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February 13, 1989

TO: Sue Linner, Permit Supervisor

FROM: Randy Harden, Reclamation Engineer

RE: Mine Permit Review, Andalex Resources, Inc., Centennial Project, ACT/007/019, Folder #2, Carbon County, Utah

Analysis of the mining and reclamation plan for the Centennial Project with regard to engineering deficiencies is basically unchanged from previous reviews. The operator has concentrated on the Aberdeen mine facilities for the past few months in anticipation of construction work commencing soon. Several discussions with the operator have occurred regarding these deficiencies with the Division and resubmittal should clarify most of the problems in the plan. Information regarding this permit review of the proposed mining and reclamation plan for Andalex Resources as listed below:

UMC 783.24 Maps: General Requirements - JRH

UMC 783.25 Cross Sections, Maps, and Plans - JRH

The operator has located non-coal waste facilities on plate 6 of the mining and reclamation plan. However, the operator has not located the temporary and permanent locations for the storage and disposal of excess spoil and mine development waste materials and other materials such as sediment pond waste which must be disposed of within the permit area. This section of the regulations is not considered to be complete. The operator must provide plans for the temporary and permanent location for storage and disposal of these materials.

It is believed that the operator has only mismarked these locations and that the areas designated for non-coal waste are for excess spoils and mine development waste including such materials as sediment pond waste. The operator shall correct this in the plan and on the drawings.

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Although this section of the regulations is considered to be complete, the following minor deficiencies or technical problems were found on these drawings:

1. Plate 14 does not include certification by a registered engineer has not been included on the plate.

2. Plate 17, Final Reclamation, should include the location and the extent of the reclamation to be accomplished during Phase II reclamation on the site.

3. Plate 5 shows the surface disturbed area boundary but does not include the permit area boundary for reference to the location of the disturbed area. Since the permit boundaries are found on other drawings, this drawing is considered to be satisfactory.

UMC 784.13 Reclamation Plan: General Requirements - JRH

The operator has indicated in the MRP that the site will be returned as close as possible the approximate original contour as the area was prior to mining. In those areas where solid rock was excavated in face up of the portals, as well as road cuts and pad development, the swell factor associated with these excavations will not allow for total replacement of these materials to their original volume. Additionally, fill areas may not be considered stable if placed back to their original surface contour.

In areas where steep slopes occur (greater the 2h:1v) or in other locations on the site where the operator does not intend to completely backfill the site to the original conditions, the operator must provide detailed sections showing the final configuration of the surface and if necessary, stability analysis to ensure long-term stability of the slopes.

Cut and fill calculations do not include the amount of swell or the compaction of the materials as they are relocated on the site. No adjustments in the mass balance are seen within the mining and reclamation plan.

The bond estimate as provided by the operator does not include productivity calculations for the equipment selected. In order to determine the calculations complete, equipment sizing and productivity calculations should be included in the mining and reclamation plan.

The operator has partially addressed the above comments. There is however, no specific details regarding highwall reduction in the plan. Cross-sections provided by the operator are not sufficiently detailed to show highwall reduction for individual face-up areas. Mass balance calculations have not been adjusted.

The operator has not provided productivity calculations for the estimate of the costs for reclamation.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds - JRH

Upon completion of the construction of the sediment pond, the operator shall be required to provide certified as-built drawings of the pond, and, certification by a registered professional engineer that the pond meet the design requirements proposed in the mining and reclamation plan.

UMC 817.71 Disposal of Excess Spoil and Underground Development Waste: General Requirements - JRH

The following comments remain unchanged from previous reviews:

In accordance with part (a) of this section, "Underground development waste and excess spoil not required to achieve approximate original contour within the area where overburden has been removed and which is not used as backfill shall be hauled or conveyed to and placed in designated disposal areas within a permit area."

While the operator has included methodology for handling the immediate waste situation for the site by disposal of the excess waste in the construction of the Aberdeen Mine, long-term reclamation is not apparent for the entire facilities.

The Mining and Reclamation Plan is not clear on some of the terminology that is used in discussion of the waste materials. The operator has included excess spoil and mine development waste with the treatment of non-coal waste material.

If the non-coal waste storage area described in the plan and shown on the facilities drawing were clarified to indicate that this location is for the temporary storage of excess spoil and mine development waste material, the temporary storage requirements of this section could be considered to be complete.

With regard to permanent location for disposal of excess spoil and mine development waste, the operator must re-evaluate the location and disposition of the material. The operator has indicated that this excess material will be disposed of off-site to a landfill. Under this section of the regulations, removal of excess spoil and mine development waste cannot be removed or placed outside the permit area.

