

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

October 7, 2008

TO: Internal File

THRU: Peter Hess, Environmental Scientist III/Team Lead. *PH by SCS*

FROM: Priscilla Burton, Environmental Scientist III/Soils. *PB by SCS*

RE: Phase I Bond Release Slurry Pond 4 and 5, Co-Op Mining Corporation, Hiawatha Mine, C/007/0011, Task 3035

SUMMARY:

The premining land use of these reclaimed lands is described on Exhibit IV-4 as residential/industrial use. The post mining land use will be the same, with vegetation seeded for wildlife and range (Sec. 333). Reclamation was designed to leave the historic portals associated with the Hiawatha #1 and #2 mines and the two Consolidated Fuel Co. mines (Sec. 412.140). The Hiawatha cemetery will not be affected by the reclamation (Section 411.141.2). An alternate historical district for the railroad corridor is discussed on page 5-41.

The requirements for Phase I bond release application are outlined in Tech Directive 006. The partial bond release available for a Phase I application is outlined in R645-301-880.310.

Phase I bond release for the 106.5 acres associated with Slurry pond 4/Refuse Pile 2, Slurry Pond 5 Main Cell, a portion of the Preparation Plant, and Borrow areas A and F **is not yet recommended**. The regarded and topsoiled area to receive Phase I bond release, is located in Sec. 27, 34 and 35 of T. 15 S., R. 8 E., east of the railroad tracks (mainline). As Built information was provided with a bond release application received on August 13, 2008, as required by R645-301-880.210. Most deficiencies (identified through review Task 2895, March 7, 2008) were addressed by this application dated August 13, 2008. **Three deficiencies were not addressed. Bond release is not recommended until the Division receives a response to the following:**

R645-301-121.200 and R645-301-880.110, HCCI committed to sampling and analysis of replaced topsoil (pg. 2-10). Division records dated March 17, 1997 indicate that soil analysis

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from topsoil on Slurry pond #5 were received. The analyses resulted in a fertilizer recommendation. The bond release application should confirm methods of fertilization of the reclaimed sites (slurry, refuse, and borrow areas). ●The application should provide information on further testing, if any, done since 1997, on the east half of slurry pond five.● The MRP describes separate handling of the surface horizons from borrow area A for replacement onto the borrow areas after reclamation. However, a Division field report dated December 3, 1996 indicates that this procedure may have been abandoned. The bond release application should verify whether the lowest excavated horizon at borrow area A was ripped and seeded or whether the lowest horizon excavated was covered with stockpiled surface soil and then seeded.● The bond release application should also settle questions of depth and volume cut from Borrow Area A as recorded in Table II-12 and on p. 2-10.

R645-301-880.110, Appendix V-15 should be adjusted to reflect the completion of Slurry pond 5 and the separate reclamation of slurry pond 5A.

R645-301-880.110, The bond release application should confirm type of roughening employed at slurry ponds and the borrow areas and detail type of mulch, rate of application and method application on each site.

TECHNICAL ANALYSIS:

IDENTIFICATION OF INTERESTS

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

Analysis:

The Mining and Reclamation Plan (MRP) Chapter I contains information on corporate ownership for the Hiawatha Mine. (Section R645-301-112). Hiawatha Coal Company, Inc. (HCCI) is the Permittee and operator of the site. Elliot Finley is the Resident Agent and President of HCCI.

The area under review for Phase I bond release, is located in Sec. 34 and 35 of T. 15 S., R. 8 E. In this Phase I bond release location, the surface lands and leases are owned by ANR Company. CW Mining subleases the coal from ANR Co.

Findings:

The information provided meets the minimum requirements of the Regulations.

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

There are 290 acres in the Hiawatha disturbed area (as listed on the Hiawatha Inspection Report form). However, the MRP reports a total of 360 disturbed acres, of which, 250 acres will be reclaimed to wildlife and range habitat (Sec. 333, p. 36, dated 07/11/08).

