



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

May 27, 1982

Mr. Dave Schouweiller
Permit Coordinator
Consolidation Coal Company
Western Region
#2 Inverness Drive East
Englewood, Colorado 80110

RE: Conditional Approval
Consolidation Coal Company
Preparation Plant/Loadout
Facility Modification
Emery Deep Mine
ACT/015/015
Emery County, Utah

Dear Mr. Schouweiller:

The Division of Oil, Gas and Mining has completed the technical review of Consol's permit application for its preparation plant and loadout facility modification at the Emery Deep Mine. Please find enclosed a copy of the technical analysis (TA) and reclamation bond estimate for this modification.

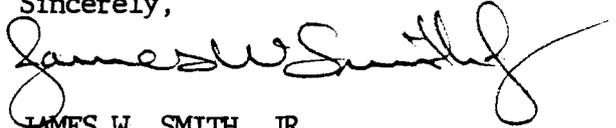
The modification is conditionally approved contingent upon Consolidation Coal Company's written acceptance and fulfillment of the enclosed stipulations and posting of the required surety. At such time, Consol will be in full compliance with the State of Utah's coal mining and reclamation program and final approval may be issued.

Please note that alterations in the reclamation bond estimate have been made. These changes reflect the Division's current bond rates which are based on public and private contractual rates for reclamation activities. There are additional areas designated in the bond which were not originally addressed, but the Division is of the opinion that they are necessary for complete bond coverage.

Mr. Dave Schouweiller
ACT/015/015
May 27, 1982
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If you or your staff have any questions regarding the new estimate or the stipulations, please contact Sally Kefer or myself.

Sincerely,

A handwritten signature in black ink, appearing to read "James W. Smith, Jr.", written in a cursive style.

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

Enclosures

cc: Allen D. Klein, OSM

JWS/SK:btb

STIPULATIONS

CONSOLIDATION COAL COMPANY PREPARATION PLANT AND LOADOUT FACILITY ACT/015/015, Emery County, Utah

Consolidation Coal Company shall respond to these stipulations within four months of this approval.

UMC 817.11 Signs and Markers

Stipulation 5-27-82-SK

Upon initiation of construction of the preparation plant and facilities, perimeter markers should be distributed in an appropriate manner.

UMC 817.52 Surface and Ground Water Monitoring

Stipulation 5-27-82-SK

Consol should notify DOGM on the status of the ground water baseline monitoring program.

UMC 817.57 Stream Buffer Zones

Stipulation 5-27-82-LK

The area within 100 feet of Quitchupah Creek will be established as a stream buffer zone and be appropriately marked as specified in UMC 817.11.

UMC 817.81-.85 Coal Processing Waste Banks

Stipulations 5-27-82-CY

1. The applicant must outline a plan for site inspections by a qualified engineer as required by UMC 817.82.
2. Design calculations included in the plan (15.6.3) do not show the static factor of safety for the coarse refuse waste banks. This must be presented as discussed in UMC 817.85.

UMC 817.86-.87 Burning and Burned Waste Utilization

Stipulations 5-27-82-CY

1. A specific plan for extinguishing coal processing waste fires should be submitted to the Division for approval as required by UMC 817.86.
2. A discussion on the removal of burned coal processing waste, should be submitted with this plan as discussed in UMC 817.87.

UMC 817.99 Slides and Other Damage

Stipulation 5-27-82-CY

Applicant shall commit to notifying the Division of any slides or surface failures which may occur during operations and shall work in conjunction with the Division to devise remedial measures.

UMC 817.101-.106 Backfilling and Grading

Stipulation 5-27-82-CY

The factor of stability for the coarse refuse embankment must be provided as described in UMC 817.185.

UMC 817.131-.132 Cessation of Operations

Stipulation 5-27-82-SK

Consol will commit to notifying the Division of the intention to cease preparation plant operations prior to such an occurrence.

UMC 817.150-.156 Roads: Class I

Stipulation 5-27-82-CY

The designed safety factor for road cuts, fills and embankments needs to be submitted for the new roads, along with the basis for safety factor calculations (refer to UMC 817.152[D][9]).

TECHNICAL ANALYSIS

CONSOLIDATION COAL COMPANY PREPARATION PLANT AND LOADOUT FACILITY ACT/015/015, Emery County, Utah

Introduction

Consolidation Coal Company's Emery Deep Mine is located two miles east of Highway 10 and six miles north of U. S. Interstate 70 in Emery County, Utah. The company has proposed to construct a coal preparation plant and loadout facility north and adjacent to the existing mine facilities. The preparation plant is essential to the continued operations of the Emery Deep Mine due to the increasing level of sulphur detected in the coal. Without the capacity for coal processing the company may not meet contractual agreements.

Two roads will be used for plant access. The coal haulage road and a smaller employee access road.

A waste disposal area is designated for the preparation plant. There will be a coarse refuse disposal pile and a slurry settling lagoon consisting of two cells. The proposed disturbance is 206.6 acres.

Clean water will be recycled back through the preparation plant from the slurry cell and the existing mine discharge sediment pond.

The facilities will be operational throughout the life of the Deep Mine, about 2010. All facilities will be removed and the area reclaimed at the permanent cessation of operations.

UMC 817.11 Signs and Markers

Applicant's Proposal

The applicant has not specifically discussed the use of signs and markers. Upon initiation of construction of the preparation plant and facilities, perimeter markers should be distributed in an appropriate manner.

Compliance

Consol will be in compliance with this section by meeting the requirements of this performance standard during operations.

Stipulation

None.

UMC 817.13-.15 Casing and Sealing of Underground Openings

Not applicable.

UMC 817.21-.25 Topsoil

Applicant's Proposal

The proposed area of disturbance for the Emery Preparation Plant lies in portions of Section 32 and 33, Township 22 South, Range 6 East, Emery County.

