

#3849
B

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

December 27, 2011

TO: Internal File
THRU: Daron Haddock, Permit Supervisor
FROM: Steve Christensen, Environmental Scientist *gll*
RE: 2011 Second Quarter Water Monitoring, West Ridge Resources, West Ridge Mine, Task ID #3849

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 six springs (SP-8, SP-12, SP-13, SP-101, SP-102 and S-80). Until the 2nd 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 2nd quarter of 2011.

Two of the monitored springs (SP-12 and SP-13) discharge from the lower slopes of West Ridge in Whitmore Canyon. One 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 101 monitors Little Spring at the bottom of West Ridge. Spring 102 is located within Spring Canyon.

Based upon recent permitting actions relative to mine expansions into the Right Fork of Whitmore Canyon, two additional springs will be 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 3rd quarter of 2011 is the first quarter of active monitoring for these springs.

None of the 6 spring monitoring sites could be accessed this quarter due to access issues (snow/ice).

Streams

The approved MRP outlines the monitoring of seven stream sites. Until the 2nd quarter of 2011, the spring 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 2nd quarter of 2011.

Grassy Trail Creek is the only perennial stream in the permit and adjacent areas. Operational sampling is required quarterly for six stream sites (ST-3, ST-6, ST-8, ST-9, ST-10, and ST-15).

Stream monitoring site ST-6 was the only site that could be accessed during this quarter. The remaining stream monitoring sites could not be accessed due to access issues (snow/ice).

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.

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

Based on three sampling events, outfall 001 did not report a discharge this quarter. UPDES Outfall 002 did report discharges during the quarter.

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

Spring Monitoring Sites: The Permittee was unable to access any of the spring monitoring sites due to snow.

Surface Water Monitoring Sites: Stream monitoring site ST-6 was the only accessible surface water monitoring site this quarter. All required parameters were reported.

Well Monitoring Site: All required parameters were reported for monitoring well DH 86-2.

UPDES: Outfall 001 did not report a discharge this quarter. Outfall 002 did report a discharge this quarter and all required parameters were reported.

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 3rd quarter of 2010. No observable flow was reported the 4th quarter of 2010. ST-3 could not be accessed this quarter. When flow is present in the future, the elevated concentrations for TDS will be monitored to determine if a trend is emerging.

ST-9- Elevated concentrations of SO₄, Conductivity, Total Hardness and Total Cations were reported for this stream monitoring site during the 4th quarter of 2010. The site could not be accessed this quarter. Continued monitoring will be conducted to determine if a trend is emerging.

ST-6- For the second consecutive quarter, an elevated flow value was reported for 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 reported

concentrations for T-Fe and TSS were below the established UPDES discharge requirements. The concentrations for T-Fe and TSS were 1.13 ppm and 36 ppm respectively. The UPDES limit for T-Fe is 1.3 ppm. Continued monitoring of the T-Fe concentration of the mine-water discharge will be conducted. Additionally, the Utah Attorney Generals office is currently in the process of drafting a Division Order that will be issued to the Permittee. The Division Order will require the Permittee to revise their currently approved Probable Hydrologic Consequences 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.

Sample ID	Date	Parameter	Value	STD. Deviation
ST-6	6/6/2011	Flow	2,153 gpm	4.07
ST-6	6/6/2011	F-Cond	1,485 umhos/cm	2.95
ST-6	6/6/2011	SO4	542 mg/L	2.8
ST-6	6/6/2011	T-Anis	20.36 meq/L	2.23

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 three times this quarter. All of the reported concentrations for TSS and TDS were below the compliance limits as established by the UPDES discharge permit. The UPDES limit for T-Fe is 1.3 ppm. The average T-Fe concentration (based on 5 sampling events) was 0.77 ppm. TSS values were below the detectable range for two of the three sampling events (i.e. <5 ppm).

The reported mine water discharge volumes continue to increase. The average flow for the quarter was 1,475 gpm based on three sampling events.

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 3rd 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

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

O:\007041.WR\Water Quality\WQ11-2.doc

