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April 7, 1989

TO: Susan C. Linner, Permit Supervisor

FROM: Randy Harden, Reclamation Engineer

RE: Five-Year Permit Renewal Review, Determination of Bond Amount, Genwal Coal Company, Crandall Canyon Mine, ACT/015/032, Folder #2, Emery County, Utah

SUMMARY:

In response to deficiencies found in the mining and reclamation plan regarding bonding and earthwork for Genwal, the operator has submitted revised reclamation contour drawings and cross sections, mass balance calculations, and a reclamation cost estimate. These data were received by the Division on March 3, 1989.

A determination of the reclamation cost for the Crandall Canyon Mine has been made by the Division. The revised bond amount is set at $268,000.00 in 1994 dollars. See attached calculations.

ANALYSIS:

The operator's cost estimate for reclamation included revised contours for the final reclamation of the facilities. These revisions were made in response to a deficit of fill material for reclamation on the existing reclamation plan.

These revised drawings are not considered acceptable because they do not meet Approximate Original Contour requirements, the post mining land use is altered in the drawings from the approved plan, they do not meet the requirements of the Forest Service for reduction of profile of the road to remain upon reclamation, and, the logistics of the drainage design for reclamation are not acceptable.

Approximate Original Contour requirements require the elimination of highwalls and cut slopes on the site to the extent possible. Although the post mining land use includes a road through the disturbed area and some cuts and fill slopes will remain in conjunction with the road, the proposed drawings leave excessive cut slopes within the site. The currently accepted drawings of the post reclamation contours more properly address the AOC requirements for the site. Unfortunately, insufficient fill material was made available in the design to accomplish this.

In order to satisfy the deficiencies found in the final surface reclamation contours, alternate reclamation contours were developed by the Division to determine the bond amount. These contours are not to be considered final or a required final configuration of the site but have been used in order to determine an order of magnitude for the amount of earthwork that would be required of reclamation. See attached drawings.

These revised reclamation contours attempt to alleviate the deficiencies found in the proposed drawings. First, in order to locate sufficient fill material on site, it would be necessary to realign the Forest Service road, and re-do the profile of the existing road. Secondly, use of the fill material beneath the existing road would reduce the outslopes of the road which currently are immediately above the stream channel. Additionally, borrow material from these areas would reduce the slope in which the reclaimed drainages will have to encounter to reach the natural stream channel.

Mass balance calculations of these revised reclamation contours show a substantial increase in the amount of earthwork required for the site. See attached mass balance calculations. Total cut and fill volumes for the site are estimated at approximately 40,000 cubic yards. Genwal's current plan indicated a volume of approximately 16,000 cubic yards of material with a deficit of fill material of approximately 10,000 cubic yards or a total of approximately 26,000 cubic yards. The proposed earthwork calculations in the bond calculation revisions by the operator indicate a total volume of only approximately 7,000 cubic yards

The increase in the amount of earthwork required is primarily from mitigation of cut slopes and reduction in the profile of the Forest Service Road. It is expected however, the total amount of earthwork required could be reduced with careful and detailed design calculations and still meet AOC requirements.

Drainage design for final reclamation was found to be inadequate. The proposed drawing indicates that both of the natural drainages to be reclaimed would report to the ditch adjacent to the Forest Service road. Design calculation currently within the plan do not accommodate the additional flow values of these drainages into the design of the road ditch. The current design also shows that these drainages would report to the sediment pond during Phase I reclamation. The sediment pond is not designed to handle the additional volumes from these drainages. The reclamation plan needs to be revised to allow the reclaimed drainages to report to Crandall Creek rather than the sediment pond, and, not to be diverted into the ditch along side of the Forest Service road.

Although design modifications to these drainages were not determined by the Division, estimated amounts of riprap and filter blanket materials were utilized to approximated costs for the changes in the channel designs.

The following table provides a comparison of costs involved for reclamation as currently provided in the plan, as proposed by the operator, and as determined by the Division.

Description:	Current Plan:	Proposed:	Division:
Demolition	$29,331	$29,331	$26,424
Earthwork	$14,899	$13,728	$91,502
Topsoil/Revegetation	$63,343	$63,343	$48,055
Channel Reclamation	$0	$0	$35,292

Note: Additional bond amount is also increased by approximately $67,000 to accommodate maintenance and monitoring costs, contingency and engineering costs, and escalation for five years.

Some of the cost data provided by the operator do not reflect modifications and changes in the mining and reclamation plan on the existing or proposed facilities. Such changes in the facilities include the addition of a portal, relocation and redesign of the bathouse facilities, and, additional proposed loadout facilities. These changes still need to be addressed by the operator and be reflected in their reclamation cost estimate.

RECOMMENDATIONS:

The operator needs to re-evaluate the proposed reclamation contours for the site. In conjunction with this, consideration for AOC requirements, Forest Service requests and suitability of design for the site should be made in conjunction with cost considerations for reclamation.

Sufficient review and calculations by the Division have determined reclaimability of the site in accordance with the regulations. The bond amount is conservative in nature and has sufficient contingencies such that reclamation of the site can be accomplished.

Bond in the amount of $268,000 should be provided by the operator until such time as a new proposal can be presented by the operator in consideration of those deficiencies found within the current proposal.

cc: L. Braxton
BT18/35-38