A soil survey of an approximately Order I intensity was conducted for the 210 acres of surface to be affected by the preparation plant and support facilities. Fifteen soil series or combination of series were found and sampled within the area to be disturbed.

Map unit descriptions are either directly from the SCS, refined to be site specific, or are units developed specifically for this inventory. Forty-nine map unit descriptions are provided. Where possible, SCS map units were used for the inventory. In the detailed inventory area, SCS map unit descriptions were refined to be site specific. New map units were developed in the case of several soil units for which no SCS map unit descriptions were appropriate.

Physical and chemical analyses of the major series were conducted by Utah State University Cooperative Soils Laboratory, Logan, Utah. All horizons were analyzed for the following: particle size distribution; textural class; saturated paste pH; percent organic carbon; percent gypsum; electrical conductivity (EC); moisture tension at saturation and 15 atmospheres; water soluble cations (Ca, Mg and Na); SAR; and boron. Engineering analysis of soils, including liquid and plastic limits, plasticity index, and Unified and AASHO classification systems, were also performed. The analytical techniques used are listed in Appendix 8.1.

Present and potential soil uses of the project area were determined. Present uses of the soils are shown on Plate 8-3, Soil Use Map. Present uses include grazing, irrigated pasture, irrigated cropland, wildlife habitat, mine land and timber land. Prime farmland and important farmland were identified by the SCS (T. B. Hutchings, SCS State Soil Scientist 1980). Delineations were made from SCS data, aerial photo-interpretations and field inspection.

Soil series in the areas to be affected were evaluated as sources of reconstruction material. Soil analysis, on-site information and soil interpretation records (SCS) were used in this evaluation. The criterion used in this determination are those outlined in the National Soils Handbook (USDA, SCS 1976). Available topsoil depth and restrictive features are given for each soil occurring in areas to be disturbed (Table 15-1 Revised, January 1982).

Engineering interpretations were made using SCS guidelines (USDA, SCS 1971). Included are interpretations for soil use of septic tanks, shallow excavations, haul roads, mine buildings and suitability as a source of sand, gravel and road fill. Soil features affecting settling ponds, reservoirs, diversion dikes, levees or fill embankments are also discussed. These interpretations show suitability for various uses and are not meant to replace on-site soil engineering.

Water and wind erodibility in areas to be affected were evaluated. The wind erodibility group (WEG) was determined for each map unit within the area to be disturbed. The soil erodibility factors (K) of surface soils, and cropping factor (C) were calculated for major soils in the detailed mapping area. This information is needed for reclamation planning to control loss of salvaged and redressed material.

Prior to construction, the topsoil will be removed and stockpiled. The topsoil will be removed with scrapers to a depth recommended by the soil classifiers report (Table 15-1). The storage piles will be constructed with broad side slopes (2 Hor:1 Vert) and will be revegetated with a permanent vegetative cover.

The life of the preparation plant facility is anticipated to be until the year 2010, at which time the facilities will be removed and the disturbed land returned to the approximate original contour.

Topsoil will be spread over previously prepared surfaces to a depth of approximately 13.5 inches. Section 784.11 lists the exact timetables for removal and reclamation of preparation plant facilities.

Compliance

Applicant complies with these sections.

Stipulations

None.

UMC 817.41-.42 Hydrologic Balance: Water Quality and Effluent Limitations

Applicant's Proposal

Consol has proposed to use a sedimentation pond for the treatment of 115 acres of disturbed area associated with the preparation plant facilities (see 817.46 for design details). A diversion ditch will intercept drainage above the prep plant yard and route it to a natural drainage channel which discharges into Quitcupah Creek (see 817.43 for design detail).

A slurry cell impoundment will be constructed in the waste disposal area to settle slurry fines from the processing plant and treat runoff which occurs from the coarse refuse pile (see 817.45 for design detail). A diversion ditch will be constructed above the refuse disposal area to route natural runoff and flood irrigation flow directly to Quitcupah Creek (see 817.43 for design detail).

A NPDES permit has been issued for both the sedimentation pond and slurry cell impoundment.

Compliance

The applicant will comply with these sections during operations.

Stipulations

None.

UMC 817.43 Diversions and Conveyance

Applicant's Proposal

During the growing season, an artificial ground water mound exists beneath the proposed slurry cell area. This is due to flood irrigation practices which are carried out in a field northwest and adjacent to the prep plant permit area. Consol has proposed a diversion ditch to run the length of the irrigated field which will divert flows and thus eliminate the ground water mound effect. A modification to the ditch design was submitted on February 19, 1982, and approved by DOGM on March 17, 1982. The ditch is sized to safely carry the discharge of the probable maximum thunderstorm event for the permit area. The design discharge is 75 cfs. The maximum design flow velocity is 3.72 fps. The drainage area is 72.3 acres. The discharge will be directly into the main channel of Quitcupah Creek.

If an artificial mound should develop from the seepage which is predicted to occur from the slurry cells, then a horizontal gradient of flow is predicted from a pore pressure analysis which was conducted in the area.

A second diversion ditch will channel undisturbed area runoff away from the plant area. This diversion controls a 75.1 acre drainage area and discharges into the proposed north main entrance road ditchline which ultimately flows into a natural channel.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.44 Stream Channel Diversions

Not applicable.

UMC 817.45 Sediment Control Measures

Applicant's Proposal

Two slurry cells will be constructed adjacent to the coarse refuse disposal site. The cells will be utilized to settle suspended solid materials from processing waters from the preparation plant. Slurry will be pumped from the plant at a rate of 130 gpm through a three inch line to cell #2 for initial settling. The minimum clarified water return from cell #1 is expected to be 50 gpm. The total cell design will ultimately facilitate 33 acre-feet of submerged fines.

