0012

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

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

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

April 28, 1982

Mr. Richard Dawes
Deputy Administrator
Office of Surface Mining
Brooks Towers
1020 Fifteenth Street
Denver, Colorado 80202

RE: Technical Analysis Draft
Eureka Energy Company
Sage Point-Dugout Canyon Mine
ACT/007/009
Carbon County, Utah

Dear Dick:

The Division of Oil, Gas and Mining has completed the Technical Analysis (TA) of the Mining and Reclaimation Plan submitted by Eureka Energy Company for the proposed Sage Point-Dugout Canyon Mining Project in Carbon County, Utah.

A draft of the TA along with comments and stipulations is enclosed for your review. The Division would appreciate your staff initiating a review and notifying the Division of any comments or changes to the permit prior to forwarding them to Washington, D. C. for Secretarial review.

The Division feels that any permit issued would be on a conditional basis. The permit term will be for a five-year period with permit renewal and/or revision due at that time.

Reclamation bonding for the permit area is also included. A commitment to the type of bond to be posted has not been made as of yet. We are in contact with Eureka Energy and will forward this information to your office when received.

If you have any questions, please contact either Jim Smith or Sally Kefer of my staff.

Sincerely,

Cleon B Feight

CLEON B. FEIGHT
DIRECTOR

CBF/SK:btb

Board/Charles R. Henderson, Chairman • John L. Bell • E. Steele McIntyre • Edward T. Beck
Robert R. Norman • Margaret R. Bird • Herm Olsen

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TECHNICAL ANALYSIS

EUREKA ENERGY CORPORATION
Sage Point-Dugout Canyon Mine
ACT/007/009, Carbon County, Utah

INTRODUCTION

The Sage Point-Dugout Canyon Underground Mine Project is proposed by the Eureka Energy Corporation, a subsidiary of Pacific Gas and Electric of San Francisco, California. The project is located just south of Wellington, Utah in two box canyons, Dugout and Fish Creek, which intersect the Book Cliffs at frequent intervals. The project will comprise four independant underground mines. Two of the mines will be located in Fish Creek Canyon and two in Dugout Canyon. Each mine will have portals on each side of the canyon. 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.

