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STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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May 19, 1988

TO: Sue Linner, Permit Supervisor/Reclamation Biologist

FROM: James S. Leatherwood, Reclamation Soils Specialist

Re: Update to May 9, 1988 Determination of Completeness and Technical Deficiency Memo, Aberdeen Mine Development, Andalex Resources, ACT/007/019, Folder No. 2, Carbon County, Utah

Abstract

The plan indicates that a large topsoil deficit exist. Topsoil recovery must be maximized from the Aberdeen development to offset this deficit as much as possible. Currently proposed plans will only achieve 58 percent of the topsoil volume required. Substitute topsoil materials will be required. Field-Site test plots must be implemented to determine the use of in-situ disturbed materials for reclamability.

Analysis

During the December 1981 complete inspection, the operator received NOV81-3-23-1 for failure to mine in accordance with the approved mine plan. In short, NOV81-3-23-1 was issued because the required amount of topsoil salvaged was not sufficient. After several meetings between the operator and the Division (March 16, 1982, Memo to File; June 29, 1982, Inspectors Memo) it was determined that there was a deficit of approximately 4.2 acre feet. According to the June 29, 1982 Inspection Memo, the operator submitted information that determined that the topsoil deficit could be made up by removing from the bath house pad approximately 0.67 acres of topsoil material at an average depth of 6.3 feet. No further discussion on the volume was found in the files.

Due to various operational constraints, the operator proposed using the soil materials in the dike of decommissioned sediment pond A (April 14, 1987, Memo to File; March 24, 1987, Memo to File). The Division approved this modification such that the equivalent amount of material (6728 cubic yards) would be protected and utilized as topsoil. Plate 36 shows that only 6221.5 cubic yards (cyd) of material has been established as topsoil. This must be corrected. Plate 36 must be updated to reflect a minimum value of 6728 cyd of material. The straw berm should be moved accordingly to adequately protect the topsoil.

Further analysis of the topsoil volume requirements indicate a deficit. The total volume (including that proposed at the Aberdeen development) is:

Topsoil Stockpile	Volume (cyd)
A	1323.4
B	509.5
C	252.9
F	2333.0
G	6221.5
H & J (proposed)	5592.6
TOTAL	16131.9

The final depth of topsoil redistribution based on this total is:

$$\frac{(16131.9)(12)}{(34.2)(43560)(0.037037)} = 3.5 \text{ inches}$$

The plan indicates that six inches of material will be redistributed. The total volume required for six inch redistribution is:

$$(34.2)(43560)(0.037037)(0.5) = 27588 \text{ cyd}$$

Thus, there is a deficit of approximately 11456 cyd of topsoil. Note however, that no findings have been documented in the file or the plan to justify the reclamability with a six inch topsoil redistribution plan. The operator has stated in previous submittals that topsoil will be redistributed to a depth comparable to that of the surroundings. According to the two soil surveys, the surrounding topsoils are approximately 11 inches in depth. Even a greater amount of topsoil would be required to establish this commitment.

All but the Aberdeen site has already been disturbed. Thus there is no further topsoil to be salvaged. Therefore, to insure reclamation feasibly with the in-situ disturbed soils a field-site test plot program must be implemented. The test plots should be implemented in the same manner as that proposed in the PAP reclamation plan. The location of the test plots must be identified on Plate 7. Specific plans to implement this program must be included within the text of the mining and reclamation plan. The test plot program should begin fall of 1988 or the Fall following Division approval at the test plot design.

Recommendation

UMC 817.23 Topsoil: Removal - JSL

Update Plate 36 to reflect the required amount (6728 cyd) of topsoil to be stored and protected, and move the berm accordingly to maintain the protection of this material.

Maximize the recovery of soil materials from the Aberdeen development.

Submit test plot designs to prove reclamation feasability with the disturbed soil materials by the fall of 1988. Include a narrative discussing the operative specifics and location of the test plots. The test plot program must be designed to simulate the currently proposed reclamation plan. The narrative must also identify where the deficit substitute topsoil will be salvage for final reclamation redistribution. Include a mass balance and cross-sections. The test plot location should be delineated on the surface facilities map.

JSL/as
cc: D. Darby
R. Harden
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