Cells #1 and #2 will be excavated to a 3:1 slope to an elevation of 5931.0 for cell #1 and 5934.0 for Cell #2. This silty sand material will be used to construct the embankment of the slurry impoundment to a crest of 5953 feet. The upstream slope will be 3:1 and downstream will be 4:1 with a crest width of 20 feet. Two 40 foot wide dikes will be constructed in the impoundment to form cell #1. The zoned dikes will be composed of an earth core placed at 3:1 to design elevation 5943 with a crest width of 12 feet. A two foot clay liner will be compacted over the earth zone to form a liner. Coarse refuse will be placed on the inner dike and allowed to settle to the angle of repose, approximately 1.7:1. At design elevation 5951 the dike will have a 40 foot wide crest. Three polyethelene pipes will be placed through the refuse dike between cell #1 and #2 at 1.13 percent slope. The three inch perforated well pipe riser has a top elevation of 5941.6. Throughout both cells, a clay liner will be constructed of local Mancos shale materials. The clay will be watered, rolled and compacted to a two foot depth. A six inch protective cover will then be compacted over the clay. In accordance with MSHA regulations, a stability analysis was conducted for the impoundment. The embankments exceed the critical factor of safety. The maximum storage capacity of the slurry impoundment is 198.2 acre-feet at elevation 5949.5.

An emergency spillway has been designed in accordance with MSHA standards. Both the probable maximum precipitation and probable maximum thunderstorm were utilized in the design. The 12 foot wide trapezoidal channel is capable of passing the design storm, with 100 percent of the design storm inflow evacuated in one day. The impoundment is designed to store runoff above the maximum pool level prior to discharge while maintaining the three foot freeboard. An emergency discharge permit (NPDES) has been obtained for the structure.

The slurry cell impoundment will also treat all runoff occurring from the coarse refuse disposal area.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.46 Sedimentation Ponds

Applicant's Proposal

One sedimentation pond (#5) has been constructed for the treatment of all disturbed area runoff from the preparation plant. The approval for pond construction was granted on November 25, 1981. The pond will collect disturbed runoff from a 115 acre watershed. The structure is partially excavated to provide the 3.6 acre foot required capacity. The 10-year, 24-hour event plus three years of sediment accumulation are included in the design capacity.

The pond is equipped with a three inch polyethylene pipe gate valve decant system with provisions to trap oil and gas. The emergency spillway, designed to pass a 25-year, 24-hour precipitation event, consists of a 20 foot wide trapezoidal channel. The channel is riprapped. The minimum freeboard is 1.0 foot. Discharge from this pond will flow westward into the natural drainage channel. A NPDES permit for the discharge point has been obtained.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.47 Discharge Structures

Applicant's Proposal

Discharge structures are proposed for sedimentation pond #5, the slurry cell impoundment and from the preparation plant and refuse area diversion ditches. The sizing of these structures is discussed in previous sections. Consol has committed to the use of riprap material at all discharge points to adequately dissipate the velocity of discharge prior to entering natural drainages.

Compliance

Applicant is in compliance with this section.

Stipulations

None.

UMC 817.48 Acid-forming and Toxic-forming Materials

Applicant's Proposal

The amount of runoff occurring from the disposed coarse refuse material will be minimized through the use of a drainage diversion structure above the refuse area. The runoff which does occur from the coarse refuse will be routed through the slurry cell impoundment for reuse in the preparation plant.

The potential for oxidation of pyritic materials which were identified in a coarse refuse sample will be minimized by reducing the pore space within the refuse by compaction during construction of the pile.

Consol has proposed a minimum five foot cover of subsoil and topsoil over the coarse refuse pile and slurry impoundment upon final reclamation. The final grading plan provides for "naturally" flowing drainage patterns over these impoundment areas.

Compliance

Applicant is in compliance with this section.

Stipulations

None.

UMC 817.49 Permanent and Temporary Impoundments

Applicant's Proposal

Consol has proposed to remove and reclaim sedimentation pond #5 upon final abandonment of the area. The slurry cell impoundment will be rendered nonimpounding and covered with suitable reclamation materials prior to revegetation.

Compliance

Applicant complies with this section.

Stipulations

None.

UMC 817.50 Underground Mine Entry and Access Discharges

Not applicable.

UMC 817.52 Surface and Ground Water Monitoring

Applicant's Proposal

Ground Water. A minor, shallow aquifer is contained within the Quaternary alluvium along stream channels and is Quaternary pediment deposits scattered throughout the Emery area. This unconfined aquifer is generally less than 50 feet thick, and its boundaries are clearly defined by the limits of the Quaternary deposits and contact with the underlying Bluegate shale.

Recharge to the Quaternary pediment terrace aquifers is sustained by almost constant irrigation and leaching applications by local farmers using water diverted predominantly from Muddy Creek. Water moves through the Quaternary pediment terrace deposits and exists from numerous springs at the contact with the relatively impervious Bluegate Shale. Because of the rolling topography of the Bluegate shale, water flowing from some of these springs becomes trapped in swales, creating "alkali swamps."

There are no wells completed exclusively in the Quaternary deposits; however, water quality can be determined from data collected during a spring and seep inventory conducted during October 1979 and June 1980. Conductivity

of the spring waters ranged from 658 to 2015 Mhos/cm with an average of 1162 Mhos/cm at 20°C; pH ranged from 6.3 to 8.3 with an arithmetic average of 7.6. Although discharge at most of the spring sites was not measurable because of the unlocalized nature of the spring and/or vegetative overgrowth, most springs had flows of less than 10 gpm. Except for one small irrigation diversion, water from the springs is used only for stock watering.

The Bluegate shale is considered an aquiclude, and it separates the Quaternary alluvium and Ferron sandstone aquifers. In the vicinity of the prep plant, the Bluegate consists of massive gray shales with minor intercalated, fine-grained sandstones and thin carbonaceous layers. Several monitoring wells, installed by Consol and the USGS, are completed totally or partially in this zone.

