



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

May 25, 1988

Mr. Vernal J. Mortensen
Vice President, Utah Operations
Coastal States Energy Company
175 East 400 South, Suite 800
Salt Lake City, Utah 84111

Dear Mr. Mortensen:

Re: Five-Year Permit Renewal Review, Utah Fuel Company, Skyline Mine, ACT/007/005, Folder 2, Carbon County, Utah

The Division has completed a comprehensive review of the updated Mining and Reclamation Plan (MRP) for the Skyline Mine, received September 21, 1987. This review has shown that there are still four major unresolved areas, as well as numerous minor deficiencies, the resolution of which must be accomplished prior to plan approval by DOGM. The four major incomplete areas are:

1. Lack of detailed information and calculations regarding both disturbed and undisturbed area diversions;
2. Lack of a comprehensive reclamation plan;
3. Lack of groundwater information needed to substantiate that there will be no impacts to groundwater systems in mine expansion areas in South Fork and Huntington Creek drainages; and
4. Lack of detailed information and plans concerning the waste rock disposal area.

The following review document is organized into the four major headings, as well as a fifth section containing all other deficiencies.

Also attached are copies of comments the Division has received from other agencies in response to their review of the September 21, 1987 MRP. Responses to all other agency concerns should be addressed, along with Division concerns, in your response to this review.

Page 2
Mr. V. Mortensen
ACT/007/005
May 25, 1988

It is suggested that your technical representatives meet with the Division technical staff to discuss at least the four major issues, after you have had sufficient time to review the concerns. Please contact myself or Susan Linner to set up such a meeting.

Sincerely,



Lowell P. Braxton
Administrator
Mineral Resource Development
and Reclamation Program

SCL/djh
Attachments
cc: G. Zumwalt, Utah Fuel
G. Morris, Manti-LaSal
B Team
1411R/21-22

SKYLINE MINE
FIVE YEAR PERMIT RENEWAL REVIEW
ACT/007/005
Carbon County, Utah

Utah Fuel Company
May 25, 1988

DIVERSIONS

- UMC 784.14 Reclamation Plan: Protection of Hydrologic Balance-KW
- UMC 784.22 Diversions-KW
- UMC 784.23 Operation Plan: Maps and Plans-KW
- UMC 817.43 Hydrologic Balance: Diversions and Conveyance of
Overland Flow, Shallow Ground Water, and Ephemeral
Streams-KW
- UMC 817.44 Hydrologic Balance: Stream Channel Diversions-KW
- UMC 817.47 Discharge Structures-KW

These sections dealing with diversions are incomplete at this time. Problems are due to poor organization, insufficient maps, insufficient details on the existing maps, and lack of design details. The following discussion will detail problems with the diversions in both the operational and reclamation phases.

PEAK FLOW CALCULATIONS

The Division found calculations in the Appendix A-1 relating to the 100-year flood event for Eccles Creek (F.H.A., 1980 Determination of 100 Year Flood Events for Eccles and Mud Creek). This report attempts to justify the use of extremely low curve numbers (CN) for calculating peak flow events. After reviewing the referenced article, the Division cannot justify the use of the low curve numbers and the resultant peak flows. Specific problems include:

- I. The report bases its curve numbers on a relationship developed between precipitation and runoff in Davis County, Utah, along the Wasatch Front. The report states that the Skyline Mine is presumably similar to the watersheds in Davis County. The Division believes that the Alpine Meadows Watershed on the Wasatch Plateau is a better site because of its geographic locality, which could produce similar site conditions. The relationship between precipitation and runoff at the Wasatch Plateau site suggests a much higher curve number.

- II. The report states that the use of the relationship between precipitation and runoff for extreme events can result in significant errors. The performance of these curves deteriorates so significantly that the curves are based only on the rainfall events with less than two inches of total precipitation.
- III. The CN values are further questioned as a result of the peak flows which are generated by their use. The calculations show a peak flow at the mouth of Eccles Creek of 22 cfs for the 100 year storm event. The above-referenced Appendix Supplement found that this flow could be passed by the existing channel. Fluvial geomorphic stream channel studies suggest that bank full discharges occur, on the average, once every 1.6 to 2.3 years for non-incised channels. This suggests that the 22 cfs is more likely a 2- to 3-year flow event. This is further substantiated by the gage station at the mouth of Eccles Creek, which had a maximum peak flow of 46 cfs during the two years that the United States Geological Survey (USGS) had an established gage on it. Furthermore, the USGS data indicates that the average daily flow was greater than 24 cfs for 30 consecutive days in 1980.
- IV. The USFS has provided comments and information that indicates a CN of 63-65 would be more applicable for the area (letter of February 10, 1988).

The Division believes that because of these major problems and other smaller problems, the use of a curve number of less than 55 for any undisturbed area is not justifiable.

GENERAL

The operator's response to the comments under UMC 817.43 - DC of the previous DOC concerning diversions inside of the disturbed area, is not considered acceptable. Failure to provide the minimum diversion requirements for the disturbed area diversions may result in enforcement action.

The Division recognizes that the operator needs to have a flexible operational drainage plan to accommodate drainage, especially during the winter months when snow and ice can block drainage routes. However, the drainage system does have an infrastructure. The infrastructure is the primary diversions that drain large parts of the disturbed areas during the summer, when snow and ice are not a problem.

There are general deficiencies in the diversions' designs at all three permit areas (portal area, loadout area and waste rock area). Varying amounts of information describe these diversions and is available in the MRP. The Division has tried to review the information that is available and has made technical comments where applicable.

The following is the minimum information necessary to evaluate diversion designs. The information required should be clearly and concisely presented, well-referenced and documented, and its location presented in the Table of Contents.

