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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

October 27, 2006

TO: Internal File

THRU: Wayne D. Hedberg, Permit Supervisor WDH

FROM: Steve Christensen, Environmental Scientist III SRC

RE: Proposed Elimination of Sediment Basin B, Andalex Resources Inc., Centennial Project, C/007/0019, Task ID #2641

SUMMARY:

On September 9th, 2006, the Division of Oil, Gas and Mining (the Division) received an application from Andalex Resources, Inc. (the Permittee) that proposes the elimination of Sediment Basin B at the Centennial Mine's main surface facility and the construction of a new administration building/bathhouse. Additional parking at the mine site has become necessary. The Permittee has proposed to construct a parking area in the current location of sediment basin B. The Permittee proposes filling sediment basin B with excavated material acquired from the location of the proposed administration building/bathhouse. Although the exact location of the proposed building has not yet been determined, it will be located in the existing disturbed area near the present office building. The proposed location for this new administration/bathhouse building is in the general area of the Aberdeen mine portals.

The proposal calls for the enlargement of an existing drainage ditch, DD-10, (See Plate 8, Surface Facilities Surface Area Drainage) and the placement of an 18"cmp culvert in a section of the drainage ditch to allow for access to the newly constructed parking lot.

The following memo addresses the hydrology requirements as provided in the State of Utah R645-Coal Mining Rules.

The hydrologic information provided in the application does not meet the requirements of the R645-Coal Mining Rules. The application should not be approved until the following deficiencies are addressed:

R645-301-528.400, The Permittee needs to remove references to Plate 11 (Catch Basin B As Constructed) as well as references to Sediment basin B. There are several areas within the approved MRP that contain such references. See section R645-301-528.400 for details. Upon final approval of the proposed amendment and it's subsequent incorporation into the MRP, Plate 11 will need to be removed from the approved MRP.

R645-301-731, The application does not meet the Maps, Plans and Cross Sections of Mining Operations requirements for Mining Facilities Maps. The Permittee should provide a commitment to produce as-built construction maps of the proposed parking lot addition including, but not limited to, the depiction of the alterations to drainage ditch DD-10, culvert CD-19 (with invert elevations), as well as the drainage controls and elevations for the proposed parking lot.

TECHNICAL ANALYSIS:

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

The MRP provides design specifications, calculations, stage discharge and volume graphs, monitoring and sediment removal schedules as well as spill way design information on pages 5-36 thru 5-60 in chapter 5 and on pages 7-10 thru 7-12 in chapter 7 for the sediment basins utilized at the mine site. However, there are several references to Sediment Basin B or Primary Settling Basins in the MRP that will no longer be accurate upon the removal of the detention pond.

Findings

The application does not meet the Operational Plan requirements for Mining Operations and Facilities as provided in R645-301-528. R645-301-528.400 calls for a narrative explaining the construction, modification, use, maintenance and removal of dams, embankments and other impoundments. Before the submittal can be approved, the following deficiencies should be addressed:

R645-301-528.400:

- On page 5-35 of the approved MRP under Safety Precautions, the Permittee refers to Plate 11. Plate 11 is an as-built drawing for "Catch Basin B". As sediment basin B will be removed, Plate 11, as well as any reference to Plate 11, needs to be removed from the MRP.
- Page 7-2 of the approved MRP refers to ponds "001 and 003". The Permittee should clarify what ponds they are referring to as the ponds depicted and referred to throughout the text of the MRP, as well on the approved plates use an alphabetic naming convention for the ponds (i.e. Pond C). It is unclear as to which ponds are 001 and 003.
- Page 7-8 of the approved MRP makes reference to sediment pond B in the second paragraph of phase one under Post Mining Hydrology. The reference to sediment pond B needs to be removed.
- Page 7-11 of the approved MRP references plate 11 under Safety Precautions. The reference to Plate 11 should be removed from the MRP.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

Plans and Drawings

In order to accommodate the construction and utilization of the proposed parking lot in the location of sediment pond B, an existing drainage ditch (DD-10, See Plate 6) will need to be enlarged and an 18" cmp culvert (CD-19, See Plate 8) will need to be installed. Plate 6 depicts the drainage controls. The 18" cmp to be installed was sized based on the calculated flows discharging from disturbed drainage culverts CD-12 and CD-13 (See Plate 8). According to Plate 8, culverts CD-12 and CD-13 will both report to the proposed 18" cmp culvert, CD-19.

The 18" cmp, CD-19, is routed directly to the enlarged drainage ditch that ultimately discharges to another 18" cmp, CD-15, before discharging into sediment pond C.