Wells completed in the Bluegate shale experience minor seasonal variations in water level, which may be a result of irrigation and precipitation.

Water quality data indicates that the Bluegate shale is very saline with high amounts of sodium, sulfate and chloride. The visibility of gypsum crystals in hand samples and the numerous alkali deposits throughout the Emery area also indicate salinity.

Ground water in the area of the preparation plant is contained in the permeable Ferron sandstone member of the Mancos shale. The Ferron sandstone is confined above by the Bluegate shale and is believed to be confined below by the Tununk shale.

Recharge to the ground water body in the area of the prep plant is believed to take place on the Wasatch Plateau and along the Joe's Valley-Paradise fault zone (Kaufman 1976; Owili-Eger 1979). Relatively higher amount of precipitation in the recharge zone (30 inches/year on the Wasatch Plateau) and the shape and southeastward slope of the potentiometric surface suggest this to be the case.

Although the amount of ground water recharge to the Ferron sandstone is not well understood, both the upper and lower sandstone units within the Ferron sandstone are known to contribute subsurface outflow to Muddy and Quitchupah creeks, Christiansen Wash and to Miller Canyon. Subsurface flow contributions to Miller Canyon and Muddy Creek are generally believed to be beyond the radius of influence of the prep plant and, therefore, are not critical to the permit area.

Surface Water. The proposed prep plant and loadout facility is located approximately four miles due south of the town of Emery. It is situated at the confluence of Quitchupah Creek and its only major tributary, Christiansen Wash. Quitchupah Creek is a tributary to Ivie Creek which in turn is a tributary to Muddy Creek. Muddy Creek empties into the dirty Devil River above Hanksville, Utah; the Dirty Devil River is a major tributary to the Upper Colorado River.

The most recent water quality information on Quitchupah Creek and Christiansen Wash has been collected by Consol beginning in October 1979. As part of Consol's surface water monitoring program for the Emery Mine (see Section 7.2.7 of the mine plan for details), monitoring sites as indicated on Plate 7-2 have been established for monthly water quality sampling.

Quitichupah Creek water is characterized by the following dominant ions in order of decreasing concentration (mg/l): SO_4 , Na, Ca, Mg, HCO_3 and Cl. In general, the water becomes more saline downstream with increasing SO_4 and Na concentrations. Quitichupah Creek's water quality noticeably deteriorates between sample sites 1 and 4, as a result of its confluence with the unnamed tributary into which Emery Mine discharges water. The overall effect is an increase in TDS concentration of 377 mg/l. The two sources of this increase are discharge from the mine water sedimentation pond (site 6) which averages 3894 mg/l TDS, and the unnamed tributary above the discharge point (site 8), which averages 14054 mg/l TDS. Water quality in this tributary is a result of irrigation flows having been exposed to the saline Bluegate shale. It is difficult to separate the influence of the sediment pond from that of the unnamed tributary; however, a comparison of the average flows from both sources--0.56 cfs from the sediment pond versus 0.04 cfs from the unnamed tributary--indicates that discharge from the sediment pond has the major influence.

The combination of all of the previously mentioned influences is reflected in the water quality at site 3 situated below the confluence of Quitichupah Creek and Christiansen Wash and the influence of the Emery Mine. The TDS of the water leaving the area averages 1430 mg/l.

In addition to the chemical water quality parameters, Consol's monitoring program also tests for total suspended solids (TSS) at each of the sites.

First, the mine water sedimentation pond (site 6) has been very effective in reducing the discharge of TSS with an average of 8.39 mg/l and a maximum of only 19.3 mg/l. From the other sampling sites, it appears that TSS is highly variable with a maximum range at site 4 of 21.8 mg/l to 5358 mg/l.

With the incorporation of the prep plant, the TDS contribution to Quitichupah Creek will be reduced through the use of 70 percent of the mine water discharge in the facilities. The average daily salt load would be reduced by 4.5 tons.

Consol intends to place two slurry cells, for settling of solids from the prep plant just west of the preparation plant. All water used in the preparation process which accumulates in the slurry cells will be pumped back to the plant for reuse. Consol intends to monitor the seepage from the cells by placing six shallow ground water wells into the alluvium. Calculated seepage volumes from the slurry cells approximate 500 ft^3 /day. The equilibrium TDS content of the slurry cells is expected to range between 5,000-10,000 mg/l. This would add 0.15 tons per day to the alluvial ground water system and in turn to Quitichupah Creek. Therefore, the total salt load to the creek would be reduced to approximately two tons/day.

Compliance

Surface water baseline data collection is adequate. The proposed alluvial ground water monitoring plan is adequate.

At this point, no information is available to DOGM on the initiation of monitoring of six alluvial ground water wells adjacent to the slurry disposal area. In a verbal discussion with Mr. Louis Meschede, hydrologist for Consol, DOGM agreed that monitoring of the ground water wells to reflect seasonal variation prior to operations was acceptable even though concurrent construction of surface facilities is carried out.

Stipulation

None.

UMC 817.53 Transfer of Wells

Not applicable.

UMC 817.55 Discharge of Water Into an Underground Mine

Not applicable.

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

Applicant's Proposal

There are no permanent hydrologic structures proposed for this project.

All roads and respective drainage structures except for the existing county access road will be removed and reclaimed prior to abandonment.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.57 Stream Buffer Zones

Applicant's Proposal

The applicant has not specifically addressed stream buffer zones in the permit application.

Compliance

Data from the aquatic wildlife study presented in Chapter 10 of the Emery Deep Mine MRP indicates that Quitchupah Creek contains a "biological community" (determined according to UMC 817.57[c]) and thus requires a buffer zone. Surface disturbance within a stream buffer zone is not permitted except in accordance with the provisions of paragraph (a) of this section.

The applicant will comply with this section if the following stipulation is met.

