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United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

ACT 015/019
To Law Co. (2)

SEP 1 1983

Mr. James Smith
Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, UT 84114

JIM

SEP 08 1983

Copy to Mary,
by Pam, Dave

Dear Mr. Smith:

I am enclosing copies of two determination of adequacy reviews prepared for hydrologic aspects of the Wilberg and Trail Mountain mines. Will you review these documents for interpretation of policy and Utah's regulations and forward them to the applicants at your earliest convenience?

Please telephone Shirley Lindsay or Walter Swain at 303-837-3806 if there is any question.

Sincerely,

Richard E. Dawer
for
Allen D. Klein
Administrator
Western Technical Center

Enclosure

HT/015/007
Folder 10.2
Copy to [unclear],
Dave D.

TRAIL MOUNTAIN MINE
NATOMAS TRAIL MOUNTAIN COAL COMPANY

JIM

Determination of Adequacy (DOA) - Hydrologic Discipline

SEP 08 1983

UMC 771.23: Permit Applications - General Requirements for Format and Contents

The mining and reclamation plan for Trail Mountain mine was submitted in July 1981. Since that time, additional information pertinent to the plan has been submitted to UDOGM and OSM in the form of letters, a new surface drainage and sediment control plan (April 1983) and the ACR response (May 1983). It is requested that the applicant incorporate all information and pertinent data previously submitted into the mining and reclamation plan. Information requested by the DOA letters should also be included, if appropriate. The intent of this request is to provide a single, self-contained document that is current and provides all information relevant to the mining and reclamation plan. Maps, figures and tables that have been updated should be inserted in place of the existing maps, figures, and tables. An example is Figure 3.10 in the ACR response which should be inserted for Figure 3.10 in the mining and reclamation plan. All data submitted in conjunction with the mining and reclamation plan and required by the state and federal regulations should also be included. Chapters or sections containing material that has been modified by the ACR response or by the submission of additional information should reflect all changes or modifications. Submission of a current, clear and concise document, as required by UMC 771.23, will avoid unnecessary delays and deficiencies and will allow the reviewers to proceed with the TA and EA in an expeditious manner.

UMC 783.13: Description of Hydrology and Geology

In the ACR response and throughout the permit application package, additional information concerning the surface water and ground-water hydrology of the new plan area, adjacent area and general area was referred to USGS Open File Report 81-539. Although reference to this publication is relevant, information specifically pertaining to the hydrology of the Trail Mountain mine plan area and adjacent areas should be extracted and contained in the permit application. Where appropriate, incorporate this information into the permit application.

In the permit application, the applicant implies that there is a lower total dissolved solids concentration of mine water relative to poorer quality water from lower in the stratigraphic section (page 7-19, Section 7.1.5.2). While it is possible for this phenomena to occur in the mines of the area, provide verification of this statement or the appropriate reference from which this statement is extracted.

Section 7.1.5.2 of the permit application states that the Trail Mountain mine will have a beneficial impact on the chemical quality of the water in the region because the water brought to the surface and subsequently discharged into the stream channel will have less total dissolved solids than it would have if it had continued to move through the shale formations. This statement conflicts with the statement in the ACR response which states that no ground-water is discharged from the mine. Clarify this discrepancy.

Is it expected that sufficient quantities of ground water will be encountered during future mining that will necessitate discharges from the mine? If so, information on the expected source of the water, the quantity and quality of the water and water handling facilities must be submitted.

UMC 783.16: Surface Water Information

(b)(1) In the permit application, discharge records for the North Fork of Cottonwood Creek were available for only one year. What was the recording frequency for these measurements? Have discharge measurements been recorded continuously since that time? If so, please provide all the measurements and update the paragraph on page 7-42 pertaining to the flow characteristics for the North Fork of Cottonwood Creek.

(b)(1) Provide a reference for the flow distribution figure for Cottonwood Creek (Figure 7-8).

UMC 783.18: Climatological Information

(a)(2) Provide the average velocity of the prevailing winds in the mine permit application. The average direction is provided but the average velocity has been omitted in Chapter XI of the application.

UMC 784.14: Reclamation Plan - Protection of Hydrologic Balance

(a) In the mine permit application, ground water is reported to be made in quantities exceeding 10 gpm. When ground water is encountered during the mining operation, is sufficient quantity available for collecting a water sample and determining the quality? If sufficient quantities are encountered at any locations within the mine, collect and analyze the samples and incorporate locations and sample analyses results into the monitoring program.

