

#3857
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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

June 23, 2011

TO: Internal File

THRU: Steve Christensen, Team Lead *CC*

FROM: Priscilla Burton, CPSSc, Environmental Scientist, III *PWB by 8/25*

RE: Refuse Pile Amendment, Canyon Fuel Company, Dugout Canyon Mine, C/007/039, Task #3857

SUMMARY:

The amendment requests that 36,500 yd³ of waste from an AML project outside the permit area be disposed at the refuse pile site. Such approval is subject to the requirements of R645-301-536.510. This application is not approved at this time.

The 26.8 acre refuse pile in T. 14 S., R.12 E., E1/2 NE ¼SW ¼, W1/2 SE ¼ of Sec 17 was reconfigured in 2006 to allow for final capacity of 686,055 yd³ of waste (RA Attachment 5-3). The certified inspection for March 18, 2010 states that the remaining capacity of the site is 576,078 Tons. Using the conversion factor of 110 lbs/ft³ (described in RA Attachment 5-3), the remaining volume would then be 387,931 yd³, as of March 2010.

The Division requests the following information be provided with this application prior to approval:

- R645-301- 514.230**, Please provide the most recent certified inspection report for the refuse pile, including a statement of remaining capacity in the refuse pile on the date of the inspection.

- R645-301-536.510**, In order to relate yardage to tonnage, the application must include an analysis of the density of the AML waste, such that the tonnage capacity of the AML waste may be determined and related to the remaining capacity reported by the professional engineer in the certified inspection reports. If an analysis is not available, please provide an estimate to be used to calculate tonnage.

R645-301-553.300, For the purposes of testing the waste, the Division's topsoil and overburden guidelines is referenced on page 5-18 of RA Chap. 5. The reference statement should be updated to read: "These samples will be analyzed for the parameters listed in Tables 3 & 7 of the Division's 2008 Topsoil and Overburden Guidelines." Please strike the reference to Leatherwood and Duce, 1988.

R645-301-121.200 and R645-301-521.165 and R645-301-232.200 and R645-301-232.600, RA Attachment 2-2 states that an additional 5,400 yd of subsoil may be excavated from the Northwest portion of the site. Is this salvage still planned? Will this be accomplished prior to placement of the AML waste? To answer these questions, please provide a more recent topography, showing the footprint of the refuse pile, because the 2003 As-Built referenced in Section 512.100 and final topography shown on RA Plate 5-1 provide little information on the current configuration of the pile, but the March 2010 certified inspection report states, "The deposition of refuse material is continuing to encroach into new area."

R645-301-553.252, With regard to reduced borrow cover, RA-Attachment 2-2 must state that refuse analysis will be monitored to assure that acid/toxic material is buried in the fill and only waste rock determined by analysis to be suitable will be mixed with substitute topsoil to provide cover. Should testing of the waste indicate that the final lift is acid/toxic forming, then four feet of cover will be required.

TECHNICAL ANALYSIS:

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Refuse Site

Originally permitted in 2003, the triangular shaped permit area covers 26.8 acres in T. 14 S., R.12 E., E1/2 NE ¼SW ¼, W1/2 SE ¼ of Sec 17 (Sec. 114, p. 1-24). The refuse footprint is 516,552 ft². or 11.9 acres (RA Attachment 2-2). Location of topsoil and subsoil stockpiles is shown on Plates 5-1 and 7-1. RA Plate 5-1 provides the as-built volumes of topsoil (7,550 yd³) and subsoil (15,470 yd³) for a total of 23,020 yd³.

In 2006, the topsoil and subsoil stockpiles, together holding 23,020 yd³, were moved to their present location, to allow for site capacity of 686,055 yd³ of waste (RA Attachment 5-3). The permitted area of the refuse site is 29.6 acres. The refuse "footprint" is 11.9 acres (RA Attachment 2-2). There is an adjacent 19.8 acre substitute topsoil borrow area has been identified to be the source of substitute topsoil and subsoil cover for the waste rock site.

Topsoil Substitutes and Supplements

Refuse Site

Available cover material is described in Section 242.100 as follows:

8,384 yd ³	topsoil stockpiled
9,211 yd ³	subsoil stockpile.
<u>2,947 yd³</u>	subsoil in perimeter berms/ditches and sed. pond embankment
20,542 yd ³	total topsoil and subsoil available.

The plan indicates in that when the refuse is constructed as described in Plate 5-1, the refuse pile surface will measure 12.9 acres and require 82,976 yd³ of cover (4 ft deep, RA

TECHNICAL MEMO

section 242.100 and Ra Attachment 2-2). Therefore, the Permittee has proposed a borrow area to provide four feet of cover. No test plots for lesser cover are proposed, however the Permittee has proposed to incorporate the first six inches of soil into the refuse, thereby amending the surface six inches of refuse for use as cover material. In this manner, the Permittee will require six inches less of imported material. In as much as the Division would like to minimize the disturbance to the adjacent borrow area, refuse analysis will be monitored to assure that acid/toxic material is buried in the fill and only waste rock determined by analysis to be suitable will be mixed with substitute topsoil to provide cover. The plan should specify in RA-Attachment 2-2 that refuse analysis will be monitored to assure that acid/toxic material is buried in the fill and only waste rock determined by analysis to be suitable will be mixed with substitute topsoil to provide cover. Should testing of the waste indicate that the final lift is acid/toxic forming, then four feet of cover will be required. The plan states that an additional 5,400 yd of subsoil may be excavated from the Northwest portion of the site. Is this salvage still planned? Will this be accomplished prior to placement of the AML waste?

To be reclaimed as shown on Plate 5-2, the remainder of the site will receive a six inch topsoil layer (Sec. 242.100).

Findings:

Prior to approval, please provide the following information in accordance with:

R645-301-121.200 and R645-301-521.165 and R645-301-232.200 and R645-301-232.600, RA Attachment 2-2 states that an additional 5,400 yd of subsoil may be excavated from the Northwest portion of the site. Is this salvage still planned? Will this be accomplished prior to placement of the AML waste? To answer these questions, please provide a more recent topography, showing the footprint of the refuse pile, because the 2003 As-Built referenced in Section 512.100 and final topography shown on RA Plate 5-1 provide little information on the current configuration of the pile, but the March 2010 certified inspection report states, "The deposition of refuse material is continuing to encroach into new area."

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HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid- and Toxic-Forming Materials and Underground Development Waste

Refuse Site

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The plan indicates that for one grab sample will be taken for every ton (5,000 yd³) hauled to the waste rock site. The samples will be analyzed according to the Division's Topsoil and Overburden Guidelines (Section 536.200 of the RA volume).

Information from previous grab samples (taken from every 2,000 yd³ from December 2004 through 2010) are included in RA Attachment 5-4. According to this information, the refuse is sandy in texture, about 50 - 70% carbon with a neutral pH, low EC values (less than 3.0 mmhos/cm) low SAR (less than 2) and very little carbonate content. Approximately one third of the samples were acid forming. Waste hauled from Pace Canyon (Appendix 2-4) is also acid forming, with a portion of the waste represented by Pyritic Sulfur Acid Base Potential (P.S. ABP) value of -25.1. There are minimal concerns about boron or selenium. In contrast, the subsoil is loamy, pH 7.4 with an SAR of 10 and lots of neutralizing power (carbonate content), see lab analysis of subsoil received in January 2005, document in the incoming folder (M: drive).

Findings:

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TECHNICAL MEMO

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RECOMMENDATIONS:

This application should not be approved at this time.