

4116
OK

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

December 26, 2012

TO: Internal File

THRU: Steve Christensen, Permit Supervisor *SKC*

FROM: Ken Hoffman, Hydrologist *KH*

RE: 2012 Second Quarter Water Monitoring, PacifiCorp, Deer Creek Mine.
C/015/0018, Task ID #4116

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?** YES NO

Many sites were not accessible during the Second Quarter 2012.

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

3. **Were any irregularities found in the data?**

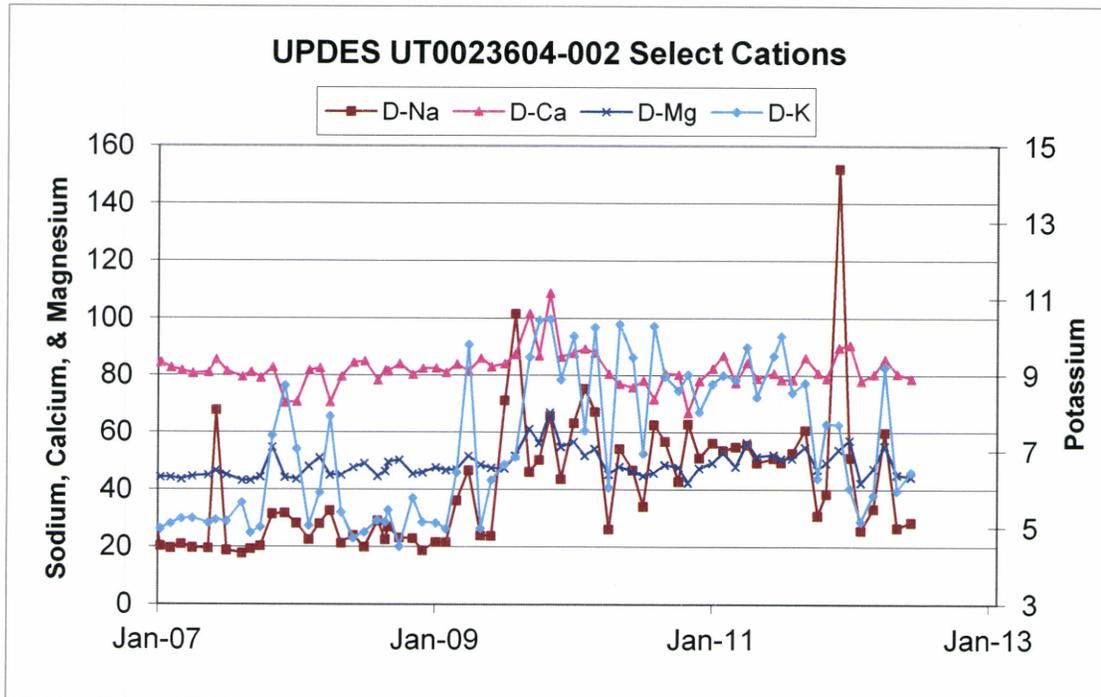
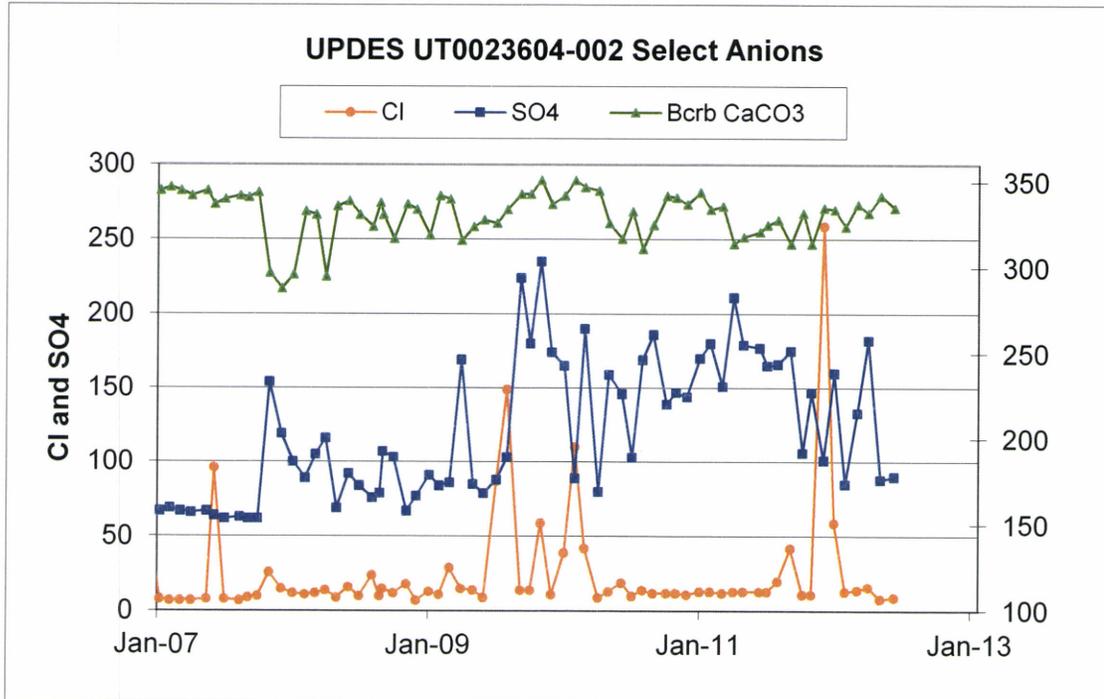
Listed parameters were more than two standard deviations from the mean.

