

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

November 6, 2007

JK

TO: Internal File

THRU: ~~JD~~ Dana Dean, P.E., Environmental Scientist III

FROM: Priscilla Burton, CPSSc, Environmental Scientist III PWB

RE: Waste Rock Pile Expansion, Canyon Fuel Company, Skyline Mine, C/007/0005, Task ID #2844

SUMMARY:

To expand the life of the waste rock facility, Canyon Fuel Company plans to construct the waste pile on top of the existing pile. An additional 5.13 acres will be disturbed on an 80% slope above the existing waste rock site, bring the waste rock disturbed area to 12.81 acres.

The Permittee has not complied with the Environmental Soil Resource requirements of the Regulations. Prior to approval, the Permittee must provide the following information:

R645-301-222, The soils consultant must discern the soil series represented by SP-1 and designate the boundary for this soil type within the proposed disturbed area and mark it on Figure 1. The Division does not accept the information provided as accurate for the purpose of an Order 1 soil survey for the following reasons:

SP-1 The laboratory analysis for SP1 does not appear to correlate with the Pathead Series soil. First the pH is between 6.4 – 6.7, whereas the Pathead Series has a typical pH in the vicinity of 8.6 – 8.8. Second, there is no accumulation of calcium carbonate noted in the profile descriptions or in the laboratory analysis. A cambic horizon, accumulation of calcium carbonate, is typical of this series. Third, the percentage of clay is less than that in the Pathead Series.

SP-2 The color of this soil is described as yellowish brown and yellowish orange. The Trag Series is typically grayish brown. The parent material is described as sandstone, siltstone and shale, whereas the Trag Series is derived from granite and schist.

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R645-301-231.100, The plan indicates that suitable topsoil will be stripped. The plan must indicate the topsoil stripping depth.

R645-301-553.252, The application must indicate that four feet of the available soil will cover the waste at final reclamation or must provide documentation through physical and chemical analyses that a lesser cover will provide stability (R645-301-244) and vegetation success (R645-301-353 through 357).

TECHNICAL ANALYSIS:

GENERAL CONTENTS

IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

Analysis:

General Chapter 1 volume contains information on corporate ownership for Canyon Fuel Company's affiliated Utah mines: SUFCO Mine, Skyline Mine, Soldier Canyon Mine, Banning Loadout, and Dugout Canyon Mines. (Section 111 of the MRP).

Section 112.400 of the MRP and Table 1-1 and Figure 1-1 (A – D) of General Chapter 1 provide a listing of affiliated coal mining operations under the control of Canyon Fuel Co., LLC. The listing includes the affiliated Utah mines itemized in Sec 111 and the successfully reclaimed bond release sites: Gordon Creek No. 2, 7, and 8, Gordon Creek No. 3 and 6, and Huntington Canyon No. 4 mine.

Figure 1-1 (A-D) also provides an organizational chart showing corporate ownership and control of Canyon Fuel Co., LLC by Arch Coal, Inc . The list of officers and directors for Canyon Fuel Co., LLC and its four corporate owners Arch Western Bituminous Group, LLC; Arch Western Resources, LLC; Arch Western Acquisitions Corp; and Arch Coal, Inc.) is found in Appendix 1-1. App. 1-1 was last updated in February 2007. Changes in officers are clearly noted with beginning and ending dates and are attested to by notarized statements from each corporate entity.

Findings:

The information provided meets the requirements of the Regulations.

VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

Analysis:

Section 113 of the MRP indicates that a current listing of violation information is provided in the General Chapter 1 volume for Utah affiliated mines. The most current list dated December 2004 – 2006 is found in Table 1-2.

Findings:

The information provided meets the requirements of the Regulations.

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

The Waste Rock lease agreement between the Telonis Trust and Canyon Fuel Company is included in the MRP Section 3.2, Exhibit A. It was amended in 2007 to provide right of entry to 36.51 acres in T. 13 S., R. 7 E. Sec. 4 and 5. The agreement will expire in 2011. The Permittee plans to expand the disturbed area of the waste rock site from 7.68 acres to 12.81 acres over the next 15 years.

