

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

JK

April 5, 2007

TO: Internal File

THRU: Jim Smith, Team Lead *DS 04/10/07*

FROM: Priscilla Burton, CPSSc *PWB by an*

RE: Wild Horse Ridge Tank Seam As-Built, Co-op Mining Co., Bear Canyon Mine, C/015/0025, Task ID #2753

SUMMARY:

As-built information was received on May 10, 2006 and October 13, 2006 and was mis-filed with the snow storage application. The "as-builts" were retrieved on February 22, 2007 and assigned task #2753. The as-built information updates cut and fill information in Appendix 5-K and page 2-19 of the MRP, as well as Maps 2-1B (Soils Map), 2-2C (stockpile configuration), 2-3G (Reclamation Area), 5-2G, 5-6G, 5-7G, 7-1B, 7-1F, 7-1G, 7-5a. The Reclamation areas described are TS 16 and TS 17 on Plate 2-3G. The Price Field Office does not have a copy of the information.

The following deficiencies have been identified with the information received:

R645-301-521.165, Topsoil stockpile construction maps must be certified.

R645-301- 623.100 and 731.300, The results of roof and floor sampling from site RM5 shown on Plate 5-1C must be provided as per Section 623.100 which indicates that the Permittee will again analyze the #3 Blind Canyon Seam and the #4 Tank Seam for acid/toxic-forming potential as soon as the mine progresses to the sample points shown on Plates 5-1 A and 5-1C.

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TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

The following hydrology information is available for the Wild Horse Ridge workings.

Plate 5-1C indicates locations of roof and floor sampling. Samples will be analyzed according to Table 2-4a and results will be included in Appendix 6-C (MRP, Section 623.100).

Data obtained from borehole analysis in 1982 of both the Tank Seam and the Blind Canyon Seam roof/floor and partings indicates that waste rock from the Blind Canyon Seam has little if any calcium carbonate content and will be acid-forming.

Sampling locations RFM 1, 2 and 3 are in the #3 Blind Canyon seam U 024316 as indicated on Plate 5-1A. Samples RFM-1 of the Blind Canyon coal, ceiling and floor were taken in September 2002. The analyses confirm that the Blind Canyon coal is acidic (pH 3.7 and a no carbonate content or neutralizing potential). The Blind Canyon coal is also toxic due to the Boron content (10.6 ppm). These characteristics are not present in the ceiling and floor.

Samples RFM 2 and 3 of the Blind Canyon seam will be taken in 2016 and 2021, respectively. (A previous sample site in the Hiawatha Seam on Wild Horse Ridge (Plate 5-1B, 2001 Annual Report) was also designated RFM -3, but this site was in an area mined in 1994.)

Sample site RFM-4 is in the Tank Seam in Mine #1 and was taken in 1995 (Email communication with Mark Reynolds on September 6, 2002). Information from this sample is found in Appendix 6C pages 23-25.

Sample sites RFM-5, 6, and 7 are also in the Tank Seam, U-38727 lease area (Plate 5-1C). Sample RFM-5 is in the main entry and will be taken in 2003. Sample RFM-6 will be taken in 2008. Sample RFM-7 will be taken in 2020.

Section 623.100 indicates that the Permittee will again analyze the #3 Blind Canyon Seam and the #4 Tank Seam for acid/toxic-forming potential as soon as the mine progresses to the sample points shown on Plates 5-1 A and 5-1C.

Findings:

See deficiency written under Topsoil and Subsoil.

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

Topsoil Removal and Storage

A record of stored subsoil and topsoil is found in Table 2-5. Approximately 16,494 yd³ of topsoil and 36,452 yd³ of pad material make a total of 52,946 yd³ available for final reclamation. Table 2-7 indicates that there area 28.03 “new acres” of disturbance. Some of these areas were contemporaneously reclaimed during construction. I.e. The outslopes of the portal access road (TS 16, Plate 2-3G). Topsoil stockpiles are portrayed on Plates 2-2A, B, C.

The 8,800 yd³ Wildhorse Ridge topsoil stockpile configuration is shown on Plate 2-2B. According to Plate 2-2B, typical slopes range from approximately 6:1 for east facing, 2:1 for west facing, 3:1 for north facing, and 2:1 for south facing. The stockpile is surrounded by a containment berm as described in Section R645-301-234. Section 645-301-231.400 indicates that the soil below the stockpile could provide an additional 2, 354 yd³ of topsoil for Wild Horse Ridge during reclamation. The native soil was demarcated by permeable fabric strips (see Section R645-301-231.400, Plate 2-1B, and Plate 5-2F).