Findings:

The application meets the Operational Plan requirements for Road Systems and Other Transportation Facilities, Plans and Drawings.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Siltation Structures: Sedimentation Ponds

The application proposes the removal of sediment basin B. The Permittee has proposed to construct a parking area in the current location of sediment basin B. The Permittee proposes filling sediment basin B with excavated material acquired from the location of the proposed administration building/bathhouse.

According to Plate 8, Support Facilities Surface Area Drainage, 4.07 acres of disturbed drainage (drainage area 17) currently reports to sediment basin B. Sediment basin B discharges directly to sediment basin C via an 18" cmp culvert (CD-14). According to Plate 8, the proposed parking lot will continue to discharge storm water to sediment pond C through culvert CD-14. The area of 4.07 acres for drainage area 17, depicted on Plate 8, will not be changed by the proposed project.

Upon review of the storm water volume and sediment storage calculations, sediment basin C is adequately sized to contain the design storm event's additional water volume and sediment load generated from the area currently reporting to sediment basin B. According to Dave Shaver of Andalex Resources, Inc., following the construction of sediment basin C, sediment basin B was left in place as a sediment trap. The mine site had enough room for its operation without the removal of sediment pond B, so the decision was made at the time to leave it in its current location. However additional parking space has become necessary with the recent addition of 80+ miners to the workforce at the Centennial facility. As a result, the area encompassing sediment basin B has been proposed as the location for a new parking lot to facilitate the increase in personnel at the mine.

The sizing of sediment pond C was based on the drainage areas delineated on Plate 8, Support Facilities-Surface Area Drainage. The calculations and values utilized in determining storm runoff and sediment storage requirements for sediment pond C are provided on pages 5-38 and 5-39 of the MRP. Values of 14.79 acres of disturbed drainage and 30.89 acres of undisturbed drainage were utilized in a Soil Conservation Service (SCS Method) calculation for storm water runoff. A Type II rainfall distribution for a 100 year 6 hour event was utilized in this calculation. Upon review of the calculations and Plate 8, it's evident that the 4.07 acres of disturbed drainage currently reporting to sediment basin B was factored into the 14.79 acres of disturbed drainage utilized in sediment basin C's design calculations.

Factors of 0.05 acre-feet/acre for disturbed drainage and 0.016 acre-feet/acre for undisturbed drainage were utilized in determining the sediment storage requirements for sediment pond C.

A 100 year 6 hour design storm event was utilized in the design of sediment pond C as required by the State of Utah R645-Coal Mining Rules. Due to sediment pond C's utilization of a single spillway, it was required that the pond be designed to safely pass a 100 year-6 hour precipitation event per R645-301-742.222. Plate 12 of the MRP depicts a plan and cross-sectional view of Sediment Pond C. Sediment pond C's single spillway consists of an 18" oil skimmer pipe and a 36" overflow riser pipe. According to the calculations on page 5-39, the pond volume at the 18" cmp oil skimmer pipe is 3.321 acre-feet and 4.264 acre-feet at the 36" overflow riser pipe. The total required pond volume for the 100 year 6 hour rainfall event (including the drainage currently reporting to sediment pond B) is 3.084 acre-feet. As such, sediment pond C has adequate capacity to safely handle the sediment and storm flow additions from sediment pond B's drainage area.

Findings:

The application meets the Operational Plan requirements for Hydrologic Information Siltation Structures: Sedimentation Ponds.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Mining Facilities Maps

Upon the completed construction of the proposed parking lot, the Permittee should submit certified as-built drawings depicting the alterations to drainage ditch DD-10, culvert CD-19, as well as the drainage controls and final elevations of the proposed parking lot.

Certification Requirements

The applications maps and drawings were prepared and certified by a registered professional engineer. Page 5-58 of the MRP provides a certification state for Centennial Mine's sediment pond C.

Findings:

The application does not meet the Maps, Plans and Cross Sections of Mining Operations requirements for Mining Facilities Maps. The Permittee should provide a commitment to produce as-built construction maps of the proposed parking lot addition including, but not limited to, the depiction of the alterations to drainage ditch DD-10, culvert CD-19 (with invert elevations), as well as the drainage controls and elevations for the proposed parking lot.

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

Page 5-42 of the approved MRP states, "Pond C will be removed during the earthwork portion of reclamation". At that time, the culvert will also be removed and the main channel restored throughout the area. All reclaimed area above Pond C will then drain into down-gradient Pond E.

Findings:

The application meets the Reclamation Plan requirements for Hydrologic Information.

RECOMMENDATIONS:

The hydrologic information provided in the application does not meet the State of Utah R645-Coal Mining Rules. The application should not be approved at this time.

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