(a) In two sections of the mine permit application (pages 3-35 and 7-69), the applicant states that water made within the mine is either used and retained within the hydrologic system or is discharged back into Cottonwood Creek via the sediment pond. This statement conflicts with the ACR response submitted by the applicant which states that no ground water is discharged from the mine. Clarify this discrepancy.

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

(a)(2)(ii) Table 7-7 indicates that 5.0 acres of disturbed area were used to determine the peak flows for the Sediment Pond Diversion 1. Is this figure correct or should it be 9.8 acres as indicated in the bonding section of your ACR responses? Clarify and submit the necessary changes.

(a)(2)(ii) All calculations that accompanied the changes/modification of the sediment pond (embankment, storage, volume, spillway design, etc.) and the surface drainage plan must be submitted. The results of these calculations should be reflected in Tables 7-7, 7-8 and 7-9 and Figures 7-11, 7-12 and 7-13.

(a)(2)(ii) What is the basis for the disturbed acreage factor (0.05 ac/ft of sediment per acre disturbed) which is discussed on page 7-34 of the permit application. Applicant must show that adequate sediment storage volume will be provided, since 0.1 acre-foot per acre is the normally required volume per UMC 817.46(b)(2 and 3).

UMC 817.43: Hydrologic Balance: Diversions and Conveyance of Overland Flow, Shallow Ground-Water Flow, and Ephemeral Streams

(c) In the permit application, no mention has been made of the maintenance procedures required for the diversion culvert. Provide this information and incorporate into the application.

UMC 817.45: Hydrologic Balance: Sediment Control Measures

(f) What procedure is used to design riprap for the inlet and outlet to the culverts and the inlet and outlet to the sediment pond? What will be the depth and width of riprap placement? Has a determination been made regarding the need for a filter blanket? Is so, please provide the sediment size distribution of the soil material. Give details of all riprap and filter design and incorporate into permit application.

UMC 817.46: Hydrologic Balance: Sedimentation Ponds

Update Figures 7-11, 7-12 and 7-13 (Sedimentation Pond and Diversion Ditch Design Details)

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

(a) Figure 7.9A presents the location of all water monitoring stations. It is unclear, however, if these stations are springs, surface water diverted from Cottonwood Creek, or ground water encountered during the mining operation. Please clarify and provide a description of the water monitoring stations.

(a) Combine the information presented in Figure 7.9A with 7.9.

(a) Figure 7-9A indicates that one water monitoring station is located within the mine. It is unclear where the station is located (i.e. working face, mine sump area). It is also unclear whether this station is monitoring the quality and quantity of ground water encountered during the mining operation or a combination of ground water and surface water diverted from Cottonwood Creek. Please clarify. If ground water is encountered during the mining operation, it should be monitored to obtain estimates for quantity and analyzed for water quality parameters in accordance with UMC 784.14.

(a) A spring inventory of the mine plan area and adjacent area was conducted in June 1981. The location of these springs are shown in Figure 7-2 of the permit application. In Figure 7-9, Springs TM 21-1, 22-1 and 23-1 are listed as water monitoring stations. Provide data collection from these stations (quality and quantity). If data have not been collected, incorporate these springs into the operational water monitoring program.

(a) On page 7-16 of the mine permit application, in-mine water use was estimated to be up to 270 gpm. How was this estimate obtained and what quantity is estimated to be ground water? What quantity is estimated to be surface water diverted from Cottonwood Creek? Clarify and include this information in the permit application.

(b) For the baseline monitoring of surface water (page 3-37) it is stated that intermittent streams will be monitored biannually during high and low flows and attempts will be made to collect samples of ephemeral streams. Where are the intermittent and ephemeral streams that were monitored and which stations monitor them?

(b) Describe the monitoring device used for measuring the discharge from the mine and into the sedimentation pond (refer to Figure 3-7A). What will be the monitoring frequency of this device? How is the discharge from the mine presently estimated?

UMC 817.55: Hydrologic Balance: Discharge of Water into an Underground Mine

(b) In response to the ACR, the quality of surface water being discharged into the mine sump area was not provided. Provide this information and include the point of diversion as a surface water monitoring station.

(b) The applicant stated in the ACR response that the present intake of surface water from Cottonwood Creek is well below Natomas' allocated water rights. The response, however, did not answer the question as to the quantity of water diverted from the creek. Is this intake presently monitored? If so, how are the estimates obtained and what is the estimated quantity?

(b) The water distribution system is shown in Figure 3.7A. After the system becomes fully operational, what will be the monitoring frequency of the intake near Cottonwood Creek? Incorporate a discussion of this information into the permit application.

