

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

September 21, 2005

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor

THRU: James D. Smith, Environmental Scientist III/Hydrogeology, Team Lead

FROM: Priscilla Burton, Environmental Scientist III/Soils

RE: Appendix XVI, Phase 3 Area Reclamation Plan (Sediment Pond), PacifiCorp, Des-Bee-Dove Mine, C/015/0017, Task # 2323

SUMMARY:

This memo reviews the revised application, received August 29, 2005, for compliance with R645-301-200 (soils). Phase 3 reclamation plans describe the reclamation of the sediment pond (4.6 acres) and access road (2.27 acres, 4,000 ft in length), see Sections 230 and 241. The plan describes a 0.13 acre increase in disturbed area down-slope from the pond embankment and use of the pond sediments as substitute topsoil. The plan describes 5,586 yd³ of topsoil and substitute topsoil placed over a 3.1 acre redistribution area.

History:

Phase 1 reclamation was completed in May 2002. Phase 1 involved reconstruction of three drainages in the location of the Little Dove/ Beehive pads and reshaping the water tank pad and the substation pad and access roads. Phase 2 reclamation covered 22 acres of (mostly) pre-SMCRA disturbance, including 8.4 acres of reconstructed fill slopes on the bathhouse pad and in the lower main drainage and at the Deseret portal and access road to the Beehive portal (Section 310). During Phase 2, a drainage was carved out of the Deseret Mine pad and Tipple yard and the storage yard area (where coal mine waste was recently removed, see AM01B). The Bathhouse pad was the repository of coal mine waste and a source of cover material, including substitute topsoil (AM01D-2).

TECHNICAL MEMO

TECHNICAL ANALYSIS:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The description of Phase 1 Reclamation of Little Dove and the Beehive Mines is located in Appendix XIV of the MRP. Soils information for both Phase 1 and 2 is located in Appendix XIV. Phase 2 reclamation plans are in Appendix XV. The Phase 3 Reclamation Plan is described in Appendix XVI (a separate MRP Volume for reclamation of the sediment pond site). This reclamation will add 0.13 acres of disturbed acre to 7.3 acres site (App. XVI, Sec. 241). Map 700-1 shows the main channel and side-drainages.

Findings:

Information provided meets the requirements of the Permit Application Format and Contents section of the regulations.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

Elevation of the sediment pond is 6,750 feet on the southern end of East Mountain along Emery County road 412. The disturbed area is approximately 7 acres (4.6 acres for the sediment pond and 2.7 acres for the access roads, with an additional 0.13 acres added during reclamation, App. XVI, Sec 241). The soil is predominantly derived from Mancos shale with intermixed gravels and sand (Section 222). The plant community is desert shrub. The dominant plant is saltbush (Atriplex).

At the Order III level, soils are described in the MRP as either

- Lithic Utstorthents, characterized by lithic contact at 14 inches. Surface soils derived from sandstone, containing 75% coarse fragments, are very gravelly loam (0 – 4 inches) over flaggy sand loam (4 – 14 inches).
- or
- Xerollic Calciorthids, characterized by an 18 inch topsoil (A₁ and A₂) horizon over a caliche layer (hard packed calcium) in the C horizon.

Soil Map 2-16 (in Volume 3) indicates that soil salvaged from excavation of the pond were of the Lithic Ustorthents map unit. The MRP indicates that the sediment pond site soils are 15 inches thick and high in gypsum (Section 222). Subsoils stored at the site were sampled in March 2005 and are represented by samples 105 and 205 shown on Dwg. 200-1. Below two feet, the subsoil becomes saline/sodic (App. B of App. XVI).

The Permittee plans to use salvage topsoil from the adjacent undisturbed for final cover over the regraded site. Sample DB 505 represents the chemistry of the native soil to a depth of two feet. The plan indicates that a volume of 640 yd³ will be salvaged (Sec. 224) from the topsoil salvage area shown on Dwg. 200-2 (approximately 0.05 acres). The Division calculates that this equates to an eight foot depth of salvage. When the topsoil is spread over the 3.17 acre redistribution area shown on Map 200-2, it will contribute 1.5 inches to the total topsoil redistribution depth.

