

# 3430  
R

# WATER QUALITY MEMORANDUM

## Utah Coal Regulatory Program

---

June 23, 2010

TO: Internal File

THRU Daron R. Haddock, Permit Supervisor

FROM: James D. Smith, Environmental Scientist III *JS 23 June 2010*

RE: 2009 Fourth Quarter Water Monitoring, PacifiCorp, Deer Creek Mine.  
C/015/0018, Recurring Task ID #3430

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?**

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

NEWUA Meter 2 was not accessible during the 4th Quarter 2009.

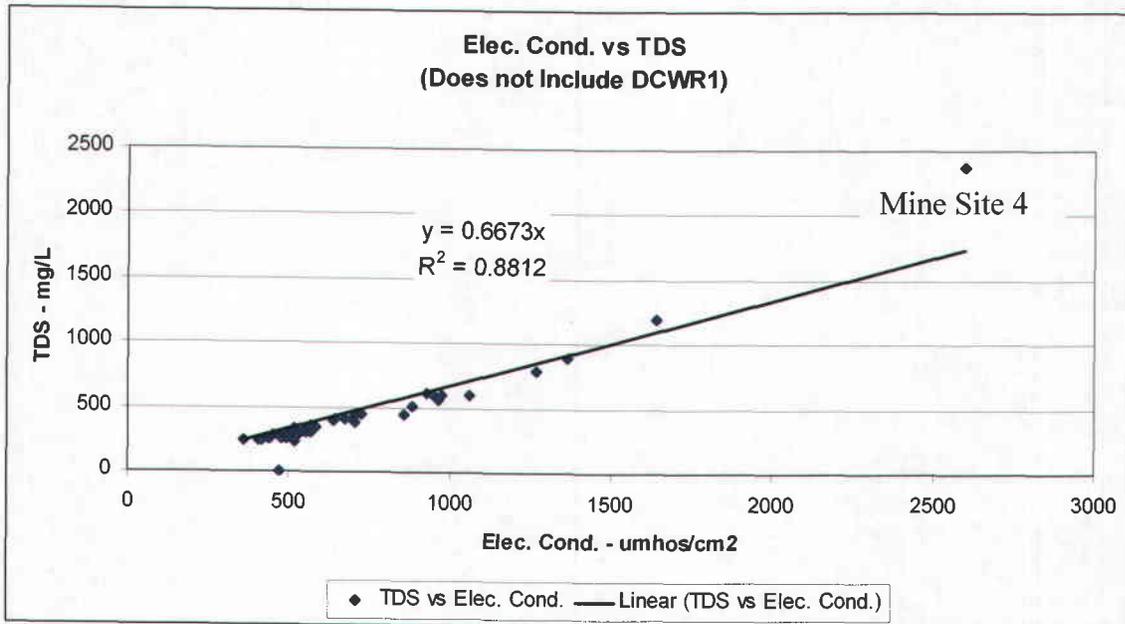
<b>Wells</b>	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
--------------	---	-----------------------------

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 specifically 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 0.75 for dissolved solids concentrations found in natural waters. As the following chart shows, data for these two parameters submitted for the 4<sup>th</sup> Quarter 2009 at the Deer Creek Mine generally fall within this range. The ratios at Mine Site 4 and DCWR1 (not shown) approach 1, probably because of the much higher than typical TDS levels in those waters.



**Streams**

YES  NO

- DCR04 October and November: **flow**;
- DCR04 December: **flow** and **K**;
- DCR06 October, November, and December: **flow**
- HCC01: field electric conductivity;
- HCC02: field electric conductivity;
- HCC04: field electric conductivity and K;
- RCW4 December: field electric conductivity, TDS, total anions\*.

