

#4036

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# WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

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September 28, 2012

TO: Internal File

THRU: Daron Haddock, Permit Supervisor

FROM: Steve Christensen, Environmental Scientist *SIC*

RE: 2012 1st Quarter Water Monitoring, West Ridge Resources, West Ridge Mine,  
Task ID #4036

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.

A Division Order was issued to the Permittee on April 3<sup>rd</sup>, 2012 (due July 2<sup>nd</sup>, 2012). The Division Order requires the Permittee to revise their currently approved Probable Hydrologic Consequences (PHC) section of the Mining and Reclamation Plan (MRP). The primary purpose of the revision will be to address the mine-water discharge. The MRP does not take into account a sustained and high volume mine-water discharge. The Permittee will need to address the origin of the encountered ground-water and determine (based on data) what the potential impacts of encountering that groundwater are. The PHC amendment was submitted and reviewed by the Division (Task ID # 4143). The amendment was found deficient and returned to the Permittee for additional revisions on September 7<sup>th</sup>, 2012.

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

## Springs

The approved MRP outlines the monitoring of six springs (SP-8, SP-12, SP-13, Road Spring, Section 5 Spring and SP-80). Until the 2<sup>nd</sup> quarter of 2011, the spring water monitoring plan had included ten springs; however, an amendment was submitted and approved by the Division (Task ID #3738) in March of 2011 that reduced the number of spring monitoring sites to six. The amendment eliminated the monitoring of springs SP-15, SP-16, WR-1 and WR-2. As a result, the monitoring of these springs was discontinued the 2<sup>nd</sup> quarter of 2011.

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.

Based upon permitting actions relative to mine expansions into the Right Fork of Whitmore Canyon, two additional springs were added to the water monitoring program: Road Spring and Section 5 Spring. The Permittee began collecting data on these springs in June of 2011. As a result, the 3<sup>rd</sup> quarter of 2011 is the first quarter of active monitoring for these springs.

*None of the springs could be accessed during this quarter due to snow and ice conditions.*

### **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). Until the 2<sup>nd</sup> quarter of 2011, the surface water monitoring plan had included twelve stream monitoring sites; however, an amendment was submitted and approved by the Division (Task ID #3738) in March of 2011 that eliminated five of the sites. The amendment eliminated the monitoring of ST-5, ST-6A, ST-7, ST-11, ST-12 and ST-13. As a result, the monitoring of these stream sites was discontinued the 2<sup>nd</sup> quarter of 2011.

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. 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.

*Data was not submitted for all the required stream/surface water monitoring points. Sites ST-6 and ST-8 did not have data reported for the 1<sup>st</sup> quarter of 2012.*

## Wells

Quarterly operational sampling is required for one groundwater-monitoring well (Site DH 86-2).

*Monitoring well DH 86-2 was not sampled during this quarter due to frozen conditions.*

## Underground Mine-Water Sample

Monthly samples of the underground, pre-treatment mine water are required. The requirement was established on August 24<sup>th</sup>, 2010.

*The required monthly samples were submitted for this quarter.*

## 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:

Effluent Characteristics	Effluent Limitations
Flow, MGD (million gallons per day)	1.0
Total Suspended Solids (TSS), ppm	70
Total Iron, ppm	1.3
Oil & Grease, ppm	10
Total Dissolved Solids (TDS), ppm	2,000
pH	9

*Outfall 001 did not report a discharge this quarter. Data was submitted for UPDES Outfall 002.*

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

**Spring Monitoring Sites:** *None of the springs could be accessed during this quarter due to snow and ice conditions.*

**Surface Water Monitoring Sites:** *Data was not reported for stream monitoring sites due to access issues. However; ST-6 and ST-8 did not have any data reported (i.e. no note of*

*whether access was an issue). At the time of this report's preparation, the Permittee is looking into the missing data. It appears the data may be in the pipeline, but not ok'd by the Permittee for uploading.*

**Well Monitoring Site:** *The well could not be sampled this quarter due to frozen conditions.*

**UG-1:** *All required parameters were reported for underground mine-water monitoring site UG-1.*

**UPDES:** *Outfall 001 did not report a discharge this quarter. Water quality data was reported for Outfall 002; however, zero flow was reported for the entire quarter. At the time of this report's preparation, the Permittee is looking into the missing data. Additionally, specific conductance was not reported for March.*

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

#### **Surface Water Monitoring Sites-**

**ST-3-** *An increase in TDS and its associated components were reported during the 3<sup>rd</sup> quarter of 2010. No observable flow was reported the 4<sup>th</sup> quarter of 2010. ST-3 could not be accessed during the 1st quarter of 011. TDS returned to within historical trend levels for the 2<sup>nd</sup> and 3<sup>rd</sup> quarters of 2011. Elevated TDS concentrations were reported the 4<sup>th</sup> quarter of 2011. As the site could not be accessed during the 1<sup>st</sup> quarter of 2012, additional monitoring will be conducted in order to determine if a significant trend is developing relative to TDS levels.*

**ST-6-** *Elevated flow values have been reported at ST-6. As the primary flow component at this monitoring site is mine water discharge, it would appear that the high flow value is a result of increased mine-water discharge. The Permittee did not report any data for site ST-6. The Permittee is looking into the data gap.*

#### **UPDES Sites- (UPDES Permit #UT0025640)**

**Site D001-** *UPDES outfall D001 (primary sediment pond at mine site) did not report a discharge this quarter.*

**Site D002-** *UPDES Outfall 002 water quality data was obtained each month this quarter. Slightly elevated concentrations of total dissolved solids (TDS) were reported for February and March (932 ppm and 844 ppm respectively). However; both values were well below the 2,000 ppm limit established by the UPDES discharge permit.*

### Spring Monitoring Sites

*None of the spring monitoring sites could be accessed during this quarter. Continued monitoring/analysis will be conducted in coming quarters once the sites can be safely accessed.*

**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 2011.*

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

*Continue to monitor the data irregularities cited above for any trends.*

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

*The Permittee must address missing water quality data. Specifically, stream monitoring sites ST-6 and ST-8 were not reported this quarter. Additionally, a specific conductance value was not reported for March for UPDES Outfall 002. Flow values were also not reported for UPDES Outfall 002 for the entire 1<sup>st</sup> quarter of 2012. The Permittee has been advised that the data must be submitted to the Division as soon as possible in order to avoid enforcement action.*

**7. Follow-up from last quarter, if necessary.** YES  NO