

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

March 2, 2015

TO: Internal File

THRU: Steve Christensen, Permit Supervisor 

FROM: Keenan Storrar, Hydrologist 

RE: Third Quarter 2014 Water Monitoring, PacifiCorp, Deer Creek Mine.
C/015/0018, Task ID #4665

The Deer Creek Mine monitoring plan is described in Appendix A-1 of Volume 9 of the MRP. The Deer Creek Mine ceased mining operations indefinitely January 7th, 2015. Pacificorp's subsidiary Energy West will begin immediate reclamation of the mine. The current tentative plan for handling in-mine water in the Mill Fork Lease and Rilda Canyon Right zones is to dam it up in the mountain using bulkheads. The mined area south of Rilda Right will gravity discharge at an estimated rate of 300 gpm at the Deer Creek mine portals through UPDES Point 002.

1. **Were data submitted for all of the MRP required sites?** YES NO
2. **Were all required parameters reported for each site?** YES NO

Missing data are as follows:

| | | |
|----------------|---|-----------------------------|
| In-mine | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |
| Springs | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |
| Streams | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |
| Wells | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |
| UPDES | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |
3. **Were any irregularities found in the data?**
Listed parameters were more than two standard deviations from the mean.

| | | |
|----------------|---|-----------------------------|
| In-mine | YES <input checked="" type="checkbox"/> | NO <input type="checkbox"/> |
|----------------|---|-----------------------------|

Main N Main E July – Cond
TW-10 July – Cond

Springs

YES NO

80-48 July – D-Mg

80-50 July – Low pH

JV-9 July – D-Ca

JV-34 July – F-pH, D-Ca, SO4, T-Hardns, L-Sp. Cond, TDS, T-Cats

MF-7 July – D-Na

MF-219 July – D-K

Little Bear July – D-Ca, SO4

RR-15 July – bad sample analysis

UJV-206 July – D-Ca

Grant Spring July – D-Ca

Streams

YES NO

MFB02 July – bad sample analysis

MFU03 July – D-Ca

Wells

YES NO

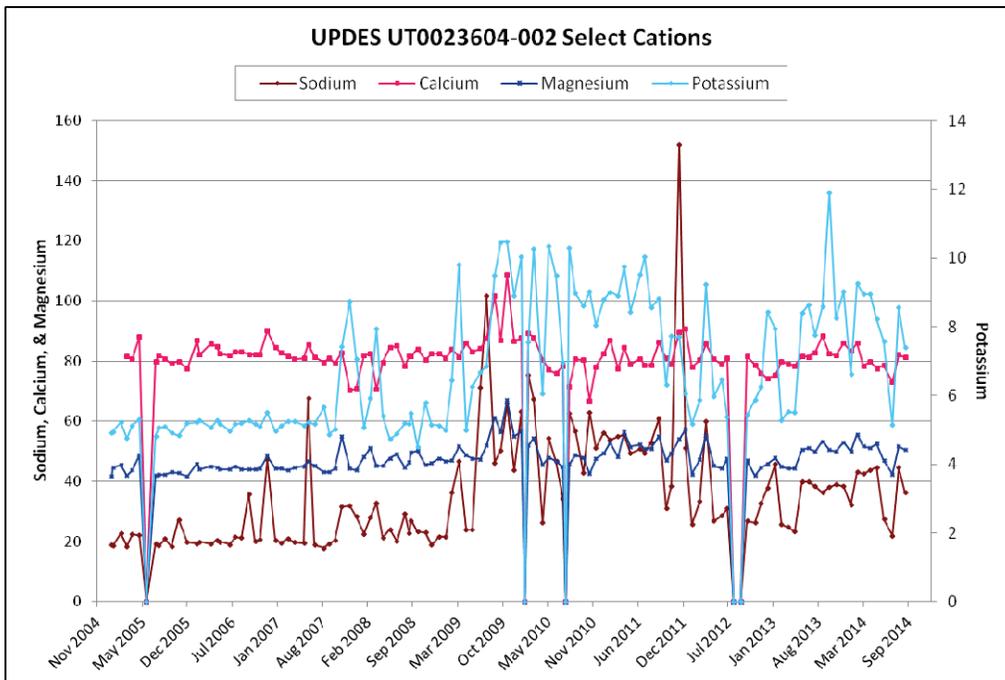
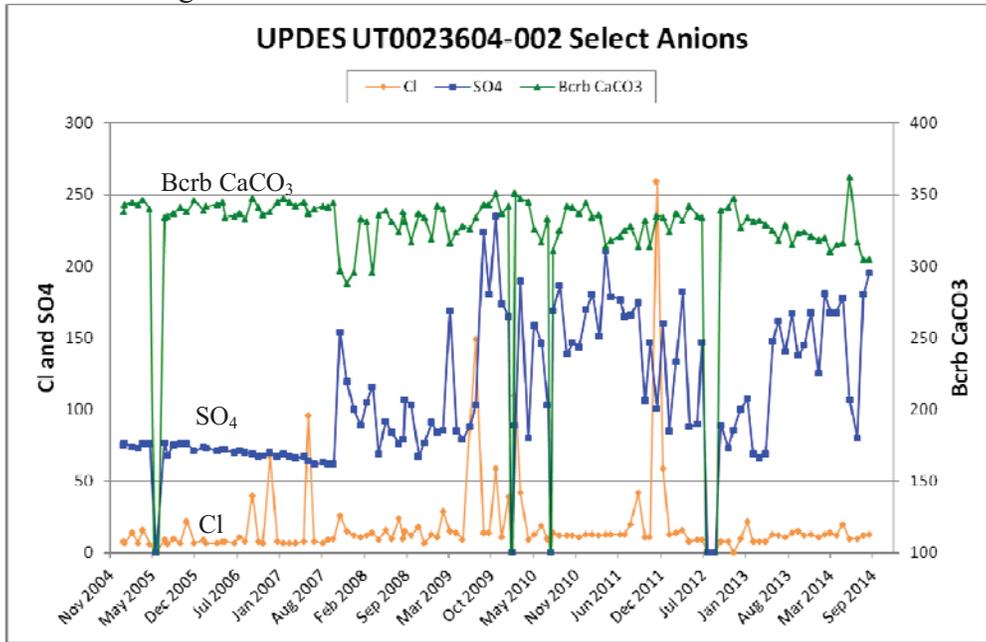
UPDES