Excluding roads, there are 221.36 disturbed acres are in the lower Hiawatha area (Sec. 241, p 37). Page 2-37 reports 106.5 acres have been reclaimed and Table II-13 itemizes the remaining reclamation work to be completed, including those areas not listed on page 2-37, such as Slurry Pond 5A Table III-3 lists approximately 112 acres within the lower Hiawatha area that will not be reclaimed as follows: roads 30.3 acres; railroad yard 15.2 acres; town 66.3 acres. The areas of reclamation in the vicinity of the preparation plant are illustrated on Exhibit II-4. Exhibit II-4A and pg. 2-37 provides the status of reclaimed and affected lands as of 2008 as follows:

- 26.37 acres of the 26.37 acre slurry pond 4/refuse pile 2 reclaimed;
- 5.51 acres of the 23.87 acre preparation plant reclaimed;
- 9.12 acres of Borrow Area F (all) reclaimed;
- 40.39 acres of the 40.39 acre Slurry pond 5 main cell reclaimed (15.51 acres remain active as a sediment basin as reported in Table II-13);
- 19.83 acres of the 29.11 affected acres reclaimed.

The total reclaimed acreage under consideration for Phase I bond release is 106.5 acres as detailed on page 2-37 of the MRP, Section 241. According to information on page 2-37, that leaves 39.23 acres to be reclaimed in the lower Hiawatha area. Exhibit II-4A provides a reference for the location of the reclaimed and remaining acres identified on page 2-37.

Earthwork (including seeding) at the Slurry pond 4/Refuse Pile 2, Slurry Pond 5 Main Cell, a portion of the Preparation Plant, and Borrow areas A and F was undertaken during the years 1996 – 2001 (according to Division records and the 2005 Annual Report). Refuse pile No 2 was constructed over Slurry Ponds 2 and 3 (pg. 5-78). Coarse refuse from Refuse pile #2 was pushed over the fines in Slurry Pond #4 during reclamation. The outslope was reduces to 4h:1v. The Slurry Pond #4/Refuse 2 site, along with borrow area F was seeded in 1996 (p. 2-39)

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Slurry pond 5 (main cell) was re-mined and the embankments were pushed inward to a grade of 5h:1v. (2-39). Substitute topsoil from Borrow Area "A" was applied to a depth of sixteen inches. Seeding of at Slurry Pond #5 (main cell) was completed in the fall 1999 (p. 2-37, 2-39 and Table 5-7) or in the Fall of 2000 (Appendix VIII-5). The work is described in Sections R645-301-241, -242, -243, -244 and R645-301-541 of the MRP. Depth of topsoil application and seeding treatments are shown on Ex. II-4. Seed mix No 1 (Table III-5) was used on the borrow areas and seed mix #2 (Table III-6) was used on the slurry impoundments and refuse areas.

Site visits on April 18 and 23, 2008 documented surface roughening and the 16 inch topsoil cover depth on slurry ponds and refuse piles (shown on Ex II-4). Method of mulch application and type of mulch is not known.

Almost twenty acres described as "Affected Areas" have been reclaimed and are shown on Ex. II-4A as RA-1. They include sediment ponds and areas of coal fine accumulations. Future accumulations of coal fines will be placed either in slurry pond #1 or in Slurry pond #5A (pp. 5-104 and 5-106 of Sec. 541).

HCCI committed to sampling and analysis of replaced topsoil (pg. 2-10, and pg. 5-104). Division records dated March 17, 1997 indicate that soil analysis from topsoil on Slurry pond #5 were received. The analyses resulted in a fertilizer recommendation. A fertilizer recommendation was also made for Slurry Pond #4 (Davidson memo dated October 8, 1996). The bond release should confirm methods of fertilization of the reclaimed sites (slurry, refuse, and borrow areas). The bond release should provide results of any testing done since 1997, on the east half of slurry pond five. No further information was received on August 13, 2008.

Table II-12 and page 2-10 relates the depth of and volume of soil cut from Borrow Area A. The MRP describes separate handling of the surface horizons from borrow area A for replacement onto the borrow areas after reclamation (pg.2-41 and pg. 5-108). However, a Division field report dated December 3, 1996 indicates that this procedure may have been abandoned. The bond release application should also verify whether the lowest excavated horizon at borrow area A was ripped and seeded or whether the lowest horizon excavated was covered with stockpiled surface soil and then seeded. No further information was received on August 13, 2008.

There are 54.74 acres remaining to be reclaimed in the Hiawatha Area (pg. 2-37 and Table II-13). The proposed reclamation of Slurry Ponds 1 and 5A is described on pages 2-39 through 2-42. Sampling commitments for acid/toxic forming materials are included in this description. The northern portion of slurry pond 5, which is referred to as pond 5A was authorized in 2001* to receive coal mine waste from the Bear Canyon Mine. Slurry pond 5A is also being re-mined (pg 5-29, dated 2007). Slurry pond 5A is also used for run-off control (pg. 5-64) and will be the last structure to be reclaimed (pg. 5-78).

