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# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

June 6, 1989

TO: Susan Linner, Permit Supervisor

FROM: Mike DeWeese, Reclamation Hydrologist *MMD*

RE: Stipulation Responses, As-Built Report, North American Equities, Blazon #1 Mine, ACT/007/021, Folder #2, Carbon County, Utah

SUMMARY:

The latest As-Built Report submittal, received May 18, 1989, has been reviewed regarding hydrologic concerns. The deficiencies enumerated in the Division's previous review documents dated March 8, 1989 and August 29, 1989 have not been sufficiently addressed. The As-Built Report is not considered technically adequate at this time.

ANALYSIS:

Stipulation UMC 817.46 - 1 - MMD/RPS

Stipulation UMC 817.46 - 1 - MMD/RPS of the Division's August 29, 1988 Conditional Approval document requires the installation of sediment level markers in the sedimentation pond. The operator has responded by including a commitment to installing two sediment level markers in the summer of 1989 but no markers have been installed to date. Therefore, the stipulation is considered to be outstanding until the markers are in place. The operator proposes to show the 60% cleanout elevation on one marker and the maximum sediment level on the other marker. The 60% cleanout level and the maximum sediment level must be clearly depicted on each marker. Markers must be placed near the pond inlet and the pond center such that the average sediment level can easily be determined. The operator has committed to conducting a chemical analysis of pond sediment prior to removal and disposal. Sediment must not be removed or transported off site prior to receiving Division approval of the disposal area.

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.

OPERATOR'S RESPONSE:

Stipulation UMC 817.46 - 1 - MMD/RPS

Sediment markers identifying the 60% cleanout level and the maximum sediment level were installed during a site inspection by Division personnel on June 1, 1989. The operator has committed to collect a sediment sample for chemical analysis prior to cleaning the pond. The sediment will not be removed from the permitted area without Division approval of an appropriate disposal site.

The operator's response is considered adequate.

DETERMINATION OF ADEQUACY:

The operator has not submitted an as-built certification statement as required by UMC 817.46 (h) and UMC 817.49 (r), nor has a commitment to conduct pond inspections been submitted. This stipulation is considered outstanding until such time as this information is received by the Division in a format for direct insertion into the As-Built Report.

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

1. The as-built information relative to the access road ditch and ditch B is not adequate. The submitted cross sections demonstrate that the diversions have been constructed larger than the proposed design and are therefore more than adequate for capacity. However the submittal does not state that the design slope was constructed at the site. The operator may elect to submit as-constructed slope information as diversion profiles showing minimum and maximum slopes or, submit maximum permissible velocity calculations which determine a corresponding maximum slope value and state that the diversions were constructed at slopes less than or equal to that value.

2. Details of the concrete box drop inlet to the culvert on Little Snyder could not be located in any of the operator's submittals. An as-built drawing must be submitted showing design details of the inlet structure including at a minimum the headwall height, width and length, and details of the weir inlet. The culvert structure design can not be approved without this information.

OPERATOR'S RESPONSE:

1. Hydraulic calculations of the diversion ditches are included in Appendix H of the submittal. Maximum slope values of 0.071 and 0.049 were identified for the access road ditch and the ditch B, respectively. The designs have been demonstrated to be adequate at these slopes.
2. Plate 8 presents as-built design specifications of the Little Snyder Canyon culvert inlet structure. The culvert has been demonstrated to convey the 50 year 24 hour design storm at 4.4 feet of headwater, with a total available head of 7.7 feet. The culvert and overflow combination has a calculated capacity of 47.8 cfs with the required freeboard and thus will convey the 100 year 24 hour design storm of 46.4 cfs.

DETERMINATION OF ADEQUACY:

The operator's response is considered adequate.

UMC 817.44 Hydrologic Balance: Stream Channel Diversions - MMD

Existing riprap at the outlets of culverts B and C is inadequate (as per certifying engineers report) to provide sufficient channel protection as required by regulations.

OPERATOR'S RESPONSE:

The operator conducted a hydraulic analysis of the Mud Creek reclaimed channel using the HEC-2 computer model.

DETERMINATION OF ADEQUACY:

This revised analysis is basically the same as the last submittal except the operator included additional details of the culvert structures. Specifically, culvert entrance and exit coefficients and culvert to channel flow transitional zones were added to the model to increase accuracy and better represent actual site conditions.

The operator also increased the channel roughness coefficient from 0.045 to 0.095 based on projected vegetative cover from channel revegetation. The Division believes a roughness value this high is very questionable at the revegetation specifications identified in the plan. The roughness coefficient of 0.045 in the previous submittal is considered by the Division to be an accurate value of current site conditions.

The Mud Creek channel reclamation design was demonstrated to be adequate using this lower value, with the exception of the culvert exits, in the previous submittal. However, regardless of the projected vegetative cover values, the operator should be aware that bond release based on phase I reclamation may not be approved prior to completion of channel reclamation. Therefore any channel reclamation design dependent upon vegetative cover will not be considered complete until such time as the design cover has been established.

The analysis results demonstrate that the existing riprap  $d_{50}$  of 13 inches below culvert B is adequate to convey the maximum culvert discharge from the design storm. However, the analysis determined that the existing riprap  $d_{50}$  of 12 inches is inadequate below culvert C. A six foot long channel reach has been identified immediately below the culvert exit which may produce minor localized scouring at the design storm discharge. Therefore, the operator must submit a revised stable channel design for the reach immediately below culvert C.

UMC 817.53 - 1- MMD/RPS

This stipulation has been revised by the Division (March 8, 1989). The operator's response states that the well will be temporarily closed prior to June 15, 1989. That date is acceptable to the Division. The operator's response should contain documentation that the court case referenced in the letter from Holmes, Roberts and Owen, Attorneys At Law (January 17, 1989) is being actively pursued.

RECOMMENDATIONS:

The Division recommends that the Blazon No. 1 Mine As-Built Reclamation Report be denied final approval until such time as an adequate revised design for Mud Creek below culvert C has been submitted.