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April 5, 1993

TO: Daron Haddock, Permit Supervisor

FROM: Sharon Falvey, Senior Reclamation Hydrologist SF

RE: Review Crandall Canyon Area Round 1, Castle Gate Mine, AMAX Coal Co., ACT/007/004, File #2, Carbon County, Utah

SUMMARY:

The Crandall Canyon Area revision was received by the Division on September 1991. Amendments pertaining to operational designs on Pond 015 were recently reviewed to comply with Division Order 92A. This review fulfills the agreement between AMAX Coal Company and the Division wherein the remaining areas not previously reviewed under Docket 91-001 would be reviewed. This review is specific to the Crandall Canyon Area Reclamation designs and operational hydrology concerns.

The operator proposes retention of the road, road pipe arch culverts, the existing configuration of the stream channel diversion and, existing sedimentation ponds for post mining land use. The operator has not presented information that demonstrates the R645-301 and R645-302 regulations for retention of these structures is met. A determination of variance from approximate original contour must be obtained from the Division as well as, a demonstration by the operator that the structures meet permanent structure requirements. The operator is also missing information for reclamation drainage designs and sediment controls.

Analysis:

The following review comments were itemized and are not identified by the specific regulation. The level of deficiencies in this submittal preclude a through technical analysis of the material. That analysis will be conducted following the Operator response to this review. The Operator is encouraged to contact me if additional clarification on these line items deficiencies is needed.

1. The operator must justify retention of permanent structures according to R645-301-410, R645-301-733.220, and any other applicable R645-301 and R645-302 regulations.

2. Mapping information is not complete for reclamation channels. Reclamation ditches must be identified and labeled on a map with the associated design contained in the appendices. Information such as crossections on the upstream and downstream channel configuration is necessary to determine appropriate reclamation channel configuration. Channel and bank cross sections for reclaimed channels should be presented in longitudinal and vertical profile or the operator may provide a map with 5 ft. contour intervals. The location and configuration of the main channel can not be determined from the presented reclamation map. The reclamation configuration does not extend the full length of the disturbed area. Culverts proposed to remain must be presented on a the reclamation maps

3. On page 42, section 3.7 the operator indicates the main channel is ephemeral. However, this channel is considered intermittent by regulatory definition. The reference and associated designs for intermittent channels must meet the regulatory definition.

4. The operator's reclamation channels presented on exhibit 3.7-9 at the southern portion of the site must be reconfigured. Drainage in one channel converges with the main channel against the general direction of flow. The other channel is discontinuous from upstream channel flow.

5. Watershed delineations for the reclamation configuration could not be located. It appears that pond 014 and possibly pond 015 will be receiving additional drainage from the current designs during reclamation.

6. The MRP needs to incorporate a design for diversions to route drainages to the ponds during the reclamation period. Other sediment control measures to be used to should be included. The operator provides no indication of the Phases of reclamation sediment control. For instance, what is the method of sediment control for the area above sediment pond 015 and the reclaimed channel to the west. Is that channel completed after the area is revegetated? The Operator should define all Phases of drainage control including direction to the reclamation ponds on a reclamation drainage Map. The Operator needs to ensure that all figures and calculation pages are labeled relative to the structures and phase of use.

7. The operator does not discuss reclamation of the Utility corridor from the substation which is identified on Page 17.

8. The MRP needs to incorporate a plan for the installation of filter blanket designs for reclamation channels (Appendix 3.4L). The Operator must commit to the collection of samples of material following excavation to grade for the channels

for use in the design of the filter blanket. A general worst-case filter blanket design must be presented for calculation of filter blanket volumes and bonding estimates. That section needs to present general riprap specifications (depth, gradation, durability, etc.).

9. The operator must provide labels and ditch designs for the road drainage.

10. There are no ditch designs to or from culvert CCC-25 for operations configuration. There is no design for the ditch below CGWS-U32. CCC-21 should be sized for CCWS-U33 as indicated by the drainage arrow. Other drainage arrows on Exhibit 3.7-7 are confusing as well. The main drainage diversion should be located and labeled on the drainage map.

11. The operator indicates the pipe arch culvert CCC-7 is inadequately sized and CCC-26 has inadequately sized riprap. The operator must provide adequately sized culverts and riprap.

12. Watershed maps and other applicable maps should reference the Leach Pond area map. The Leach Pond should be identified as an Alternate Sediment Control Area (ASCA). All ASCA's must be labeled and the narrative should discuss each ASCA in terms of individual and cumulative area, runoff volume, treatment method(s), maintenance, installation (prior to reclamation) and removal (upon meeting revegetation and water quality criteria, and bond release).

13. Disturbed area and permit boundaries should be included on all maps and be consistent throughout the plan.

14. The operational map needs to depict the location of exploration holes, operational water lines (e.g. sewage, prep. circuit lines, culinary lines), and monitoring wells There are water lines under the road base to the leach pond. The reclamation map and reclamation monitoring plan should include any monitoring points that will be monitored during the reclamation period.

15. The MRP needs to include or reference a sediment removal plan to be implemented during the reclamation phase. The plan should include a dewatering, testing, disposal area, and notification plan for sediment removal.

16. Justify use of 5 fps velocity in the channel design for the existing/projected channel base materials.

17. Water monitoring stations to be used during the bond period should be provided

on a water monitoring map. These should include the existing stations, NPDES stations, piezometer and a new station at the inlet to each sediment pond.

18. The reclamation plan must address the acid-toxic material requirements in the backfilling and grading plan. The narrative should address rules R645-301-731.111, 121, R645-301-731.300, and R645-301-745.113.

cc: R. Harden
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B. Richards

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