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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

January 24, 2007

TO: Internal File

THRU: Wayne Western, Environmental Scientist, Team Lead

FROM: Steve M. Fluke, Senior Reclamation Hydrogeologist

RE: Midterm Review, Canyon Fuel Company, LLC, Banning Siding Loadout, C/007/0034, Task ID #2619

SUMMARY:

The mid-term review for the Banning Siding Loadout was initiated on August 29, 2006. The review includes a review of the MRP to ensure that the plan contains commitments for application of the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flows outside of the permit area.

The Banning Siding Loadout MRP contains commitments to use BTCA to prevent additional contributions of suspended solids to stream flows outside of the permit area. However, the midterm review should not be completed until the Permittee provides all required updates to the MRP to address deficiencies.

TECHNICAL ANALYSIS:

OPERATION PLAN

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:

Water-Quality Standards And Effluent Limitations

The Banning Siding Loadout has two UPDES (Utah Pollution Discharge Elimination System) outfalls permitted by the Utah Division of Water Quality (DWQ) under General Permit No. UTG040011. Both outfalls are for the sediment pond. UPDES 001 is for a dewatering pump discharge (primary sediment pond discharge) and UPDES 002 is for the sediment pond emergency spillway outfall. Effluent limitations set by the permit include total suspended solids (TSS) limits of 70.0 mg/L for a daily maximum discharge, 35 mg/L for a 7-day average discharge, and 25 mg/L for a 30-day average discharge. The UPDES permit located in Appendix 7-4 of the MRP has expired. An up-to-date UPDES permit should be included in the MRP.

Diversions: General

Diversions within the permit area consist of berms, a drainage channel (diversion ditch) and culverts. With the exception of the three haul road culverts, all the diversions are temporary and will be removed when no longer needed or upon final reclamation. In general, upon review of the MRP, it appears all diversions have been designed, located, constructed, and used to prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area. Specifics are provided in the sections below.

Diversions: Miscellaneous Flows

The Banning Loadout diversions are described in Section R645-301-732.220 in the MRP (p. 7-22) and are shown on Exhibit 7-1. Runoff at the site is primarily controlled through compact berms constructed around the site periphery and to a lesser extent controlled through embankments and drive-through berms. These structures are designed to direct runoff toward the drainage channel and sediment pond. Design criteria for the berms and embankments are shown in Figure 7-3.

The drainage channel is located at the southwest portion of the site and directs site runoff to the sediment pond. The channel is designed to handle the 25-year, 24-hour precipitation event of 2.15 inches. The design criteria for the drainage channel is shown in Figures 7-3 and 7-5 and design calculations are presented in Appendix 7-6. According to Exhibit 7-1, a 100-foot length of the diversion channel is replaced by a 24-inch culvert. However, the design criteria and calculations for this culvert are not presented in the MRP. The permittee must add this information to the MRP, or update Exhibit 7-1 if the culvert was not constructed.

Three culverts have been constructed beneath the haul road to divert undisturbed runoff as shown on Exhibit 7-1a. The culverts have been designed to handle the 100-year, 6-hour precipitation event of 2.0 inches in order to be approved for permanent post-mining land use. According to the design calculations for the culverts presented in Appendix 5-3, the culvert diameters are 48-, 36-, and 24-inches for watersheds 1, 2, and 3, respectively. However, the watersheds shown on the watershed map on page 4 of Appendix 5-3 cannot be made out (and therefore verified) because the figure is poor quality.

Diversions: Perennial and Intermittent Streams

There are no perennial or intermittent streams within or adjacent to the Banning Loadout permit area.

Stream Buffer Zones

No land within 100 feet of a perennial or intermittent stream within the Banning Loadout permit area has been disturbed.

Sediment Control Measures

Sediment control measures are designed to prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area; meet the more stringent of applicable State or Federal effluent limitations; and, minimize erosion to the extent possible. Structures used for the run-off control plan for the permit area include disturbed and undisturbed area diversion channels, a sedimentation pond, containment berms, silt fences, and road diversion culverts.

