

April 4, 2003

TO: Internal File

FROM: Gregg A. Galecki, Senior Reclamation Specialist, Hydrgeologist/Team Lead

RE: Drilling and Completion Project, Canyon Fuel Company, LLC, Skyline Mine, C/007/005-AM03C

**SUMMARY:**

The Division of Oil, Gas, and Mining (Division) received the above-cited amendment to the Skyline Mine and Reclamation Plan (MRP) from Canyon Fuel Company (CFC) on April 1, 2003. The amendment proposes to modify the currently approved MRP to include the drilling and completion of an additional mine dewatering water well (JC-3). The well will be located on the existing James Canyon well pad. The JC-3 well is anticipated to produce approximately 4700 gallons/minute of mine water when completed. The current technical analysis addresses only issues related to the physical installation and development of the well from a hydrologic perspective.

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**TECHNICAL MEMO**

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**TECHNICAL ANALYSIS:**

**GENERAL CONTENTS**

Reference: 30 CFR 778.15; R645-301-114

**HYDROLOGIC RESOURCE INFORMATION**

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

**Analysis:**

**Probable Hydrologic Consequences Determination**

The current amendment addresses the installation and development of the well only. Potential impacts to the hydrology due to surface disturbance do not exist because the well is being constructed on an existing well pad. The operation of the well will be addressed under a separate amendment.

**Findings:**

Information provided adequately addresses the minimum requirements of the Hydrologic Resources Information section of the 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:**

### **General**

#### **Groundwater Monitoring**

Tables 2.3.7-1 (Comprehensive Water Quality Analytical Schedule – Low Summer Flow) and 2.3.7-2 (Abbreviated Water Quality Analytical Schedule – High Spring and Late Fall) have been modified to include well JC-3. This is in addition to the water quality analysis required under the UPDES permit.

JC-3 is not being sampled for age-dating analysis due to the mixed sources of the water being discharged. The water being discharged, a mixture of water derived from numerous sources within the mine, is being compromised for age-dating analysis by the time they reach the discharge area. However, mine in-flows encountered in the 11 Left, 12 Left A, and 12Left B panels (Figure 2 sites E through G, respectively – October 2002 PHC Appendix F) will be analyzed for an age-date, and reported on a quarterly frequency as long as they remain accessible. The sites located in the 11 and 12 panels are the primary/significant sources of in-flows currently encountered in the mine. CFC commits to continued age-analysis as long as sustained significant inflows continue (Pg. 2-35c).

The combined monitoring of JC-1 (screened from below the mine workings) and in-mine flows sampled at their source adequately addresses the age-dating characterization requested by the Division.

#### **Acid- and Toxic-Forming Materials and Underground Development Waste**

Water in contact with the mine workings has been isolated, and communication with other water zones has been avoided through the construction design of the well. Well construction designs (Plate 3.2.11-A, C-3, Vol.2) indicates 25-feet of grout will be emplaced between the well casing and the bedrock above the mine workings. This grout will act as a seal of water located within the mine workings, and minimize any potential contamination of groundwater located above. The well construction designs also indicate that grouting of the bedrock below the coal seam may occur as an option during construction. Otherwise, plugging of the well will be conducted during abandonment as outlined in Section 2.2.11 (Pg. 21a ‘Plans for Casing and Sealing Holes’) of the MRP.

#### **Water-Quality Standards And Effluent Limitations**

The water quality standard and effluent limitations are outlined in the PacifiCorp Minor Industrial UPDES permit. The water quality standards and effluent limitations are industry standards with the exception of Total Dissolved Solids (TDS), which will have an upper limit of 242 mg/l.

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The following quote from the MRP (Pg. 3-63(b)) adequately addresses the status of documenting the UPDES permit discharge records: “While Skyline Mine remains the SMCRA permittee and operator regarding the installation and operation of the JC-3 well, Pacificorp has chosen to be the holder of the UPDES permit for the discharge of mine-water from the well. Skyline will obtain from Pacificorp, and provide to the Division, the monthly UPDES DMR records for this well discharge”.

Discharge of water from both well JC-3 and well JC-1 and will be conveyed through a 16-inch HDPE pipe to Electric Lake. The combined discharge of JC-1 and JC-3 will be 8,600 gpm (3,900 gpm and 4,700 gpm, respectively), which is well below the 10,300 gpm carrying capacity of the pipe (Pg. 3-63(b)).

**Findings:**

Information provided adequately addresses the minimum requirements of the Operation Plan – Hydrologic Information section of the regulations.

**SIGNS AND MARKERS**

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

**Analysis:**

Markers outlining the disturbed area boundary have been provided to the site previously with the installation of wells JC-1 and JC-2 on the site. No additional information is necessary.

**Findings:**

Information provided adequately addresses the minimum requirements of the Operation Plan – Signs and Markers section of the regulations.

**MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

**Analysis:**

**Mining Facilities Maps**

No modification to the mining facilities map was necessary because the drill pad site already existed with the installation of wells JC-1 and JC-2. Plates 1.6-3 and 1.6-3A – Permit

Area maps are referenced for the site location of the JC-well pad site within the permit area. Plate 3.4-1 is referenced to provide a more detailed illustration of construction within James Canyon.

CFC has provided more detailed information than is typically required with Plate 3.2.11-A, Sheets C-1 through C-4. These plates provide detailed illustrations of the construction of the well (JC-3), pump installation, and piping leading from the well complex (JC-1, JC-2, and JC-3) to the discharge point in Electric Lake.

### **Monitoring and Sampling Location Maps**

Plate 2.3.6-1 (Location of Hydrologic Monitoring Stations – Volume 1B) has been modified to include well JC-3; essentially the same site as well JC-1.

### **Certification Requirements**

All map, plan, and cross section modifications have been stamped, signed, and dated by David E. Hansen, Registered Professional Engineer #171930(State of Utah).

### **Findings:**

Information provided adequately addresses the minimum requirements of the Operation Plan – Maps, Plans, and Cross Sections of Mining Operations section of the regulations.

## **RECLAMATION PLAN**

### **GENERAL REQUIREMENTS**

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

### **Analysis:**

Well JC-3 is a mine-dewatering well and the reclamation standards currently supplied in the MRP are adequate. Information addressing 'Plans for Casing and Sealing Holes' is outlined in Section 2.2.11 (Pg. 21a) of the MRP.

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**Findings:**

Information provided adequately addresses the minimum requirements of the Reclamation Plan – General Requirements section of the regulations.

## **CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)**

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

**Analysis:**

No hydrologic impacts are associated with the installation of well JC-3, which uses surface facilities previously constructed for wells JC-1 and JC-2. The potential impacts due to the operation of well JC-3 will be addressed in a future amendment.

**Findings:**

Information currently in the MRP adequately addresses the minimum requirements of the Cumulative Hydrologic Impact Assessment section of the regulations.

**RECOMMENDATIONS:**

The adoption of the amendment into the MRP is recommended.