



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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June 2, 1989

TO: Susan Linner, Permit Supervisor

FROM: Randy Harden, Reclamation Engineer *JRH*

RE: As-Built Review, Blazon #1 Mine, North American Equities, INA/007/021, Folder #2, Carbon County, Utah

SUMMARY:

This memo addresses the reclamation as-built report received by the Division on January 18, 1989. The amended report dated May 10, 1989, the mitigation plan for portal slope erosion received May 17, 1989, supplemental information for the as-built report received May 18, 1989, outstanding stipulations to the permit, and the operator's request for bond release.

ANALYSIS:

Stipulation UMC 817.101 - (1) - JRH

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.

OPERATOR'S RESPONSE:

NAE has submitted certified drawings and stability analysis regarding the earthwork accomplished at the mine site. In accordance with the requirements of this stipulation, soil analysis and stability calculations have been presented in the report. Certified maps and cross sections have been submitted within the plan. This information was completed and received by the Division on May 18, 1989.

DETERMINATION OF ADEQUACY:

Stability design and assumptions in the design and construction of the embankments for Little Snyder Drainage are addressed in the submittals. Information regarding Little Snyder Drainage slope stability is found in Appendix I of the as-built report. Based on the information provided by LGS on Little Snyder drainage, EarthFax has provided calculations indicating a stability factor greater than 2 for both sides of the drainage.

Stability design for the sediment pond and the portal pad slope are included in the as-built plan. This analysis indicated that a factor of safety of 1.3 has been determined for the portal pad slope. Factors of safety in excess of 2.0 were realized from the analysis of the sediment pond embankment.

Stability analyses submitted by the operator is for deep seated, rotational failure and do not reflect the failure due to creep or plastic deformation as observed on the site. Natural conditions of the slopes above the disturbed area indicate shallow surface failure and creep in the distortion of the aspen trees. This failure mode is considered to be continuous and will eventually deform and affect the disturbed area reclamation. In consideration of the problems and cost associated with reclamation which would prevent near surface failure, the reclamation design for slope stability may be considered adequate. However, during the liability period, it is expected that considerable maintenance will be required to maintain and control surface stability until such time as the vegetation is sufficient to prevent erosion and near-surface failure. The steep slope conditions left in conjunction with the reclamation will most likely continue to fail to some degree throughout the liability period. Consideration of these slopes will be made in conjunction with operator liability during bond release.

Maps for the reclamation contours of the site were resubmitted in the May 18, 1989 submittal. The following information is not considered adequate on the drawing:

1. The slopes locations and extent of the disturbed areas, facilities and natural slopes found on Plate 1, General Reclamation As-Built do not closely resemble the features described and located on Map 7, Reclamation Plan as found in the Mining and Reclamation Plan. It is apparent that at these discrepancies led to the problems associated with the

reclamation of the Blazon Mine. Maps and plans presented in the Mining and Reclamation Plan have been found to be erroneous and misleading throughout the Phase I reclamation operations. To date, the Division has yet to receive a true and accurate depiction of the surface facilities for the Blazon Mine. In consideration of this, the Division shall require that an accurate drawing be provided to the Division at a scale of 1" = 50' and a contour interval of no less than 2 feet. All facilities and structures to remain on the site through Phase II bond release should be included on the map. These facilities should include the accurate location of silt fences and other alternate sediment control facilities, the area reporting to the sediment ponds, the small area exemptions and their respective sediment control structures, the location and elevation of draining control structures including the sediment pond, culvert inlets spillways etc., the size and location of the building pad, well location, the location and extent of the roads, ditches and other facilities associated with the post mining land use, and an accurate delineation of the disturbed areas.

2. The disturbed area boundary does not incorporate all of the disturbed area into the drawing. The topsoil storage location is apparently not included in the disturbed area. Additionally the road from culvert C to the gate is not shown as disturbed area on the drawings. Additional disturbances have occurred on the site which were previously considered as undisturbed. These areas should be accurately shown on the drawings. Discrepancies in the as-built surface facilities maps and the as-built reclamation maps make it unclear as to the location and the extent of the disturbed areas.
3. The access road to the portal bench area was not backfilled sufficiently to consider the earthwork in this area as approaching approximate original contour. Additionally, as-built drawings do not depict contours in the area questioned above. Insufficient material was available on site to backfill the cut left by the road. A determination was made in the field by NAE that no material would be imported to complete the backfilling and grading of the road to meet AOC requirements. Upon site inspection of the

area, the Division has determined that the area does not meet AOC requirements. However, it should be recognized that the small extent of the highwall area and the cost associated with mobilizing, design and construction to accomplish backfilling and grading may be considered to be cost prohibitive with respect to the possible enhancement of the site. Once vegetation is established in the area it should be difficult to notice the highwall area.

4. Contour information is not sufficient to determine AOC requirements. Contour information shall extend beyond the disturbed areas a minimum of 100 feet. Two foot contour intervals are required in order to determine grade and drainage of moderate to low slope areas such as the pad and roads. The 10' contours provided on the existing drawing do not sufficiently pick up features such as the remaining highwalls around the portal pad area, road cuts, etc.

In summary, the as-built reclamation plans for the Blazon Mine cannot be approved until such time as there is a detailed map showing the existing facilities and the facilities to remain as part of the post mining land use. The drawing must accurately depict the surface contours in order to determine AOC and post mining land use requirements.

#### UMC 800 Bonding - JRH

NAE has repeatedly requested PHASE I bond release in conjunction with the reclamation that has occurred to date. In order to assist the operator in the process of application for bond release, a copy of guidelines for bond release has been attached to this review. The operator should note that application for bond release cannot occur until such time as approval of all outstanding stipulations to the plan have been met, and the as-built designs have been approved by the Division. Additionally, a detailed cost estimate of the remaining reclamation work must be submitted to the Division in conjunction with the request for bond release. The operator should carefully read the requirements for PHASE I bond release prior to application for bond release.