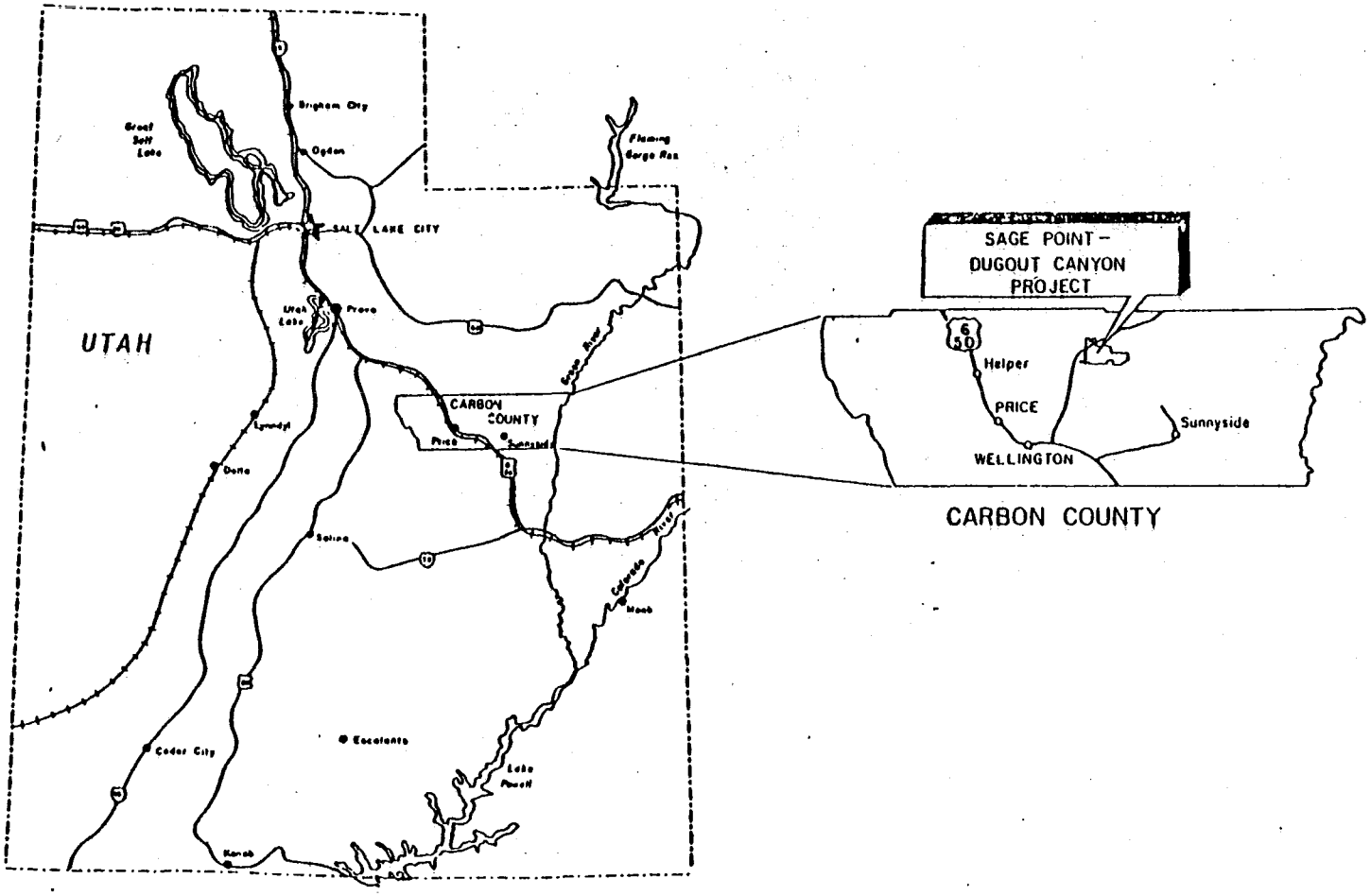
The major potential disturbances of the proposed coal mines will occur discontinuously on four sections. They are located in Township 13 South, Range 12 East, Section 29, 30, 31 and 32, Salt Lake Meridian and Baseline (See Map D03-0003). They include corridors 100 feet wide for utility lines and for conveyor belts leading from the proposed central facilities to the planned mine portals. The total surface disturbance over the life of the mine is 446 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 surface and mineral leases are 85% Federal and 15% State and fee. At the point of full operations, Eureka Energy will employ 1,300. 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.

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.

On February 10, 1982, Eureka Energy Company executed a definitive coal property sale and purchase agreement to sell the Sage Point-Dugout Canyon coal properties to Sunoco Energy Development Company (SUNEDCO), a unit of Sun Company, Inc. The actual transfer of the properties to Sunedco will take place after all governmental approvals and legal requirements associated with the sale are satisfied, including assignment of the coal leases (Attachment B).

Construction and improvement of the Fish Creek Canyon and Dugout Creek Canyon county roads will be initiated by Eureka by June 1, 1982 (Attachment J). The construction will be funded by the applicant through the prepayment of sales and use taxes. The roads will be used as haul roads and for mine employees and maintenance vehicles.



DATE	DESCRIPTION	GM	DWN.	CHKD.	SUPV.	APVD.
7-22-80	[illegible]		[illegible]			[illegible]

REVISIONS

APPROVED BY

GM
SUPV.
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DWN. MDS
CHKD. JJO
O.K. [illegible]
DATE 7-22-80
SCALES N/A

PROJECT LOCATION

Figure I-A.1

EUREKA ENERGY COMPANY

SAN FRANCISCO, CALIFORNIA

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REV. 1

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 will be sealed as described above when they are no longer needed.