Findings:

The information provided meets the soils environmental resource requirements of the Regulations.

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Removal and Storage

Approximately 12,714 yd³ of topsoil and subsoil are stockpiled from pond excavation (Section 230). As discussed in Sec. 241, the subsoil is not the best available material in the permit area for establishing vegetation. The surface two feet of this stockpile will be used as

TECHNICAL MEMO

topsoil (approximately 1,800 yd³), one half of which will be applied to the topsoil redistribution area shown on Plate 200-2 and the other half of which will be returned to the original ground surface in the location of the [former] subsoil stockpile (Sec. 241). And one foot will be placed on the surface of the sediment pond. The remainder of the stockpile will be placed in the fill, due to its high sodium content (samples DBD 105 and DBD 205, App. B of App. XVI and Dwg 200-1).

Finally, the top foot of native soil beneath the stockpile will be salvaged and utilized for topdressing of the fill along with the pond sediments.

Section 241 describes the origin of the topsoil totalling 5,586 yd³ (1,800 yd³ subsoil + 3,146 yd³ pond sediments + 640 yd³ native topsoil). The total area to receive topsoil cover is 3.1 acres is shown on Dwg. 200-2.

Findings:

Information provided in the submittal meets the requirements of the Regulations.

RECLAMATION PLAN

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

The plan indicates in Table 5-1 that two small drainage channels will be rip rapped and the main drainage channel will be re-established on Mancos shale bedrock (Dwg 700-1).

Land sloping to the drainage will be graded to 2h:1v slope, with 32,123 yd³ of material being moved (Sec. 241). A diagram for placement is provided on Map 200-2.

Cut slopes will remain on the northern and eastern sides of the pond according to the maps provided. Cut slopes at cross sections 8+00, 9+00, 10+00 and 17+35 along the sediment pond access road (Dwg. 500-3) will remain. These cut slopes will be roughened and seeded, no substitute topsoil will be applied to the cut slopes.

Findings:

Information provided in the proposed amendment meets the Reclamation Backfilling and Grading requirements of the Regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

Land sloping to the drainage will be graded to 2h:1v, using a total of 32,123 yd³ of fill. The process is described in Sec. 241 and illustrated in a diagram on Dwg. 200-2. The fill will consist of 12,714 yd³ of stored subsoil material along with 13,166 yd³ from the pond embankments, 3,146 yd³ of pond clean-out material, and 5,500 yd³ of undisturbed subsoil from the topsoil salvage area shown Dwg. 200-2.

All fill materials were sampled to a depth of two feet, except the subsoil which was sampled to 14 feet (Dwg 200-1 and App. B of App XVI). As a result, the known sodic material will be buried beneath eight inches of material which has been shown through testing to be the best available in the permit area.

In addition, the plan will disturb approximately 0.04 new acres that will provide a small amount of additional topsoil cover (640 yd³).

Soils found to be unsuitable according to the guidelines will be buried with four feet of material (Section 224).

Findings:

Information provided in the proposed amendment meets the requirements of Operations Plan Topsoil and Subsoil section of the regulations.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

TECHNICAL MEMO

Analysis:

Erosion will be controlled through extreme gouging (defined as 18 inch deep pocks that are 3 ft in diameter, Section 242.130), with seeding (Table 3-1), and by surface mulch (Section 341). Boulders will be placed on the slopes for enhancement of habitat and aesthetics (Section 244,552 and 553), but will not provide slope stability. According to the baseline soils information provided, the adjacent ground has 50 – 75% rock and boulder cover.

Rills and gullies will be repaired if they affect the post-mining land use or cause a violation of water quality standards (Section 244.300). (Land use is described in Section 411 as grazing, wildlife, coal be methane development, and recreation.)

Findings:

Information provided in the proposed amendment meets the Reclamation Stabilization of Surface Areas.

RECOMMENDATIONS:

Approval is recommended.