MINIMUM DIVERSION REQUIREMENTS

- o. All primary diversions should be shown and labeled on the appropriate maps. (UMC 784.22, UMC 784.23(b)(6))
- o. A description and typical designs of each diversion should be included. All input parameters and assumptions used in the designs should be shown. If the channel has several different configurations, they should all be shown and described. (UMC 784.14, UMC 784.22, UMC 784.23)
- o. Design calculations (referencing all assumptions) of the peak flows from each drainage area reporting to any hydrologic structure should be shown in the text, and referenced when used for calculations. (UMC 817.43, UMC 817.44)
- o. The drainage areas reporting to any hydraulic structures (diversions or culverts) should be outlined and labeled. This is necessary to check the sizing requirements of these structures. (UMC 817.43, UMC 817.44)
- o. Riprap designs are necessary, in any reach of any diversion, where expected velocities from the design event are determined to be erosive. The channel slope, used to calculate channel velocities, should be determined using small segments of the channel, not the overall diversion gradient. (UMC 817.43, UMC 817.44)
- o. All riprapped areas and any drop structures should be shown and labeled on the appropriate maps. (UMC 784.22, UMC 817.43, UMC 817.44)
- o. Filter blanket designs are needed for all sections of the reclaimed channel that require riprap. Since these are perennial streams with aquatic habitat, this filter blanket should be designed using the proper gradient of sand.

PORTAL AREA

The Division believes that the following diversions are the infrastructure of the drainage system at the portal area and must have the designs, maps, discussions and details listed above, under the Minimum Diversion Requirements.

- A. The diversion starting in the Southwest Fork area: It starts as the valley line and continues down to the swale just inside the main gate.
- B. The diversion starting in the West Fork area: It starts near the inlet structure on the stream channel diversion.
- C. The diversion labeled "V-ditch": It collects runoff from around the coal storage pile.
- D. The main diversion: It starts north of the office-maintenance building.

MINIMUM DIVERSION REQUIREMENTS

- o. All primary diversions should be shown and labeled on the appropriate maps. (UMC 784.22, UMC 784.23(b)(6))
- o. A description and typical designs of each diversion should be included. All input parameters and assumptions used in the designs should be shown. If the channel has several different configurations, they should all be shown and described. (UMC 784.14, UMC 784.22, UMC 784.23)
- o. Design calculations (referencing all assumptions) of the peak flows from each drainage area reporting to any hydrologic structure should be shown in the text, and referenced when used for calculations. (UMC 817.43, UMC 817.44)
- o. The drainage areas reporting to any hydraulic structures (diversions or culverts) should be outlined and labeled. This is necessary to check the sizing requirements of these structures. (UMC 817.43, UMC 817.44)
- o. Riprap designs are necessary, in any reach of any diversion, where expected velocities from the design event are determined to be erosive. The channel slope, used to calculate channel velocities, should be determined using small segments of the channel, not the overall diversion gradient. (UMC 817.43, UMC 817.44)
- o. All riprapped areas and any drop structures should be shown and labeled on the appropriate maps. (UMC 784.22, UMC 817.43, UMC 817.44)
- o. Filter blanket designs are needed for all sections of the reclaimed channel that require riprap. Since these are perennial streams with aquatic habitat, this filter blanket should be designed using the proper gradient of sand.

PORTAL AREA

The Division believes that the following diversions are the infrastructure of the drainage system at the portal area and must have the designs, maps, discussions and details listed above, under the Minimum Diversion Requirements.

- A. The diversion starting in the Southwest Fork area: It starts as the valley line and continues down to the swale just inside the main gate.
- B. The diversion starting in the West Fork area: It starts near the inlet structure on the stream channel diversion.
- C. The diversion labeled "V-ditch": It collects runoff from around the coal storage pile.
- D. The main diversion: It starts north of the office-maintenance building.

- E. The diversion next to BC-3 Drivehouse (labeled "V-ditch"): This diversion is incorrectly shown as flowing uphill.
- F. The V-ditch along the north side of the east end: Currently this diversion is shown as connected to the V-ditch described previously as (#5).
- G. The V-ditch south of the sewage treatment plant.
- H. The V-ditch north of the sewage treatment plant.
- I. All culverts in the permit area.
- J. All swales in the permit area.

There are some calculations of peak flows found in Appendix A-3. These peak flows may be from the disturbed portal area. However, it is not clear from the calculations where the drainage areas are, or to which structures the flow reports.

All of the above structures should be labeled and should have design calculations and details showing that they are capable of safely passing the design event. Each design should follow the criteria outlined in the Minimum Diversion Design Requirements.

LOADOUT AREA

The Division believes that the following diversions are the infrastructure of the drainage system at the loadout area and must have the designs, maps, discussion and details listed above under the Minimum Diversion Requirements.

- A. The diversion starting near the truck dump, which flows to the sediment pond.
- B. The diversion that parallels to the north; the previously mentioned (#1) diversion. This diversion is presently shown by the contours.
- C. The diversion that flows along the northeast permit boundary and reports to the sediment pond.
- D. The diversion that flows from the culvert near the water treatment plant.
- E. All culverts in the permit area.
- F. All swales in the permit area.

All of the above structures should be labeled and have design calculations and details showing that they are capable of safely passing the design event. Meeting the criteria outlined in the Minimum Diversion Design Requirements for each channel will satisfy this deficiency.

DIVERSIONS OF OVERLAND FLOW

All three of the permitted areas (portal area, loadout area, waste rock area) have diversions that keep flows, from the undisturbed area, from running onto the disturbed areas. These undisturbed area diversions must be designed, detailed, discussed, and shown on the maps in the same manner as the disturbed area diversions.

The MRP has calculations in Appendix A-3 showing the peak discharge for the undisturbed diversion ditches which collect overland flow. However, the methodology used for calculating the T_c and peak flows for the portal area and the loadout area needs to be documented and input values referenced. The Division cannot justify a T_c of over two (2) hours on a watershed of less than fifteen (15) acres and a steep slope. The T_c for small areas with steep slopes are normally much less than one (1) hour.

WATERSHED MAPS FOR UNDISTURBED DIVERSIONS

Map 3.2.8-3 is of insufficient scale to use for sizing the undisturbed diversions. The map must be of sufficient detail to determine diversion locations, watershed boundaries, and permit boundaries. The Division recommends a map of the same scale or larger scale than Map 2.7.1-1.

