T E C H N I C A L M E M O R A N D U M

Utah Coal Regulatory Program

November 1, 2005

TO: Internal File

THRU: Peter H. Hess, Environmental Scientist III/Engineering, Team Lead

FROM: Steve M. Fluke, Reclamation Hydrogeologist

RE: SUFCO Midterm Review, Canyon Fuel Company, LLC., SUFCO Mine, C/041/002, Task ID #2363

SUMMARY:

The mid-term review for the SUFCO Mine was initiated on November 18, 2004 as Task ID #2068. 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. A review of Chapter 7, Hydrology, revealed that the MRP contains commitments to use BTCA to prevent additional contributions of suspended solids to stream flows. However, it was also noted that the MRP contains deficiencies requiring updates of sediment control information, (Task ID#2325). SUFCO responded to the deficiencies with updates to the MRP submitted to the Division on September 6, 2005. The Division assigned Task ID #2363 to this review. The responses to the hydrology deficiencies are adequate and the midterm review should be completed.

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 SUFCO Mine has three UPDES (Utah Pollution Discharge Elimination System) points permitted by the Utah Division of Water Quality (DWQ): UPDES 001 – emergency mine discharge point; UPDES 002 – discharge from the East Spring Canyon sediment pond; and UPDES 003 – discharge from the underground workings into the North Fork of Quitchupah Creek. 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. Text in Section 7.2.8.3 PHC Determination, Sediment Yield, has been updated with the TSS limits for 7-day and 30-day average discharge (Task ID #2325).

Diversions: General

All diversions within the disturbed area are temporary and have been designed to handle the 10-year/6-hour precipitation event of 1.3 inches. Diversions within the disturbed area consist of ditches and culverts. Diversions can be found at the facility area in East Spring Canyon, at the portal and substation areas in Link Canyon, and at the waste rock disposal site. According to the MRP, all diversions have been designed, located, constructed, maintained, and used to prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area.

Diversions: Miscellaneous Flows

The mine's seventeen diversion ditches are listed in Section 7.3.2.3, Diversions, Diversion Ditches, and described in Section 7.4.2.3, Diversions, Diversion Ditches, of the MRP. The diversion ditch designs are summarized in Table 7-9. The first twelve diversion ditches listed are for the facility area in East Spring Canyon and appear to be accurately presented. The last five diversion ditches listed are for the Link Canyon substation areas and portal. The first two diversion ditches listed for Link Canyon refer to the reclaimed Substation No. 1 ditch and road swell. These two ditch descriptions have been updated in Sections 7.3.2.3 and 7.4.2.3 and Table 7-9 to reflect the reclaimed status of the Substation No. 1 area (Task ID #2325). The remaining three Link Canyon diversion ditches appear to be accurately presented.

The mine's nine diversion culverts are listed in Section 7.3.2.3, Diversions, Diversion Culverts, and described in Section 7.4.2.3, Diversions, Diversion Culverts, of the MRP. The diversion culvert designs are summarized in Table 7-10. The culverts appear to be accurately described in Section 7.3.2.3 and Table 7-10. The description list in Section 7.4.2.3 has been updated for the East Spring Canyon and Mud Spring Hollow bypass system (Task ID #2325).

Section 7.4.2.3, Diversions, *General Requirements*, discusses drainages and diversions within the permit area. Drainage areas and diversions for the Link Canyon facilities are referenced to Plate 5-2D in this section. However, Plates 5-2E and 5-2F have been added to the MRP for the Substation No. 2 and the Link Canyon portal surface facilities, respectively. References to these plates have been added to Section 7.4.2.3 (Task ID #2325).

Diversions: Perennial and Intermittent Streams

East Spring Canyon and Mud Spring Hollow are both intermittent streams and are the only streams diverted within the permit area. The stream flows are diverted under the fill of the mine facility by two large corrugated metal pipes. The diversion culverts are described in Sections 7.3.2.3 and 7.4.2.3.

