

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

November 17, 2005

TO: Internal File

THRU: D. Wayne Hedberg, Permit Supervisor

FROM: Steve Fluke, Reclamation Hydrogeologist/Team Lead

RE: SITLA Muddy Lease Amendment, Canyon Fuel Company, LLC., SUFCO Mine, C/041/0002, Task ID #2354

SUMMARY:

On February 11, 2005, The Division of Oil, Gas and Mining (the Division) received an amendment to include the SITLA Muddy Tract to the Mining and Reclamation Plan (MRP) for the SUFCO Mine. The Lease area adds 2,134.19 acres to the existing approved permit area of 24,632.95 acres. No new surface disturbance is proposed as a result of the additional lease area. The application was assigned Task ID #2157 by the Division. The amendment was returned to SUFCO with deficiencies on July 29, 2005. Subsequently, SUFCO submitted a response to the deficiencies on October 11, 2005, which has been assigned Task ID #2354. This memo addresses the hydrology section of the amendment review.

Hydrologic information provided in the amendment meets the requirements of the Coal Mining Rules. The proposed amendment should be approved.

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TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

The application meets the hydrology Environmental Description for Climatological Resource Information as provided in R645-301-724.400. The Division finds that these standards are met because information on climatic resources representative of the SUFCO Mine region, including the SITLA Muddy Creek Tract, is presented in the MRP in Section 7.2.4.4, Climatological Information, and Appendix 7-20, Investigation of Surface and Groundwater Systems in the SITLA Muddy Tract Area, Sevier County, Utah: Probable Hydrologic Consequences of Coal Mining in the SITLA Muddy Tract and Recommendations for Surface and Groundwater Monitoring. Climatological data has been collected since 1986 at a weather station located at the mine surface facilities. Because of the localized nature of summer rainstorms in the area, a second weather station was added in 2004 to the Pines tract at the head of the East Fork of Box Canyon downstream of Joe's Mill Ponds. This station collects temperature and precipitation data and is operational from May through October. The Joe's Mill Pond weather station is located approximately one-mile east of the SITLA Muddy Creek Tract. Climatological data is submitted with the mine's annual report.

Findings:

The information provided meets the hydrology requirements of the Environmental Description for Climatological Resource Information of the State regulations.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Sampling and Analysis

The application meets the hydrology Environmental Description for Sampling and Analysis as provided in R645-301-723. The Division finds that these standards are met because, as stated in Section 7.2.3, Sampling and Analysis, of the mine's existing MRP, "all water samples collected for use in this MR&P have been analyzed according to the methods in either the "Standard Methods for the Examination of Water and Waste Water" or 40 CFR parts 136 and 434".

Baseline Information

The application meets the hydrology Environmental Description for Baseline Information as provided in R645-301-724. Hydrologic baseline data for the SITLA Muddy Tract is presented in Appendix 7-20, Investigation of Surface and Groundwater Systems in the SITLA Muddy Tract Area, Sevier County, Utah: Probable Hydrologic Consequences of Coal Mining in the SITLA Muddy Tract and Recommendations for Surface and Groundwater Monitoring. Appendix 7-20 presents the seasonal field and laboratory data for spring, groundwater well, and stream monitoring sites within and adjacent to the SITLA Muddy Tract. The data was compiled from the Division electronic database (EDI) located at the internet site: <http://ogm.utah.gov/coal/edi/wqdb.htm>. The Muddy Tract water monitoring data on the Division EDI was compiled from the report "Muddy Creek Tract: Surface and Groundwater Technical Report" (October 2004) prepared by Cirrus Ecological Solutions, LC, for the Manti-La Sal National Forest. The report is the result of 3.5 years of field data collection for the Muddy Tract, including the SITLA lease area, beginning in the fall of 2000. Baseline seasonal field and laboratory water monitoring data includes all of the recommended monitoring sites for the SITLA Muddy Tract.

Baseline Cumulative Impact Area Information

The application meets the hydrology Environmental Description for Baseline Cumulative Impact Area Information as provided in R645-301-725. The Division finds that these standards are met because the report prepared by Cirrus Ecological Solutions, LC, has been provided to the Division by the Manti-La Sal Forest Service. The report, in combination with Appendix 7-20, Investigation of Surface and Groundwater Systems in the SITLA Muddy Tract Area, Sevier County, Utah: Probable Hydrologic Consequences of Coal Mining in the SITLA Muddy Tract and Recommendations for Surface and Groundwater Monitoring, included with the SITLA Muddy Creek Tract amendment, adequately presents hydrologic and geologic information for the cumulative impact area needed by the Division to provide an assessment of the probable cumulative hydrologic impacts.