Streams YES NO

DCR04 June - flow
DCR06 April & June - flow
HCF June - field specific conductivity

UPDES YES NO

Recently, potassium values have frequently been outside two standard deviations from the mean at UT0023604-002, but – as can be seen on the following charts – with the exception of bicarbonate, major ion concentrations have tended to fluctuated upwards in recent years

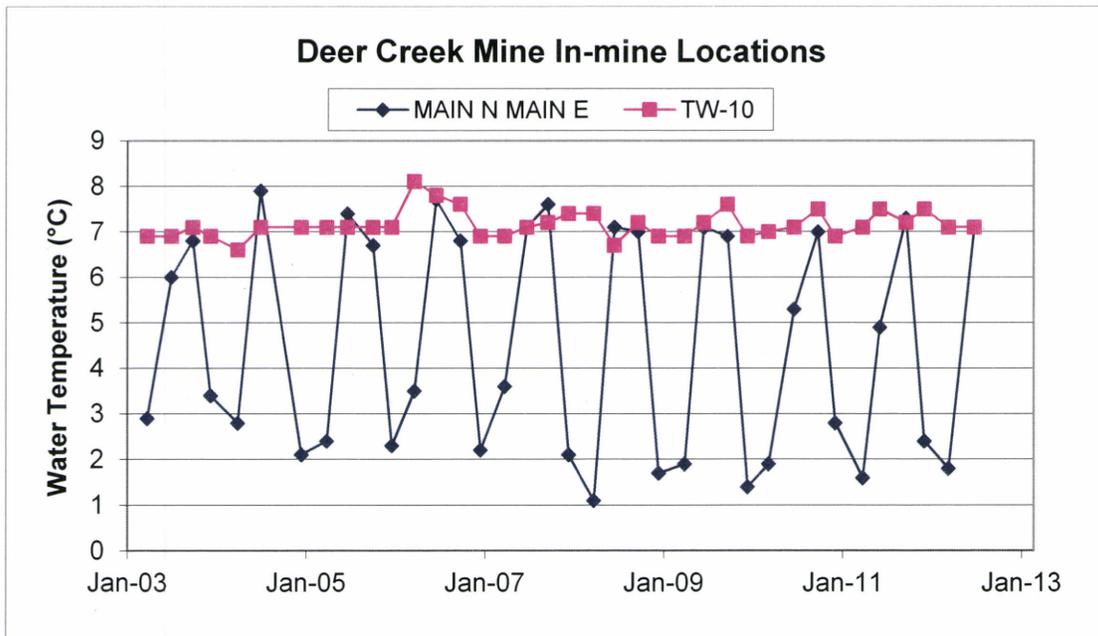


In-mine

YES NO

Main North Main East – June - cation-anion balance
 TW-10 – June - cation-anion balance

The water temperature at Main North Main East varies seasonally year-after-year (see following chart), 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 definitive as at Main North Main East.



