

# TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

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March 7, 2008

TO: Internal File

THRU: Wayne Western, Environmental Scientist III/Team Lead. *WAW*

FROM: Priscilla Burton, Environmental Scientist III/Soils. *PWB by an*

RE: Phase I Bond Release Slurry Pond 4 and 5, Co-Op Mining Corporation, Hiawatha Mine, C/007/0011, Task ID #2895

## SUMMARY:

Phase I bond release for the 95.92 acres is not recommended. As Built information was not provided and was requested by another reviewer under R645-301-880.210. Other deficiencies are listed in this document.

On January 11, 2008, Hiawatha Coal Co., Inc. requested Phase I bond release for the regrading and topsoil coverage of Slurry pond 4/Refuse Pile 2, Slurry Pond 5 Main Cell, a portion of the Preparation Plant, and Borrow areas A and F. The total acreage under consideration for Phase I bond release is 95.92 acres as detailed on page 2-37 of the MRP, Section 241. The area under review for Phase I bond release, is located in Sec. 34 and 35 of T. 15 S., R. 8 E., east of the railroad tracks (mainline).

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 Phase I application is outlined in R645-301-880.310.

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**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). There are a total of 222.87 acres in the lower Hiawatha area (Sec. 241, p 37). In the vicinity of preparation plant there are 218 acres that will be reclaimed to wildlife and range habitat (Sec. 333, p. 36, dated 1992). However p. 2-37 itemizes only 126 .17 total acres to be reclaimed. 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 1998 as follows:

- 25.41 acres of the 26.37 acre slurry pond 4/refuse pile 2 reclaimed;
- 5.58 acres of the 23.87 acre preparation plant reclaimed;
- 9.12 acres of Borrow Area F (all) reclaimed;
- 22.73 acres of the 40.39 acre Slurry pond 5 (main cell) reclaimed.

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The total acreage under consideration for Phase I bond release is 95.92 acres as detailed on page 2-37 of the MRP, Section 241. According to information on page 2-37, that leaves 30.25 acres to be reclaimed in the lower Hiawatha area. As Built drawings that have been requested (R645-301-880.210) should provide 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). The bond release application indicates that the work was completed in 1999 (p. 2-37) or in the Fall of 2000 (Appendix VIII-5). The MRP indicates that the work on Slurry pond 5 is either ongoing in 2007 (pg. 5-63) or completed in October 1999 (Table 5-7). 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.

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 reduced to 4h:1v. The slurry pond #4/Refuse 2 site, along with borrow area F was seeded in 1996 (p. 2-39).

Slurry pond 5 was re-mined and the embankments were pushed inward to a grade of 5h:1v. (2-39). This application indicates that an additional 40.39 acres of slurry pond 5 (the main cell) was reclaimed since the last page revision in 1998. The application also shows that the 16.87 acre Borrow Area A was reclaimed after 1998, and that 1.45 acres remain to be reclaimed in Borrow Area A. The application should indicate the date seeding for Slurry pond 5 and borrow area A.

The proposed reclamation of Slurry Pond 5A is also described on page 2-39. 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).

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\*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.

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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 evidence of testing 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 (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 settle questions of depth of and volume of soil cut from Borrow Area A as recorded in Table II-12 and on p. 2-10. 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.

**Findings:**

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

**R645-301-121.100**, Exhibit II-4A provides the status of reclaimed and affected lands as of 1999. The bond release application indicates that the work was completed in 1999 (p. 2-37) or in the Fall of 2000 (Appendix VIII-5). 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). The MRP indicates that the work on Slurry pond 5 is either ongoing in 2007 (pg. 5-63) or completed in October 1999 (Table 5-7). To eliminate confusion, please provide a current map to reference the location of the reclaimed areas and remaining acres identified on page 2-37 and indicate grading and seeding dates for each Phase I reclaimed site.

**R645-301-121.200**, The total acreage under consideration for Phase I bond release is 95.92 acres as detailed on page 2-37 of the MRP, Section 241. Please check the column and row totals on p. 2-37 for accuracy. For example, the numbers in the total acres and remaining columns do not add up. In addition, the numbers in the preparation plant row do not add up. • There are a total of 222.87 acres in the lower Hiawatha area (Sec. 241, p 37). In the vicinity of preparation plant there are 218 acres that will be reclaimed to wildlife and range habitat (Sec. 333, p. 36, dated 1992). Chap II, page 2-37 itemizes 126 .17 total acres to be reclaimed in the lower Hiawatha area. 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. Please indicate in the bond release application whether or not all these statements are still accurate.

**R645-301-880.110**, The application does not provide dates of seeding or grading, but only indicates that an additional 40.39 acres of slurry pond 5 (the main cell) was reclaimed since 1998. [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.] The application also shows that the 16.87 acre Borrow Area A was reclaimed after 1998, and that 1.45 acres remain to be reclaimed in Borrow Area A. Please provide dates of final seeding for each site. • 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 ponds/refuse sites a total of 1,495,577 yd<sup>3</sup> cut and a total of 1,490,117 yd<sup>3</sup> fill is expected (p.2-39).

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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.

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**, This Appendix 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 tons/acre mulch.

The bond release application should document method of mulch application and type of mulch.

The site inspection should document roughening on reclaimed areas.

**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.

A field visit should provide documentation of depth of topsoil treatments (shown on Ex II-4). Site inspection should document roughening on reclaimed areas and document method of mulch application and type of mulch.

The field visit should also verify whether wind-blown accumulations of coal fines were covered or removed from the east of Pond #4 in the sagebrush and grass area (per Davidson technical report 5/12/2997). The field visit should provide documentation that surface coal was removed from "affected non-refuse" areas and buried in the slurry ponds, as stated on p. 2-37 of Sec. 241. Other references to removal of surface coal in the MRP indicate that the 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).

The field visit 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).