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Modeling

No modeling has been included as part of the SITLA Muddy Tract amendment.

Probable Hydrologic Consequences Determination

The application meets the hydrology Environmental Description for Probable Hydrologic Consequences (PHC) Determination as provided in R645-301-728. The PHC was updated by providing Appendix 7-20, Investigation of Surface and Groundwater Systems in the SITLA Muddy Tract Area, Sevier County, Utah: Probable Hydrologic Consequences of Coal Mining in the SITLA Muddy Tract and Recommendations for Surface and Groundwater Monitoring, to the MRP. The determination of PHC (Appendix 7-20) was prepared by Petersen Hydrologic, Inc., and is based on the baseline hydrologic information provided in the report prepared by Cirrus Ecological Solutions, LC. The PHC determination makes findings on potential hydrologic impacts due to coal mining in the SITLA Muddy Tract as outlined in R645-301-728.300. The PHC determination is accurate and complete and finds that the coal mining activities proposed for the SITLA Muddy Tract will not result in the contamination, diminution, or interruption of State-appropriated water or of surface water or groundwater within or adjacent to the permit area. The PHC also recommends a water monitoring plan for the SITLA Muddy Tract to verify that mining-related activities do not adversely impact groundwater or surface-water resources.

In addition, at the request of the Division (Task ID #2157), the PHC provides information on current and long-term discharge rates from the mine.

Groundwater Monitoring Plan

The application meets the hydrology Environmental Description for Groundwater Monitoring Plan as provided in R645-301-724.100. The Division finds that these standards are met because the approved groundwater monitoring plan in the MRP was updated based on a PHC determination for the Muddy Creek Tract. The update to the monitoring plan includes the addition of one spring monitoring site located within the SITLA Muddy Creek Tract (M-SP53), two spring monitoring sites located adjacent to the SITLA Muddy Creek Tract (M-SP08 and M-SP39), and one monitoring well site located within the SITLA Muddy Creek Tract (01-8-1). The spring monitoring sites are to be monitored quarterly for flow and field parameters and the groundwater monitoring well site is to be monitored quarterly for water levels. In addition, one spring monitoring site (GW-13) located within the SITLA Muddy Creek Tract is part of the existing SUFCO Mine groundwater monitoring plan. Following their review of the amendment and consultation with the Division, the Manti-La Sal Forest Service has requested the additional monitoring of springs located further downgradient of the proposed area to be mined. To comply with this request, the Permittee has included the monitoring of three springs located approximately 1 to 1.5 miles north of the SITLA Muddy Tract (M-SP18, M-SP01, and M-SP-02).

Surface-Water Monitoring Plan

The application meets the hydrology Environmental Description for Surface Water Monitoring Plan as provided in R645-301-724.200. The Division finds that these standards are met because the approved surface water monitoring plan in the MRP was updated based on a PHC determination for the Muddy Tract. The update to the monitoring plan includes the addition of one stream monitoring site (M-STR5) located downstream of the proposed permit boundary in Cowboy Creek. Cowboy Creek is a perennial stream that flows through a portion of the northwest corner of the SITLA Muddy Tract. There are no other perennial or intermittent streams to monitor within the proposed permit area. As stated in the Division's engineering technical memo for this review (Task ID# 2157), the SUFCO Mine must make a commitment to submit a mitigation plan prior to conducting full extraction mining beneath Cowboy Creek (R645-301-525.480).

State Appropriated Water Rights

The application meets the hydrology Environmental Description for State Appropriated Water Rights as provided in R645-301-724.100, -724.200. The Division finds that these standards are met because the water rights summary (Appendix 7-1, Water Rights Data) has been updated with water rights located within and adjacent to the SITLA Muddy Creek Tract. There are thirteen water rights listed by the Utah Division of Water Rights (DWR) within the SITLA Muddy Tract: five are for stockwatering directly on a spring; five are for stockwatering directly on a stream; and three are for stockwatering directly on a reservoir (stockwatering pond). The United States Forest Service owns all of the water rights listed.

Findings:

The information provided meets the Hydrologic Resource Information requirements of the State regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Monitoring and Sampling Location Maps

The application meets the hydrology Maps, Plans, and Cross Sections of Resource Information for Monitoring and Sampling Location Maps as provided in R645-301-722.300. The Division finds that these standards are met because Plate 7-3, Hydrologic Monitoring

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Stations, has been updated to include the additional water monitoring and sampling sites proposed for the SITLA Muddy Tract.