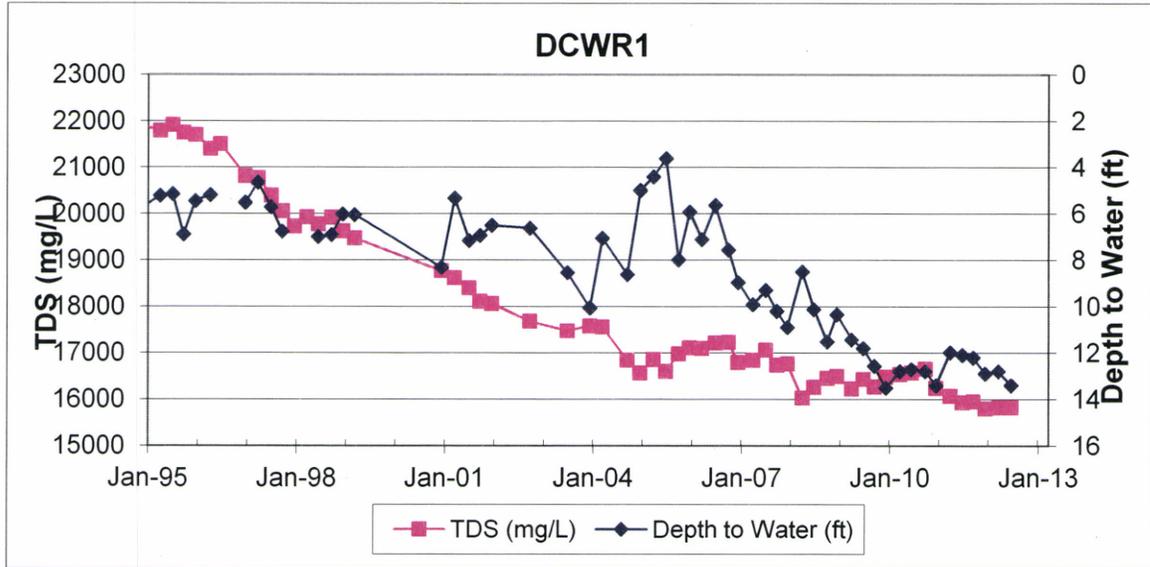
Springs

YES NO

Wells

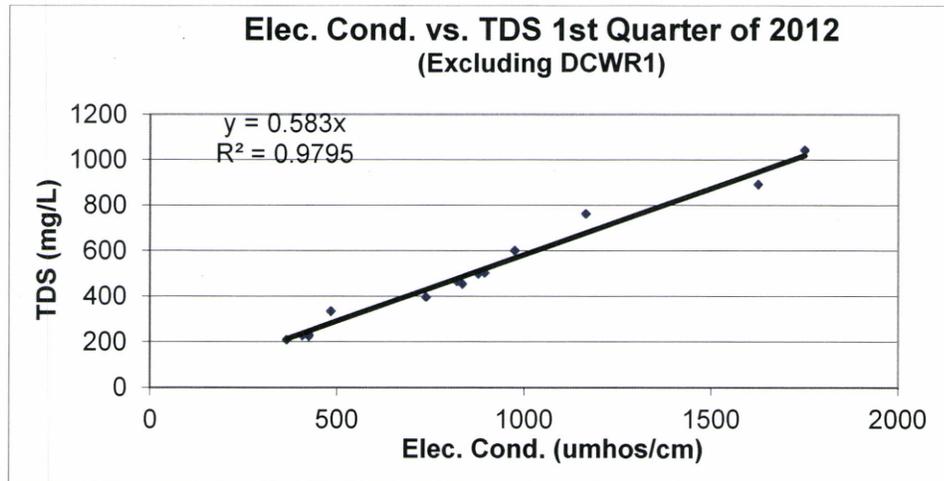
YES NO

Although it hasn't been flagged as varying from the mean by more than two standard deviations, water level at DCWR1 has been dropping since 2006 (following a small rise in 2004-2005). TDS was dropping at a similar rate, but now appears to have stabilized. These changes are probably from factors other than disposal of waste rock at this site: a similar drop in water level is seen at WCWR1 at the Cottonwood/Wilberg Mine Waste Rock Disposal Site.



TDS/field electric conductivity ratios – all sites

The TDS/field electric conductivity ratio typically falls between 0.52 and 0.76 for dissolved solids concentrations found in natural waters. As the following chart shows, data for these two parameters submitted for the Second Quarter 2012 at the Deer Creek Mine generally result in a ratio that falls within this range: DCWR1 is not included in the trendline calculation.



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

Baseline analyses were performed in 2001, 2006 and 2011 and are to be repeated every 5 years. Baseline analyses will next be conducted in 2016.

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

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 (datum)?

NA.