

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

October 16, 2007

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TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor *pdg*

FROM: *DD* Dana Dean, P.E, Senior Reclamation Hydrologist

RE: 2006 First Quarter Water Monitoring, Mountain Coal Company, Gordon Creek 2, 7, & 8 Mine, C/007/0016-WQ06-1, Task ID #2566

The Gordon Creek 2, 7, & 8 Mine has been reclaimed, except for sedimentation ponds, and has received Phase I bond release. No mining or coal processing activities currently take place there, nor is the site in active reclamation.

Pertinent water monitoring requirement information is in the MRP in Sections 7.1.8 and 7.2.6, and tables 7-17, and 7-18.

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

Springs –

The Permittee is not required to monitor any springs at the Gordon Creek 2, 7, & 8 Mine.

Streams –

The Permittee is required to sample one intermittent stream (2-2W), and five ephemeral stream sites (2-7-W, 2-8-W, 2-9-W, 2-10-W, 2-11-W) for flow, and the laboratory parameters outlined in Table 7-18 each quarter.

The Permittee monitored and reported the essential data for all streams as required during this quarter.

Wells–

The Permittee is not required to monitor any wells at the Gordon Creek 2, 7, & 8 Mine.

UPDES—

There is one active UPDES site at the Gordon Creek 2, 7, & 8 Mine. It is permit # UTG040004-001, allowing discharge from the sedimentation pond to Bryner Creek. The Permittee is required to monitor this UPDES site monthly.

The Permittee monitored and reported the essential data for the UPDES site as required during this quarter. The UPDES site did not record any flow during the period.

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

The Permittee included all required parameters for 2-2-W, the only site that flowed this quarter.

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

Dissolved potassium fell outside of 2 standard deviations from the mean at 2-2-W. The recorded value was 4.73 mg/L, which falls 3.82 standard deviations from the mean of 2.08 mg/L. Overall, there is no real trend in potassium at 2-2-W ($R^2 = 0.0517$ -upward). There is no correlation to flow ($R^2 = 0.0073$). This is the highest reading for potassium ever recorded at this site, but is still quite low. There are no water quality standards for potassium and all readings are below 5 mg/L, so there is no concern about potassium levels at this time.

Dissolved sodium also fell outside of 2 standard deviations from the mean at 2-2-W. The recorded value was 23.6 mg/L, which falls 5.35 standard deviations from the mean of 5.45 mg/L. Overall, there is no real trend in potassium at 2-2-W ($R^2 = 0.0607$ -upward). There is no correlation to flow ($R^2 = 0.0199$). The value for sodium is also the largest ever recorded at 2-2-W. There is no water quality standard for sodium.

The salinity at GW-15B, which is affected by several parameters (Cl, Na, Mg, SO₄, Ca, K, HCO₃, etc.) has always been at the mid range of the “fresh water” category (<500 mg/L NaCl equivalent), with all readings above 200 mg/L NaCl equivalent.

Reliability Checks outside of standard values were:

Site	Reliability Check	Value Should Be...	Value is...
2-2-W	Conductivity/Cations	> 90 & < 110	85
2-2-W	Mg/(Ca + Mg)	< 40 %	41 %

The Permittee should work with the lab to make sure that samples pass all quality checks so that the reliability of the samples does not come into question. These inconsistencies do not

necessarily mean that a sample is wrong, but it does indicate that something is unusual. An analysis and explanation of the inconsistencies by the Permittee would help to increase the Division's confidence in the samples. The Permittee can learn more about these reliability checks and some of the geological and other factors that could influence them by reading Chapter 4 of *Water Quality Data: Analysis and Interpretation* by Arthur W. Hounslow.

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

The MRP does not require a five-year re-sampling of baseline water data.

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

No further actions are required at this time.