Subsurface Water Resource Maps

The application meets the hydrology Maps, Plans, and Cross Sections of Resource Information for Subsurface Water Resource Maps as provided in R645-301-722.100. The Division finds that these standards are met because Plate 7-1, Potentiometric Surface of the Blackhawk/Starpoint Aquifer, shows the potentiometric of the regional aquifer for the SUFCO Mine area. The plate does not need to be updated to include the Muddy Creek Tract because the plate shows groundwater elevations from 1989 prior to progression of mining that has caused several wells to be abandoned. One groundwater monitoring well (01-8-1) was added to the Muddy Creek Tract in 2001. However, the inclusion of groundwater elevation data from this well would not provide a more complete potentiometric surface map of the regional aquifer than the 1989 data provides given the fewer number of wells now available.

Plate 7-2B, Surface and Groundwater Rights, Pines and SITLA Muddy Tracts, has been updated to include the water right locations for the SITLA Muddy Creek Tract and adjacent areas.

Surface Water Resource Maps

The application meets the hydrology Maps, Plans, and Cross Sections of Resource Information for Surface Water Resource Maps as provided in R645-301-722.200. The Division finds that these standards are met because the location of surface-water bodies within and adjacent to the permit area is presented on Plate 7-2B, Surface and Groundwater Rights, Pines and SITLA Muddy Tract, and Plate 7-3, Hydrologic Monitoring Stations. Both plates have been updated to include the SITLA Muddy Tract and adjacent areas.

Well Maps

No oil, gas or water wells exist within the SITLA Muddy Tract.

Findings:

The information provided meets the Maps, Plans, and Cross Sections of Resource Information requirements of the State regulations

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:

Groundwater Monitoring

The application meets the hydrology Environmental Description for Groundwater Monitoring as provided in R645-301-724.210. The Division finds that these standards are met because the approved groundwater monitoring plan in the MRP was updated based on a PHC determination for the Muddy Creek Tract. The update to the monitoring plan includes the addition of one spring monitoring site located within the SITLA Muddy Creek Tract (M-SP53), two spring monitoring sites located adjacent to the SITLA Muddy Creek Tract (M-SP08 and M-SP39), and one monitoring well site located within the SITLA Muddy Creek Tract (01-8-1). The spring monitoring sites are to be monitored quarterly for flow and field parameters and the groundwater monitoring well site is to be monitored quarterly for water levels. In addition, one spring monitoring site (GW-13) located within the SITLA Muddy Creek Tract is part of the existing SUFCO Mine groundwater monitoring plan. Following their review of the amendment and consultation with the Division, the Manti-La Sal Forest Service has requested the additional monitoring of springs located further downgradient of the proposed area to be mined. To comply with this request, the Permittee has included the monitoring of three springs located approximately 1 to 1.5 miles north of the SITLA Muddy Tract (M-SP18, M-SP01, and M-SP-02).

Surface Water Monitoring

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commitment to submit a mitigation plan prior to conducting full extraction mining beneath Cowboy Creek (R645-301-525.480).

Diversions: Perennial and Intermittent Streams

No diversions of perennial and intermittent streams are proposed for the SITLA Muddy Creek Tract. No new disturbed surface areas are proposed for the additional lease area.

Stream Buffer Zones

The application meets the hydrology Operational Plan for Stream Buffer Zones as provided in R645-301-731.600. No surface mining within 100 feet of a perennial or intermittent stream is proposed for the SITLA Muddy Creek Tract.

Findings:

The information provided meets the Hydrologic Information of the Operation Plan requirements of the State regulations

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

The application meets the Reclamation Plan for the Hydrologic Reclamation Plan as provided in R645-301-731.600. No update to the existing hydrologic reclamation plan was submitted because no new surface disturbance is planned for the SITLA Muddy Tract.

Findings:

The information provided meets the hydrology requirements for the Reclamation Plan of the State regulations.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-729.

Analysis:

The application meets the requirements of the Cumulative Hydrologic Impact Assessment (CHIA) as provided in R645-301-729. The Division finds that these standards have been met because the hydrologic information provided in the application is adequate to update the Quitchupah-Muddy Creek CHIA. The Division will update the CHIA by incorporating the addition of the SITLA Muddy Tract.

Findings:

The information provided meets the Cumulative Hydrologic Impact Assessment Information requirements of the State regulations.

RECOMMENDATIONS:

Hydrologic information provided in the application meets the requirements of the Coal Mining Rules. The proposed amendment should be approved.