Findings:

Information provided meets the requirements for right of entry for the expanded waste rock storage site.

LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

Analysis:

The application does not change the status of unsuitability claims for the coal mining and reclamation operation.

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Findings:

The available information meets the requirements of the Regulations.

PERMIT TERM

Regulatory References: 30 CFR 778.17; R645-301-116.

Analysis:

This amendment does not change the permit renewal dates.

Findings:

The information available meets the requirements of the Regulations.

PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

Analysis:

Certificates of Insurance are located in the General Chapter 1 Volume, App. 1-2. The insurance provider is Marsh USA, Inc. and the company affording coverage is Ace American Insurance Co. The Division of Oil Gas and Mining is listed as the Certificate holder. Policies current through July 2007 are on file at the Division.

This amendment is not considered a significant revision and therefore, no public notice is required.

Findings:

The information presented meets the requirements 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:

A soil survey was conducted in December 2006, by Clement Drilling and Geophysical, Inc. The location of the waste rock site is provided in relation to the published Carbon County Order III soil survey. The Carbon County soil survey indicates two map units: #23 Curecanti family/Pathead Complex and #115 Trag stony loam, 30 – 60% slopes. The consultant states that two soil series are represented, the Pathead series on the north facing slopes and the Trag series on the west facing slopes. The consultant further states that the Pathead series was previously described as Croydon series in a 1981 survey by Endangered Plant Studies, Orem, UT.

The December 2006 survey includes two soil pits that are as shown on Figure 1 (scale 1:12,000). Pit SP1 was located approximately 250 feet above the existing disturbed area on the undisturbed, north facing slope. Pit SP2 was located approximately 50 ft. above the existing disturbed area boundary on the undisturbed, west facing slope. The pits were excavated by hand to a depth of three feet. Due to the time of year, the surface soils were thawed with a propane torch prior to digging. Soils were described. Test pits were thoroughly photographed. Soil samples were provided to the laboratory seven months later in July 2007.

The consultant photographed and described iron staining in the C horizon (46 – 97 cm or 18 – 38 in.) of SP-1 and in the B horizon (25 – 58 cm or 9.8 – 23 in.) of SP-2, as well as a gray appearance of the sandstone casts in the BC horizon (58 – 97 cm or 23 – 38 in.) of SP-2. Iron deposition and gleying are redox features that indicate periods of soil saturation. Depth to bedrock was estimated at 200 cm or about six feet. The parent material is interbedded sandstone, siltstone and shale.

For the record, initially, the C horizon at SP1 was given the horizon designation C_u to indicate the presence of human manufactured artifacts. The type of artifact was not noted, however, and the second submittal removed the reference.

The soils consultant must discern the soil series represented by SP-1 and SP-2 and designate the boundary for the soil types within the proposed disturbed area and mark the soil type boundaries on Figure 1. The pattern and extent of each soil type within the map unit might be evaluated with transects across the proposed disturbed area. The Division does not accept the information provided as accurate for the purpose of an Order 1 soil survey for the following reasons:

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SP-1

The laboratory analysis for SP1 does not appear to correlate with the Pathead Series soil. First the pH is between 6.4 – 6.7, whereas the Pathead Series has a typical pH in the vicinity of 8.6 – 8.8. Second, there is no accumulation of calcium carbonate noted in the profile descriptions or in the laboratory analysis. A cambic horizon, accumulation of calcium carbonate, is typical of this series. Third, the percentage of clay is less than that in the Pathead Series.

SP-2

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The Division notes that Map Unit #23 in the Carbon County soil survey is a Complex of many soil series. Among those listed for the complex is the Perma family. The chemical characteristics of SP-1 (pH, disseminated carbonate, % clay) and the physical characteristics (elevation 8,000 ft., concave 80% slope, sandy loam with fine granular structure) appear to fit this series more closely than those of the Pathead series. The Perma family soils are loamy-skeletal, mixed, Typic Haploborolls.

