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# WATER QUALITY MEMORANDUM

## Utah Coal Regulatory Program

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October 15, 2013

TO: Internal File

THRU: Steve Christensen, Permit Supervisor SC

FROM: Amanda Daniels, Hydrologist AD

RE: 2012 Fourth Quarter Water Monitoring, Canyon Fuel Company, LLC,  
C/007/0005, Task ID #4227

The Skyline Mine is an operating longwall mine. Current operations are in the North Lease area of the mine. Many mined-out areas of the mine have been sealed-off. Water monitoring requirements can be found in Section 2, especially pages 2-36, 2-36a, 2-36b, 2-37, 2-38, and 2-39 of the MRP.

**1. Were data submitted for all of the MRP required sites?** YES  NO

Second, Third, and Fourth Quarter monitoring requires regular information from 76 sites. Additional locations on streams in the North Lease are monitored for one year before, during, and for one year after their being undermined.

Note: Samples are analyzed for tritium at several sites, plus deuterium, carbon<sup>14</sup>, and oxygen<sup>18</sup> at JC-1. Because determinations of isotopic concentrations can require several months, these values are often reported later than those from field measurements and routine laboratory analyses. The Permittee has always been prompt at getting the isotopic data to the Division as soon as they are received from the lab.

### **In-mine**

The MRP requires sampling at 6 sites categorized as "other" or "in-mine, roof drippers". All 6 are monitored at the surface: CS-12, CS-14, CS-13, MD-1, ELD-1, and SRD-1 are mine discharge stations; CS-13 is a French drain; and ELD-1 is the combined output of JC-1 and JC-3. The Permittee submitted all required information for these sites.

### **Springs**

No springs are monitored during the First Quarter, but 25 springs are monitored through the rest of the year: S10-1, S12-1, S13-2, S13-7, S14-4, S17-2, S22-5, S22-11, S23-4, S24-1, S24-12, S26-13, S34-12, S35-8, S36-12, 2-413, 3-290, 8-253, WQ1-1, WQ1-39, WQ3-6, WQ3-26, WQ3-41, WQ3-43, and WQ4-12 the Permittee submitted all required information for the springs.

## **Streams**

The MRP requires First Quarter sampling at only 4 stream-sites: *CS-6, VC-6, VC-9, and VC-10*, but at 30 sites during the Second, Third, and Fourth Quarters: *CS-3, CS-6, CS-7, CS-8, CS-9, CS-10, CS-11, CS-16, CS-17, CS-18, CS-19, CS-20, CS-21, CS-22, CS-23, CS-24, CS-25, F-10, UPL-10, VC-6, VC-9, VC-10, VC-11, VC-12, WRDS-1, WRDS-2, WRDS-3, WRDS-4, EL-1, and EL-2*. EL-1 and EL-2 are for tritium analysis only, and except for EL-1 and EL-2 (See Note above), the Permittee submitted all required information for these stream sites for the third quarter 2012.

The Permittee monitors additional stream sites in the North Lease (designated as NL-1 through NL-42) monthly for 12 months before, during, and 12 months after their being undermined by the longwall. Monitoring results are reported in the Annual Hydrologic Report (Sec. 2.4.4) and submitted to the database. The Permittee commits to measuring the flow monthly in June through October, and measuring flow during other months if the sites are accessible. NL sites 3, 15, 17, 18, 20, 24, 26, 30, and 31 were monitored during third quarter 2012.

## **Wells**

Water levels are measured at 13 wells during the Second, Third, and Fourth Quarters: *W79-10-1B, W79-14-2A, W79-26-1, W79-35-1A, W79-35-1B, W2-1, W20-4-1, W99-4-1, W99-21-1, W20-28-1, 91-26-1, W91-35-1, and 92-91-03*. Operational parameters are also measured at 92-91-03. The Permittee submitted all required information for these wells for the third quarter 2012.

Monthly flow measurements are required year round at JC-1 and JC-3. During the Second, Third, and Fourth Quarters, the Permittee also measures all field parameters, TDS, TSS, and Total Phosphorous at both sites once per quarter, plus isotopes C<sup>14</sup>, Tritium, Deuterium, and O<sup>18</sup> at JC-1 once per quarter.

