

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

September 9, 2010

TO: Internal File

THRU Daron R. Haddock, Permit Supervisor *DRH*

FROM: James D. Smith, Environmental Scientist III *JDS 13 Sept 2010*

RE: 2010 First Quarter Water Monitoring, PacifiCorp, Deer Creek Mine. C/015/0018, Task ID #3474

The Deer Creek Mine monitoring plan is described in Appendix A of Volume 9 of the MRP.

1. Were data submitted for all of the MRP required sites?

Many sites were not accessible during the First Quarter 2010.

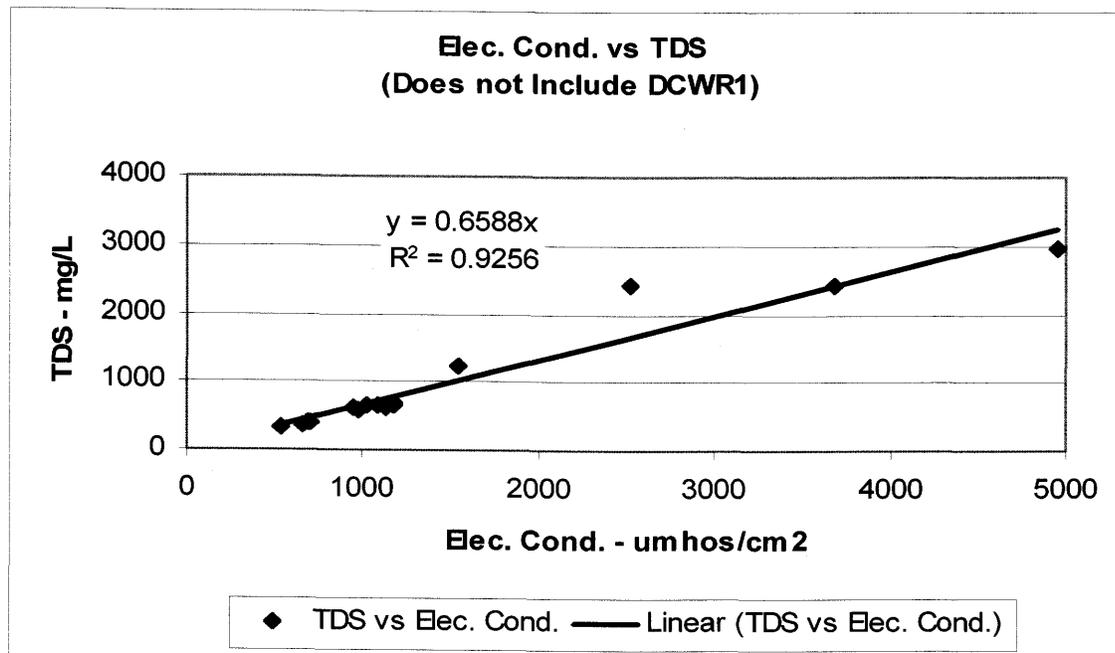
Streams	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
UPDES	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
In-mine	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
Springs	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
Wells	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>

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

3. Were any irregularities found in the data?

Listed parameters were more than two standard deviations from the mean. An asterisk (*) indicates this is not a parameter required by the MRP. Parameters in bold type were also more than two standard deviations from the mean during the previous quarter.

The TDS/field electric conductivity ratio typically falls between 0.55 and 0.76 for dissolved solids concentrations found in natural waters. As the following chart and table show, data for these two parameters submitted for the First Quarter 2010 at the Deer Creek Mine generally result in a ratio that falls within this range.



However, the ratios at RCW-4, Mine Site 4, and DCWR1 (not shown on the chart) are outside the expected range, possibly because of the higher TDS levels in those waters. The March 1 sample from UT0023604-001 had a higher TDS value than RCW-4 and Mine Site 4 and the January 5 TDS was higher than that at RCW4, yet the TDS/field electric conductivity ratios for both are in the expected range, so high TDS alone does appear to be the sole cause of higher TDS/field electric conductivity ratios.

	field electric conductivity	TDS	TDS/field electric conductivity
RCW4			
UT0023604-001	1540	1233	0.800
January 5	3680	2408	0.654
MINE SITE 4	2530	2424	0.958
UT0023604-001			
March 1	4950	2953	0.596
DCWR1	17009	16537	0.972

Streams YES NO

DCR04 January: **flow**;
DCR04 March: **flow** and **K**;
DCR06 January: **flow**;
DCR06 March: **flow** and **K**;
HCC02: **field electric conductivity**, **Mg**, **K**, **Na**, **SO4**, **lab electric conductivity***, **TDS**, **total anions***;
HCC04: **K**;
RCW4 March: **field electric conductivity**, **SO4**, **total hardness**, **TDS**, **total cations***, **total anions***.

UPDES YES NO

UT0023604-001 January: **K**;
UT0023604-002 February: **field electric conductivity** and **Na**.
UT0023604-002 March: **K** and **Na**.

In-mine YES NO

Water temperatures at Main North Main East vary seasonally year-after-year, indicating that this in-mine source is most likely fed by infiltration of surface water rather than draining surrounding strata. The temperature at TW-10 shows some seasonal variation but it is not as clear as at Main North Main East.

Springs YES NO

Mine Site 4: **Mg**, **Cl**, **total hardness**, and **total cations***.

Wells YES NO

Although it hasn't been flagged as varying from the mean by more than two standard deviations, depth to water at DCWR1 has been increasing since the well was installed, and the rate appears to have increased since 2006. However, this is probably from factors other than disposal of waste rock at this site. A similar drop is seen at WCWR1 at the Cottonwood/Wilberg Mine Waste Rock Disposal Site.

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

Baseline analyses were performed in 2001 and are to be repeated every 5 years; baseline

analyses were done in 2006 and should be done again in 2011: this schedule applies to all the PacifiCorp mines, irrespective of the permit renewal date. For the Deer Creek Mine, renewal submittal is due 10/07/10, and renewal is due 02/07/11.

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

No further action recommended at this time.

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.

None.

8. Did the Mine Operator submit all the missing and/or irregular data?

There were no missing or irregular data for the First Quarter 2010.