



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

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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

March 13, 1989

TO: Sue Linner, Permit Supervisor

FROM: Randy Harden, Reclamation Engineer *RH*

RE: Pond Stability Analysis, Belina Mine Complex, Valley Camp Coal Company, ACT/007/001, Folder #2, Carbon County, Utah

SUMMARY:

Stipulated requirements for the certification of the sediment ponds for Valley Camp have been submitted to the Division for review. Soil analysis for the stability of the embankments was submitted on October 19, 1988. Completion of cleaning the sediment ponds late last fall required that the operator resubmit contour and volumetric information regarding the design of the sediment ponds. Additionally, hydrologic design for the entire site in addition to the ponds was considered essential to the re-permitting process for Valley Camp. Initial submittal of these data was made in conjunction with the sediment pond information.

Initial review of the as-built drawings received on February 3, 1989 indicated a discrepancy in the design calculations in relation to the drawings. The operator was notified of this discrepancy and new drawings were submitted on March 10, 1989.

The terms of the conditional approval issued by the Division on 8/5/88 have been met by the operator. A complete and accurate certification of the ponds has been submitted by the operator in accordance with conditional approval for abatement of Federal NOV 88-2-116-2. However, with regard to the final configuration of the sediment ponds for stability analysis, more complete information will be required by the operator to determine the technical analysis and the design of the sediment ponds complete.

ANALYSIS:

Stability analysis of the pond embankments based on the consultant's report recommends that the inslopes of sediment ponds 002 and 003 be reduced to 2.5h:lv, which would require an amendment to the plan and the pond designs. The basis of the consultant's report was a generic design of the inslopes of the ponds during rapid drawdown conditions, and, that the target factor of safety under those conditions is 1.5.

Additionally, the consultant's report recommends that the inslopes of the sediment ponds not exceed 1.5h:1v in order to assure a factor of safety of 1.1 for rapid drawdown conditions as a matter of practical design for the existing ponds.

The Division has reviewed the data and analysis submitted by the operator and found that the assumptions made by the consultant do not meet the requirements of the Division for determination of stability of the sediment ponds. In order for the operator to complete the design and the analysis of the sediment ponds, the following information will be required:

1. Cross sections of the sediment pond which are critical for both the outslopes and the inslopes of the ponds are required. Stability analysis of these critical cross sections should be performed for each pond. In obtaining the cross sections for the ponds, the operator should verify that the soil samples taken from the pond conform to the materials found in the cross sections being taken. Cross sections should include the slope above the pond and below the pond sufficient to incorporate these slopes into the overall stability analysis.
2. Stability analysis for the sediment ponds shall be made for full pond conditions and for rapid drawdown conditions assuming that the saturation or phreatic line through the sediment pond embankment is at its maximum gradient. Factors of safety used in determining sediment pond stability include a static factor of safety of 1.5, and, rapid drawdown and seismic factors of safety of 1.1.
3. Different drawing scales and surveys of the sediment ponds make review of the embankments for stability difficult. New contours of the inslopes of the ponds were provided by the operator to determine the capacity of the ponds but do not clearly depict the embankment width or crest elevation. The operator shall provide additional information by completing drawings at a suitable scale which depict the contours of the inslopes, crest and outslopes of the sediment ponds, and, sufficient adjacent contours to depict the location of stream channels adjacent to the ponds or embankments above or below the ponds which could affect the stability analysis for the ponds.

4. In the event that the ponds are found not to meet the factors of safety required for stability, the operator shall include in the design, proposals to reshape and regrade the ponds to a configuration which meets the stability requirements for sediment ponds. Such modifications to the sediment ponds shall be submitted to the Division for approval by the Division prior to any actual modifications to the ponds.

RECOMMENDATIONS:

Because the design information submitted by the operator was not conclusive to determine the factor of safety for each pond, the operator shall be required to submit the above information in a reasonable amount of time. Detailed sections and drawings of the sediment ponds along with individual stability analysis for each pond shall be submitted to the Division no later than May 30, 1989. Any modifications to the ponds which may be required as a result of the stability analysis will need to be approved by the Division and complete no later than August 15, 1989.

cc: R. Summers
BT8/14-16