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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

August 20, 2012

TO: Internal File

THRU: Priscilla Burton, Lead *mwb*

FROM: April A. Abate, Environmental Scientist III *AAA 8/20/2012*

RE: North Lease Permit Modification, Canyon Fuel Company, Skyline Mine, Permit C/007/0005, Task ID #4092

SUMMARY:

On May 2, 2012, the Utah Division of Oil Gas & Mining received an application for an amendment to the Mining & Reclamation Plan (MRP) of the Skyline mine. The application seeks approval to extend the Skyline Mine North Lease area approximately 770.52 acres. The amendment is considered a significant revision.

This memo addresses the application's compliance with the geology (R645-301-600) section of the Utah Coal Mining Rules.

Approval is not recommended until the following deficiencies are addressed:

[R645-301.632]: Please add information to Section 2.2 of the MRP referencing subsidence monitoring studies performed at the mine. Currently no information referring to subsidence monitoring exists in Section 2.2 of the MRP. This information should reference all subsidence studies performed in the permit area. Adding a reference to this information in Section 2.2 to where this information is included elsewhere in the MRP is acceptable.

[R645-301.642]: Please include the commitment to reclaim any monuments and/or surface markers used as subsidence monitoring points.

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TECHNICAL ANALYSIS:

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

The Permittee has requested to add an additional 770.52 acres, known as the North Lease Area to the existing permit area. The Skyline Mine permit area with the North Lease Modification will total 4,061.52 acres.

The North Lease area is known as Tract 2 of Federal coal lease UTU-67939, managed by the U.S. Bureau of Land Management. Surface area is managed by the Manti La Sal National Forest. The lease area is located in:

Township 12 South, Range 6 East, SLBM

Section 25: lots 3 and 4, SW $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$
Section 26: lots 1-4, N $\frac{1}{2}$ S $\frac{1}{2}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$
Section 34: NE $\frac{1}{4}$ NE $\frac{1}{4}$

Findings:

The information discussing the North Lease Modification area is sufficient to meet the Utah Coal Rules.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

Geologic resource information is discussed in Section 2.2, Volume 1 of the Skyline MRP. No additional geologic information was presented with the North Lease Modification submittal. The geologic strata found within the North Lease area, is part of the Mesa Verde group of Upper Cretaceous- aged units. This group is found regionally throughout the Skyline permit area. The geologic strata in the North Lease area is the same as the geology throughout the remainder of the permit area. The geologic descriptions discussed in Section 2.2 already encompasses the

North Lease area. As such, the lithologic characteristics of each geologic formation that makes up the Mesa Verde have already been summarized in the MRP.

Elevations and Locations of Test Borings

According to information discussed in Section 2.3.1 of the Skyline MRP, a test boring 91-35-1 had previously been drilled in Section 35 T12S R6E located between Winter Quarters and Woods Canyons in the North Lease area describing the nature, depth and thickness of the coal seam. This boring was drilled to a depth of approximately 1,500 feet and shown on Drawing 2.3.6-1.

Oil and Gas Wells

Rule R645-301-622.400 requires any oil and gas well within the permit area be shown on a map. Map 2.2.8-1 circa 1989 lists two former natural gas test wells as abandoned. As part of this review, another review of more up-to-date oil and gas well maps was performed. According to the oil and gas map found on the Utah GIS portal website/Division of Oil, Gas and Mining web interactive map (<http://stage.mapserv.utah.gov/oilgasmining/>), there have been no additional wells installed within the Skyline permit area since that time. Therefore, the information presented in the MRP is up to date with respect to oil and gas wells.

Coal Quality and Chemical Analysis

According to page 2-20 of Volume 1 of the Skyline MRP, the North Lease is a continuation of mining the Lower O'Connor "A" seam. Drill holes have already been advanced in the floor; roof and coal of the North Lease have been collected and summarized in Appendix A-3 of the MRP. The results indicated that the potential for generating acid or toxicity are low.

Subsidence Monitoring

According to rules R645-301.632 require information referencing subsidence monitoring and a determination of the commencement and degree of subsidence in the context of analyzing measures required to prevent or reduce material damage inside the permit area. The Permittee has provided Map 4.17.3-1A depicting the North Lease pre-subsidence survey information; however no subsidence monitoring locations are shown on the map. Under the performance standard rule 642 the Permittee is required to provide a commitment to reclaim any monument or surface marker used as a subsidence monitoring point.

Findings:

R645-301.632]: Please add information to Section 2.2 of the MRP referencing subsidence monitoring studies performed at the mine. Currently no information referring to

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subsidence monitoring exists in Section 2.2 of the MRP. This information should reference all subsidence studies performed in the permit area. Adding a reference to this information in Section 2.2 to where this information is included elsewhere in the MRP is acceptable.

[R645-301.642]: Please include the commitment to reclaim any monuments and/or surface markers used as subsidence monitoring points.

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:

Drawing no. 2.2.1-1 depicts the General Geologic Map of the Permit Area. Regional geology, along with faults and formation names are all depicted on this map. The North Lease area (Sections 25, 26, 34 of T12S R6E) is already included on this map.

The map showing exploration well 91-35-1 in the North Lease area is shown on Drawing 2.3.6-1. The elevation of the well is shown as approximately 9,309 above sea level based on the contour map. The depth of the well is approximately 1,500 feet.

Findings:

The maps that were included in the submittal contain adequate and up-to-date information to meet the R645-301-600 Geology Coal Rules.

RECOMMENDATIONS:

Approval is not recommended until the following deficiencies are addressed:

[R645-301.632]: Please add information to Section 2.2 of the MRP referencing subsidence monitoring studies performed at the mine. Currently no information referring to subsidence monitoring exists in Section 2.2 of the MRP. This information should reference all subsidence studies performed in the permit area. Adding a reference to this information in Section 2.2 to where this information is included elsewhere in the MRP is acceptable.

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