PORTAL AREA

The diversions that collect the overland flow from undisturbed watersheds are not shown on Map 3.2.2-1. In some areas there are contours that suggest the diversion's location. In other areas there is a dark line labeled "undisturbed drainage" but there are no contours to show the channel slopes. In either event, all undisturbed diversions must be clearly shown and labeled on this map. The contours need to be shown so the Division can evaluate expected channel velocities.

The applicant needs to correct the narrative in the MRP stating that the ditches are sized to contain the 100 year - 24 hour precipitation event; the calculations show that the applicant used the 10 year - 24 hour value.

LOADOUT AREA

The diversions that collect the overland flow from undisturbed watersheds are not shown on Map 3.2.1-3. All undisturbed diversions must be clearly shown and labeled on this map. The contours must be shown so the Division can evaluate expected channel velocities. Any section that has riprap protection or drop structures should also be shown on the map so that the map reflects the actual site conditions. Design calculations for peak flows and channel designs must be included.

WASTE ROCK AREA

The single diversion (shown on Map 4.16.1-1B) that is used to divert runoff around the waste rock disposal site appears to be adequately sized. The present configuration of the fill blocks the channel. Designs and discussions are needed showing that this section of the channel meets the performance standards of Subchapter K.

The MRP needs to discuss how the channel will be reclaimed following abandonment of the site. The operator's response that no further reclamation will be done is not acceptable, since the present designs only show the channel capable of passing the 10year - 24hour precipitation event. Designs will be needed showing that this permanent diversion meets the performance standards of Subchapter K.

The operator's response did not address the Division's comment in the previous DOC, under Section UMC 817.43, concerning riprap design in the waste rock diversion channel. The operator's calculations show the expected channel velocities of greater than 6 ft/sec.

STREAM CHANNEL DIVERSIONS

There have been diversions of perennial stream channels at both the portal area and the loadout area. These diversions must be designed, detailed, discussed, and shown on the maps in the same manner as the disturbed area diversions. They also require detailed plans for reclamation, and restoration to their approximate natural stream channel characteristics. The operator's response to the previous DOC stated that information on the existing undisturbed stream channels was being collected. This information should be included with the future reclaimed stream channel designs to show compliance with UMC 817.44.

PORTAL AREA

STREAM CHANNEL DIVERSIONS

The current channel configuration for the reclaimed channels is unacceptable. The location of the reclaimed channel for the Southwest Fork does not approximate the natural stream channel characteristics. The stream channels need to be carefully designed. The 100-year flood plain should be a straight channel with a compound channel designed inside of the 100-year flood plain. This compound channel should be designed to assure adequate depths for aquatic habitat during low flows.

Furthermore, the methodology used to calculate riprap designs works poorly on steep slopes, as seen by the 9.5 ft D₅₀ in the reclaimed channel designs. The Division recommends the methodology found in OSM/TR-82/2 Surface Mining Water Diversion Design Manual.

The peak flows for the Eccles Creek culverts (Appendix A-3) cannot be verified. These should be referenced to the section in the MRP showing these calculations. As discussed earlier, the Division will not accept the peak flows found in the Appendix Supplement for Eccles Creek. The Division's calculations, using curve number (CN) methodology, found peak flows much greater than the designs shown in Appendix A-3.

The calculations of culvert velocities are incorrect. The use of the equation $V = Q/A$ is based on the area of flow, not the cross-sectional area of the pipe.

The reclaimed channel designs are unacceptable. New discussion details and designs will be needed for the redesigned channels. The riprap designs should incorporate a commitment to using well-graded riprap and a design for the installation.

There should also be a detailed discussion on the steps that will be taken to restore aquatic habitat and riparian vegetation in and along the channels.

LOADOUT AREA

There are no calculations or references to the pipe arch culvert that is shown on Map 3.2.1-3. This culvert structure needs all the design calculation required for all stream channel diversions.

Leaving the above-referenced pipe arch culvert after reclamation is unacceptable. Designs for reclamation of this reach of stream must be included.

In the MRP there is discussion on page 4-87 of a 600-foot section of Eccles Creek that has been disturbed and rechanneled. This disturbance must be shown on the appropriate map, along with all of the appropriate calculations to show that it is stable and can safely pass the expected peak flows.

UMC 817.72 Disposal of Underground Development Waste and Excess Spoil: Valley Fills - DC (KW)

The operator states that designs for the diversions through and/or around the topsoil storage area at the portal area were an approved modification to the MRP and are included in the renewal package. The designs were not found in a search of the Table of Contents. Please clarify where these designs can be found.

RECLAMATION PLAN

UMC 783.19 Vegetation Information - LK

(Page 4-38) In discussing the vegetation reference areas that have been established and will be used for determining revegetation success, the MRP failed to reference the reference area for the waste rock disposal area. This needs to be added to the MRP.

Table 20 of the September 1982 Vegetation and Soils Report does not address woody plant density for the riparian reference area. This data could not be found in any of the other reports as well. It appears from discussions elsewhere (Introduction of the December 1981 report) that this data was never collected. If this data was collected, please submit it. If not, please provide plans to collect and report this data during the 1988 field season.

UMC 783.22 Land-Use Information - JRH

It is not clear in the Mining and Reclamation Plan (MRP) whether or not the post-mining land use has been clearly determined. The operator has proposed to leave some of the pad areas at the mine facilities as part of the post-mining land use. From the drawings and plans provided, the precise function and use of these pad areas is not clear. Additionally, the determination of land use in conjunction with the requirements of the USFS and their approval is not clear in the MRP.

The operator has provided pre-mining land use information and intends on restoring the area (to the extent as is possible) to pre-mining land use conditions.

Post-reclamation drawings presented in the MRP do not clearly depict facilities or surface features which are to remain. Perhaps a more concise description in the reclamation plan, as well as more descriptive information in the drawings, would benefit the information needed regarding post-mining land use.

UMC 784.13 Reclamation Plan: General Requirements -RS/JRH/LK

The applicant is not in compliance with subsection (b)(1) relative to removal of sedimentation ponds/drainage facilities for the site. Table 4.2-1 of Volume 3 presents a reclamation timetable and includes removal of the drainage system. Page 3-40 commits to removal of the loadout area sediment pond. Page 3-40, Section 3.2.6, proposes to leave the pond as a permanent structure. This conflicts with the reclamation timetable presented in Table 4.2-1. The application should be corrected. If approval is obtained from the U.S.F.S. to retain the ponds as permanent structures, the application should address the requirements of UMC 817.133 and UMC 817.49.