Stipulation

The area within 100 feet of Quitchupah Creek will be established as a stream buffer zone and be appropriately marked as specified in UMC 817.11.

UMC 817.59 Coal Recovery

Applicant's Proposal

The proposed slurry pond will be located above the intersection of the 6 south and 2 west mine workings which are in the I and J seams. The approximate depth of the mine workings in the area is 251 feet. The room and pillar method was used in extracting the coal, and pillars have been left in place for stability. No retreat mining is to be done in this area. Mining height has been 8-10 feet, leaving two feet of floor coal and approximately eight feet of roof coal.

The amount of coal left in the floor and roof are for stability. Also, the coal occurring in the roof is high in sulfur and difficult to market.

Justification for nonrecovery, according to Chapter 3 of the overall mine plan, is economic. Certain seams are higher in sulfur and/or ash than acceptable under contractual or government coal quality specifications.

Compliance

The area of coal recovery is being examined as a part of the overall mine plan. Comments will be made at that time.

Stipulations

None.

UMC 817.61-.68 Use of Explosives

Applicant's Proposal

The small amount of explosives on hand are kept in a MSHA approved powder magazine and any use of explosives will be as directed by MSHA regulations.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

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

Not applicable to this plan.

UMC 817.81-.85 Coal Processing Waste Banks

Applicant's Proposal

Coal processing waste will be deposited south of Quitcupah Creek at a refuse disposal site west of the slurry impoundment. Coarse refuse will be hauled to the site in pan-type scrappers and compacted. The refuse comprised largely of 4 inches X 3/8 material will be placed on a 2.5:1 slope with 25-foot wide benches for every 25 feet rise in elevation.

Construction of the refuse bank will be accomplished by placing material in maximum lifts of two feet and compacting to attain 90 percent of maximum dry density. The proposed width of the bench terraces is 25 feet. A letter was submitted by the applicant on April 26, 1982, stating that this designed width would better accommodate equipment movement on the pile and ease the constraints of construction. The Division finds there is no eminent danger in this proposal as long as Consol can meet the static factor of safety discussed in UMC 817.85.

Benches will be constructed with a slight reverse slope. Both transverse to the face to prevent the flow of surface water runoff down the face of the slopes and longitudinally to the sides of the pile to route runoff into the slurry impoundment. The refuse bank will facilitate approximately 447 acre feet of coarse refuse at a maximum design elevation of 6,015 feet.

Reclamation will be accomplished by replacing approximately four feet of subsoil and topsoil material and establishing a permanent vegetative cover.

Compliance

The applicant will comply with these sections when the following stipulations have been met.

Stipulations

1. The applicant must outline a plan for site inspections by a qualified engineer as required by UMC 817.82.

2. Design calculations included in the plan (15.6.3) do not show the static factor of safety for the coarse refuse waste banks. This must be presented as discussed in UMC 817.85.

UMC 817.86-.87 Burning and Burned Waste Utilization

Applicant's Proposal

The operator is compacting refuse material to 90 percent of its maximum dry density which should prevent spontaneous combustion.

Compliance

The operator will be in compliance when the following stipulations of this section have been met.

Stipulations

1. A specific plan for extinguishing coal processing waste fires should be submitted to the Division for approval as required by UMC 817.86.
2. A discussion on the removal of burned coal processing waste, should be submitted with this plan as discussed in UMC 817.87.

UMC 817.88 Return to Underground Workings

Not applicable.

UMC 817.89 Disposal of Noncoal Wastes

Covered in the general mine plan and is adequate for mining and processing operations.

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

Not applicable.

UMC 817.95 Air Resources Protection

Applicant's Proposal

The State of Utah, Bureau of Air Quality has reviewed the applicant's air quality protection plan. The State found that the preparation plant was not subject to requirements pertaining to Prevention of Significant Deterioration (PSD) regulations.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values

Applicant's Proposal

The permit area includes portions of the Wasatch Plateau, San Rafael Sell and desert geographical regions. Generally, the topography is flat to gently rolling uplands which includes several steep-walled canyons that are associated with drainages.

The limited riparian areas are the only habitat that is classified as crucial-critical to wildlife, otherwise, it is generally of limited value. Disturbances in riparian areas will be kept to a minimum and all altered riparian habitat will be restored during reclamation.

A total of 170 vertebrate species of wildlife have been documented on the permit area. Of these, mule deer, golden eagles, ringneck pheasants, cottontail rabbits, jackrabbits and prairie dogs are the most common.

The only threatened or endangered species known to inhabit the permit area or adjacent areas is the bald eagle, which makes limited use of the general area during the winter.

During surveys, 13 species of raptors were documented, all of which are afforded protection. The U. S. Fish & Wildlife Service has surveyed existing power lines (see letter dated April 8, 1982) and found that raptors were not using these poles.

Mitigation and protection measures to be used by the applicant include: selecting plant species for reclamation based on their compatibility with habitat restoration and value for wildlife and grazing; employee's will be instructed not to harrass or illegally take wildlife; all hazards to wildlife associated with the mining activities will be appropriately fenced; and, all new power lines will be designed so as to be "safe" to raptors.

Compliance

The applicant is in compliance with the requirements of this section.

Stipulations

None.

UMC 817.99 Slides and Other Damage

Applicant's Proposal

The applicant has not specifically addressed this section of the regulations.

Compliance

Applicant will be in compliance upon acceptance of the following stipulation.

Stipulation

Applicant shall commit to notifying the Division of any slides or surface failures which may occur during operations and shall work in conjunction with the Division to devise remedial measures.

