

# TECHNICAL MEMORANDUM

## Utah Coal Regulatory Program

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August 6, 2009

TO: Internal File

THRU: Dave Darby, Team Lead 

FROM: Priscilla Burton, Environmental Scientist III/Soils. *pwb by fcs*

RE: New Sedimentation Overflow Pond, Canyon Fuel Company, LLC., SUFCO Mine, C/041/002-Task #3341

### SUMMARY:

The application for a new sediment control overflow pond installation, 800 ft. downstream of the existing mine sediment pond was received on June 24, 2009. The overflow pond will be constructed on USFS land under a special use permit (p. 1-10) and will add 2.3 acres to the mine site disturbed area (pg 1-11). The disturbed area includes several hundred feet of culvert burial where no topsoil salvage is noted.

**R645-301-222**, This site is 900 feet downstream from the existing soil survey. The existing soil survey information was reviewed and provides variable information on depth to lithic contact and depth of the surface horizon. Please gather site specific soil survey information prior to disturbance. Information to be gathered should be that required for soil survey, i.e. soil pedon description including slope, aspect, rock cover, vegetation, horizonation, depth to lithic contact etc.; field analysis of each horizon for pH, EC, texture and color; soil sample collection from each soil horizon for analysis; followed by analysis of soil samples. A commitment to gather the soil survey information prior to disturbance and to utilize the site specific information in determining topsoil salvage depth and to provide the soil survey information in an as-built addendum to Appendix 2-2 would suffice. This information may be gathered a day before disturbance by a qualified professional who will be directing the soil salvage operation. [pwb]

**R645-301-232.100**, Applying the available information to the overflow pond suggests that in general a minimum of 12 inches of soil could be salvaged from the site before disturbance. The salvaged soil will likely have a high percentage of stones

and rock, which is highly desirable for the channel reclamation. The area to be affected appears to be approximately 1.5 acres. The application describes the stockpile size based upon an estimate of 6 inches of topsoil salvage over 1.14 acres for a total of 925 cu yds. The available soil information would suggest that 12 – 15 inches of soil might be obtained from the drainage with rock forming >35% of the salvage volume. Absent a soil survey for the exact location, the application should plan for the stockpile to hold 1,800 cu yd.

**R645-301-121.200**, Provide information on a potential boulder stockpile as described in the MRP, Sec. 2.3.1.1. • Will the outslope of the overflow pond dam be used as substitute topsoil at final reclamation as described in Sec. 2.2.4? If so, what is the quality of the material to be imported to be used for the overflow pond dam? • No topsoil salvage is planned for the installation of the bypass culvert. Please estimate the acreage to be disturbed by the culvert installation such that the Division may determine whether this disturbance is exempt from topsoil salvage under R645-232.400. [PWB]

**R645-301-231.400**, A commitment to report as built topsoil stockpile volumes and construction details of the topsoil stockpile is requested. [PWB]

### **TECHNICAL ANALYSIS:**

## **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:**

Appendix 2-2 provides an Order III soil survey that was conducted in 1980 by Endangered Plant Studies, Inc. The Order III soil survey map, Plate 2-1, does not extend to the location of the overflow sediment pond, however, the Order III soil survey indicates that soil in the drainage upstream of the overflow sediment pond is Type T, loamy skeletal, mixed, frigid Calcixerollic Xerochrepts. Type T soil is described in App. 2-2 and in Sec. 2.2.2.3 of the MRP. Soil Type T is found on very steep slopes (>60%) with rock outcrops comprising one

third of the map unit. The vegetation type is pinyon/juniper. Both Type T soils are described as having a surface layer of 2 – 8 inches of coal and road debris on the surface.

Order III survey Map Unit R describes the soils in the drainage upstream from the proposed overflow pond disturbance. “This is a complex consisting of 50% of the soil described in Unit O, 25% of a shallow phase of the soil described in Unit N, 10% rock outcrop and 5% each of the soils described in Units C and H.” These soils > 35% rock fragments in common, and a surface layer that is 12 – 25 inches thick with paralithic contact at 20 – 50 inches below the surface.

An Order I soil survey was conducted for the existing sediment pond location. Soil sample sites 24 and 20 described in Vol. 4, App. 2-2 represent either side of the drainage upstream approximately 900 ft. upstream from the overflow sediment pond location (Sec. 7.3.2.2). Sample site 24 was described as severely eroded 50% Type W soil (loamy, skeletal, mixed frigid Typic Xerorthent); 20% rock outcrop; 10% moderately deep Xerorthent and 10% shallow Xerorthent soil. Sample site 20 is described as 70% well drained soil of the Kilfoil series (clayey, skeletal, mixed, xeric, Mollic Haploxeralfs) and 10% shallow soils described as loamy- skeletal, mixed, frigid, shallow Lithic Xerorthents; and 15% rock outcrop. The site description for sample site 20 indicates on p. 33 that the surface 10 – 12 inches is sandy loam above a clay loam topsoil. On p. 35, the consultants report that 15 inches of topsoil could be salvaged and stored from areas represented by sample site 20.

