Corporation (AREC) in all areas that are proposed to receive direct surface disturbance and a sample survey of areas that may be impacted by subsidence has also been conducted.

The eligibility criteria (36 CFR 60.6) has been applied to the thirty-three sites. OSM believes that 13 of these sites are eligible for listing on the National Register of Historic Places. However, only 8 of these sites will be directly or indirectly impacted by mining activities. Recommendations for site eligibility and for a "No Adverse Effect Determination" pursuant to 35 CFR 800 have been sent to the Utah State Historic Preservation Officer. The SHPO concurs with OSM's recommendations there will be "No Adverse Effect" by OSM's approval of the mine plan to any site listed or eligible for listing on the National Register of Historic Places. To prevent impact to the eight sites that may be directly or indirectly impacted OSM has proposed stipulations requiring the applicant to submit a data recovery or mitigation plan (see Section F Proposed Special Stipulations)

C. Evaluation of Compliance

1. Applicants Compliance

Cultural resource surveys were conducted on all areas of the mine plan that are proposed for surface disturbing activities. An adequate sample survey to locate sites that may be impacted by subsidence has also been conducted.

The applicant has not yet provided a site specific mitigation plan or data recovery proposal that would eliminate the adverse impacts to the eight eligible sites that will be impacted. However, the applicant has provided sufficient information necessary for OSM to begin the consultation process with the Utah SHPO, pursuant to Section 106 of the National Historic Preservation Act of 1966 (NHPA).

2. OSM Compliance

OSM has complied with the procedures required by section 106 of NHPA by evaluating the eligibility of the thirty-three located cultural resources and making a recommendation, based on data provided by the applicant of "No Adverse Effect" to the Utah SHPO. If the Utah SHPO concurs with OSM's recommendations then the Section 106 coompliance process will be completed.

D. Revisions to Applicants Proposal

If the mine plan is approved the applicant will be submitting additional information as required in Section F, Proposed Special Stipulations.

E. Re-Evaluation of Compliance

The Utah SHPO concurs with OSM's recommendations; a re-evaluation of the procedures will not be necessary.

F. Proposed Special Stipulations

1. 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.

Justification: In accordance with the PMOA and to minimize or prevent adverse impacts to significant cultural resource sites.

G. Summary of Compliance

The applicant will be in compliance with OSM regulations if the stipulation in Section F is adhered to. (Standard archeological stipulations Nos. 5 and 6, submitted in the BLM letter of October 23, 1981, were removed by permission of Blaine Miller of the BLM Price office on September 13, 1983, since these two stipulations have been fulfilled by the archaeological surveys and since the Utah SHPO has concurred as to the adequacy of the surveys.) OSM is in compliance with Section 106 of the National Historic Preservation Act of 1966. OSM has begun the compliance process by submission of Attachment #1 to the Utah SHPO, and by enforcing compliance with the Proposed Special Stiuplations (Section F).

H. Proposed Departmental Action

Approve with proposed special stipulations.

I. Residual Impacts of Proposed Departmental Action

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. Even with a well-developed mitigation plan, however, some data will be lost. Furthermore, once the sites are destroyed they can never be re-examined. 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.

J. Alternative to Proposed Action

One alternative would be not to mine. No cultural resources would be destroyed. Another alternative would be to move the mine facilities. There is no guarantee, however, that this would not impact other previously unknown, cultural resources.

Stipulations Proposed by the Division of Oil, Gas & Mining

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

Stipulation 817.42-(1)-DD

1. The applicant shall provide 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.

Stipulations 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.

2. All culverts and diversions shall discharge onto a protected surface (i.e., riprap, conveyor belting, flexible downspouts, etc.) to prevent scouring and erosion.

Stipulations 817.45-.47-(1,2)-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.

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.

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

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

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.

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.

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 final detailed 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 any construction in the Fish Creek Canyon portal area. If the applicant cannot successfully demonstrate to the regulatory authority the feasibility of this approach, then the applicant will be required to submit for regulatory authority approval a plan for pad and culvert removal and restoration of the the original drainage.

Stipulation 817.61-.68-(1)-SL

1. At least 120 days prior to construction of any surface facilities, the applicant shall submit to the regulatory authority documentation of compliance with the requirements of UMC 817.61-.68.

Stipulation 817.95-(1)-PGL

1. 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.)

Stipulations UMC 817.97-(1-3)-SL

1. 817.97-(1)-SL consists of the stipulations submitted by the Bureau of Land Management, incorporating requirements of the U.S. Fish and Wildlife Service as stated on page one of their May 12, 1983 memorandum. The BLM/FWS stipulations 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 the 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 the 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 the 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 the Authorized Officer. This will include painting of surface structures to blend with the surrounding terra;in 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 the 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 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).

h. 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, Februry 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 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.

i. 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 determintion 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.

j. 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 authoried 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.

k. 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.

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 consistent with data collected during the DWR study (Utah Division of Widelife Resources, 1982) on big game movements through, and general use of the chosen conveyor corridors. In no case shall the minimum height of the conveyor above ground surface be less than that approved in the Bureau of Land Management Special Use Permit for this conveyor. 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 crosssings.

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 effect specific structures; and

C. Measures to be taken to prevent or control adverse surface effects.

Stipulation 817.150-(1)-SL

1. 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.

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
NOTICE OF A DECISION AND AVAILABILITY
OF BOTH A TECHNICAL ANALYSIS AND AN
ENVIRONMENTAL ASSESSMENT FOR
SUNOCO ENERGY DEVELOPMENT COMPANY
PERMANENT PROGRAM PERMIT
SAGE POINT-DUGOUT CANYON MINE
CARBON COUNTY, UTAH

The United States Department of the Interior, Office of Surface Mining Reclamation and Enforcement (OSM), has approved, with conditions, a 5-year permit for Sunoco Energy Development Company to mine coal at its Sage Point-Dugout Canyon Mine.

The Sage Point-Dugout Canyon Mine surface coal mine is located in Carbon County, Utah, approximately 15 miles north east of Price, Utah. This is a new mining operation. The proposed permit area will cover approximately 18,242 acres. 476.5 acres are to be disturbed by future surface mining activities. Maximum mine production is at a rate of five million tons of coal over 26 years.

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

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

Pursuant to 40 C.F.R. Sections 1501.4(c) and 1506.6, notice is hereby given that Utah Division of Oil, Gas and Mining has completed a technical analysis (TA) for the mining and reclamation plan (MRP) for the Sage Point-Dugout Canyon Mine, Carbon County, Utah. OSM has supplemented this TA with its own environmental assessment (EA). OSM's recommendation to approve the Sunoco Energy Development Company MRP and the permit application with conditions is in accordance with Sections 510 and 523 of SMCRA. OSM's analysis is that no significant environmental impacts would result from such approval. For information or clarification concerning the approval of the Sage Point-Dugout Canyon Mine Plan, please contact Shirley Lindsay or Stephen Manger at (303) 837-5656, Office of Surface Mining, Denver, Colorado.

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

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

Office of Surface Mining Reclamation and Enforcement
Albuquerque Field Office
219 Central Avenue NW
Albuquerque, NM 87102

Utah Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, UT 84114