UMC 817.100 Contemporaneous Reclamation

Applicant's Proposal

The applicant plans to reclaim all surface disturbance areas as contemporaneously with the operations as possible. Consol will use the following seed mix for temporary revegetation and stabilization:

<u>Species</u>	<u>Pounds PLS/Acre</u>
*Crested wheatgrass	3
Streambank wheatgrass	3
*Russian wildrye	3
Western wheatgrass	3.5
*Yellow sweetclover	1.5

Although this list contains introduced species (marked with an *), they are adapted to the climate and should provide quick cover to stabilize soils and prevent erosion.

Compliance

The applicant is in compliance with the requirements of this section.

Stipulations

None.

UMC 817.101-.106 Backfilling and Grading

Applicant's Proposal

Preparation Plant Site. Prior to regrading the plant site, surface debris will be removed. It is anticipated that this material will be suitable to use as fill for other reclamation sites at the mine. Regrading will consist of shaping the surface so that the final topography is similar to adjacent

landscapes. Overall, the predisturbance topography of the site will not be significantly changed by the plant construction operations so the task of regrading will be minimal. During regrading, the predisturbance drainage system will be restored.

Roads. The roads will be left in place until the plant site and refuse disposal sites have been regraded. This will facilitate the reclamation process by allowing access to the sites. When the roads are no longer needed for access, they will be removed and regraded. Prior to regrading, the surface paving material will be removed. The road areas will be regraded to a topography consistent with adjacent unaffected lands.

Refuse/Slurry Disposal Site. Contemporaneous regrading will occur at the coarse refuse disposal site as the refuse is deposited. As the refuse disposal bank is constructed, backfilling, regrading and reclamation will be conducted on the lower face. Twenty-five foot terraces will be constructed above the regraded face to control drainage.

Final grading of the disposal site will not be conducted until final abandonment of the site. At this time, the coarse refuse disposal area will be final graded, backfilled and retopsoiled. The slurry refuse disposal ponds will be allowed to dry before they are backfilled and graded. After the pond cells are thoroughly dry, the refuse dikes will be dozed over the site. This material will be compacted and then covered with excess material taken from the earthen dam. The area will be further backfilled with the excavated material originally stockpiled during construction of the disposal site.

Sedimentation Pond. The sedimentation pond will be removed and the site regraded when an effective, erosion-controlling plant cover has been established on the preparation plant site. This will be approximately three years after the site has been seeded. The approximate original topography of the pond area will be restored.

Upon final reclamation, the refuse disposal site will be backfilled and graded. The regraded surface will then be covered with four feet of nontoxic material excavated and stored during the slurry pond construction.

Approximately 13 inches of topsoil material will be redistributed over the pre-prepared disposal area.

Compliance

The following stipulation must be met in order for the applicant to show compliance with this section.

Stipulation

None.

UMC 817.111-.117 Revegetation

Applicant's Proposal

The proposed preparation plant/loadout facilities will effect approximately 206 acres in the "greasewood shrub," "annual forb" and "mixed desert shrub" community types. A description of these types is as follows:

Greasewood Shrubland. This community occurs in and along the bottoms of drainages in saline clay soils. The dominant species is greasewood (Sarcobatus vermiculatus). The species diversity is generally low in this community. However, other species frequently encountered include greenmolly summercypress (Kochia americana), fireweed summercypress (Kochia scoparia), African mustard (Malcolmia africana) and common halogeton (Halogeton glomeratus). The total herbaceous layer cover is approximately 24 percent. The total estimated annual production is 156.8 grams per square meter (14000 lbs/ac), the majority of which is greasewood. Density of woody plants is 6141 individuals per acre. The greasewood shrubland occupies 49 percent (99 acres) of the area to be affected.

Mixed Desert Shrubland. The mixed desert shrub community occupies 19 percent (40 acres) of the area to be affected. It is found on soils ranging from sandy, well-drained soils to saline clay soils. The species comprising this community have a relatively low moisture requirement and are somewhat salt tolerant. The conspicuous feature of this community is the shrub species dominated by shadscale saltbush (Atriplex confertifolia). Prickly pear cactus (Opuntia polyacantha), rubber rabbitbrush (Chrysothamnus nauseosus) and big sagebrush (Artemisia tridentata) are sub-dominant shrub elements. Important understory species include galleta grass (Hilaria jamesii), Indian ricegrass (Oryzopsis hymenoides), western stickseed (Lappula occidentalis) and nodding wildbuckwheat (Eriogonum cernuum). Total cover was 10 percent. Estimated total production was approximately 38.5 grams per square meter (340 lbs/ac). Woody plant density is 4,449 individuals per acre.

Annual Forb Community. This sparsely vegetated community is found on Bluegate shale outcrops and clay slopes. The annual forb community is dominated by desert trumpet wildbuckwheat (Eriogonum inflatum), common halogeton, orach (Atriplex powellii) and western stickseed. Shrub species, shadscale saltbrush and castle valley clover (Atriplex cuneata) are of secondary importance and most individuals are stunted and of low stature. Total vegetation cover for the annual forb community is only six percent. Estimated annual production of 20.5 grams per square meter (183 lbs/ac). Woody plant density is 1515 plants/acre. The annual forb community covers 32 percent (67 acres) of the area to be affected.

Reference areas (RA) for the "greasewood shrub" and "mixed desert shrub" community were established by Consol and approved by the Division (see October 28, 1981, inspection memo). A RA was not selected for the "annual forb" community inasmuch that the applicant proposes to use the same seed mix for this area as will be used for the "mixed desert shrub" community.

Justification for combining these two community types for reclamation was that the "annual forb" community has very little to offer as a habitat type for wildlife or livestock and that a perennial community would stabilize soils more effectively.