Alternative Sediment Control Areas (ASCAs)

There are five alternate sediment control areas (ASCAs) described in Section R645-301-742.100 of the MRP (ASCAs 1 through 5). The ASCAs are briefly described in the MRP and all utilize silt-fencing as the sole means of sediment control (p. 7-27). Runoff calculations for all but ASCA 1 are presented in Appendix 7-9. There is also a discrepancy between the size of ASCA 1 as presented in the text (0.08 acres) and Exhibit 7-1 (0.43 acres). Silt fencing is one method that represents the Best Technology Currently Available (BTCA) in controlling sediment in areas that do not report to the sedimentation pond.

Siltation Structures: General

The Banning Loadout sedimentation pond is the only siltation structure within the permit area. Description of the sedimentation pond is and operation and maintenance is described in Section R645-301-732.200. The sedimentation pond design calculations are presented in Appendix 7-6 of the MRP. The riprap splash apron calculations are presented in Appendix 7-7. Plans, cross sections, and details of the sedimentation pond are provided in Exhibits 7-2 and 7-3.

Siltation Structures: Sedimentation Ponds

The Banning Loadout sedimentation pond is designed to contain the runoff from a 10-year/24-hour precipitation event of 1.78 inches (calculated to be 1.18 acre-feet), along with a minimum of ten years of sediment storage (calculated to be 0.27 acre-feet). The principal spillway is designed to safely discharge a 25-year/24-hour precipitation event of 2.15 inches. A review of the sedimentation pond design calculations presented in the MRP has verified that the pond design meets the standards given under R645-301-742.220. Appendix 7-8 presents the as-built Sedimentation Pond Certification signed and stamped by a State of Utah Registered Professional Engineer. The certification certifies that the pond is built according to the design plan presented in the MRP.

Siltation Structures: Exemptions

There is one Small Area Exemptions (SAEs) for the substation area described in Section R645-301-742.240 of the MRP and shown on Exhibit 7-1. However, the substation area has been removed from the permit area. The SAE should be removed from the MRP and Exhibit 7-1 should be updated to show the current site layout.

Discharge Structures

The discharge structures within the permit area consist of the principle overflow and the emergency spillway on the sedimentation pond. The discharge structures are described in Section R645-301-732.200 of the MRP. Design calculations are presented in Appendices 7-6 and 7-7. The principle overflow consists of a 30" CMP riser pipe and anti-vortex extension connected to an 18" CMP conduit leading to the spillway outlet riprap apron. The emergency spillway crest is one foot above the crest of the principle spillway to allow outflow for water during events larger than those for which the pond was designed. The emergency spillway is designed assuming a peak outflow equal to the peak principle spillway outflow of 10.01 cfs.

Findings:

The Banning Loadout MRP contains commitments to use the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flows outside of the permit area. BTCA means that the operator is employing the best methods available at any one time. However, a review of the Hydrologic Information of the MRP has identified needed updates and/or corrections that constitute deficiencies for this midterm review:

R645-301-731.520, -751, The current UPDES permit needs to replace the expired UPDES permit in Appendix 7-4 of the MRP.

R645-301-742.332, -742.310, The 24-inch culvert that replaces a 100-foot length of diversion channel needs design criteria and calculations presented in the MRP. Or, if the culvert was not constructed, Exhibit 7-1 should be updated.

R645-301-742.330, The watershed map on page 4 of Appendix 5-3 should be updated to show the extent of watersheds 1, 2 and 3.

R645-301-742.100, The text in Section R645-301-742.100 and/or Plate 7-1 should be updated to accurately describe the area contained within ASCA 1. Runoff calculations for ASCA 1 should be presented in Appendix 7-9, as they are for the other four ASCAs.

R645-301-742.240, Small Area Exemption #1 associated with runoff from the substation area should be removed from the MRP and Exhibit 7-1 should be updated to show the current site layout that includes the removal of the substation area from the permit area.

RECOMMENDATIONS:

The Banning Loadout MRP contains commitments to use BTCA to prevent additional contributions of suspended solids to stream flows outside of the permit area. However, the midterm review should not be completed until the Permittee provides all required updates to the MRP to address deficiencies.