**UPDES**

YES  NO

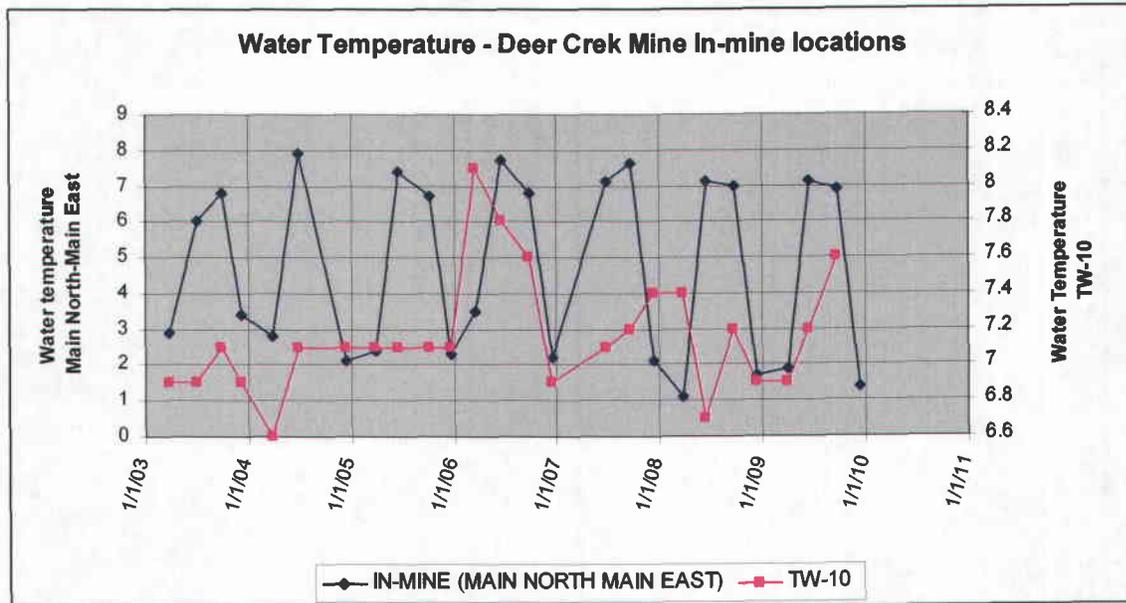
- UT0023604-002 October: **K**;
- UT0023604-002 November: **field electric conductivity, Mg, K, and Na.**

**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

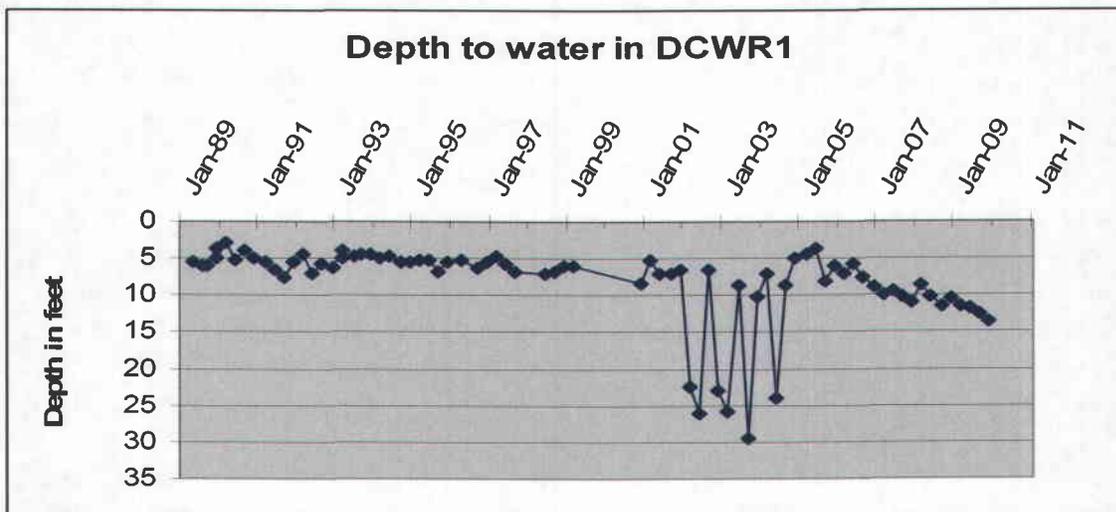
- Elk Spring: acidity\*;
- Sheba: field electric conductivity;
- Ted's Tub: bicarbonate as CaCO3 and total Fe;
- 79-10: lab pH\*;
- 79-34: **Mg, Na, bicarbonate as CaCO3, and Cl**;
- 80-47: acidity\*;
- 89-67: total Fe;
- JV-9: **acidity\***;
- JV-34: Cl;
- MF-7: **acidity\***;
- MF-219: field pH;
- SP1-26: field electric conductivity and lab pH\*;
- SP1-29: water temperature;
- UJV 101: total alkalinity and total hardness;
- EM Pond: water temperature;
- Grant Spring: Ca and total hardness;

Mine Site 4: Mg and total hardness.

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?**

Although there are a large number of parameters that exceeded the mean by more than two standard deviations, there is no indication of trends or extremes in any of the parameter values. 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 submitted with the 4<sup>th</sup> Quarter 2009 data.