



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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August 24, 1988

TO: File

FROM: M. DeWeese, Reclamation Hydrologist
R. Summers, Reclamation Hydrologist *RS*

RE: Plan to Finalize Reclamation, North American Equities,
Blazon No. 1 Mine, ACT/007/021-88A, Folder #2, Carbon
County, Utah

SYNOPSIS

The August 22, 1988 submittal of the Plan to Finalize Reclamation at the Blazon No. 1 Mine has been reviewed regarding hydrology. This plan was submitted as an abatement measure for NOV N88-13-2-1. The proposal basically consists of redesigned channel reconstruction for Mud Creek, a redesigned sedimentation pond, plans to reclaim the transformer road, plans for a swale at the access road gate, plans for interim sediment control measures, and a brief discussion of the water well transfer.

ANALYSIS

The Division has determined minor deficiencies exist in the submitted plan. These are discussed by corresponding applicable regulations as follows:

Plan Certification

UMC 783.25 (b) (1) Operation Plan: Maps and Plans

UMC 784.16 Reclamation Plan: Impoundments, Dams, And Embankments

Maps included in the submittal are not certified. These maps must be certified by a qualified registered professional engineer or professional geologist. Therefore, Stipulation UMC 783.25 - MMD is required for approval.

Stipulation UMC 783.25 - MMD

The applicant must submit certified drawings and maps for the proposal. These drawings must be certified by a registered professional engineer prior to September 15, 1988.

SEDIMENTATION POND

The applicant has submitted revised designs for the sedimentation pond at the site. The pond is proposed to remain as part of the post-mining land use to treat the drainage from the approved industrial use of the pad facilities.

The application presents information demonstrating that the pond is capable of storing the predicted sediment volume for a period of one year. UMC 817.46 (b)(1) and (2) require a sediment storage volume for a minimum of three years. The proposal does not discuss, nor commit to removal of the sediment at the 60% sediment volume capacity (subsection h) Therefore, stipulation UMC 817.46 - 1 - MMD/RPS.

Stipulation UMC 817.46 - 1 - MMD/RPS

The applicant must commit to installing two sediment level markers in the sediment pond. These markers must clearly depict the maximum sediment storage elevation and the 60% cleanout elevation. They must be located near the inlet to the pond and near the pond center. The applicant must commit to removal of the sediment in the pond when the storage reaches the 60% elevation. The applicant must submit a plan for removal and disposal of the sediments from the pond. This information must be submitted prior to October 15, 1988.

The pond has been designed to totally contain the predicted runoff from a 10 yr. 24 hr. precipitation event (0.26 AF). The Division calculated this value to be 0.264 AF. The pond has been designed to discharge the 100 yr. - 24 hr. design flow with a head of 0.6 ft. through the primary spillway. As an added precaution, an emergency spillway has been proposed that will handle a flow equal to 80 percent of the 10 yr. - 24 hr. precipitation event with a freeboard of 1.0 foot. The spillway is capable of passing in excess of the 100 yr. - 24 hr. event with a freeboard of approximately 0.5 feet. A variance has been granted for the requirement that the primary spillway and the emergency spillway elevation difference be 1.0 feet due to site constraints on the size of the sediment pond.

The pond has been designed with 5:1 combined sideslopes, a top width of 8.5 feet, and a constructed elevation 5% greater than the final design elevation (subsections (k), (l), and (m)). The application commits to submittal of certified "as-built" drawings of the sedimentation pond upon completion of reclamation activities (page 56). UMC 817.46 subsection (r) requires the submittal of the certified drawing for the sedimentation pond following construction of the pond. Therefore, stipulation UMC 817.46 - 2 - MMD/RPS is required for approval.

Stipulation UMC 817.46 - 2 - MMD/RPS

The applicant must submit certified "as-built" drawings and a certification statement of the sedimentation pond as per UMC 817.49 (h) and 817.46 (r) prior to September 25, 1988. The applicant must submit a commitment to conduct the pond inspections required by UMC 817.46(t) prior to the above date.

MUD CREEK CHANNEL DESIGN

The proposed channel design was based on individual reaches rather than one overall design. The rip rap size and channel dimensions for each reach were calculated using field measurements specific to each section. Channel designs were based on the 50 year flow for all reaches. The 50 year peak flows calculated by the applicant were previously approved by the Division.

Reach one extends from the outlet of culvert C to the north edge of the sedimentation pond. The submitted design for this reach is compared to Division calculations in the following table.

	DIVISION	APPLICANT
VELOCITY	9.1 ft/s	9.1 ft/s
FLOW DEPTH	1.72 ft	1.71 ft
RIP RAP D50	adequate	16.2 in

Reach two extends from the outlet of culvert B to the inlet of culvert C. Design calculations for this reach are compared below.

	DIVISION	APPLICANT
VELOCITY	9.18 ft/s	9.2 ft/s
FLOW DEPTH	1.79 ft	1.78 ft
RIP RAP D50	adequate	16.9 in

Reach three extends 180 feet upstream of the inlet of culvert B. Design calculations for this reach are presented below.

	DIVISION	APPLICANT
VELOCITY	8.3 ft/s	8.3 ft/s
FLOW DEPTH	1.57 ft	1.56 ft
RIP RAP D50	adequate	13.7 in

The submitted channel bank rip rap design for all three reaches is sufficient for the 50 year design storm. The applicant has committed to supplement the existing channel bank rip rap in each reach to meet the design criteria. The applicant proposes to supplement the rip rap in the channel bottom as directed by Division personnel on site during construction. The Division feels the channel bottom in reach two and three are sufficient in their present condition, with the exception of a few areas, to pass the design storm event. Site inspections by Division personnel showed the channel bottom in reach one is not presently adequate to provide channel stability for the design storm. Also, the Division feels that because this reach is located immediately adjacent to the sedimentation pond embankment, the channel bottom must be riprapped for the entire length of the reach to provide a stable channel configuration. This area will be flagged for riprap installation for the entire reach. The applicant should also plan to install a filter blanket (as proposed for culvert A reclamation) in this area.

SEDIMENT CONTROL

The applicant proposes to install straw bales above culvert entrances and at the north end of the access road to provide sediment control on the access road ditch during construction. The applicant also proposes to use straw bales and silt fences in the stream channel during construction. However, there is no commitment to providing sediment control after construction is completed. Therefore, stipulation UMC 817.45 - MMD/RPS is required for approval.

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STIPULATION 817.45-MMD/RPS

The applicant must commit to retaining (for duration of the bond period) the straw bales as a sediment control measure in the access road ditch prior to September 25, 1988. These shall be located above the entrances of the culverts and above the entrance of the swale and shall be included on an appropriate map. The applicant must also commit to retaining the straw bale dike shown on maps A1 and A3, extending from culvert A to ditch B, during the duration of the bond period.

Water Well Transfer

The applicant has not completely addressed the transfer of the water well at the site. The applicant must address each of the subsections of this regulation. Essentially, this will require a jointly written request from the applicant and the surface owner. The applicant must submit this information prior to completion of reclamation this season. Stipulation UMC 817.53 - 1 - MD/RPS is necessary for approval.

Stipulation UMC 817.53 - 1 - MD/RPS

The applicant must submit the information required by UMC 817.53 completely and accurately relative to transfer of the well prior to September 25, 1988.

cc: Sue Linner
Randy Harden

WPOB47/11-15