

# WATER QUALITY MEMORANDUM

## Utah Coal Regulatory Program

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December 20, 2018

TO: Internal File

THRU: Steve Christensen, Permit Supervisor 

FROM: Keenan Storrar, Hydrologist 

RE: Second Quarter 2018 Water Monitoring, Canyon Fuel Company, LLC, Skyline Mine. C/007/005, Task ID #5758

The Skyline Mine is an operating longwall mine. Operations are finished in the north and are now progressing to the southwest into the Flat Canyon Lease area. Many mined-out areas of the mine have been sealed-off. Water monitoring requirements can be found in Section 2, including 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** YES  NO

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-13, CS-14, 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.

**Springs** YES  NO

Thirty-five springs are monitored for 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> Quarters: *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, WQ4-12, SW21-104, SW28-110, SW4-173, SW4-429, SW5-590, SW32-277, SW33-268, SW28-111, SW4-169, and SW32-276.*

Four springs are monitored during the 2<sup>nd</sup> and 4<sup>th</sup> quarters only: *S15-3, S24-1, 2-413, and 8-253*. 8-253 is for tritium analysis only.

**Streams**

YES  NO

The MRP requires 34 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, EL-2, CS-32, CS-33, CS-34, and CS-35*. EL-1 and EL-2 are for tritium analysis only.

The MRP requires 8 sites to be sampled in First Quarter: *CS-12, CS-13, CS-14, CS-6, VC-6, VC-9, VC-10, and SRD-1*.

**Wells**

YES  NO

Water levels are measured at 12 wells during the Second, Third, and Fourth Quarters: *W79-10-1B, W79-26-1, W99-4-1, W20-28-1, 08-1-5, JC-2, 15-21-2, 16-24-1, P17-4-1, P17-33-1, and, P17-34-1*. Operational parameters are also measured at 92-91-03.

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.

**UPDES**

YES  NO

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 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.

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

**Springs**      YES  NO

S15-3: Tritium  
S24-1: Tritium  
2-413: Tritium  
8-253: Tritium

**Streams**      YES  NO

EL-1: Tritium  
EL-2: Tritium

**Wells**      YES  NO

JC-1 AGE: Tritium, Carbon 14, Deuterium, Oxygen 18

**UPDES**      YES  NO

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

**Springs**      YES  NO

**Streams**      YES  NO

CS-12: T-Fe, T-Mn, Cl  
CS-17: Cl  
CS-19: SO<sub>4</sub>  
CS-21: SO<sub>4</sub>

**Wells**      YES  NO

**UPDES**      YES  NO

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 exceedances, 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).

**Other** YES  NO

**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). Baseline will be collected in 2020.

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

None.

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

The operator has been notified of missing data needing to be uploaded to the database for the 2<sup>nd</sup> quarter.

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

The Permittee must submit outstanding age dating analysis when it becomes available. All previous quarter data has been submitted.

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

Yes.