Compliance

The applicant will comply with these sections when this stipulation has been met.

Stipulation 4-30-82-TNT

1. The applicant fails to designate water supply wells in addition to ground water monitoring wells under the qualifier which states that they will be sealed in accordance with prior stated measures when no longer needed. Water supply wells must be treated in a like fashion.

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.

Topsoils will be salvaged from all areas to be disturbed except for those determined unsuitable for seed bed material.

Topsoil will be removed from each phase of operation prior to construction. If possible, the topsoil will be immediately redistributed on areas to be reclaimed that have been prepared for topsoil application. If stockpiling is necessary, the topsoils will not be disturbed or rehandled after stockpiling and will be stabilized until they are to be redistributed on regraded surfaces.

Stockpiles will be protected from compaction, erosion from wind and water and contamination from toxic or foreign substances.

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

Soil material 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 material 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.

At the Anderson Reservoir (HAC), and the preparation plant (IEC) and (IEE2) soils, the topsoil and portions of the subsoil will be removed in a single lift. Before any area is disturbed, the soils will be sampled and chemical and physical analysis conducted.

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 and following soil application, fertilizer elements will be broadcast and disced in to prepare a proper seed bed.

Compliance

Applicant will comply when the stipulations are met.

Stipulation 4-30-82-EH

1. The applicant must show justification for not removing and segregating the topsoil from the subsoil at the Anderson Reservoir (HAC) and the preparation plant (IEE2) and (IEC) soils.

2. The applicant must provide to the Division data on the chemical and physical analyses of the Ildefonso (IEC) soil found at the preparation plant waste disposal site to a depth of 15 feet and Haverson loam (HAC) from the Anderson Reservoir site to a depth of six feet.

3. The applicant must resolve a discrepancy over the proposed placement of the soil material removed from the preparation plant (IEE2) soil. The total calculated volume of available topsoil indicates the use of this soil material as topsoil, where as the applicant stated that due to poor quality of this soil material, it will be placed in a subsoil stockpile.

Variance

The applicant has requested a variance for removal of topsoil from areas of the Fish Creek durable rock fill (BY) soils, Dugout Canyon durable rock fill (BY) soils and the preparation plant waste disposal site (NFD2) and (OCA2) soils.

This variance may be granted upon visual inspection by the Division to determine if the areas are void of suitable topsoil material.

If the soil material is found to be of poor quality and sufficient amount of suitable soil material is available for reclamation, then the variance will be granted.

817.41 Hydrologic Balance

Applicant's Proposal

The Sage Point-Dugout Canyon project area watershed is part of the Price River drainage basin and contains six small basins totaling 61.54 square miles. Soldier Creek drainage, including Fish and Pine creeks (two principle tributaries), contain the western half of the project area which discharge into the Price River. Dugout, Pace and Corbula creeks are the principle streams that drain the eastern half of the project area and eventually flow into Grassy Trail Creek. The upper reaches of the streams are perennial, maintained by springs that flow in direct response to precipitation. The lower reaches on Pace, Fish and Corbula Creeks flow only in response to spring runoff or torrential rainstorms. Soldier, Pine and Dugout flow year-round except during periods of unusually low precipitation. During the first five years of operation 175 acres will be disturbed. A total of 430 acres will be disturbed during the life of the project. Surface runoff from the disturbed area will be controlled by diversion ditches, culverts and sedimentation ponds.

The operator has proposed designs to minimize changes to the prevailing hydrologic balance to both the mine plan and adjacent areas, in order to prevent long-term adverse conditions through use of the best technology currently available.

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

Compliance

The applicant has described the hydrologic regime.

Stipulation

None.

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 vegetation 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 disopsal 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.