Applying the available information to the overflow pond suggests that in general a minimum of 12 inches of soil could be salvaged from the site before disturbance. The salvaged soil will likely have a high percentage of stones and rock, which is highly desirable for the channel reclamation.

Plate 5-2Bv17 outlines several pre-SMCRA coal dumps in the vicinity of the proposed overflow pond and topsoil storage area.

### **Findings:**

The information provided does not meet the minimum requirements for Soils Environmental Resource Information.

**R645-301-222**, This site is 900 feet downstream from the existing soil survey. The existing soil survey information was reviewed and provides variable information on depth to lithic contact and depth of the surface horizon. Please gather site specific soil survey information prior to disturbance. Information to be gathered should be that required for soil survey, i.e. soil pedon description including slope, aspect, rock cover, vegetation, horizonation, depth to lithic contact etc.; field analysis of each horizon for pH, EC, texture and color; soil sample collection

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from each soil horizon for analysis; followed by analysis of soil samples. A commitment to gather the soil survey information prior to disturbance and to utilize the site specific information in determining topsoil salvage depth and to provide the soil survey information in an as-built addendum to Appendix 2-2 would suffice. This information may be gathered a day before disturbance by a qualified professional who will be directing the soil salvage operation. [pwb]

## OPERATION PLAN

### TOPSOIL AND SUBSOIL

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

#### Analysis:

##### Topsoil Removal and Storage

Soil salvage operations are described for new surface operations in Sec. 2.3.1.1 of the MRP. The MRP states that the A & B horizons will be stockpiled together or separately and a third stockpile of boulders will be in an adjacent location. The stockpiles will be graded to a 3h:1v slope and seeded.

In Sec. 2.2.4 the Permittee states that outslopes of dams will be used as substitute topsoil at final reclamation. What is the quality of the material to be imported to be used for the overflow pond dam?

The overflow pond topography is shown on Plates 7-4A and 7-5A. The area to be affected appears to be approximately 1.5 acres. On page 2-17, the application states that the A and B horizon to a depth of 12 inches will be salvaged and separately stockpiled. The stockpile size is based upon an estimate of 6 inches of topsoil salvage over 1.14 acres for a total of 925 cu yds. The stockpile will occupy 0.141 acres (Sec. 7.4.2.1). The remaining acreage of additional disturbance is likely due to the bypass culvert installation. No topsoil is planned from the installation of the by pass culvert. The application states that topsoil salvage will be directed by a construction supervisor or trained representative.

Sec. 2.3.1.4 of the MRP describes the construction, modification, use and maintenance of topsoil storage piles. The information states that the stockpiles will be placed on a stable site, and protected by vegetation (seed mix minus shrubs and trees) and by a silt fence below the topsoil stockpile. The overflow pond stockpile is shown on Plate 7-4A. This map has 5 ft contours and the location of the topsoil stockpile will be on an existing 4h:1v slope. The stockpile will have an outslope that rises 52 ft. horizontal :20 ft. vertical or 2:1 slope at the

steepest face, which is also the south face. The overflow pond stockpile will be protected with a berm and silt fencing (Sec. 7.4.2.1). The design installation for the berm's spillway is presented on Plate 7-5C. As built volumes and construction details are requested.

### **Findings:**

The information provided in the MRP does not meet the topsoil/subsoil operation requirements of the Regulations or the commitments stated in the MRP. A report of as built volumes and construction details of the topsoil stockpile is requested.

**R645-301-232.100**, Applying the available information to the overflow pond suggests that in general a minimum of 12 inches of soil could be salvaged from the site before disturbance. The salvaged soil will likely have a high percentage of stones and rock, which is highly desirable for the channel reclamation. The area to be affected appears to be approximately 1.5 acres. The application describes the stockpile size based upon an estimate of 6 inches of topsoil salvage over 1.14 acres for a total of 925 cu yds. The available soil information would suggest that 12 – 15 inches of soil might be obtained from the drainage with rock forming >35% of the salvage volume. Absent a soil survey for the exact location, the application should plan for the stockpile to hold 1,800 cu yd.

**R645-301-121.200**, Provide information on a potential boulder stockpile as described in the MRP, Sec. 2.3.1.1. • Will the outslope of the overflow pond dam be used as substitute topsoil at final reclamation as described in Sec. 2.2.4? If so, what is the quality of the material to be imported to be used for the overflow pond dam? • No topsoil salvage is planned for the installation of the bypass culvert. Please estimate the acreage to be disturbed by the culvert installation such that the Division may determine whether this disturbance is exempt from topsoil salvage under R645-232.400.

**R645-301-231.400**, A commitment to report as built topsoil stockpile volumes and construction details of the topsoil stockpile is requested.

### **RECOMMENDATIONS:**

Soil survey information does not extend downstream to the disturbance area. The available soil survey information is missing from the MRP, consequently site specific soil survey information is requested prior to disturbance. This information may be gathered at the time of disturbance by a qualified professional who will be directing the soil salvage operation.