The operator has provided a timetable for reclamation. However, some of the steps involved in the reclamation of the site are not clear. Drawings provided by the operator indicate that the sediment pond at the mine facilities area is to be left as part of the final reclamation. Part 3.2.6 of the MRP indicates that the pond will be left permanently as part of the post-mining land use. Other portions of the MRP, including the reclamation timetable and the bonding calculations, indicate that the sediment pond is to be removed.

The detailed timetable provided by the operator should more closely reflect the logical sequence of the reclamation work to be accomplished. Emphasis should be made as to which activities are Phase I or Phase II reclamation work. The reclaimed acres provided with the timetable are intermixed with contemporaneous reclamation work. A more precise breakdown of the acreages involved should be included in the reclamation plan.

In conjunction with the bonding cost estimate and the reclamation timetable, a map(s) would be beneficial to locate and key the specific reclamation activities to be accomplished. This map would also clarify and specify the location and the extent of the work to be done during Phase I and Phase II reclamation.

Facilities that were constructed in conjunction with the mining operation are not included in the permit and disturbed area boundaries. These facilities include the overland conveyor system, well houses, water tank, and the access road to the waste rock disposal facilities. These facilities need to be incorporated into the MRP in order to determine this section complete.

(Page 4-30) The applicant needs to demonstrate vegetation success and soil stability without the use of mulch on areas with slopes less than 10h:1v. Otherwise, mulch is required on all areas to be revegetated. The rate of straw mulch on slopes between 10h:1v and 3h:1v should be increased to a minimum of 1 ton per acre.

(Pages 4-38 and 4-39) A 40-sample maximum sample size is acceptable for interim monitoring. However, sampling for bond release during the last two years of the liability period must meet sample adequacy tests for 90 percent confidence level with a 10 percent change in the mean. Also, revegetated areas must be at least 90 percent of the cover, productivity and woody plant density standards for bond release. Please make these standards clear in the MRP.

The applicant needs to address reclamation of the conveyor bench between the mine and the loadout. If this bench is going to be used in the future, interim stabilization is acceptable. Otherwise, plans for final reclamation need to be approved and implemented. The Division can assist Skyline in determining the extent of reclamation work that will need to be done this year (refer to rules UMC 817.100 and UMC 817.113).

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams and Embankments-JRH

Section 4.12.1 states that the ponds will be allowed to dry and then be backfilled. However, Section 4.4.2, page 4-18, states that the mine site pond will not be backfilled. If it is the intent of the operator to allow the sediment pond to remain as part of the post-mining land use, more specific plans (and approval from the USFS) must be incorporated into the plan. This information must address the requirements of UMC 817.49 and 817.133.

UMC 784.19 Underground Development Waste - JRH

The operator has not clearly located and determined the final disposition of the underground development waste to remain at the unit train loadout area.

The operator must conduct a seep and spring survey in the immediate vicinity of the area in which the waste material is to be permanently placed. Cross sections provided for the final reclamation of the rail loadout area do not define the location and the amount of the waste material to be located there.

The operator must demonstrate that the permanent waste disposal site does not affect surface or ground water. Materials should be placed above the highest groundwater level anticipated for the area and should be located out of and above the 100-year flood plain for the stream channel.

Methodology for placement, compaction, and cover material requirements should also be addressed. Information for the disposal of waste materials at the railroad loadout facilities should be similar to those described for the waste rock disposal facility at Scofield.

The plan shall also include a schedule and capacity for the waste materials to be disposed of, in addition to suitable plan and cross sections of the waste disposal sites.

UMC 817.24 Topsoil: Redistribution-JSL

Page 4-26 of the PAP refers to revegetation work results at Skyline to justify that the proposed depth of 12 inches is adequate for revegetation success. These results were not found within the text of the PAP. Please update the PAP to include this information.

UMC 817.56 Hydrologic Balance: Postmining Rehabilitation of Sedimentation Ponds, Diversions, Impoundments, and Treatment Facilities-RS

If the applicant chooses to propose any permanent sedimentation ponds, diversions, culverts, impoundments, or treatment facilities, the MRP should contain a commitment to renovate these structures to the approved design specifications for those structures prior to abandonment of the area.

UMC 817.101 Backfilling and Grading: General Requirements-JRH

The operator has indicated in part 4.4 of the MRP that the site will not be returned to approximate original contour due to the selected post-mining land use and the stability of the existing slopes. Map 4.4.2-1B, Reclamation Cross Sections, shows that the highwalls and cut slopes for the facilities will, for the most part, be reduced to 2h:1v slopes utilizing fill material along the base of the highwalls and cuts. In addition to this conflict in the plan, the operator has not provided a mass balance of the cut and fill operations required for reclamation. The cost estimate for reclamation indicates a quantity of earthwork to be performed for each specific area but no calculations or design criteria are included in the MRP.

Embankments which are to remain must be shown to be stable. In the event that the slope is greater than 2h:1v, a geotechnical analysis of the slope should be made.

Map 4.7.2-2 has been provided to show the final reclamation and revegetation for the railroad loadout facility. Reclamation contours provided on that drawing show that surface grading is planned for areas outside of the disturbed area boundary. Reclamation contours should be made to match the undisturbed area contours at or within the disturbed area boundaries. Also, this drawing does not indicate that the dump loop, fill and culvert crossing of Eccles Creek will be removed. The bonding calculations provide for the removal of the pavement and earth berms in this portion of the plan, although jersey barriers have replaced the earth berms.

The operator needs to more clearly detail those structures and facilities which are to remain as part of the post-mining land use. Final grading and contour information should reflect the total amount of earthwork to be accomplished. Borrow areas and other areas which are currently not disturbed (but which may be, through reclamation activity), should be incorporated into the disturbed area boundaries. It is also recommended that the disturbed area boundaries be increased where required to allow for equipment access.

