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DEPARTMENT OF NATURAL RESOURCES
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August 16, 1988

TO: File

FROM: Randy Harden, Reclamation Engineer

RE: Blazon Mine Reclamation, North American Equities, Blazon #1 Mine, ACT/007/021-88A, Folder #2, Carbon County, Utah

Summary:

This memo deals with comments relating to the proposed amendments to the Reclamation plan as submmitted by NAE on August 10, 1988. These plans were also submitted to the Division as abatement plans for Violation N88-13-2-1, regarding the design and the construction of the sediment ponds. Deficiencies and comments regarding the submittal as well as general comments regarding the mining and reclamation plan are as follows:

Analysis:

SEDIMENT POND DESIGN

With regard to the design of the sediment pond, the operator has requested that a variance be provided to reduce the embankments of the pond from 5:1 combined slopes to 4:1 combined slopes. The Division cannot provide a variance from regulations without sufficient analysis and design criteria to ensure that the configuration of the pond is stable. In order for the Division to approve a variance from UMC 817.46(m), the operator shall submit the following information or commitments for approval by the Division:

1. Specifications for the design and construction of the embankment, including but not limited to; fill material to be used, compaction requirements, cohesion and friction angle of materials and equipment to be utilized to achieve compaction requirements.

2. Stability analysis of the critical sections of the embankment is required. Factors of safety should be 1.5 static and 1.3 for seismic and saturated conditions respectively. Conditions for analysis should include full pond and rapid draw down conditions for both the inslope and the outslope of the pond.

3. Embankment soil testing shall be required upon completion of the embankment in order to determine that the embankment was constructed in accordance with the approved design. A minimum of two (2) samples shall be taken and analyzed.

4. The pond design and accompanying drawings shall be certified by a registered professional engineer.

5. Certified as-built drawings and certification of as-built construction are also required within 30 days from the completion of construction of the sediment pond.

The Mud Creek channel design adjacent to the sediment pond is provided in the proposal as Figure 16 on page 40. The section provided shows that the pond embankment will be set back from the channel by the thickness of the riprap and filter materials in the stream channel. Due to the constraints of the sediment pond, it is recommended that the outslope of the sediment pond be brought out to match the channel geometry. In order to accomplish this, the filter bed and filter fabric material would have to be brought around and over the riprap prior to placement of the embankment fill material over the riprap. This would allow the pond embankment to be moved outward, toward the stream approximately 5 feet or would allow the slope of the pond embankment to be reduced to approximately a 3:1 outslope. Depending on the final details of the pond design a combined 5:1 slope may be achieved and alleviate slope stability analysis requirements for the pond embankment.

TRANSFORMER ACCESS ROAD

The operator has proposed to reclaim the Transformer Access Road rather than allowing to remain as part of the approved post mining land use. The operator has questioned as to whether or not this change in the post mining land use will constitute a revision to the Reclamation Plan. Since this change in land use is from one other than the original land use to the original land use, the change does not constitute a revision to the plan and will be handled by the Division as an amendment to the Reclamation Plan. No public review or public comment period is required for amendment to the plan.

Reclamation of the Transformer Access Road needs to include all facilities which were accessed by that road including, the access road to the water tank, the water tanks, the concrete transformer pad, and the power pole located at the transformer pad. The water tanks are buried and may be collapsed and backfilled or can be removed. The access road from the water tank is for the most part, stabilized and revegetated, however, some portions of this road will require reclamation work similar to that proposed for the transformer access road.

Approval for reclamation of the Transformer Access Road to the original land use will be approved when the following condition is commited to:

1. Reclamation of the Transformer Access Road to the original land use shall include reclamation and removal of those facilities which are accessed by or part of the Transformer Access Road. These facilities are to include the transformer pad, the power pole adjacent to the pad, the water tanks and the access to the water tanks. Revegetation shall be in accordance with the approved seed mix. Backfill materials and substitute topsoil materials shall be derived from the side cast materials pulled up from the outslope of the road. Water bars or other drainage control measures shall be taken so as to prevent channeling along the reclaimed roads or across fill areas.

