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TO: File

THRU: Joe Helfrich, Inspector Supervisor *JH*

FROM: Robert Davidson, Soils Reclamation Specialist *RAD*

RE: Technical Analysis of Sowbelly As-Built, Sowbelly Canyon, Castle Gate Mine, ACT/007/004-96D, Folder #2, Carbon County, Utah

SYNOPSIS

The Sowbelly site and the No.5 Portal are rehabilitated portions of the old Spring Canyon Coal Company No. 5 Mine. The No. 5 Mine is accessed through Sowbelly Canyon which lies approximately four miles west-northwest of Helper, Utah. Approximately 21 acres have been affected by mining-related surface operations and included disturbance prior to 1976, enactment of SMCRA. Most of the affected area was used for storage and personnel access through Portal No. 5 which continued until the end of 1988.

Phase I of reclamation, removal of the structures, is complete, except that the substation remains. Phase II reclamation was completed in 1995.



ENVIRONMENTAL RESOURCE INFORMATION SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.21, 817.200(c); R645-301-411, -301-233.

Analysis:

The 21 acres in Sowbelly Canyon were disturbed by mining prior to the enactment of SMCRA. No topsoil or soil resource material were salvaged from the site. The existing disturbed and undisturbed soils at the site were used for reclamation as topsoil and substitute soil material. The existing soil resource materials were evaluated using DOGM's guidelines for topsoil and overburden. The soil sampling, analyses, and disposal activities were performed as part of the 1995 reclamation activities.

A total of 9 sites were sampled from the disturbed area - five soil pits (SB-1 thru SB-5), two trenches (T-1 and T-2), plus two surface-grab samples (SBG-1 and SBG-2). A total of 14 samples were collected from various depths in four of the pits and from the two surface locations. The samples consisted of 10 overburden and 4 coal debris. Pit SB-2 was not sampled, nor were the top 20 inches of pit SB-4. The two trenches were not sampled or logged in detail, but were inspected for the presence of any coal debris. Although the soil pits' soil profiles were adequately described in Appendix 3.2 (see Feb. 7, 1996 EarthFax memo to Johnny Papas), the **original soil survey field notes for the pits were not included.**

The distribution of vegetation within the disturbed area boundary was highly variable. the soil pits' locations were chosen to determine what inherent soil properties were responsible for poor vegetative cover. The soil properties were remarkably similar while the percentage of vegetative cover was marketably different between SB-1, good vegetation cover, and SB-2 and SB-3, poor vegetation cover. Excessive hardness of the indurate soils in SB-2 and SB-3 were most likely the contributing factor for the differential vegetation growth.

Coal samples collected at the surface at SBG-1 and SBG-2 were not acidic or toxic whereas coal sampled from SB-4 is mildely acidic having a marginal pH of 5.7, with an acid-base portential of -11.2 tons of CaCO₃/1000 tons of material. The coal and soil sampled from SB-5 had elevated SAR values. Additionally, the soil below the coal in SB-5 exhibited elevated sodic and EC values.

Findings:

This portion of the proposal is considered complete and accurate.

RECLAMATION PLAN TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-232, -301-233, -301-234, -301-242, -301-243.

Analysis:

To rectify poor soil quality issues, reclamation activities included:

- The soils in the area of test pits SB-2 and SB-3 were entirely redisturbed and loosened to alleviate apparent poor vegetation establishment. This area was treated by reroughening of the soils through deep gouging and incorporating 2 tons/acre of hay mulch into the soil during the gouging process. This treatment was followed by reseeding and then mulching with straw at a rate of 1 ton/acre. The straw was lightly crimped into the soil surface.
- Coal material that was present in the area of SBG-1 and SBG-2 was removed and placed in pond 017 and used as backfill over the No. 5 fan portal. The pond and fan portal were then backfilled with approximately 2 feet of locally available soil media.
- Soil pit SB-4 was located in a topographically low area. The coal found in this location were at a depth of 20 to 27 inches below the ground surface. To achieve proper reclamation surface grade, the low area was backfilled with locally derived fill material and covered with between four and six feet of soil material.
- The sodic soils identified in SB-5 were removed as they were encountered during the reconstruction of SBRD-4B and placed in pond 017. After the channel was at grade, the channel slopes and adjacent areas were covered by approximately three feet of soil material generated from the removal of the pond 017 embankment.

Findings:

This portion of the proposal is considered complete and accurate.