



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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March 21, 1997

TO: Folder #2

THRU: Daron Haddock, Permit Supervisor DRH

FROM: Robert Davidson, Soils Reclamation Specialist RAD

RE: MRP Amendment - Soil Salvage and Jewkes Creek Hydric Soil, Horizon No. 1 Mine, Horizon Coal Corporation, ACT/007/020, Folder #2, Carbon County, Utah

## SYNOPSIS

The following is a Technical Analysis for changes and additions made to Chapter 8, Soils Resources, and Appendix 8-1, Soils Data, of the Mine Reclamation Plan.

## ENVIRONMENTAL RESOURCE INFORMATION SOILS RESOURCE INFORMATION

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

### Analysis:

The Horizon Mine soil resource were originally surveyed at the Order II scale (Henry Sauer, personal communication with Leland Sasser USDA/SCS, 1991). Twelve pits were sampled and seven pits were surveyed for horizon identification, soil descriptions, and physical/chemical properties. Correlation of the soil map units with currently recognized soil series or complexes are as follows:

- Brycan Loam - fine-loamy, mixed Cumulic Haploborolls
- Curecanti Family - loamy - skeletal, mixed Typic Argiborolls
- Rabbitex Site Loam 15 to 50 percent slope - fine - loamy, mixed Typic Calciborolls
- Senchert Loam - fine - loamy, mixed Argic Pachic Cryoborolls
- Shupert-Winetti Complex - loamy - skeletal, mixed (calcareous), frigid Typic Ustifluent.

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Two additional soil pits were excavated in the lower facilities area during 1996 (TP 43 & 44). The first pit was located in the bottom of Jewkes Creek channel while the second pit was located on top of the west bank of the Jewkes Creek drainage. In both locations, soils have been previously disturbed and covered with imported materials. The upper 5 feet of soils in the west bank have been previously disturbed and/or imported. Sample results indicate that soils in both areas would be acceptable as substitute topsoil and/or backfill with the exception of the coal fines layer in the Jewkes Creek channel.

The Jewkes Creek channel soils are unique since they have a fluvial origin which terminate at bed rock located 12 feet down. The material consists mainly of sandy loam interbedded with coal fines (~30%) and loam with a high bedding angle. The Jewkes Creek soils contain less than 10 percent rocks with no coarse fragments. The Division requested that additional resource information concerning the Jewkes Creek soils be collected and placed in the MRP. Through the sampling efforts of the Division, EarthFax and the National Resource Conservation Service (NRCS), the Jewkes Creek soils were characterized for hydric development. The NRCS report and log are found in Appendix 8-1. The location of the test pit sampled on October 23, 1996 is labeled as TP-45 on Plate 8-1. Soils met the wetland criteria for hydric soil development in a small, narrow area, about 5 to 20 feet wide. The wetland area starts near where the small stream flows near the rock face and continues along the rock face and ends before the stream enters the culvert. The hydric soil was classified as coaly mixed (calcarous) frigid Aeric Fluvaquents. Please note that Mr. Leland Sassar of the NRCS who conducted the survey is certified by the U.S. Army Corps of Engineers for wetland delineation.

**Findings:**

The information provided meets the regulatory requirements of this section.

**OPERATION PLAN  
TOPSOIL AND SUBSOIL**

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

**Analysis:**

Originally, Horizon committed to excavating the A horizon for the Curecanti Family and Senchert Series in accordance with the profile descriptions from the Soil Survey. In addition, the originally approved MRP committed to remove soil by the island method and replace soil by use

of wooden stakes with depth marks to assure equal distribution. The MRP further committed to separate and stockpile topsoil (A and/or B horizons) and subsoil (B and/or C Horizons) and to delineate soil phase and inclusion variations. Furthermore, the MRP committed to test and fertilize the stockpiled soils to ensure interim revegetation success. *The current submittal has removed these commitments from the MRP's text in Chapter 8, Soils Resources.*

Due to the nature of the previously disturbed site, it was not possible to precisely predict the exact volumes of soil or location of soil salvage. Therefore, as a means of ensuring proper excavation and separation of adequate quantities of topsoil and subsoil, a professional soil scientist was on site during topsoil and subsoil removal operations. Soil recovery was maximized at sites where the cleanest soil resources could be located. Approximately 13,670 cubic yards of topsoil and subsoil were estimated for salvage (see Table 8-3). The projected soil recovery volume was based on suppling an average 12 inches of soil cover over the disturbed area during reclamation. Soil recovery ceased once the target volume was achieved.

Since the Jewkes Creek channel soils are unique in their fluvial origin in supporting the riparian/wet meadow vegetation which currently exists on site, these soils need special consideration for salvage and storage for reclamation use. In the Jewkes Creek area of the proposed sediment pond, all available excavated soils will be salvaged and stored in the stockpile for later reclamation. Soils in the riparian area will be dried prior to salvage and the subsequent inclusion in the topsoil stockpile. These necessary steps will protect these often waterlogged soils from compaction and clod formation during the soil salvage operations. Soils salvaged from the Jewkes Creek riparian area were stored at the front of the topsoil pile, southwest corner.

Quality of salvaged soil resources was defined as not to exceed 20% coal within the soil. The presence of rock and vegetation in the topsoil stockpile was considered acceptable and desirable. Therefore, rock and vegetation were salvaged with the soil and incorporated within the stockpile.

The applicant committed to submit as-built surveys of the completed subsoil and topsoil stockpiles and would include volume of material, maximum and minimum elevations and slopes, cross sections, and all other pertinent dimensions with amended mass balance tables. Soil recovery volume was based on recording the number of scraper loads deposited in the topsoil stockpile. Topsoil recovery results based on the scraper loads are located in Appendix 1, in the table labeled "Topsoil/Growth Medium Calculations." An average scraper load was determined to be 27 cubic yards. The table records that a total of 15,314 cubic yards are stored in the stockpile. This figure includes the in-situ soils of areas 10 and 11 not salvaged and located beneath the stockpile. Therefore, actual soils hauled and stored in the pile are estimated at

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11,581 cubic yards.

Previously undisturbed soils were buried on October 28, 1996 prior to soil recovery along the northwest facing hillside above soil sampling point TP-1 (see Plate 8-1). This resulted in part for issuing NOV N96-26-4-3, violation number 3 of 3. The buried soil bordered along the Shupert-Winetti Complex and the Curecanti. The maximum volume of topsoil buried approximated 34 cubic yards.

Taking into account an average 12.5% compaction, the actual volume of soils recovered (less Areas 10 & 11) amounts to 10,028 cubic yards.

**Findings:**

The information provided meets the regulatory requirements of this section.

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