ELD-1 is reported with the "other" or "in-mine, roof drippers" sites. Well JC-3 is permitted as a UPDES point by PacifiCorp. That permit requires PacifiCorp to report flow, oil & grease, TDS, NH<sub>3</sub>, N as nitrate + nitrite, plus total and dissolved As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn, and P. Since July 2004, JC-3 has discharged only once, in October 2007.

Shallow ground water along the Woods Canyon Creek is monitored by 9 piezometers: *WC-1, WC-3N, WC-3S, WC-5N, WC-5S, WC-7N, WC-7S, WC-9N, and WC-9S*. All piezometers were monitored during the third quarter 2012.

The Permittee submitted all required information for the well sites for the third quarter 2012.

## **UPDES**

The UPDES Permit and MRP require weekly monitoring of 3 outfalls: *001, Sedimentation Pond Discharge to Eccles Creek at the Portal; 002, Sedimentation Pond*

*Discharge to Eccles Creek at the Loadout; and 003, the Sedimentation Discharge at the Waste Rock Disposal Site.* DMR parameters (total Fe, TDS, pH, TSS, flow, oil and grease, and specific conductivity, and temperature) are reported to the database as operational parameters. Total Fe is analyzed twice per month rather than weekly. Parameters that are not included in the operational parameter lists in the MRP - such as sanitary wastes, visible foam, and floating solids - are not reported in the electronic submittal to the Division.

Well JC-3 is permitted as a UPDES point by PacifiCorp. For JC-3, Skyline reports only monthly flow during the First Quarter, and monthly flow and quarterly field parameters, TDS, TSS, and T-P during the Second, Third, and Fourth Quarters. (The UPDES permit for JC-3 requires PacifiCorp to report flow, oil & grease, TDS, NH<sub>3</sub>, N as nitrate + nitrite, plus total and dissolved As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, Ag, Zn, and P.) Since July 2004, JC-3 has discharged only once, in October 2007.

The Permittee submitted all required information for the UPDES sites for the third quarter. Outfall 001 flowed throughout the quarter. Outfalls 002 and 003 reported no flow during the entire quarter.

**2. Were all required parameters reported for each site?**

**Springs**      YES [X] NO [ ]  
**Streams**      YES [X] NO [ ]  
**Wells**        YES [X] NO [ ]  
**UPDES**        YES [X] NO [ ]

**3. Were any irregularities found in the data?**

**Springs**      YES [X] NO [ ]

S26-13 October – TSS, total alkalinity, dissolved calcium, total hardness, TDS, conductivity, total calcium  
WQ1-1 October – conductivity  
S35-8 November – conductivity  
36-1 November – conductivity

**Streams**      YES [X] NO [ ]

CS-20 October – Conductivity, dissolved potassium  
CS-9 November – TDS  
CS-3 November – Conductivity  
CS-21 November – Conductivity  
CS-11 – Total calcium

**Wells**            **YES [ X ] NO [ ]**

92-91-03 November – chloride, total manganese  
W91-26-1 October – depth to water

Well 92-91-03, located at the Skyline waste rock facility has seen a steady rise in chloride levels since late 2010 but are still at an acceptable level.

**UPDES**            **YES [ ] NO [ X ]**

UPDES permit UT0023540 (effective December 1, 2009) allows for a maximum daily effluent limitation (MDEL) for total dissolved solids (TDS) of 1,200 mg/L and a 30-day average of 500 mg/L. There is no tons/day loading limit unless the 30-day average exceeds 500 mg/l; then a 7.1 tons/day limit is imposed. Because of ongoing exceedences, particularly at outfall 001, Canyon Fuel Company participates in the Salinity Offset Plan that was approved by DWQ on January 5, 2005 (retroactive to September 2004).

**4. On what date does the MRP require a five-year re-sampling of baseline water data.**

Beginning in 2010 and every five years thereafter, baseline analyses are to be done on samples collected during the 3<sup>rd</sup> Quarter (MRP p. 2-44).

**5. Based on your review, what further actions, if any, do you recommend?**

No further actions are necessary at this time.

**6. Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements?**            YES             NO

**7. Follow-up from last quarter, if necessary.**

None.

**8. Did the Mine Operator submit all the missing and/or irregular data (datum)?**

There were no missing or irregular data.