In the event that unpredictable quantities of water are encountered underground too great to contain in the mine that do not meet water quality standards, and sedimentation ponds will have to be utilized, then remedial measures will have to be instituted to meet water quality standards such as enlarging sedimentation ponds to contain mine discharge plus the volume of a 10-year, 24 hour precipitation event from the respective drainage or using flocculents or treatement methods to settle suspended and dissolved solids.

Stipulation 4-30-82-DD

1. The Division must receive verification that an application has been made for an NPDES permit for all proposed point source discharges within the project area.

2. The applicant has establisned 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 will have to produce realistic influent concentrations characteristic of the undisturbed drainages so as to determine the quality of effluents. Permanent designs for sedimentation ponds will have to show evidence of compliance with UMC 817.42 through design criteria that will meet State and Federal water quality and effluent limitations.

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 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 on Soldier Creek and 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 Solider 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 Solider 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.

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 portal areas will be routed under the portal sites through large culverts. All culvert diversions are designed to carry the runoff from a 50-year, 24-hour precipitation event in the area. Culverts will be inspected regularly and cleaned as necessary to provide passage for designed flows. Inlets and outlets shall be maintained so as to prevent plugging or undue restriction of water flow.

Compliance

The applicant's proposal meets the general requirements for this section.

Stipulation 4-30-82-DD

1. Culverts should be fitted with trash racks at the inlet to help prevent plugging. Both culverts and diversions should discharge onto a protected surface (i.e., riprap, conveyor belting, flexible downspouts, etc.) to prevent scouring and erosion.

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

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 law. 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. At that point the sedimentation ponds will be leveled, covered with top soil and revegetated.

Compliance

The Division has received a statement from the applicant setting forth the date, November 30, 1982, when final designs will be submitted for runoff control structures. The applicant plans to address and comply with all of the stipulations and regulations in this section at that time.

Stipulations 4-30-82-DD

1. The applicant must provide that the sedimentation ponds at the central facilities, coal preparation plant and portal areas will contain a 10 year-24 hour precipitation event.

2. The emergency surge pond for the preparation plant must be 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. The sewage lagoon must be sized to contain the volume of waste materials generated at the mine site during full operating capacity and constructed to meet design criteria for embankments and sediment removal designated in UMC 817.46.

4. Applicant should discuss disposal of dregs and waste from sedimentation ponds, emergency surge ponds and sewage ponds. The Division recommends disposal of this material at the coal or rock waste disposal sites. Alternative methods may be suggested.

5. The applicant should construct diversion ditches to direct runoff away from settling ponds at drive and transfer stations.

817.48 Acid-forming and Toxic-forming Materials

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.

Compliance

The applicant plans to comply with this regulation. Roof, floor and coal samples were analysed and it is not anticipated that contamination by acids or toxic wastes will occur.

Stipulation 4-30-82-SK

As committed to in the ACR response and before any sludge from the containment lagoons is used for reclamation, the applicant must demonstrate its nontoxicity and suitability for reclamation.

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 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 water quality will not occur because water will be diverted from the stream and there will be settling at the stream diversion site. Diminution of water quantity will not occur because the operator possesses sufficient water rights to adequately support the intended use.

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

Compliance

The applicant has submitted preliminary designs of the reservoirs and plans to meet regulations set forth in UMC 817.49.

Stipulation 4-30-82-DD

1. The applicant must obtain a construction permit from the Division of Water Rights.

2. The applicant must submit final designs to the Division of Oil, Gas and Mining at least 120 days prior to construction.

3. The applicant must show the possession of the proper water rights prior to construction.

817.50 Underground Mine Entry and Access Discharges

Applicant's Proposal

Water discharge from underground workings is not anticipated. Since water supplies are somewhat limited in the region where the proposed project is located, the applicant will use the water as efficiently as possible.

Compliance

The applicant intends to comply with this regulation.

Stipulations

None.

