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STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

015/018#2
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

November 13, 1987

Mr. Ray Christensen
Permitting & Compliance
Utah Power & Light Company
Mining Division
P.O. Box 310
Huntington, Utah 84528

Dear Mr. Christensen:

Re: Conditional Approval of PAP Amendment, Deer Creek Mine Fan Road
Drainage Modification, Utah Power & Light Company, Deer Creek
Mine, ACT/015/018-87F, Folder #2, Emery County, Utah

The Division has completed a review of plans received October 16, 1987 for the above referenced PAP amendment. Division hydrologist, Tom Munson, has reviewed the plans and recommends granting a conditional approval. Please refer to the attached Technical Memorandum for an explanation of the conditions which will require additional information from the operator.

Please provide the requested information by November 30, 1987. Thank you for your cooperation in completing this permitting action. Please call me or Tom Munson should you have questions pertaining to this amendment review.

Sincerely,

A handwritten signature in cursive script that reads "D. Wayne Hedberg".

D. Wayne Hedberg
Data Management Coordinator

djh

cc: D. Ariotti T. Munson
R. Hagen J. Whitehead
P. Rutledge P.F.O.
G. Morris

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November 4, 1987

TO: John Whitehead, Permit Supervisor
FROM: Tom Munson, Reclamation Hydrologist *TM*
RE: Modification to the Deer Creek Mine Fan Road Drainage, Deer Creek Mine, Utah Power and Light Company, ACT/015/018-87F, Folder #2, Emery County, Utah

History of Proposal

The Division received on October 16, 1987, a proposal to modify the Deer Creek Mine for road drainage.

Analysis

The drainage from the fan pad area, fan access road, and areas intercepted by the access road are routed to the disturbed drainage channel by three (3) 18" diameter culverts. Due to difficulty in maintaining this system, the operator has proposed an open ditch with four (4) rock riprap fans to route water from the road to the disturbed drainage.

The operator has calculated peak flows for various channel cross-section designs and compared these channel designs with the computed hydrograph peak. Both channel cross sections were capable of handling the design flow.

The operator has provided the D50 for riprap to be used in each section of the road ditch, but has not provided the gradation based on this D50 or the depth of 1" road base to be laid under the riprap. The operator has committed to update the PAP with these plans and any additional information submitted in the mid-term review.

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Memo to J. Whitehead
ACT/015/018-87F
November 4, 1987

Recommendations

I recommend that the following plan be approved with the following conditions:

1. The operator must provide a written commitment to the following riprap gradation (7) specifications and filter blanket depth prior to final approval.
 - (a) Riprap Gradation - The D_{50} size is used for the effective rock size. An ideal riprap gradation will result in a smooth-size distribution curve, although this may not be practical. The ratio of maximum size D_{100} to median size D_{50} should be approximately 2.0, and the ratio between the D_{50} and D_{20} sizes should also be approximately 2.0.
 - (b) Riprap Thickness - Assuming a well-graded riprap, the minimum riprap thickness should equal the D_{100} size. For special cases, where local scour is significant, riprap thickness should be twice the D_{100} size.
 - (c) Filter Blanket Thickness - Riprap should be placed over a filter blanket or bedding of graded gravel in a layer 1.5 times (or more) as thick as the largest stone diameter (D_{100} of the riprap).
2. The Division accepts the operator's commitment to update the PAP with these plans during the upcoming Mid-Term Review.

djh
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