UMC 817.133 Postmining Land Use-RS

(c)(5) and (6) The application must address these subsections for any proposed permanent hydrologic structures to be retained onsite as approved under the post-mining land use. If structures are to be retained and are found to be acceptable by the land management agency (U.S.F.S.), the applicant is encouraged to contact the Division for guidance in the preparation of these designs and selection of design criteria.

UMC 817.156 Roads: Class I: Restoration-RS

Section 4.19.6 states that culvert into the loadout area will not be removed. Unless the road is approved for retention as suitable for the postmining land use, subsection (a)(3) requires that the culvert be removed. The application should address this concern and submit channel restoration designs if the culvert is to be removed. If the road is to remain as suitable for the post-mining land use, the applicant should address the design requirements of UMC 817.133.

UMC 817.150 - .156 Class I Roads-JRH

UMC 817.160 - .166 Class II Roads-JRH

UMC 817.170 - .176 Class III Roads-JRH

The operator needs to provide proof that they have easement for the construction and use of roads turning off public roads. Additionally, the operator shall indicate the plans for reclamation or post-mining use of these roads if they are to remain.

The permit area boundaries for the access roads need to be extended to the shoulder of the road inasmuch as the facilities constructed for mining use need to be designed, maintained, and reclaimed under the Mining and Reclamation Plan (MRP).

UMC 817.163 Roads: Class II: Restoration-RS

The application should address the requirements of this regulation for the access roads to the well houses and the access road from Highway 96 to the loadout area. The plans should include culvert removal and designs for restoration of the natural drainages.

GROUNDWATER INFORMATION

UMC 784.14 Reclamation Plan: Protection of the Hydrologic Balance
DC by KW

This section needs to specifically address the possible dewatering of the aquifer(s) in the Blackhawk Formation near Huntington Creek. A significant portion of the water yield in Huntington Creek is from this aquifer. Any impacts to this aquifer could affect the surface flow and associated water rights along Huntington Creek. Sections UMC 784.14(a)(3) and UMC 784.14(c) need to be specifically addressed concerning this possible problem.

UMC 817.41 Hydrologic Balance: General Requirements-DWD
UMC 817.52 Hydrologic Balance: Surface and Ground Water Monitoring-DWD

Subsidence effects will be minimized for the next 5-year mine permit term except where mining is planned under the South Fork of Eccles Canyon during 1990 to 1992.

Full extraction mining (mining height of ten to thirteen feet from longwall mining) will take place where overburden ranges from 200 feet at the coal outcrop barrier to 800 feet at the watershed divide. Mining in this area is expected to subside the land surface and intercept ground water supply to springs.

Total effects to the springs cannot be determined at this time. Plate 5 shows nine springs in the vicinity of the South Fork of Eccles Creek that were monitored during the fall of 1978. For the most part the discharges from these springs appear small. Table 17, Volume 1-A page 104 indicates that there are no water rights allocated from this area.

The operator will be required to conduct a complete inventory of springs in the South Fork of Eccles Canyon where mining will take place in this permit term and measure the seasonal flow (at least one year) from the tributary fed by the springs.

UMC 817.121 General Requirements-DWD
UMC 817.124 Subsidence Control: Surface Owner Protection-DWD

The operator will be required to conduct a scientific study to show that subsidence fractures are self sealing. Protection of the hydrologic balance within and adjacent to the permit area is based on that premise. The Division is concerned that the areas proposed for mining beyond the 5-year permit term will be affected by subsidence. Especially those aquifers that contribute baseline flow to springs and streams in Huntington Canyon.

WASTE ROCK DISPOSAL AREA

UMC 783.24 Maps: General Requirements-KW

All maps and plates showing the general area need to be corrected to show the actual permit boundaries of the conveyor line and the waste rock disposal area.

Map 4.16.1-1b needs to clearly delineate the areas that will be disturbed by the waste rock operation (Disturbed Area Boundaries).

UMC 784.14 Protection of Hydrologic Balance-KW

The locations of the water quality stations at the waste rock disposal site need to be shown on Plate 2.3.6-1.

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations-RS

The application does not address sedimentation control for the waste rock area and access road. The configuration of the current pit at the waste rock disposal area may provide adequate sedimentation control for the disturbed and undisturbed area surrounding the disposal area. However, when the pit becomes full, the runoff will not be contained and non-discharging. The applicant should provide plans for a sedimentation pond for the waste rock disposal area if the planned disposal volumes will completely fill the existing pit. The application should present expected amounts of runoff for this area for a precipitation event with a 25-year, 24-hour recurrence interval. The application should identify the elevation in the pit that can be filled and still allow this runoff volume to be contained. No spillway structures for the existing pit will be required if the 25-year, 24-hour event volume can be maintained. However, any proposed sediment ponds to be used following complete filling of the pit will be required, with spillways, to meet UMC 817.46. The plan should identify the total available volume of the pit and the elevation of the pit when completely full. The application should contain the following information for the area:

Assumptions:

Precipitation (25-year, 24-hour)
Area - undisturbed - referenced to map
Area - disturbed - referenced to map
Curve number - undisturbed
Soil group
Hydrologic group
Vegetative cover
Cover type
Curve number - disturbed
Land use - disturbed
hydrologic group

Results

Runoff volume: 10-year, 24-hour
Runoff volume: 25-year, 24-hour

UMC 817.48 Hydrologic Balance: Acid-Forming and Toxic-Forming
Materials-JSL

The Division has not received the required data as requested on April 13, 1987. Additionally, Section 4.16, page 4-69, states that the waste material presently stored at the railroad loadout area was tested and determined not to be toxic. This data was not found in the PAP. Please insert this information into the PAP. If the results of either analysis show the potential for environmental harm, the Division may require the collection of additional baseline water quality data.

UMC 817.150 - .156 Class I Roads-JRH
UMC 817.160 - .166 Class II Roads-JRH
UMC 817.170 - .176 Class III Roads-JRH

The operator has not clearly determined the extent or use of the access road to the waste rock disposal area. It is assumed at this time that the previously existing road to the waste rock disposal site was a private road. Inasmuch as the operator has profiled and upgraded the road to be in compliance with UMC 817.160, Class II Road standards, the operator must determine and justify why the road was not included as part of the disturbed areas used in conjunction with mining activities.