UMC 817.52 Surface and Ground Water Monitoring

Applicant's Proposal

Eureka Energy Corporation has used the DOGM's guidelines for establishing surface and ground water baseline data and operational monitoring. It has been previously determined that the amount of baseline data thus far submitted is sufficient to establish seasonal variation. Operational monitoring data will be forwarded to the Division in January (includes an annual summary), April, July and October.

The applicant has surface water monitoring stations above and below the surface facilities on Dugout Creek, Fish Creek, Soldier Creek and Pace Canyon. 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 should 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 regional aquifer. It is expected that this plan will adequately reflect impacts to the ground water resources due to underground mining.

Application for a NPDES permit has been made for potential mine and/or sediment pond discharges. Sampling will be be conducted according to the conditions of the permit.

Compliance

Applicant complies with this section.

Stipulations

None.

817.53 Transfer of wells

Applicant's Proposal

The applicant plans to use the 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.

Compliance

The applicant plans to comply with this section.

Stipulations

None.

817.54 Water Rights and Replacement

Applicant's Proposal

The applicant owns all the water rights on the proposed mine plan property. It is anticipated that mining will not diminish or interfere with the hydrologic regime.

Compliance

The applicant plans to comply with this section.

Stipulations

None.

817.55 Discharge of Water into an Underground Mine

Applicant's Proposal

Water will be introduced to underground workings from Anderson and Dugout reservoirs for the purpose of dust suppression, firefighting and potable water supply.

Compliance

The use of surface water introduced into the mines will comply with the limitations established in UMC 817.55.

Stipulation 4-30-82-DD

1. Applicant must commit to monitoring, controlling and treating the flow rate of water introduced into the mines.

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

Applicant plans to comply with the regulations set forth in UMC 817.56.

Stipulation

None.

817.57 Stream Buffer Zones

Applicant's Proposal

Fish and Dugout creeks will be disturbed in the vicinity of the portal areas during construction. During operation, overland flow will be directed underneath the portal areas via culverts. The operator has submitted plans to reclaim the stream to its original profile after mining operations cease.

Compliance

The applicant does not plan to disturb any areas within 100 feet of stream channels except where already specified.

Stipulation 4-30-82-DD

1. In the event shielding placed on the conveyor does not prevent coal fines from entering a stream, the applicant may have to install culverts where the conveyor crosses the streams to minimize contribution of solids.

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.

Stipulation

None.

UMC 817.61-.68 Use of 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, Eureka 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 if he addresses this stipulation.

Stipulation 4-30-82-SK

1. Prior to construction of any surface facilities, the applicant shall submit a plan 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.

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 nauled 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 will comply when the stipulation is met.

Stipulation 4-30-82-SK

1. Applicant should address the stability of constructed portal areas in terms of fill areas for pads, minimization of slope erosion and slope stablity above the portal.

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 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 the following stipulation has been met.

Stipulation 4-30-82-SK

1. The applicant must develop an operational plan for extinguishing potential waste fires in accordance with UMC 817.87 and MSHA regulations.

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

Not applicable.

UMC 817.95 Air Resources Protection

Applicant's Proposal

The mine facilities have been evaluated and are found to be consistent with the requirements of the Utah Air Conservation Regulations and the Utah Air Conservation Act. A conditional approval order was granted by the Bureau of Air Quality in April 1981.

Compliance

Applicant is in compliance with this section.

Stipulations

None.

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values

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, desert cottontail and several species of raptors. Aquatic habitat is limited in the project area.

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" (U. S. Fish & Wildlife Service [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 determined a plan to mitigate potential conflicts (Attachments G and H). Three bald eagles have been seen on the permit area during the winter time. No bald eagle roost trees have been located on the mine plan area.

The applicant has committed to minimize disturbances and adverse impacts to wildlife by enhancing habitat adjacent to disturbed areas, carrying out an education program for mine personnel, reporting all sightings of threatened or endangered wildlife promptly, constructing power lines to be raptor-proof, locating roads so as to minimize wildlife mortality, fencing areas potentially injurious to wildlife, prohibiting firearms within mine boundaries and avoiding blasting and massive earthwork during the months 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.