The seed mixes for permanent reclamation are:

SEED MIX A (to be used on the "mixed desert shrub" and "annual forb" types)

<u>Species</u>	<u>Pounds PLS/Acre</u>
Crested wheatgrass	1.5
Indian ricegrass	1.0
Alkali sacaton	0.25
Western wheatgrass	2.0
Galleta	1.5
Winterfat	4.0
Fourwing saltbrush	4.0
Rubber rabbitbrush	1.0

In addition to seeding, the following transplants will be used:

<u>Species</u>	<u>Plants/Acre</u>
Oldman wormwood	61
Fourwing saltbrush	302
Shadscale	182
Greasewood	61
Gardner saltbush	243
Winterfat	61
Rubber rabbitbrush	61
Cliffrose	121
Nevada Mormon tea	61
Great Plains yucca	61

SEED MIX B (to be used on the "greasewood shrub" type)

<u>Species</u>	<u>Pounds PLS/Acre</u>
Pubescent wheatgrass	5.0
Streambank wheatgrass	2.5
Crested wheatgrass	1.5
Russian wildrye	2.5
Fourwing saltbrush	4.0
Rubber rabbitbrush	1.0
Winterfat	4.0
Big sagebrush	0.25
Alfalfa	1.0

In addition to seeding, the following transplants will be used:

<u>Species</u>	<u>Plants/Acre</u>
Oldman wormwood	54
Big sagebrush (var. wyomingensis)	134
Greasewood	27
Fourwing saltbush	134
Winterfat	54
Antelope bitterbrush	54
Oakbrush sumac	27
Woods rose	27
Great Plains yucca	27

Of the 23 species proposed to be utilized in revegetating the disturbance sites, five of them are introduced species. These five species are: crested wheatgrass; pubescent wheatgrass; Russian wildrye; alfalfa; and, oldman wormwood. Justification for their use was provided (as per UMC 817.112) as follows:

"None of these species are poisonous or noxious and are compatible with the plant and animal species of the region. These species are necessary to aid in achieving a quick and permanent stabilizing cover that enhances the control of soil erosion. All of these species have been studied in appropriate field trials (most of them extensively) and have demonstrated their ability at establishing effective cover capable of achieving the postmining land-use."

A straw mulch will be used in conjunction with seeding on all areas and crimped into the soil.

Vegetative monitoring will consist primarily of data collection on cover and productivity. Comparisons with the appropriate reference areas will be made during the last two years of the liability period. Reference areas will be managed similar to the reclaimed areas.

Should weeds become a problem for reclamation success, the applicant will work out an acceptable weed control program at that time with the appropriate regulatory authorities.

Compliance

The applicant will comply with the general requirements of these sections.

Stipulations

None.

UMC 817.121-.126 Subsidence Control

Applicant's Proposal

A 220 acre foot slurry pond is to be installed on the surface, approximately 251 feet above the intersection of the 6 south and 2 west mine workings. Pillars will be left beneath the slurry pond to provide stability. Mining height will vary from 8-10 feet with approximately two feet of floor coal and eight feet of roof coal being left in place. Using W. A. Hustrulid's empirical formulas for measuring coal pillar strength, safety factors were calculated at 5.12 for 6 south, 2 west and 1 right-2 west pillars and 1.93 for pillars left in rooms of 1 right-2 west.

From the calculations made, it is felt that the slurry pond will remain stable in the long-term (+ 20 years). Subsidence monitoring stations have been established over the general mining area and are surveyed at regular intervals (every six months).

The applicant is prepared to mitigate any subsidence damage as mutually agreed upon by Consol, the regulatory authority and any landowners involved.

Compliance

Applicant complies with these sections.

Stipulations

None.

UMC 817.131-.132 Cessation of Operations

Applicant's Proposal

The application does not specifically address the cessation of operations.

Compliance

The applicant will be in compliance upon acceptance of the following stipulation.

Stipulation

Consol will commit to notifying the Division of the intention to cease preparation plant operations prior to such an occurrence.

UMC 817.133 Postmining Land-Use

Applicant's Proposal

The applicant will restore the premining land-uses of livestock grazing and limited wildlife habitat. The proposed reclamation practices and species used for revegetation should enhance these uses.

Compliance

The applicant is in compliance with the general requirements of this section.

Stipulations

None.

UMC 817.150-.156 Roads: Class I

Applicant's Proposal

The preparation plant and refuse disposal site will make continuous use of three roads; the main entrance, to be new construction; the coal refuse haulage road, to be an upgrading and extension of an existing road; and, the plant access road, to be an upgrading of an existing road.

The main entrance road will be used by coal and refuse haulage trucks to access the preparation plant. Design specifications and typical cross-sections are shown on Plates 15-3 and 15-4. A more complete description of the road is detailed on page 15-44, Volume 11.0 of the mine plan.

The coal refuse haulage road will be used to transport coarse material to the refuse disposal site and for facilities inspections. Design specifications and typical cross-sections are shown on Plates 15-5 and 15-6. A detailed description of the road is contained on page 15-45, Volume 11.0 of the mine plan.

The plant access road, a related bypass and a tank access extension road will serve as access to the preparation plant area by light passenger vehicles. Design specifications and typical cross-sections are shown on Plate 15-7. A more detailed description is contained on pages 15-45 and 15-46, Volume 11.0 of the mine plan.

Construction techniques and sequences are detailed on pages 15-61 through 15-67 of the mine plan.

Prior to construction, topsoil is to be removed and stockpiled. During final abandonment, as roads are no longer needed, they will be removed and regraded to a topography consistent with adjacent lands. Topsoil will be redistributed and the area will be revegetated.

Compliance

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

Stipulations

The designed safety factor for road cuts, fills and embankments needs to be submitted for the new roads, along with the basis for safety factor calculations (refer to UMC 817.152[D][9]).

