

# WATER QUALITY MEMORANDUM

## Utah Coal Regulatory Program

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January 29, 2016

TO: Internal File

THRU: Steve Christensen, Permit Supervisor 

FROM: Amanda Daniels, Environmental Scientist 

RE: 2015 Second Quarter Water Monitoring, Canyon Fuel Company (CFC), LLC, Dugout Mine, C/007/0039, WQ15-2, Task ID #4914

The Dugout Canyon Mine is currently operational in the Book Cliff Mountain range of Carbon County, UT. Water monitoring data is submitted quarterly to the Division EDI database. Beginning on page 7-40 of the approved Mining and Reclamation Plan (MRP), water monitoring protocols and sampling requirements are provided for surface water, ground water, monitoring wells and Utah Pollutant Discharge Elimination System (UPDES) outfalls. Tables 7-4 and Table 7-5 list the individual monitoring sites and their sampling protocols for ground water and surface water respectively.

**1. Was data submitted for all required sites?**

**Springs** YES  NO

The approved MRP outlines the operational and post-mining monitoring of ten springs (203, 259A, 260, 321, 324, SC-100, SC-116, SC-14, SC-65 and SP-20). The locations of these springs are depicted on Plate 7-1, Hydrologic Monitoring Stations. Groundwater discharge from the old Gilson coal seam workings is also monitored and identified as location MD-1.

**Streams** YES  NO

The approved MRP outlines the monitoring of ten stream sites (DC-1, DC-2, DC-3, DC-4, DC-5, FAN, PC-1A, PC-2, PC-3, and RC-1). Sites DC-4 and DC-5 are sampled during the first wet or dry year as conditions permit. The locations of these streams are depicted on Plate 7-1, Hydrologic Monitoring Stations.

**Wells** YES  NO

The approved MRP outlines the sampling of three monitoring wells (GW-10-2, GW-11-2 and GW-24-1). Table 7-4 and Section 731.200 of the MRP specify that the Permittee will obtain quarterly water level measurements from the wells. Due to the ages of the wells and

deterioration of the casing materials, water quality data is not collected.

Monitoring well GW-24-1 became blocked during the winter of 2000 and was last sampled in September of 1998. The well was removed from monitoring after the 4<sup>th</sup> quarter of 2004. Monitoring well G-11-2 was last monitored in October 2007. Since that time, the Permittee has reported that the well has appeared to have “caved in”. Monitoring well GW-10-2 is still functioning and actively monitored for water level.

Though not required by the approved MRP, three additional monitoring wells (DH-1, DH-2 and DH-3) are monitored at the waste rock disposal site. Water levels are monitored quarterly with additional water quality sampling obtained from DH-1 during low flow periods (i.e. 3<sup>rd</sup> or 4<sup>th</sup> quarter).

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

Operational monitoring is required monthly for six active UPDES outfalls (Permit No. UT0025593):

- **001**-Mine water discharge to Dugout Ck.,
- **002**-Sedimentation pond discharge to Dugout Ck. (disturbed area runoff),
- **003**-Storage water discharge to Dugout Ck. (30,000-gallon water tank discharge),
- **004**-Sedimentation pond (waste rock site) discharge to Grassy Trail Ck. Tributary,
- **005**-Pace Canyon fan portal breakout, mine water discharge to Pace Ck.
- **006**-Sediment trap culvert discharge to Pace Creek (disturbed area runoff from Pace Canyon Fan facility).

Specific effluent limitations and self-monitoring requirements as outlined in the UPDES permit are presented below:

<b>Effluent Characteristics</b>	<b>Effluent Limitations</b>
TDS, tons/day	1.0
Total Suspended Solids (TSS), ppm	70
Total Iron, ppm	1.1
Oil & Grease, ppm	10
Total Dissolved Solids (TDS), ppm	2,400
pH	9

3,000 parts per million (ppm) is the water quality standard for total dissolved solids (as established by the Department of Water Quality) for both Pace Creek and Dugout Creek.

UPDES outfalls 001, 002, and 003 discharged this 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 irregularities found in the data?**

**Springs**      **YES [X] NO [ ]**

It appears that all of the springs monitored on the same day this quarter had higher than normal pH. It would suggest that the pH sensor was not correctly calibrated on that day.

**Streams**      **YES [X] NO [ ]**

DC-2: CaCO<sub>3</sub>  
PC-1A: T-Fe, D-K

**Wells**        **YES [ ] NO [X]**

**UPDES**       **YES [ ] NO [X]**

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

The resampling of baseline data will next be performed in July 2019. In addition, one water sample will be collected at each spring sampling point during low flow period every fifth year, during the year, preceding re-permitting. These samples will be obtained for the analysis of baseline parameters (See Table 7-4).

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

None.