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. The applicant may reclaim pinyon-juniper and sagebrush-grass-juniper areas to better benefit wildlife (see addendum, page 25). A decision will be made during mine life.

Compliance

Applicant will comply when these stipulations are met.

Stipulation 4-30-82-SL

1. Applicant must agree to abide by procedures determined by BLM to mitigate disturbance to nesting raptors (Attachment G).

2. Applicant must submit, for approval, a specific revegetation plan for the pinyon-juniper and sagebrush-grass-juniper habitats by the end of the first five-year permit period.

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

Applicant will be in compliance upon fulfilling this stipulation.

Stipulation 4-30-82-SK

1. Applicant shall commit to notifying the Division of any slide or surface failures which may occur during operations.

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 to shrub-grass-juniper, 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. Therefore, the applicant will use only the parameter of canopy coverage to determine revegetation success for the deciduous streambank community.

No species currently listed as threatened or endangered has been found to occur on the project area.

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.

The applicant proposes to dispose of waste rock at two sites; in Dugout and Fish Creek canyons (see Section 817.71-.74). The applicant has asked for a variance from retopsoiling these piles (see Section 817.22), based on the nature of the Mancos shale that will underly the waste piles. The regulatory authority is not convinced that there is no suitable topsoil material

available to cover these piles, particularly in Dugout Canyon. The applicant has submitted a revegetation seed mix, to be broadcast directly onto the piles, but has not specifically addressed irrigation or fertilizing practices.

Compliance

Applicant will comply when this stipulation is met.

Stipulation 4-30-82-SL

1. By the end of the first five-year permit term, the applicant must submit, for approval, a specific plan detailing appropriate reclamation of the two waste rock piles.

UMC 817.121 Subsidence Control: General Requirements

Applicant's Proposal

Grazing lands used for cattle should not be effected by subsidence. Subsidence will not impede the recreational use of the land which is solely 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. Possible subsidence effects which may occur to a single dirt road passing through the subsidence area will be slight and easily repaired. Monitoring stations will be established to monitor the possible subsidence in the vicinity of Pine Creek, the only stream likely to experience measurable subsidence. Adverse effects are not expected and any surface fracturing would be shallow and readily filled. 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.

Along with partial extraction methods being employed barrier pillar columnarization 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 pursuant to UMC 784.20.

In addition, natural features such as the 200+ foot thickness of the Castlegate sandstone and the extensive (in general) depth of overburden should preclude the transference of subsidence effects to the surface.

Compliance

When the following stipulation has been met, the operator will have achieved compliance with this section.

Stipulation 4-30-82-TNT

1. The applicant must provide to the Division a letter stating the agreement that has been reached with Mountain Fuel that recognizes the possibility of subsidence damage to their pipeline and provides for compensation if it should occur.

2. Updated subsidence prevention plans should be provided to OGM as mining progresses.

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 4-30-82-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.

817.150-.76 Roads

Applicant's Proposal

Three county roads will be used in connection with the applicant's mine facilities: Solider Creek Road; Dugout Canyon Road; and, Fish Creek Road. All roads are shown on Map D03-0002 in the permit application. The Solider Creek Road will be used by miners and trucks hauling supplies to the central facilities and the Solider 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 (Attachment D).

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 detailed designs of Class II roads will be submitted at least nine months prior to construction. 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 with 817.150-.176 if these stipulations are met.

Stipulation 4-30-82-SK

1. Applicant must submit detailed designs for all proposed Class II roads as stated in the letter of April 2, 1982 (Attachment A). The designs must comply with the criteria the applicant submitted on pages 21-22, August 1981 Addendum. Prior to commencement of construction of the roads, applicant must obtain approval from the regulatory agency that the detailed road designs comply with regulations. Designs must include detailed drawings of road alignment, grades and sizing and location of culverting.

