

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

January 7, 2009

TO: Internal File

THRU: Pete Hess, Environmental Scientist III/Team Lead

FROM: Priscilla Burton, Environmental Scientist III/Soils

RE: Phase I Bond Release Slurry Pond 4 and 5, Co-Op Mining Corporation, Hiawatha Mine, C/007/0011, Task 3104

GA by DAZ
PB by JES

SUMMARY:

Phase I bond release is dependent upon completing backfilling and regarding and drainage control of the bonded area in accordance with the approved reclamation plan (R645-301-880.310). Tech Directive 006 provides guidance for the Phase I bond release application.

Phase I bond release request is for the 106.5 acres associated with Slurry pond 4/Refuse Pile 2, Slurry Pond 5 Main Cell, Borrow area F, and a portion of the Preparation Plant and a portion of Borrow Area A. The regraded 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).

The bond release application should be conditionally approved pending receipt of

- a complete application package that compiles a clean copy of all narrative, tables and maps received on six separate occasions (January 11, 2008, July 9, July 21, August 13, August 19, and January 5, 2009).
- a revision to Ex. V-13 Final Surface Configuration and associated cross sections, showing accurate existing topography of slurry pond 5A and Borrow Area A in accordance with R645-301-521.150 and accurate final configuration of Borrow Areas A and F in accordance with R645-301-542.300.

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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. From 1997 to 2008, CW Mining subleased the coal from ANR Co. Information under review as Task 3084 indicates that this lease was transferred to HCCI in 2008.

Findings:

The information provided meets the minimum requirements of the Regulations.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

The premining land use is residential/industrial (Exhibit IV-4). 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.

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

This bond release application was reviewed under four separate task numbers: Task 2895, Task 3015, Task 3035, and the current submittal. The most recent information was assigned as Task 3104, January 5, 2009. The review of this information was requested ahead of all other assigned tasks.

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 (in the preparation plant vicinity) 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

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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 (main cell) was re-mined and the embankments were pushed inward to a grade of 5h:1v. (2-39). Refuse in Slurry pond 5 was sampled on September 25, 1996 by the Division and Dan Guy, Blawckhawk Engineering (consultant to US Fuel). The results of the refuse analysis are included in Appendix VII-18. As a result of these analyses, the Division found the refuse to be non-toxic/nonacidic (Davidson, Field report and memo dated 11/5/1996). However, after having found these analytical reports in the MRP and seeing them first hand, I am of the opinion that these analytical results indicate that the refuse has the potential to become acid forming over time, based upon its pyritic sulfur content and the reported pyritic AcidBase Potential between 7.6 and -0.19 Tons/1000Tons.

Substitute topsoil from Borrow Area "A" was applied to the regraded surface 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). In addition, I noted accumulations of salt on the eastern level surface of slurry pond #5 and marked the location on the PFO copy of Exhibit V-13. These salt accumulations are areas of limited vegetation growth and excessive erosion. Sediment from this area drains into slurry pond 5A.

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. (These soil analyses of cover material could not be found in the MRP.) A fertilizer recommendation was also made for Slurry Pond #4 (Davidson memo dated October 8, 1996). Due to a fire in the engineering building at the Hiawatha town site in 2006, HCCI cannot confirm methods of fertilization of the reclaimed sites (slurry, refuse, and borrow areas), nor can they provide results of any testing done since 1997, on the east half of slurry pond 5.

Borrow Area A reclamation topography is shown on App. VII-18, Figure VII-18B, with cross-sections on Ex. A-VII-18A. 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 and App VII-18). However, a Division field report dated December 3, 1996 indicates that

this procedure may have been abandoned. Due to a fire in the engineering building at the Hiawatha town site in 2006, HCCI cannot 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 horizon soil and then seeded. Neither Exhibit V-13 (dated 1999), nor exhibits recently provided with the bond release application reflect final topography of Borrow Area A to reflect the 114,000 yd³ cut and Borrow Area F to reflect the 42,000 yd³ cut (Table II-12).

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).

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 remined (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:

In the course of this review, several commitments were noted in the MRP for final reclamation activity and they will be added to the annual report commitment list.

Records kept at the Hiawatha Town site were destroyed in a fire sometime in 2006. Consequently, HCCI can not provide information on soil handling. Limited information the Division files and the 2008 bond release inspections (recounted above) document surface soil cover depth on the slurry ponds as required by Tech Directive 006 "Requirements for Phased Bond Release" and the Rule R645-301-880.110. Conditional approval of the bond release should be based upon receipt of a revision to Ex. V-13 and associated cross sections, showing accurate final configuration of Borrow Areas A and F in accordance with R645-301-542.300.

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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 reclamation topography is shown on Exhibit V-13 (dated 1998), and associated cross-sections for Slurry Pond 4 and borrow area F on V-13C and for Slurry pond 5 on V-13D. Neither Exhibit V-13 (dated 1999), nor exhibits recently provided with the bond release application clearly indicate existing contours of Slurry Pond 5A.

Slurry ponds/refuse cut and fill balance is stated on p.2-39 and in App. VIII-1, Tables 1-4. Remaining cut/fill work is estimated at 120,444 yd³ cut, with approximately the equivalent 125,259 yd³ fill for Slurry Pond 5A (see Table 1, App V-15) and 94,259 yd³ cut (to be spread out as topsoil over preparation plant area) with 9,326 yd³ fill at the upper railroad yard (see Table 4, App. V-15).

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 remined (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). An as built drawing and cross-sections of slurry pond 5A and borrow area A will be required at final reclamation.

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). Four feet of cover is required by R645-301-553.252 over any acid/toxic forming waste.

Findings:

The information provided does not meet the requirements of Tech Directive 006 "Requirements for Phased Bond Release" or the Rule: R645-301-880.110. Conditional approval of the bond release should be based upon receipt of a revision to Ex. V-13 and associated cross

sections, showing accurate existing topography of slurry pond 5A in accordance with R645-301-521.150.

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. Method of mulch application and type of mulch is not known. As stated in the cover letter with the information received on January 5, 2009, HCCI cannot confirm reclamation treatments due to a fire in the engineering building at the Hiawatha town site in 2006.

Site visits on April 18 and 23, 2008 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, 2008, the day before the official bond release inspection and noted that the repair of the ditch was being undercut and should be observed closely by the Division regularly prior (see Insp. Rpt. #1793).

Findings:

Records kept at the Hiawatha Town site were destroyed in a fire sometime in 2006. Consequently, HCCI can not confirm roughening and mulching treatments used at the slurry ponds and the borrow areas. The 2008 bond release inspections documented surface roughening on the slurry ponds as required by Tech Directive 006 "Requirements for Phased Bond Release" and the Rule R645-301-880.110.

RECOMMENDATIONS:

Division staff should promote a greater presence at all future reclamation activity, so that a permanent record of all reclamation earthwork and treatments and is ensured through the inspection report record.

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Technical site visits in 2008 revealed an erosion problem on the north side of Slurry Pond #4 (See Insp. Rpt. # 1621 and #1793). This ditch was repaired, but continues to be undercut and should be observed closely by the Division.

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