Because the road was previously established and post-mining land use clearly calls for the need of the road, the improvement of the road and approval for the road as part of the post-mining land use is warranted. However, the operational function and the use of the road should be incorporated into the permit area and into the disturbed area boundaries for the Skyline Mine.

MSHA requirements, including the installation of guardrails along this road, indicate that MSHA has also incorporated this area into Skyline Mine's mining operations.

The operator shall be required to incorporate into the mining permit area and the disturbed area, the access road to the waste rock disposal facility, or, shall justify and show to the satisfaction of the Division, why the road should be excluded from the plan. The application must address the requirements of UMC 817.160 -.166 for this road.

OTHER DEFICIENCIES

UMC 782.13 Identification of Interests-SCL

(a)(4) Page 1-14 does not clearly state whether or not there are any purchasers of record under any real estate contracts. It only states that the permittee holds no real estate contracts.

(d) This section should be updated to show that a permanent program mining permit was issued on May 19, 1987 for the Convulsion Canyon Mine.

(e) Names and addresses were added to the text as requested, but under the contiguous mineral owners, instead of the surface owners. This should be corrected. Also, an address for Leon Nicholaides does not occur in the text.

UMC 783.20 Fish and Wildlife Information-LK

The Utah Division of Wildlife Resources Report on the History of Impacts and Recovery from Mining Related Activities on Eccles Creek has been made available to the applicant for inclusion in the MRP. This report should be added to the appendix.

The Division has received written comments from the Utah Division of Wildlife Resources regarding wildlife concerns (informational and mitigational plans). A copy of their comments is attached. Please review their comments and make certain their concerns are addressed in the MRP.

On page 4-24 of the PAP it states that aspen and spruce communities will receive more topsoil than the sagebrush communities. However, Table 2.11-1 does not identify sagebrush communities. Table 2.11-1 also indicates that more soil (30 inches) will go to the aspen community, while only 12 inches will be redistributed to the spruce-fir communities. Please amend.

UMC 783.21 Soil Resources Information-JSL

Map 2-101-C, Conveyor Route, delineated in the Skyline Project Supplemental Soils Report, does not clearly identify the soils at the Portal Yard Area. Please resubmit.

UMC 783.24-.25 Maps: General Requirements: Cross-Section Maps, and Plans-JRH

Mine maps of the detail and scale as required under 30 CFR 775.1200 need to be provided and included in the MRP. These MSHA maps provide much of the information that is required under this section, as well as information required under the performance standards. Due to the nature of the information provided on these drawings, the operator may request that these drawings be placed in the confidential portion of the MRP. Additionally, annual updates of these mine maps shall be submitted with the annual reports, as required by the Division.

WATER MONITORING PLAN

UMC 784.14(b)(3) Protection of the Hydrologic Balance-KW

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent
Limitations-KW

UMC 817.52 Hydrologic Balance: Surface and Ground Water
Monitoring-KW

Spring 13-2 is not shown on Plate 2.3.6-1. This site cannot be dropped from the approved monitoring at this time.

Springs S10-1 and S12-1 are shown on Plate 2.3.6-1 as stream sites. This mistake needs to be corrected.

The location of Spring S22-11 needs to be checked. It is shown in a different drainage in the consultant's report.

Table 2.3.7-1 shows selenium (total and dissolved) and silver as being currently monitored at all stations. This parameter has not been monitored since the baseline period, since these parameters were below detection limits for most baseline measurements and have not been sampled since the baseline period. The Division will allow these two parameters to be dropped from the required sampling list.

The Division believes that the applicant needs to add dissolved iron to its Comprehensive Water Quality Analytical Schedule.

The second paragraph on page 2-43 needs to be updated to reflect the current monitoring of Huntington Creek.

The last paragraph on page 2-31 states that there are sixteen springs being monitored. This needs to be corrected to fifteen springs, or data needs to be presented on the sixteenth spring.

The plots of water quality parameters versus time in Volume 4 meet the requirements showing the seasonal variations. However, all data for 1985 was not included in the plots. The Division requests that these plots include all current information.

The description of the observation wells needs to be clarified. There appear to be two depth readings from some of the wells. It is not clear from the text if these wells are completed, to allow the monitoring of two separate aquifers. A complete description of the well design must be included in the application. Furthermore, the Division believes that the applicant needs to commit to submitting the results of the water level readings from the observation wells on a yearly basis, to help describe the quality and quantity of the ground water.

The information describing the wells and water levels needs to include information from all of the wells. Two wells currently are not shown in the water well data summary in Volume 4.

Table 2.3.7-2 needs to be corrected. In the field measurement section, it states that solids will be measured. This appears to be a typographical error and should be corrected.

UMC 784.18 Relocation or Use of Public Roads-JRH

No information could be found in the text of the MRP discussing the right-of-way or use of public roads. The redesignation of the road to the mine site as a state road, and the conducting of mining activities within 100 feet of the public road, should be addressed in the mine plan.

UMC 784.23 Operation Plan: Maps and Plans-JRH

Some of the design drawings and plans found within the MRP do not bear the mark of a registered professional engineer, as required. Please double-check and resubmit those drawings and plans which require certification.

The undisturbed drainages and ditches along the southern end of the unit train loadout (Drawing 3.2.1-3) are not clearly shown. Additionally, the diversions and the ditches on all of the drawings should be numbered and clearly marked in order to reference them to the text and the design calculations for those structures.

UMC 784.24 Transportation Facilities - JRH/RS

In part 4.20.2, the operator provides a brief description of the proposed overland conveyor belt. Although reference is made to parts 4.4, 4.5, 4.6 and 4.7 regarding reclamation of the facility, more specific information must be provided. First, the operator needs to provide detailed drawings showing the location and the extent (acreage) of the overland conveyor system. The disturbed areas need to be identified; and, sediment and erosion control during operational life of the belt line needs to be incorporated into the plan. The reclamation plan portion for the conveyor bench should also include a determination of the stability of the benches, backfilling and grading plan, and the final surface configuration of the benches. The lower third of the conveyor, which is installed on towers, should also include any access or construction roads which may be required for the construction of the facility. In the event that the completion of the overland conveyor system is not to be completed during this permit term, the operator shall, at a minimum, provide for the reclamation plan for those areas already disturbed.