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.

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.

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 indentifiable 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, as well as of 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.

In fulfilling the requirements for the second step, the applicant has determined that the possible AVF is in a valley and that parts of it are underlain by unconsolidated deposits. Also, the Applicant has found that the area has been flood irrigated in the past. Possible subirrigation was assessed on the basis of seepage and stream flow. Water rights were examined to determine whether the possible AVF could 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 completely out of the permit area prior to entering alluvial deposits. 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 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 runs through 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 whould have no effect on the physical integrity of an AVF. In addition, any such impacts would be greatly limited in areal extent.

Compliance

The result of an on-site meeting between OSM and OGM representatives resulted in a finding that the only significant impact to the AVF was Eureka's use of its water right thereby denying water for 60 acres which are irrigated. OGM took the position that the act was not intended to adjucate water rights.

Stipulation

None.

823.2-.15 Prime Farmland

Applicant's Proposal

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 - East 1/2 of Section 1, T. 14 S., R. 11 E. (has) soil characteristics and qualities suitable for prime land".

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.

This half-section is located along Soldier Creek Road at the southern boundary of the permit area (see Figure IV-C.1). The only planned surface disturbance in conjunction with the proposed mine plan and permit will be an access road. This road will 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.

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 (U.S.D.A.-F.A., 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 2 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.

EUREKA ENERGY
INCREMENTAL RECLAMATION BOND
(1980 DOLLARS)

YEAR	ACRE DIST	ACRE RECL	BOND COST	BOND RELEASED	BOND REQUIRED
1983	061	000	$449,777	$000,000	$ 449,777
1984	025	014	185,619	015,136	620,260
1985	039	000	145,835	000,000	766,095
1986	009	000	015,499	000,000	781,594
1987	003	012	004,328	011,896	774,026
1988	002	000	008,288	000,000	782,314
1989	030	000	238,872	000,000	1,021,186
1994	000	000	000,000	006,307	1,014,879
1995	000	027	174,207	122,757	1,066,329
1997	000	000	000,000	004,957	1,061,372
2000	000	000	174,207	104,524	1,131,055
2005	000	000	174,207	155,673	1,149,589
2010	000	000	174,207	148,076	1,175,720
2015	000	000	174,207	148,076	1,201,851
2017	000	019	000,000	106,375	1,095,476
2018	000	011	000,000	014,351	1,081,125
2020	000	000	174,207	148,076	1,107,256
2025	000	000	166,683	148,076	1,125,863
2027	000	000	000,000	044,323	1,081,540
2028	000	000	000,000	005,980	1,075,560
2030	000	071	000,000	746,000	698,814
2031	000	015	000,000	024,564	674,250
2035	000	000	000,000	043,552	630,698
2040	000	000	000,000	166,934	463,764
2050	000	000	000,000	464,764	000,000

1980 Proposed bond for 1983 = $449,777

1983 Dollars 12% annual inflation =	$631,706
10% administrative and contractual cost =	$ 63,170
Bond Required for 1983	$694,877

EUREKA ENERGY

UNIT COST BREAKDOWN

(1980 and 1983 Dollars)

	UNIT COST (1980 Dollars)	UNIT COST (1983 Dollars*)
Backfilling & Grading	1,669.00/ac	2,345.00
Ripping	90.00/ac	126.00
Subsoil	1,982.00/ac	2,784.00
Topsoil	611.00/ac	858.40
Seal Shaft	8.50/cu yd	12.00
Backfill & Seal Entries	7.70/cu yd	10.80
Remove Footings & Foundations	1.20/cu yd	1.70
Remove Asphalt & Base	.50/cu yd	.70
Fertilize	94.00/ac	132.00
Prepare Seed Bed	56.00/ac	79.00
Seed & Plant	1,291.00/ac	1,813.00
Mulch	195.00/ac	274.00
Irrigation	451.00/ac	634.00
Gabion/Riprap	1.15/cu yd	1.60
Salvage Structures	0	0
Remove CMP	.81/ft	1.13

*1983 Dollars calculated using 12% annual inflation rate.