YES NO

UPDES 001 High salts have been offset by an agreement with the company and DWQ

UPDES 002 August – T-Fe = 1.16 mg/l

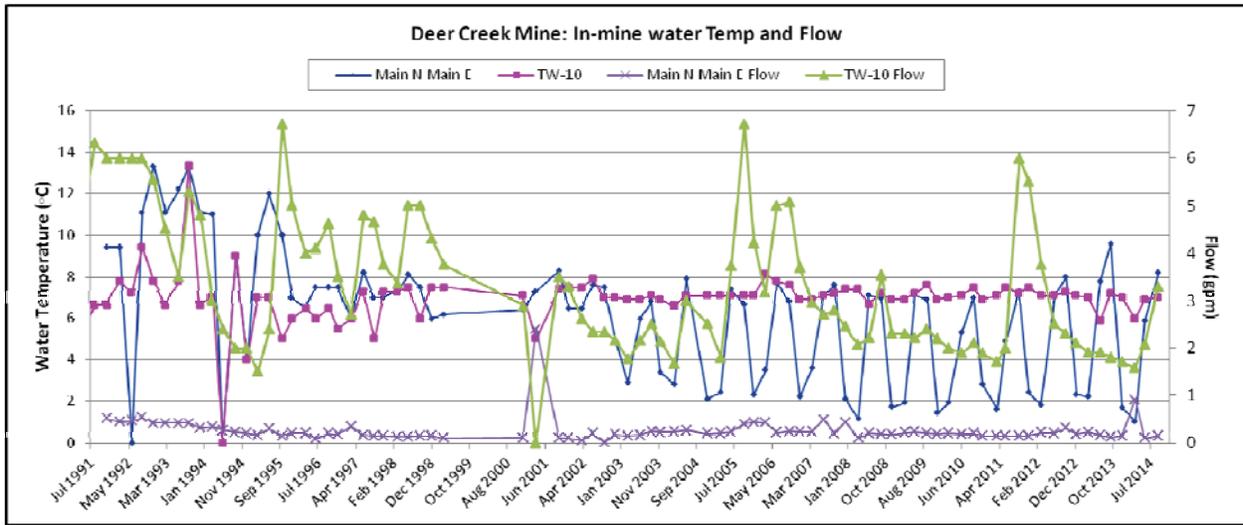
Recently, potassium values have frequently been outside two standard deviations from the mean at UT0023604-002. The following charts show Cl, D-Na, D-Ca, D-Mg ion concentrations have been trending upwards in recent years, while bicarbonate and D-K have been downward trending.



In-mine

YES NO

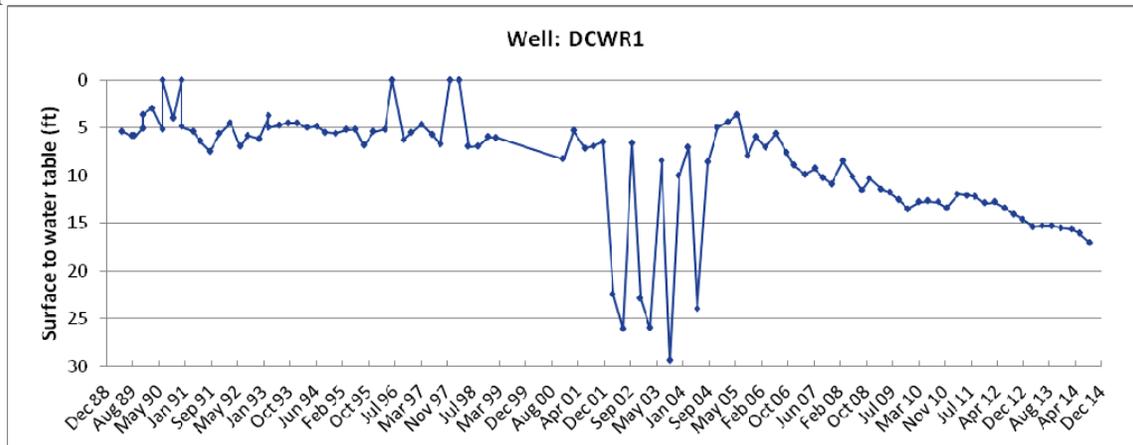
The water temperature at Main North Main East varies seasonally year-after-year (see following chart), indicating that this in-mine source is most likely fed by infiltrating surface water rather than draining surrounding strata. The temperature at TW-10 shows some seasonal variation, but it is not as definitive as at Main North Main East.



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). 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.



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. The next baseline analyses will 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.