The operator indicates in part 4.20.3 that a detailed plan for the construction and reclamation of the rail spur was submitted to the regulatory authority. This information was not found within the MRP. The operator shall include the operation and reclamation plan for the rail spur and include either a reference to the mentioned plan or incorporate that plan into Chapter 3 of the MRP.

Roads involved with the permit area include two loadout access roads, the access roads to the well houses located a long road 264 plate 3.2.3-2, the mine portal #3 access road, and the access road to the waste rock disposal area. The first three access roads are short and will not require specific design criteria for road drainage. However, the application should address the design of the culvert crossings for Eccles Creek and include reclamation plans with designs for channel restoration.

Plate 3.2.3-2 depicts the location of the conveyor corridor and the natural drainage ways impacted by this corridor. It appears from this plate that potentially five drainage ways could be impacted by this corridor. However, profiles depicted on plates 3.2.6 -2A through 3.2.6 - 2G show that the corridor may not have impacted the channels. A planimetric map depicting the station locations of these profiles could not be located in order to determine if designs will be required for these areas. The detail required for any required crossing specifications will be determined following review of this map and a field investigation.

UMC 786.19 Criteria for Permit Approval or Denial-RS

(c) The Division will prepare a Cumulative Hydrologic Impact Assessment (CHIA) for the Scofield area utilizing data presented in the application and MRP's from other operations in the basin. As the process proceeds, the applicant will be notified of the adequacy of existing data or the need for additional data to complete the document.

UMC 817.11 Signs and Markers-RS

(c) Page 3-41 commits to placement of buffer zone signs at locations where public or employee access to perennial streams is possible. No commitment exists for intermittent streams.

UMC 817.23 Topsoil: Storage - JSL

Page 2-115 states that the expected amount of topsoil to be stockpiled is 131,742 cubic yards. Is this the correct volume of material that has been salvaged? Please update the permit application to reflect the actual volume of soil material presently stockpiled.

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations-RS

The application identifies the following areas that do not report to a sedimentation pond (section 3.2.4):

1. The railroad loadout area.
Treatment: gravel cover, silt fence/or catch basin
2. The access roads to the loadout area from highway 96
Treatment: paving, catch basins, and straw bales
3. The outslopes of the loadout area.
Treatment: revegetated, straw bales, grass filter

4. The area adjacent to the loadout sedimentation pond.
Treatment: paving, reseeding, straw bales, two catch basins.
5. The access roads and the well houses along highway 264.
Treatment: straw bales and maintenance commitment.
6. The water tank area.
Treatment: straw bales and maintenance commitment
7. The disturbed area at the well houses.
Treatment: Straw bales and maintenance commitment
8. The disturbances associated with the conveyor corridor.
Treatment: insloping bench, water bars, straw bales and/or silt fences.

Plate 3.2.1-3 depicts areas #1-4 and Plate 3.2.3-2 depicts the location of areas #5 through 8. The acreages requested under UMC 784.13-RH for these small area exemptions should be added to section 3.2.4.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds-RS

MINE SITE SEDIMENTATION POND

(c) The stage-volume curve developed by the Division indicates that the available volume in the mine site pond at an elevation of 8579.6 ft (spillway elevation) is approximately 370,000 ft³ (8.49 AF). In section 3.2.1, the applicant states this volume is 421,505 ft³ (9.68 AF). Data used to develop this volume or a revised volume should be submitted. Additionally, the response document states that a stage-volume curve was included in the engineering calculations section of Appendix volume A-3. This information could not be located. Sheet 1 of 3, p. 136 of Appendix A-3 states the elevation crest is 8578.75 ft., the junction elevation is 8566.75 ft., and the outlet elevation is 8550 feet. Plates 3.2.1-2A and 3.2.1-2 depicts these elevations as 8579.6 ft., 8566.9 ft., and 8566.0 feet. The applicant should use consistent values throughout the permit.

A current contour map of the loadout pond could not be located in the application. Without this map, a stage-volume curve could not be developed and the determination of pond volume presented in section 3.2.1 cannot be verified. Also, a stage-volume curve and calculations were not found in Appendix volume A-3 as stated in the response document.

The drainage pattern at the loadout area could not be determined using plate 3.2.1-3. Questions involving the location and extent of berms and diversions and a lack of contour information to the south of the disturbed area have made further review of the loadout pond design unfeasible. An attempt was made to delineate the drainage area on this plate with the current inspector of the site, but insufficient information was available. As stated in previous reviews, the application should contain a map of the drainage boundary to the pond. This drainage boundary should be completely defined with topographic controls, berms, and/or diversions. Discrepancies relative to the disturbed area acreage exist on Plate 3.2.1-4 (5.76 Acres), p. 3-19 (7.35 acres), and Appendix A-3 (7.0 acres). The response document incorrectly states that these were revised.

In section 3.2.1, page 3-19 states the principle spillway of the loadout area pond will release runoff at a rate that will allow a 24-hour detention time. This implies that the pond will not contain the 10 yr. - 24 hr. event. If the pond contains the event, this sentence is not needed. If the pond does not contain the event, supporting calculations will be required for this statement (i.e. inflow and outflow hydrographs with assumptions).

That same paragraph discusses an emergency spillway for the loadout area pond. This should be located on a map of the pond with the dimensions indicated.

(d) Plate 3.2.1-2A depicts the elevation of the mine site sediment pond spillway to be 8579.6 feet. Using subtraction, the decant elevation is 8571.6 ft. or 8.0 ft. below the top of the spillway. A stage-volume curve was not located in the permit as discussed in the response document. However, the Division constructed a stage-volume curve for the sedimentation pond based upon plate 13.2.1-2B. The elevation of the design sediment storage volume (135,472 ft.3) is 8569.7. Therefore, the elevation of the decant is above the maximum design sediment storage volume. On page 3-18, the applicant commits to decanting only after retaining the runoff event for a period of 24 hours.

