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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 17, 2001

TO: Internal File
THRU: Joe C. Helfrich, Sr. Reclamation Specialist/ Team Lead *JCH*
FROM: Priscilla W. Burton, Sr. Reclamation Specialist/ Soils *PWB*
RE: Adit No. 1 Reclamation Plan Appendix 3-2, Castle Gate Holding Co., Castle Gate Mine, C/007/004-AM01A-1.

SUMMARY:

This submittal of changes to Appendix 3-2 includes incorporation of best management practices such as extreme roughening and filter fabric on the channel bottom. The site to be regraded and contoured is 1.5 acres. There is an ephemeral stream in the middle of the site.

There has been no topsoil salvaged from the pre-SMCRA site. The available soils were sampled and analyzed for their potential as substitute topsoil. The best material was grayish brown in color and was represented by sample #3.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

SOILS RESOURCE INFORMATION

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

Analysis:

This 3.0 acre pre-SMCRA site has had no topsoil salvaged from the site. Only 1.5 acres of the 3.0 total will be redisturbed during final grading and reclamation. The remainder is well vegetated and was not disturbed during post-SMCRA operations (page 3.5-9).

TECHNICAL MEMO

Appendix 3-2, Section 3.1, page 3.5-13 indicates that soils on site will be sampled for pH, Electrical Conductivity, Saturation Percentage, particle size analysis, soluble calcium, magnesium, and sodium, selenium, total nitrogen, nitrate-N, boron, maximum acid potential, neutralization potential, total organic carbon, exchangeable sodium, available water capacity and rock fragments. The sodium adsorption ratio (SAR) will be calculated from the soluble calcium, magnesium and sodium values.

As of October 26, 2001, Plateau Mining Corp had dug four pits at the site for the purposes of identifying suitable soil. One pit was located in front of each portal, one alongside the access road and one was at lower end of the site. The Division was present during sampling of the soils from the trenches on October 26, 2001, refer to O:007004.cg/COMPLIANCE/FV12262001.doc for the field report of soil sampling.

The soils were analyzed by Inter-Mountain Laboratories, Inc. of Farmington, NM. Results of the soils were hand delivered to the Division and will be included in Appendix 3G of the final copy of the amendment. Based on these analyses, the soils at the site have a pH ranging from 7.2 to 7.8 and an Electrical Conductivity ranging from 1.59 to 2.53. The SAR values range from 1.6 to 5.8, with the red soil (sample #2) having the most undesirable SAR. The exchangeable sodium percentage of sample #2 was 8.5%. The texture of the soils was sandy loam to loam, with the red soils having the higher clay (19%) content. The coal sample taken (sample #1) had little Neutralization Potential, but the overall Acid Base Potential (ABP) based upon Total Sulfur was positive (19.6) tons/kiloton. Selenium and boron in the coal waste were all within the limits set as unacceptable by the Division.¹ As a result of this sampling, the Division recommends that the substitute topsoil is derived from material represented by sample #3 which was a grayish brown soil mix.

Appendix 3-G provides information from the sediments removed from Pond 10 in 1998 during the pond clean out (page 3.5-15). The material was determined suitable for use as a substitute topsoil at that time and placed on the Gravel Canyon topsoil pile. This analysis gives an indication of the nature of the material at Adit No 1.

Findings:

Information provided in the proposed amendment is adequate to meet the soils resource requirements of the Regulations.

¹ James Leatherwood and Dan Duce.1988. Guidelines for Management of Topsoil and Overburden For Underground and Surface Coal Mining. State of Utah. Department of Natural Resources. Division of Oil, Gas and Mining.

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:

Approximate original contour will be achieved during grading (page 3.5-12). Post mining topography is shown on Exhibit 3.5-3. Associated cross-sections are illustrated on Plate 3.5-3B. Slopes are concave in design and do not exceed 2h:1v (page 3.5-12).

Table 3.5-7 provides a mass balance summary. There is 5,052 cu yds of fill required and 4,878 cu yds of cut available. It is not likely that there will be a shortfall, since a swell factor of 1.0 was used in these calculations.

Coal waste, asphalt, concrete and steel will be buried beneath four feet of clean fill (page 3.5-10). Other non-coal waste will be disposed of in a designated disposal site within the permit area or at a State-approved solid waste disposal facility (page 3.5-11).

Findings:

Information received in the amendment is considered adequate for the purposes of this regulation.

TOPSOIL AND SUBSOIL

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

Analysis:

This pre-SMCRA site will be reclaimed using the best available material from within the disturbed area. If an erosion problem occurs at Adit No. 1 or if the regraded surface fails to support vegetation, then topsoil from the Gravel Canyon topsoil pile will be used in a six-inch deep layer over the problem area.

The ephemeral channel at the site will be covered with three inches of soil and seeded and mulched (page 3.5-15 and Section 3.5 Appendix 3.5C page 8).

TECHNICAL MEMO

Findings:

Information received in the amendment is considered adequate for the purposes of this regulation. The best available material based upon recent sampling is the mix of grayish brown soil represented by sample #3.

STABILIZATION OF SURFACE AREAS

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

Analysis:

The site will be furrowed on the contour. Two tons/acre (page 3.5-13) of hay or straw will be mechanically blown on the regraded surface. The soil surface will then be deep gouged to create water- holding basins and incorporate the straw (page 3.5-13 and 3.5-18). Seed from No. 1 in Chapter 9 will be broadcast over the site. Following the seeding, the site will receive an additional 1 to 1.5 tons per acre of straw much applied with mechanical blowers (page 3.5-14) and then will be sprayed with a hydromulch and tackifier at a rate of 500 lbs per acre.

Before seeding and mulching, silt fences and straw bales will be placed in the channel to control sediment (page 3.5-19). After seeding and mulching, as Appendix 3.5-D demonstrates, the amount of sediment estimated to leave the site drops dramatically from 7 Tons/acre/year to 0.2 Tons/acre/year.

An erosion control mat will be placed in the channel bottom (page 3.5-15 and Section 3.5 Appendix 3.5C page 8). The channel will be seeded and mulched as well.

The site will be inspected quarterly. Gully's greater than nine inches in depth will trigger corrective action (page 3.5-20).

Findings:

Information received in the amendment is considered adequate for the purposes of this regulation.

RECOMMENDATION:

The submittal is recommended for approval. The approval letter should mention that laboratory analyses from the trenches dug at Adit #1 must be included in Appendix 3G.

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