

EXPLORATION TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

June 14, 2006

TO: Internal File

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

FROM: Steve M. Fluke, Environmental Scientist/Reclamation Hydrogeologist

RE: Minor Coal Exploration, SITLA Muddy Tract, Canyon Fuel Company, LLC, SUFCO Mine, C/041/002, Task ID #2390

SUMMARY:

This Technical Memo addresses the hydrologic aspects of the Notice of Intent to Conduct Minor Coal Exploration submitted to the Division by Ark Land Company on December 12, 2005. The application is for wire line core-drilling project to be conducted on the Muddy Coal Tract, located in Sevier County, Utah. The project is to use truck-mounted drill rigs at two borings where a previously Division-approved helicopter-supported drilling program was abandoned during the fall of 2005 (Task ID #2134). This new project is part of a four-hole exploration plan that includes the two holes to be drilled on the School and Institutional Trust Lands Administration (SITLA) portion of the Muddy Coal Tract. The other two holes are to be drilled on the Federal portion of the Muddy Coal Tract and are not included in this review. All exploration activities will occur on the U.S. Forest Service, Manti-LaSal National Forest surface.

The hydrologic deficiencies have been adequately addressed in the revised application and no new deficiencies have been determined. The application should be approved.

EXPLORATION TECHNICAL ANALYSIS:

COMPLIANCE DUTIES

Regulatory Reference: 30 CFR 772.13; R645-202.

OPERATIONAL STANDARDS

Regulatory Reference: 30 CFR 772.13; R645-202-100.

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Analysis:

Roads

The application meets the hydrology Performance Standards for Roads as provided in **R645-202-232**. Temporary road construction on “ancillary” roads is planned for the project that includes widening of the existing National Forest Trail (NFT) 025, and constructing access roads to the two drill pads. The plan calls for the use of a D-8 Cat or equivalent to widen NFT 025 approximately 12 feet and to construct the access roads. The Division believes that the applicable hydrology regulations will be met for road construction and reclamation because:

- 1) The proposed road construction is for temporary, ancillary roads (not “primary” roads);
- 2) Adequate surface drainage control is planned;
- 3) The roads are not located in a perennial or intermittent stream channel;
- 4) The roads are located on a mountain ridge that should minimize downstream sedimentation and flooding; and
- 5) The roads will be reclaimed upon completion of the drilling.

The plan calls for water flows to be controlled along the temporary roads with the use of water bars, drain outs, and silt fences. Furthermore, the Permittee has committed to following the recommendations of the U.S. Forest Service as a response to Stipulation #5 of the Special Coal Lease Stipulations presented as Appendix A in the application.

Hydrologic Balance

The application meets the hydrology Performance Standards for Roads as provided in **R645-202-235**. According to the Spring and Seep survey conducted by Cirrus Environmental Solutions, L.C., in 2001, no springs or seeps are located in the vicinity of the proposed project. Map 2 of the application shows the location of the drill site in relation to Cowboy Creek. According to the figure, the drill site disturbed area is to be 460 feet upslope of Cowboy Creek. The application states that there will be no diversion of overland flows and that all drilling fluids will be contained within portable tanks and mud pits. Because of the handling of excess drilling fluids, overland flows, and the distance of the disturbed area from Cowboy Creek, it is expected that the potential for adverse impacts to the Cowboy Creek stream channel are negligible.

Because there are few groundwater-monitoring sites currently within the SITLA Lease area, if groundwater is encountered, the Division encourages the completion of the boring as a groundwater monitoring well to aid in the evaluation of groundwater conditions for future permitting. If any measurable groundwater is encountered during drilling, the depth, geology, and flow/head will be noted in the drill logs. In consultation with the Division, the conditions

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will be evaluated as a potential groundwater-monitoring well location prior to abandonment and reclamation of the boring.

The application states that if the boring were to be completed as a groundwater-monitoring well, a nominal 1.5- to 2.0-inch diameter well screen and steel casing would be installed to below the deepest mineable coal zone. A monitoring well design is shown on Figure 2 of the application. Because of the limitations of the drilling equipment, an effective monitoring well may not be possible due to a small hole annulus (nominally 3-5/8 inch diameter) limiting the effectiveness of sandpack placement. If a groundwater monitoring well is installed, a well completion form will be submitted to the Division in order to aid in the evaluation of data collected from the well.

During drilling of the exploration holes, any water necessary for drilling will be obtained from Quitchupah or Muddy Creeks. An approved "Temporary Change of Water" permit issued from the Division of Water Rights will be forwarded to the Division prior to project startup. In the event the drill hole begins making excess water, the water will be stored in portable poly tanks for proper disposal.

Acid- or toxic-forming materials

The application meets the hydrology Performance Standards for Acid- or Toxic-Forming Materials as provided in **R645-202-236**. Samples will be taken from the 10-foot interval above and below each seam of mineable thickness for analysis of acid- and toxic-forming materials. Excess drill core and cuttings will be buried in the mud pit at a depth greater than four feet. If necessary, excess drill core and cuttings will be hauled off Forest Service land and properly disposed.

Findings:

The Division considers the information adequate to meet the hydrology Performance Standards of the Coal Exploration requirements of the R645 Coal Mining Rules.

RECLAMATION STANDARDS

Regulatory Reference: 30 CFR 772.13; R645-202-200.

Analysis:

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Borehole

The application meets the hydrology Performance Standards for Acid- or Toxic-Forming Materials as provided in **R645-202-243**. The application makes a specific commitment of how the boring will be abandoned once exploration activities are complete in accordance with Federal and State Regulations. If the boring is not completed as a groundwater monitoring well, the boring will be plugged with cement, cement/bentonite slurry, or bentonite chips to their complete depth. Surface casings will either be removed or cut flush with the surface.

Findings:

The Division considers the information adequate to meet the hydrology Reclamation Standards of the Coal Exploration requirements of the R645 Coal Mining Rules.

RECOMMENDATIONS:

The application should be approved.