UMC 817.180 Other Transportation Facilities

Applicant's Proposal

Raw coal will be supplied to the preparation plant by a conveyor system designed to transport an average of 700 tons per hour from the Emery Deep Mine. The various facilities of the plant will receive coal through an above ground conveyor system which is detailed in 15.3.2.1 of the plan. Fine refuse will be pumped in a slurry through a three inch pipe from the plant to the slurry ponds. Clarified water for plant reuse will be pumped from the slurry pond through a six inch pipe back to the preparation plant. A more complete description of the operation is detailed in 15.3.3.2 of the plan.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

UMC 817.181 Support Facilities and Utility Installations

Applicant's Proposal

A detailed description of the coal preparation plant and its support facilities is shown in Chapter 15, Volume 11.0 of the mine plan.

Compliance

The applicant is in compliance with this section.

Stipulations

None.

RECLAMATION BOND

PART I - Removal of Structures (proposed facilities)

Run-of-Mine (ROM) Belt. 350 ft x 180 lb/ft x ton/2,000 lb x \$92/ton	\$ 2,898
Transfer Building 36,000 cf x \$0.14/cf	5,040
2 - Raw Coal (RC) Storage Belts 438 ft x 150 lb/ft x ton/2,000 lb x \$92/ton	3,022
526 ft x 150 lb/ft x ton/2,000 lb x \$92/ton	3,629
2 - RC Storage Piles with Concrete Stacking Tubes 2 x 57.5 cy (concrete) x \$76/cy	8,740
RC Reclaim System Tunnel to be Buried	Included In Regrading
Belt: 482 ft x 150 lb/ft x ton/2,000 lb x \$92/ton	3,326
Transfer Building 21,000 cf x \$0.14/cf	2,940
Plant Feed Belt 390 ft x 150 lb/ft x ton/2,000 lb x \$92/ton	2,691
Preparation Plant 647,860 cf x \$0.14/cf	90,700
Static Thickener Wall: 232 cy (concrete) x \$76/cy	17,632
Bottom: Concrete to be Buried	Included In Regrading
Refuse Facilities Belt: 176 ft x 0.075 ton/ft x \$92/ton	1,214
Bin: 27 ton x \$92/ton	2,484
Enclosure: 3,570 cf x \$0.14/cf	500
Clean Coal (CC) Transfer Belt 105 ft x 0.75 ton/ft x \$94/ton	725
Sample Building 39,000 cf x \$0.14/cf	5,460
CC Storage Belt 232 ft x .075 ton/ft x \$92/ton	1,601
CC Storage Pile with Concrete Stacking Tube 57.5 cy (concrete) x \$76/cy	4,370
Stoker Belt 330 ft x .060 ton/ft x \$92/ton	1,822

Stoker Bins	
Bin: 36 ton x \$92/ton	3,312
Enclosure: 1,382 cf x \$0.14/cf	194
Truck Loadout Belt	
60 ft x .055 ton/ft x \$92/ton	304
Stoker Oil Building	
1,671 cf x \$0.14/cf	234
Truck Scale	
Concrete: 30 cy x \$76/cy	2,280
Scale House: 2,250 cf x \$0.14/cf	315
Make Up Water Sump	
Concrete Sump: To be Buried	Included In Regrading
Pump House: 800 cf x \$0.14/cf	112
Removal of Equipment Throughout Facility	
190 tons x \$330/ton	62,700
Truck Dump Hopper	
Hopper and Tunnel to be Buried	Included In Regrading
RC Storage Belt	
300 ft x .075 ton/ft x \$92/ton	2,070
RC Storage Pile with Concrete Stacking Tube	
57.5 cy concrete x \$76/cy	4,370
RC Reclaim System	
Tunnel to be Buried	Included In Regrading
360 ft (conveyor structure) x .075/ton/ft x \$92/ton	2,484
Transfer Building	
21,000 cf x \$0.14/cf	2,940
RC Transfer Belt	
270 ft x .075 ton/ft x \$92/ton	1,863
Removal of Equipment Throughout the Facilities For the Surface Mine	
20 ton x \$330/ton	<u>\$ 6,600</u>
SUBTOTAL - Removal of Structures Cost	\$248,600

PART II - Regrading, Topsoil and Subsoil Spreading

Plant and Refuse Area	
300,000 cy x \$1.70/cy	\$ 510,000

Haul Roads and Diversions 35,000 cy x \$1.70/cy	59,500
Topsoil Respreading 380,000 cy x \$1.70/cy	<u>\$ 646,000</u>
SUBTOTAL	\$1,215,500

PART III - Revegetation Costs (206.6 acres)

	<u>Cost/Acre</u>	<u>Total</u>
Seedbed Preparation	\$ 28.56	\$ 5,900
Seed and Transplant		
Seed Mix A 15.3 PLS/ac (@ \$11.15/lb)	170.59	35,244
Transplants 1,214/ac (@ \$2/plant)	2,428.00	501,624
Seed Mix B 21.75 PLS/ac (@ \$10/lb)	217.50	44,935
Transplants 548/ac (@ \$2/plant)	1,096.00	226,434
Mulching - Crimping ¹ (straw included)	122.00	25,205
Erosion Control	37.63	7,774
Weed Control	27.64	3,644
Reseeding (based on 25% area) (Seed Mix Only)	97.00	20,045
Monitoring	108.23	<u>\$ 22,360</u>
TOTAL		\$893,165

Reclamation Cost = \$2,357,265

10% Administrative and Contractual Cost - \$235,726

TOTAL COST BOND = \$2,592,992

Average Cost Per Acre - \$12,551

¹Mulching - Crimping

Tons Straw = 1.5 ton/ac = 309.9 tons @ \$38/ton =	\$11,776.00
Spreading = Labor = \$13/ac	Equipment = \$13/ac = 5,371.60
Crimping = Labor = \$13/ac	Equipment = \$26/ac = 8,057.40
	<u>\$25,205.00</u>

PERMIT ATTACHMENTS

- I. Letter from Bureau of Air Quality
- II. Letter from Division of Wildlife Resources
- III. Letter from Department of Health
- IV. Letter from Department of Health
- V. Letter from Division of State History