Likewise, Falcon stony sandy loam is an inclusion in Map Unit 115, Trag Stony Loam, 30 to 60 % slopes. Although the soil color of SP-2 fits the Falcon series, the percentage clay does not.

The soil survey does not mention the climate regime or the elevation, but it is known by the Division to be cryic at the site elevation of 8,100 ft. According to the National Soil Survey Manual, fine textured soils have a high potential for potential frost action. The survey indicated that the “uppermost frozen soil” was thawed with a propane torch. The specific depth of frost penetration was not stated.

Findings:

The Permittee has not complied with the Environmental Soil Resource requirements of the Regulations.

R645-301-222, The soils consultant must discern the soil series represented by SP-1 and designate the boundary for this soil type within the proposed disturbed area and mark it on Figure 1. The Division does not accept the information provided as accurate for the purpose of an Order 1 soil survey for the following reasons:

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OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Topsoil Removal and Storage

The plan indicates that suitable topsoil will be stripped. The plan must indicate the topsoil stripping depth. The soil survey indicates that at a minimum one foot of topsoil is suitable. However greater depths might be salvaged to provide a cover of four feet over the waste.

The topsoil stockpile will be approximate 4,500 yd³. Additional soil salvaged will be used contemporaneously. The stockpile location is shown on Plate 3.2.8-2.

Findings:

The Permittee has not provided adequate Operational Soil Resource information.

R645-301-231.100, The plan indicates that suitable topsoil will be stripped. The plan must indicate the topsoil stripping depth.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

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Analysis:

Refuse Piles

The plan calculates the volume of waste buried over time at the Scofield Waste Rock site (in a table on an unnumbered page in an undesignated section of the MRP). The available capacity left at the Waste Rock site is approximately 8,000 yd³ @ 91 lb/ft³ = 9,840 tons per year for seven years or 57,539 yd³ (68,880 tons). The 5.13 acre expansion will allow disposal of an additional 300, 294 yd³ (Section 3.2, pg. 3-49).

Findings:

The Permittee has met the R645-301-536 requirement to disclose the capacity of the coal mine waste storage designs.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

Reclamation of the site is shown on Map 4.16.1-1C without a pond retained and on Map 4.16.1-1B with the pond retained (at landowners request). Redistribution of the topsoil and subsoil removed from the site will be returned to the 5.13 ac of proposed disturbance. Other reclamation activities remain unchanged.

Findings:

The information provided meets the requirements of the regulations for replacement of topsoil.

BACKFILLING AND GRADING

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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:

Backfilling and Grading On Steep Slopes

The undisturbed slope is 80%, steeper than 1.5h:1v. The reclamation plan describes placement of the material in two-foot lifts and reclamation of each 20 ft increment of fill ([pg 3-56]. Plate 3.2.8-2 illustrates a 2:1 slope with a flat area at the top of the pile. The pile will grade into the undisturbed mountain over a five-foot elevation difference.

Currently the permittee does not cover the waste with four feet of material, due to a lack of pre-existing soil at the former mine site. However for this expansion into undisturbed area, the requirements of R645-301-553.252 must be addressed. This Rule requires four feet of the best-available material be placed over the mine waste, unless physical and chemical analyses show that the requirements of R645-301-244 (stability) and R645-301-353 through 357 (vegetation establishment and success) are met.

Special Provisions for Steep Slope Mining

Findings:

R645-301-553.252, The application must indicate that four feet of the available soil will cover the waste at final reclamation or must provide documentation through physical and chemical analyses that a lesser cover will provide stability (R645-301-244) and vegetation success (R645-301-353 through 357).

RECOMMENDATIONS:

The Division should not approve this application until all deficiencies listed above are resolved.