MAPS AND PLANS

Maps and plans in the proposal must bear the mark of a Registered Professional Engineer. No design drawings are found in the plan regarding the location and detail for the proposed sediment pond. The Final Reclamation Plan Summary Map provided in the proposal as Map 1 does not show the proposed sediment pond.

The operator shall be required to provide certified drawings of the sediment pond and details sufficient for approval. In addition to the contour map provided as Map 1, the operator needs to provide an appropriate cross-section of the pond through the primary spillway to show the embankment detail, crest elevation, crest width, spillway elevation, water elevations for the 10 year - 24 hour event and the 50 year - 24 hour event, outlet elevation, and the riprap and slope protection for the outslope of the pond and Mud Creek. Sufficient details should also be shown for the emergency spillway design.

MUD CREEK CHANNEL LOCATION

The operator has proposed that supplemental riprap materials be placed along the banks of the relocated Mud Creek channel. Portions of the stream channel are in the original stream bank and the operator has proposed that the bottom of the stream channel will not require additional riprap material. However, in some locations where the channel was re-aligned, supplemental riprap materials may be required.

Some of the critical sections taken of the Mud Creek channel indicated that the side slopes of the channel were in excess of 2:1. Where possible, the operator shall commit to reducing those sections to side slopes of 2:1 or less to ensure stability of those side slopes. Additionally, selective placement of riprap material may be required in those areas which side slopes of 2:1 cannot be met so as to maintain the integrity for the channel.

Determination as to the adequacy of riprap material and the placement of such material shall be under the supervision of a qualified field engineer and shall be approved by the Division in order to assure that placement of riprap materials in Mud Creek channel are sufficient and in accordance with Reclamation Plan.

BACKFILLING AND GRADING

During previous reclamation work on the site, the embankment beneath the portal slopes was undercut and backfilled with coal waste material. The Reclamation plan called for placement of material in that location only in the event that such materials could not be completely placed on the portal bench. The reclamation plan also shows in section that the waste material was to be placed as fill only and that no excavation into the natural embankment was to occur. The results of this activity have left the overall stability of this area as questionable.

This variation from the approved Reclamation Plan will have to be corrected and the material be moved from the lower bench to the portal bench. Excavation, compaction and fill materials used in the reconstruction of the slope between the lower and the portal benches will require monitoring and supervision to assure that the embankment will prove stable.

On page 50 of the current proposal, the operator has commited to have a field engineer present during the reclamation activities, and, that the field engineer will be under the supervision of a qualified Professional Engineer, registered in the State of Utah. In conjunction with this supervision, the operator will also need to certify the stability of the embankment of the portal bench area and other embankments and fill constructed during reclamation of the site.

Certified as-built drawings of embankments and slopes constructed during reclamation will be required upon the completion of the reclamation earthwork on the site. The operator shall include with this certification, stability analysis for the portal bench area and other slopes and embankments constructed during the reclamation. Design criteria for the embankment shall be a 1.5 long term static factor of safety, and for seismic and saturated conditions, the factor of safety shall be not less than 1.3. Soil analysis, cross sections, and supporting calculations shall be provided with the certification report and as-built drawings. This information shall be required within 60 days from the date of completion of the earthwork accomplished on the site during reclamation.

LITTLE SNYDER DRAINAGE

Response to deficiences for the Little Snyder Drainage design have not been submitted to the Division to date. This information was due on August 10, 1988 in conjunction with the submittal for the sdiment pond abatement plan.

In addition to the comments made in those review documents, it should also be noted that drainage design for the distubed aread drainage to the south of Little Snyder Drainage must cross the swale proposed in the Little Snyder design. To date,this has not been included in any of the proposals submitted by NAE.

cc: B Team

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