(g) This submittal of the application contains plate 3.2.1-1 that depicts locations of undisturbed diversions for the main mine site. The drainage area boundary depicted on this plate was digitized by the Division and found to be 31.37 acres, and, the applicant presented 31.1 acres. Using this information and information presented in the permit application (Volume A-3, Engineering Calculations), the following table was developed:

MINE SITE SEDIMENT POND

Input Value	Applicant Value	DOGM Value
Area	31.1 acres	31.37 acres
Curve Number	90	90
Slope (avg.)	5%	29.4%
Hydraulic Length	1878 ft.	1755 ft.
Precipitation 10 - 24	2.45"	2.45"
Precipitation 25 - 24	Not Presented	2.92"
Precipitation	3.65"	3.65"
Storm Distribution	Type II	Type II
Storm Duration	24 hrs.	24 hrs.

The resulting runoff characteristics are:

Q, vol. 10 yr. - 24 hr.	3.89 AF	3.89 AF
Q, 10 yr - 24 hr	49.41 cfs	45.83 cfs
Q, 25 yr. - 24 hr.	Not Presented	57.80 cfs
Q, 100 yr. - 24 hr.	74.63 cfs	76.38 cfs

The Mine site sedimentation pond does not have an emergency spillway. A primary spillway has been installed which has the capacity to pass the 100 yr - 24 hr. precipitation event at 1.6 ft. of head. The pond is designed to contain the 10 yr - 24 hr precipitation event. The use of the pond for mine water discharge treatment is under continuing review by the Division.

LOADOUT AREA SEDIMENT POND

Input Value	Applicant Value	DOGM Value
Area	7.35 acres	NOTE: VALUES COULD NOT BE DETERMINED DUE TO MAP DEFICIENCIES
Curve Number	91	
Slope (avg)	6%	
Hydraulic Length	1780 ft.	
Precipitation 10-24	2.45"	2.45"
Precipitation 25-24	Not Presented	2.92"
Precipitation 100 - 24	3.65"	3.65"
Storm Distribution	Type II	Type II
Storm Duration	24 hrs.	24 hrs.

The resulting runoff characteristics are:

Input Value	Applicant Value	DOGM Value
Q, vol. 10 yr. - 24 hr.	0.91 AF	Note: values could not be determined
Q, 10 yr - 24 hr.	10.16 cfs	
Q, 25 yr. -24 hr.	Not Presented	
Q, 100 yr. - 24 hr.	16.97 cfs	

(h) Section 4.13.1 commits to conducting surveys of the ponds to determine the 60 percent cleanout level. This section commits to dewatering only water that meets NPDES requirements from the mine site pond prior to sediment removal. Remaining water will be transported to the loadout sediment pond for treatment. A similar procedure should be discussed for the loadout pond.

(i) A stage-discharge curve developed by the Division demonstrates that the mine site sedimentation pond has the capacity to pass a peak runoff event in excess of the 25 yr. - 24 hr. event (i.e. approximately the 100 yr. - 24 hr. event) with one foot of freeboard. This curve was based upon a junction elevation for the riser and barrel of 8566.9 feet. However, 3.2.1-2A reference dimensions indicate a discrepancy for this elevation. With a spillway elevation of 8679.6 ft., a 10.75 ft. dimension to the center line of the barrel, and 1.25 ft for the radius of the barrel, the elevation is 8567.6 feet. Plate 3.2.1-4A has similar discrepancies for the loadout pond. The application should be corrected with the correct elevations or dimensions.

UMC 817.47 Hydrologic Balance: Discharge Structures-RS

The energy dissipator for the loadout sedimentation pond was not technically reviewed at this time due to questions on the drainage area for the pond (reference 817.46 comments). It appears the assumptions and methodology used are correct. However, until a peak flow can be verified for the design the review cannot proceed.

UMC 817.50 Hydrologic Balance: Underground Mine Entry and Access Discharges-RS/RH

The application should address the proposed methods to be implemented to prevent or control gravity discharge from the mine. The application should specifically address each subsection of this regulation. The application states that the fractures in the mine area will be self-sealing and as a result water should not enter the mine workings. However, current mining is producing approximately 300,000 gpd. The application should present contingency plans to be implemented during any anticipated periods of discharge (additional reference UMC 784.14 [d]). The Division may approve discharges from the mine if subsection (b) of UMC 817.50 is adequately addressed.

UMC 817.153 Roads: Class I: Drainage-RS

(a) A class I road exists at the entrance to the loadout area. The structure crosses a perennial stream (Eccles Creek). This road is a crowned paved road with concrete jersey barriers along both outslopes (plate 3.2.1-3). The drainage from the road from the gate and through the truck turnaround reports to the sedimentation pond for treatment. A small portion of the road is located in the county road right-of-way and should be included in the permit area. Appropriate subsections of this regulation regarding erosion and sediment control should be addressed.

(c) Subsection (1)(i) of this regulation requires that the loadout access road pipe arch be designed to safely pass the 20 yr - 24 hr. precipitation event if the end area of the culvert exceeds 35 square feet. The size and the designs for this crossing were not located in the application. The application should state the size of the arch and submit designs for the culvert addressing the requirements of this regulation.

UMC 817.160 Roads: Class II: General-RS

The application should address sediment control measures for the access roads to the well houses, the access road to the loadout area from highway 96, and the waste rock area access road.

UMC 817.163 Roads: Class II: Drainage-RS

The access road to portal #3 is considered a class II road. Section 4.20.1 states this road has gradients less than 10% with a 250 section of 10 percent. Plate 3.2.1-1 depicts the gradient as approximately 8-9 percent. Subsection (c)(2)(i)(C) requires culvert spacing of 400 feet for roads with this grade. The Division considers this requirement to be inconsequential if the undisturbed diversions remain in place to divert undisturbed runoff from the road. However, if the diversions are removed or do not meet design requirements as proposed in a recently received amendment, the Division will require correct culvert spacing and drainage designs (10 yr - 24 hr. event) for this road.

The application should address the design of the culverts crossing Eccles Creek for the access roads to the well houses. These designs should comply with subsections (c)(1)(i), (ii), (iii), (vi), and (e) of this regulation.

1519R