In summary of the deficiencies associated with this section of the regulations, the operator needs to incorporate the following into the plan:

1. Language referring to the description of non-coal waste, excess spoil and mine development waste, and sediment pond waste must be corrected in the plan. Excess fill from earthwork and grading, sediment pond materials, underground waste rock, contaminated coal, coal waste and other such earthen materials shall be considered to be excess spoil and mine development waste and shall be treated in accordance with the requirements of this section (UMC 817.71)

2. The operator shall be required to locate on the drawings, the location(s) for both the temporary and permanent storage and disposal for these materials. The capacities for these areas should be included in the narrative description of the plan and included on the drawings. For those waste materials which are found to be non-toxic or non-acid forming, the operator may incorporate these materials into backfill areas during reclamation activities. However, a reasonable estimate of the waste materials to be accumulated on the site must be taken into consideration, and, these quantities must be factored into the mass balance for the reclamation earthwork for the site.

3. The operator needs to provide a commitment or methodology to ensure that the materials to be disposed of are non-acid or non-toxic forming and that if such materials are encountered, they will be treated accordingly.

4. It appears that the operator will most likely be able to incorporate the permanent disposal of these waste materials into the backfilling of the site in achieving approximate original contour and that a permanent waste fill facility will not have to be constructed. The material should be placed within the cuts for the highwalls from pads and portal face-ups at the time of reclamation. The major problem that the operator will encounter is the location of temporary storage area for these materials during mining operations.

Confusion and conflicting information is still found within the plan and on the drawings as outlined above. The operator will have to further clarify the terminology and the description of waste materials in the reclamation plan.

UMC 817.89 Disposal of Non-Coal Wastes - JRH

The operator has misinterpreted the requirements for non-coal waste materials by including excess spoils an mine development waste materials into the discussion of non-coal waste. Non-coal waste materials as defined in the regulations include but are not limited to grease, lubricants, paints, flammable liquids, garbage, abandoned mine machinery, timber and other combustibles generated during underground coal mining activities.

Earthen materials including excess spoil, mine development waste, coal waste, waste rock, excess fill materials, sediment pond waste and soil are not considered to be non-coal waste materials.

Information found under part 3.1 Combustible Materials, is more appropriate for the requirements of this section and the plan should be revised to indicate that non-coal waste materials as defined by the regulations will be collected in trash containers and hauled to an approved landfill for the type of materials to be disposed.

The operator also needs to indicate that specific materials such as oil and grease or other waste which is subject to other specific local, state and federal requirements will be disposed in accordance with those regulations.

Refer to UMC 817.71 for discussion of excess spoil and mine development waste materials as described by the operator under non-coal waste.

The operator has addressed most of the comments regarding non-coal waste materials. However, similar to those comment made under UMC 817.71, the operator shall need to further clarify the plan and the drawing regarding non-coal waste materials.

UMC 817.101 Backfilling and Grading: General Requirements - JRH

Information regarding backfilling and grading is found on pages 101-103 of the mining and reclamation pan. A mass balance survey is included in the plan on pages 97 through 99, with section of the facilities taken from plate 14 and 15.

In order to achieve approximate original contour, the operator will need to indicate where excess fill materials will be located. In referencing those comments made in section UMC 817.71, the operator should also incorporate the volumes of materials which will be developed from the cleaning of sediment ponds, surface cleanup of coal spills, and such waste materials which may not be returned to underground workings.

In conjunction with the construction of the exiting facilities, a pad was developed which exceeded the 2h:1v slope criteria as outline in the regulations and the operator has conducted a stability analysis for that which is included in the mining and reclamation plan.

Although the operator has indicated that the cut and fill volumes presented in the plan account for swell and recompaction, no information could be found in the text of the MRP regarding this. Cut and fill calculations do not account for swell or recompaction factors. Pads and portal areas which were cut in rock may not prove to be stable if reclaimed to the preexisting slopes for those areas. These areas should be identified in the plan and proven stable by analysis.

Final configuration of the site upon reclamation may be subject to geotechnical slope stability analysis. For those slopes which are greater than 2h:1v, the following information shall be provided:

1. A detailed cross section indicating the location of bedrock, soils, and fill materials.

2. Characteristics of the materials to the extent that slope stability analysis can be performed including but not limited to shear strength, pore pressure, bulk density, saturated density, cohesion, and soil classification.

3. Geotechnical analysis and calculations for slope stability.

cc: B Team
BT15/58-64