The 1,480 yd³ Bear Canyon Mine Tank Seam access road stockpile is illustrated on Plate 2-2A [also referred to as the Main Topsoil Pile in Table 2-5).

The construction of the Wild Horse Ridge Tank Seam topsoil stockpile is illustrated in Plate 2-2C. Final volume is recorded as 1,760 yd³.

The Permittee has documented topsoil salvage operations, including salvage history, soil salvage areas, soil salvage volumes, and soil placement in the stockpiles.

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Chapter 2, Soil Resources, R645-301-230 through R645-301-232.500 and Appendices 5J, 5K and 5M describe the removal, storage and protection of soils, and selected overburden materials or substitutes during construction and reclamation operations of the Wild Horse Ridge site. Five tables summarize the soil information for the entire disturbed area:

Table 2-8 Substitute Topsoil Summary
Table 2-2, Soil Unit Acreage Within the Disturbed Area,
Table 2-7, Reclamation Area Summary, and
Table 2-9, Final Grading Test Sample Density.
Table 5K-1 and 5K-2, Summary of Cut and Fill Volumes

The Permittee considers the Summary Table 2-8 as being the most accurate table in the plan.¹ All other Tables must reconcile with this one. Table 2-7 divides recontoured areas by operational areas and reclamation areas. Table 2-2 is specific to the Wild Horse Ridge and divides recontour acres by soil type within the 3.6 acre Wild Horse Ridge disturbance.

Findings:

The information provided does not meet the requirements of the Regulations. Prior to approval, the Permittee must provide the following:

R645-301-521.165, Topsoil stockpile construction maps must be certified.

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

Appendix 5D provides information on the characteristics of soil, coal and sediment pond sludge through 1989. Appendix 6C Coal & Rock Characteristics has samples of roof and floor through 1995 and includes samples analyzed in January 2003 of roof, floor, coal and sediment pond clean out. The mine roof RM1 samples show that the coal has a pH of 3.7, no neutralization capacity and a boron content of 10 ppm.

¹Personal communication with Charles Reynolds during site visit 3/23/01.

Additional sampling was conducted in 2004 that has yet to be added to App. 6C.

Section 528.320 states that any acid and toxic forming materials from the Bear Canyon #3 and #4 Mines will be buried at the Hiawatha Slurry Pond 5A.

Findings:

The information provided meets the requirements of the Regulations.

RECLAMATION PLAN

TOPSOIL

Analysis:

In Table 2-7, the Permittee itemizes 40.27 acres of disturbed area. In Tables 2-5 and 2-8, the Permittee summarizes the available topsoil and substitute topsoil for the 40.28 acre as approximately 52,000 yd³. Table 2-7, itemizes the 7.3 acres of the Wild Horse Ridge (areas TS-12 through TS-15). However, only 3.6 acres will be recontouring during reclamation (Tables 2-2 and 2-7). The difference is due to:

1. The Wild Horse Ridge access road, 3.04 acres of which is pre-existing; and
2. The lower conveyor belt access road, 0.36 acres of which will not require grading during final reclamation; and
3. The upper conveyor belt access road, 0.3 acres of which will not require regrading during final reclamation.

On January 27, 2003, the Division received a permit amendment describing the **transfer of 1,000 cu yds of soil from the Blind Canyon tunnel development (TS 15) to the Tank Seam reclamation site for use as fill**. This transfer of material started a ripple in the cut/fill reclamation plans. There are no changes to the total amount of fill required, only the source of fill. A source of fill for the new Tank Seam portals is the Tipple yard. Testing of the Tipple yard soils prior to transfer to the Wild Horse Ridge Tank seam pad is requested.

Blind Canyon seam sample RFM-1 was submitted with this amendment. The analyses will be included in Appendix 6-C. The Blind Canyon seam coal is acidic and also toxic due to its Boron content. Tank Seam sample RFM-5 is in the main entry and will be taken in 2003.

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Findings:

The information provided does not meet the requirements of the Regulations. Prior to approval, the Permittee must provide the following, in accordance with:

R645-301- 623.100 and 731.300, The results of roof and floor sampling from site RM5 shown on Plate 5-1C must be provided as per Section 623.100 which indicates that the Permittee will again analyze the #3 Blind Canyon Seam and the #4 Tank Seam for acid/toxic-forming potential as soon as the mine progresses to the sample points shown on Plates 5-1 A and 5-1C.

RECOMMENDATIONS:

Request certification of topsoil stockpile maps and analysis from recent roof and floor sampling.