RECLAMATION BOND

EUREKA ENERGY CORPORATION

(1980 DOLLARS)

COST BREAKDOWN PER AREA DISTURBED

	No. Acres	Backfilling and Grading	Ripping	Subsoil	Topsoil	Seal Shaft	Backfill & Seal Entries	Remove Footings & Foundations	Remove Asphalt & Base
Fish Creek Portal	17.9	30,618	998	48,689	19,534	4,736	10,476	925	1,206
Road Fish Creek Fan	1.1	585	60	3,014	1,216				867
Dugout Canyon Portal	17.0	73,083	945	10,376	20,680		17,319	1,112	867
Pace Canyon Fan Portal	3.0	726	121	19,816	406		5,773	654	
Conveyor Fish--Main	2.6							231	
Dugout Canyon--Central Facilities & Prep Plant	9.1							938	
*Water & Sewer Lines	7.9				370				
Big Hole Road	11.4	9,152	883		5,358				3,724
Fish Creek Ridge Road	11.3	8,320	798		4,841				4,345
Sewage Lagoons	15.0	12,147	1,161		13,605				
Preparation Plant	22.0	22,048	1,704	11,925	5,964			1,368	935
Administrative Offices	9.0	9,152	3,049		1,525			1,185	935
Railroad Corridor	1.7	1,479	98	567	294			5,097	
Durable Rock Fills									
Fish Creek	10.5	21,141							
Dugout	6.6	13,312							
Prep Plant Waste per 1st five years	****23.4	54,363		***83,972	9,720				
*Anderson Reservoir 1st five years only	2.8				3,920				
*Dugout Reservoir 1st five years only	3.4				4,480				
TOTAL	175								

	Acres	Fertilize	Prepare Seed Bed	Seed & Plant	Mulch	Irrigation	Gagion Rip-Rap	Salvage Structures	Remove CMP	Total Cost	Cost Per Acre
Fish Creek Portal		1,709	1,144	29,807	5,755	6,760	7,659	0	1,204	$171,220	$ 9,565
Road Fish Creek Fan		105	48	19	157					6,071	5,519
Dugout Canyon Portal		1,624	1,199	24,847	6,442	8,480	3,470		1,320	171,764	10,103
Pace Canyon Fan Portal		286	230	3,120	1,301	1,844				34,277	11,425
Conveyor Fish--Main		202	234	3,661						4,328	1,664
Dugout Canyon--Central Facilities & Prep Plant		702	819	13,040						15,499	1,703
Water & Sewer Lines		754	344	11,261	1,126					13,855	1,753
Big Hole Road		1,089	496	7,450	1,625					29,777	2,612
Fish Creek Ridge Road		984	448	**13,282	1,468					34,550	3,057
Sewage Lagoons		1,433	653	9,803	2,138					40,940	2,729
Preparation Plant		2,101	957	39,875	3,135					90,012	4,091
Administrative Offices		860	392	16,313	1,283					34,694	3,854
Railroad Corridors		162	74	275	242					8,288	4,875
Durable Rock Fills											
Fish Creek		814		1,964						23,919	2,278
Dugout		512		1,234						15,058	2,281
Prep Plant Waste per 1st five years	23.4	2,579	1,175	48,938	3,848					204,595	8,743
Anderson Reservoir 1st five years only		217	252	473	399					5,261	1,862
Dugout Reservoir 1st five years only		264	306	575	485					6,110	1,797
SUBTOTAL										$705,623	
MONITORING										138,000	
1983-2050										$843,623	
										17 Acres=4820.7/ac	

*Permanent reclamation at time of construction.

**64 Prime farmland reclamation.

***Includes replacement of sandstone substrate

****18 acres per 5 years thereafter.