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

On page 3-27 of the permit application, it is stated that the stream diversion culvert is to be removed except for a 70-foot, 96-inch portion of culvert at the upper end. This is to provide continued access to the site for reclamation work and allow restoration of the stream channel. What are the plans for removing the remaining 70 feet of culvert? Discuss these plans in the permit application. If no such plans exist, provide an explanation for not removing the 70 feet of culvert.

UMC 817.71: Disposal of Excess Spoil and Underground Development Waste: General Requirements

(a)(1) In the ACR response, the applicant stated that the underground development waste material is to be used as backfill for the culvert in Cottonwood Creek. Where will this waste material be placed after removal of the culvert? The coal fines in the waste material can significantly degrade the quality of Cottonwood Creek after restoration if they are not properly removed. Please clarify and provide a discussion of this issue in accordance with UMC 817.133.

WILBERG MINE
UTAH POWER AND LIGHT COMPANY

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UMC 771.23 Permit Application - General Requirements for Format and Content SEP 08 1983

The mining and reclamation plan for Wilberg was submitted in April 1981. Since that time, a number of modifications have been made to this plan. It is requested that the applicant incorporate all information from these various modifications into the mining and reclamation plan. The intent of this request is to provide a single self-contained document that is current and provides all information relevant to the mining and reclamation plan. Maps, figures and tables that have been updated as a result of agency review should be substituted in place of superceded material. Furthermore, if necessary, a discussion of new material should be incorporated into the body of the text for the mining and reclamation plan.

UMC 783.15 Ground Water Information

(a) Spring Map (CE-10228-EM) must be updated with the most recent version of the same map from the Hydrologic Monitoring Program Annual Report. This information is sufficient ground-water information for the aquifer in the North Horn formation.

The information presented in Figure 7 from the Hydrologic Monitoring Program Annual Report (1982) depicts the perched aquifer within the strata overlying the coal seams in the Wilberg mine. The applicant must supply references and/or geologic data in support of this map. The applicant must also show the location of long-term water producing areas in the mine. Four types of water producing areas were identified in your response and shown schematically in Figure 8.

The hydrologic monitoring data collected to date by Utah Power and Light shows rapid response to infiltration from snow melt in the Wilberg mine. Faults and fractures on East Mountain form the primary mechanism for recharge to the Blackhawk formation. These faults may not intersect the mine workings but do provide a significant external source of water to the Wilberg mines via the aquifer overlying the mine workings. The complexity of the aquifer in the Blackhawk is evident. It is therefore imperative that the hydrogeologic information presented in the mine plan show the long-term water producing areas of both the North Horn formation in the form of springs and the Blackhawk formation in the form of mine dewatering activities.

UMC 783.25 Cross Sections, Map and Plans

(b) Map CE-10404-EM dated July 6, 1981 must replace Map CE-10123-EM in the mine plan as a more complete, accurate and up-to-date map. A new map showing the location of all past and present in mine monitoring locations must be submitted. Information showing in-mine monitoring locations from Figure 7 should be utilized to prepare an additional map of appropriate scale and detail such as map CM-10374-WB.

(f) See comment 783.15 (a).

UMC 784.13 Reclamation Plan: General Requirements

(a) Review of the Division's files indicates that the waste rock disposal area is planned for expansion. A sediment control plan for the disposal area must be submitted. Design information including supporting calculations must be submitted for any sediment ponds, diversions or other structures.

UMC 784.14 Reclamation Plan: Protection of Hydrologic Balance

(b.3) It has been pointed out that dewatering occurs close to the active mine faces and at several other locations in the mine. Monitoring of mine water production must include the following:

1. Long-term water producing areas within the mine workings including:
 - a. structural rolls
 - b. Pleasant Valley Fault system
 - c. fractures and joints
 - d. surface and in-mine drill holes
 - e. fluvial sandstone channels

2. Each inflow and outflow to the main sump area must be monitored on a continuous basis. Also provide information on the general location of the source of each inflow and the destination of outflows.

Such a monitoring pattern will accurately represent dewatering conditions within the mine with a minimum amount of interference with actively mined areas. Monitoring of quality parameters at all locations must be on approximately a monthly basis.

UMC 784.22 Diversions

The applicant must submit design information on diversions for the waste rock disposal site. Review of the division's files has shown that the disposal area is planned for expansion. The diversion plans for this area should comply with pertinent standards contained in UMC 817.43 - UMC 817.44.

The applicant must provide the design velocities used in selecting riprap size for the trapezoidal diversion channel from the largest area (65 acres) at the Cottonwood Fan Portal.