Stream Buffer Zones

As stated in Section 7.3.1.6, Stream Buffer Zones, of the MRP, all perennial and intermittent streams in the mine area are protected by 100-foot stream buffer zones on either side of these streams.

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. As stated in Section 7.3.2, Sediment Control Measures, the structures used for the run-off control plan for the permit area include disturbed and undisturbed area diversion channels, sedimentation ponds, containment berms, silt fences, and road diversion culverts. As outlined in the MRP text of Sections 7.3.2 and 7.4.2, and the calculations and design of sediment control structures presented in Appendices 7-8 through 7-15, these sediment control measures are designed using industry standards and what is generally considered the best technology currently available (BTCA).

Alternative Sediment Control Areas (ASCAs)

There are eleven alternate sediment control areas (ASCAs) listed in Section 7.4.2 of the MRP that make up 3.256 acres of the permit area. The ASCAs described in the MRP have been implemented in the field, and represent the Best Technology Currently Available (BTCA) in controlling sediment in areas that do not report to the sedimentation pond. Three ASCA descriptions (ASCAs #2, #8, and #9) have been updated in response to the initial midterm review (Task ID #2325).

Siltation Structures: General

Siltation structures within the disturbed area consist of three sedimentation ponds: the concrete sediment trap and main sedimentation pond located at the existing facility, and a sedimentation pond located at the waste rock disposal site. The operation and maintenance of the facility sedimentation ponds are described in Section 7.3.2.2 of the MRP and in Volume 3 of the MRP for the waste rock disposal site sedimentation pond.

Siltation Structures: Sedimentation Ponds

Siltation structures in the main facilities area consist of a concrete sediment trap and a sediment pond. The concrete sediment trap is designed to remove in excess of 65% of all solids from the disturbed area runoff before the water enters the main sedimentation pond. The sediment trap, constructed in series with the main pond, was implemented in order to reduce the size of the lower pond, as well as reduce the cleaning frequency necessary to keep the lower pond in compliance. The sedimentation pond and concrete sediment trap together contain the volume of sediment equivalent to 0.1 acre-foot per acre of disturbed area. The sedimentation pond will fully contain the runoff from the 10-year/24-hour storm event and will adequately pass the 25-year/6-hour precipitation event through the emergency spillway.

The waste rock disposal site sedimentation pond was designed to contain a sediment volume equal to 0.0697 acre-foot per acre of disturbed area. The sedimentation pond will fully contain the runoff from the 10-year/24-hour storm event and will adequately pass the 25-year/6-hour precipitation event through the primary and emergency spillways.

Siltation Structures: Exemptions

The SUFCO Mine disturbed areas contain three areas classified as Small Area Exemptions (SAE's). These are: 1) the south side of the original substation pad area (above the office building); 2) the spring collection field in Convulsion Canyon; and 3) the water tank area northeast of the main facilities area. The total area for SAE is 0.623 acres. The demonstration for the SAE is a SEDCAD computer program as shown in Appendix 7-16, Vol. 10 of the MRP.

Discharge Structures

The discharge structures that exist within the disturbed areas consist of the primary and emergency spillways on each of the three sedimentation ponds. The spillway of the concrete sediment trap consists of an overflow weir which discharges to a 24-inch CMP culvert. The culvert drains directly to the main sedimentation pond. The primary spillway on the main sedimentation pond consists of a 12-inch steel riser with a covered oil-skimmer. The primary spillway discharges directly to the riprap lined emergency spillway channel below the pond. The emergency spillway on the waste rock disposal site sedimentation pond consists of a riprap-lined ditch of trapezoidal cross-section.

Findings:

The SUFCO 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.

RECOMMENDATIONS:

The SUFCO MRP contains commitments to use BTCA to prevent additional contributions of suspended solids to stream flows outside of the permit area. The hydrology portion of the midterm review is complete.