*According to amendment AM01C waste was to be sampled and analyzed. Potentially acid/toxic forming refuse placed in Slurry pond 5A will be covered with four feet of soil. The 2005 and 2006 annual reports indicate that no refuse had been brought to "the north cell" of slurry pond 5 since 2001.

Findings:

The information provided does not meet the requirements of Tech Directive 006 "Requirements for Phased Bond Release" and the Rule:

R645-301-121.200 and R645-301-880.110, HCCI committed to sampling and analysis of replaced topsoil (pg. 2-10). Division records dated March 17, 1997 indicate that soil analysis from topsoil on Slurry pond #5 were received. The analyses resulted in a fertilizer recommendation. The bond release application should confirm methods of fertilization of the reclaimed sites (slurry, refuse, and borrow areas).

- The application should provide information on further testing, if any, done since 1997, on the east half of slurry pond five.
- The MRP describes separate handling of the surface horizons from borrow area A for replacement onto the borrow areas after reclamation. However, a Division field report dated December 3, 1996 indicates that this procedure may have been abandoned. The bond release application should verify whether the lowest excavated horizon at borrow area A was ripped and seeded or whether the lowest horizon excavated was covered with stockpiled surface soil and then seeded.
- The bond release application should also settle questions of depth and volume cut from Borrow Area A as recorded in Table II-12 and on p. 2-10.

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.

Analysis:

Coal Mine Waste and Refuse Piles

The proposed reclamation topography is shown on Exhibit V-13 (dated 1998), and associated cross-sections for Slurry Pond 4 V-13C and for Slurry pond 5 V-13D. For all slurry

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ponds/refuse sites a total of 1,495,577 yd³ cut and a total of 1,490,117 yd³ fill is expected (p.2-39).

Appendix V-15 provides an estimation of cut (120,444 cu yds) and fill (125,259 cu yds) for slurry pond 5 including 5A. The information for Slurry pond 4/Refuse pile 2 was deleted upon completion of the reclamation. This Appendix should be adjusted to reflect the completion of Slurry pond 5 and the separate reclamation of slurry pond 5A. No changes to Appendix V-15 were found in the August 13, 2008 application.

Lifts of two feet and compaction to 90% maximum dry density are described in Section 541 (pg. 5-90). The MRP describes sixteen inches of soil cover over the mine waste based on the characteristics of the coal mine waste and on test plots (Sec. 231.200 ,p. 2-12 through 2-21 and App. III-5). In addition, Slurry Pond 5 was re-sampled on September 25, 1996 (Davidson, Field report) and found to be non-toxic/non acidic (Davidson memo dated 11/5/1996).

Findings:

The information provided does not meet the requirements of Tech Directive 006 “Requirements for Phased Bond Release” and the Rule:

R645-301-880.110, Appendix V-15 should be adjusted to reflect the completion of Slurry pond 5 and the separate reclamation of slurry pond 5A.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

Surface roughness for the slurry ponds were achieved by either a ripper or backhoe (Section 541, pg. 5-104). The borrow areas were to be ripped, disked, and raked prior to seeding and mulching (Sec. 541, pg. 5-109). Reclamation treatments are shown on Ex. II-5 and discussed in Sec. 341.230. The MRP states that mulch type and application may vary, but that the regraded borrow site and access road and the slurry ponds were to be treated with 1 ton/acre mulch.

No further information was found in the August 13, 2008 application. The bond release application should document method of mulch application and type of mulch.

Site visits on April 18 and 23 documented roughening on reclaimed areas, but revealed an erosion problem on the north side of Slurry Pond #4 (See Insp. Rpt. # 1621). I returned to the ditch north of Slurry Pond #4 on October 7, the day before the official bond release inspection and noted that the repair of the ditch was being undercut and should be observed by the Division regularly prior to the Phase II bond release request (see Insp. Rpt. #1793).

Findings:

The information provided does not meet the requirements of Tech Directive 006 "Requirements for Phased Bond Release" and the Rule:

R645-301-880.110, The bond release application should confirm type of roughening employed at slurry ponds and the borrow areas and detail type of mulch, rate of application and method application on each site.

RECOMMENDATIONS:

Phase I bond release application requires more information prior to approval.

The bond release inspection should provide an opportunity to view the reclamation around the historic portals associated with the Hiawatha #1 and #2 mines and the two Consolidated Fuel Co. mines (Sec. 412.140).