

# WATER QUALITY MEMORANDUM

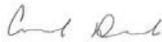
Utah Coal Regulatory Program

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June 27, 2019

TO: Internal File

THRU: Steve Christensen, Coal Program Manager 

FROM: Amanda Daniels, Environmental Scientist 

RE: 2018 4<sup>th</sup> Quarter Water Monitoring, West Ridge Resources, West Ridge Mine, Task ID #5826

The West Ridge 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 7-36 of the approved Mining and Reclamation Plan (MRP), water monitoring protocols and sampling requirements are provided for surface water, ground water, monitoring wells and UPDES outfalls in Tables 7-1, 7-2, 7-3 and 7-4 respectively.

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

## Springs

The approved MRP outlines the monitoring of 8 springs (SP-8, SP-12, SP-13, SP-101, SP-0102, Road Spring, Section 5 Spring and SP-80). Two of the monitored springs (SP-12 and SP-13) discharge from the lower slopes of West Ridge in Whitmore Canyon. Spring SP-8 discharges in the upper drainage of C Canyon. Hanging Rock Spring (S-80) is located near the northwest corner of the permit area and discharges from the east slopes of Whitmore Canyon.

Spring sites SP-13 and Section 5 spring were the only sites that reported flow this quarter.

## Streams

The approved MRP outlines the monitoring of nine stream sites (ST-3, ST-6, ST-8, ST-15, Patterfore, LF-1, LF-2, RF-1 and RF-2).

Grassy Trail Creek is the only intermittent/perennial stream in the permit and adjacent areas. The upper drainages of Grassy Trail Creek (i.e. the Left and Right Fork) are monitored quarterly. Four monitoring sites have been established on the Left Fork (LF-1, LF-2, ST-3 and ST-15). Monitoring sites LF-1 and LF-2 are flume sites where continuous monitoring data is obtained during mid- to high-flow periods. During the late summer months, the flows of the Left and Right Forks of Whitmore Canyon decrease to a volume that cannot be measured accurately by the flumes. Site ST-15 monitors flow from the Spring Canyon drainage (tributary to the Left Fork).

Three monitoring sites have been established on the Right Fork (RF-1, RF-2 and Patterfore Stream). RF-1 and RF-2 are flume sites where continuous monitoring data is obtained during mid- to high-flow periods. The Patterfore Stream is a tributary to the Right Fork and was established as a monitoring site in the spring of 2011 in order to obtain additional data on the Right Fork drainage.

Continuous flow readings on the Left and Right Forks of Whitmore Canyon (LF-1, LF-2, RF-1 and RF-2) are typically not possible to obtain during the 1<sup>st</sup> and 4<sup>th</sup> quarters of the year due to flow volumes below the accuracy of the flumes and/or due to the inability to access the site due to snow conditions. Flows are typically obtained during the high-flow (late spring/early summer months i.e. 2<sup>nd</sup> quarter) and during the summer (3<sup>rd</sup> quarter) when flows are of sufficient volume to produce an accurate measurement (given the limitations of the flume).

Stream sites LF-1, RF-1 and RF-2 were the only surface water sites reporting flow this quarter.

## Wells

Quarterly operational sampling is required for one groundwater-monitoring well (Site DH 86-2). Monitoring well DH 86-2 was sampled during this quarter.

## Underground Mine-Water Sample (UG-1)

As mining has ceased, the pumps and water treatment are no longer operational. Access to the underground mine works were sealed off with the temporary cessation of mining activity in early 2016.

## UPDES

Operational sampling is required monthly for two active UPDES sites (Permit # UT0025640). Site D001 is the mine sites primary sediment pond discharge to the ephemeral 'C' Canyon drainage. Site D002 is the mine-water discharge to the ephemeral 'C' Canyon drainage.

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

<b>Effluent Characteristics</b>	<b>Effluent Limitations (daily maximum)</b>
Total Suspended Solids (TSS), ppm	70
Total Iron, ppm	1.0
Oil & Grease, ppm	10
Total Dissolved Solids (TDS), ppm	2,000
pH	9
Total Aluminum, ppm	0.75

None of the outfalls reported a discharge this quarter. As mining has ceased at the mine, the Permittee is no longer pumping water from the mine.

2. Were all required parameters reported for each site? YES  NO

3. Were any irregularities found in the data? YES  NO

The following sites reported parameters more than two standard deviations from the mean:

**Surface Water Monitoring Sites-**

RF-2: Total Alkalinity

**Spring Monitoring Sites**

Section 5 Spring: TSS

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

On page 7-36 of the approved MRP, the Permittee commits to collecting baseline samples “from each spring in the monitoring program during the low flow (fall) sampling and from each stream monitoring sites during low flow every five years beginning with the first mid-term review.”

Baseline sampling of ground and surface water sites will be required during the 3<sup>rd</sup> quarter of 2021.

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

NA.

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. YES  NO