

# WATER QUALITY MEMORANDUM

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Utah Coal Regulatory Program

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January 13, 2009

TO: Internal File

THRU: Daron R. Haddock, Permit Supervisor *DRH*

FROM: James D. Smith, Environmental Scientist III *JS 13/01/09*

RE: 2008 Third Quarter Water Monitoring, PacifiCorp, Deer Creek Mine. C/015/0018, Recurring Task ID #2711

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?**

**Springs** YES  NO

NEWUA Meter 2 was not accessible during the third quarter 2008.

**Streams** YES  NO

**Wells** YES  NO

**UPDES** YES  NO

**In-mine** YES  NO

**2. Were all required parameters reported for each site?**

**Springs** YES  NO

**Streams** YES  NO

**Wells** YES  NO

UPDES YES  NO

In-mine YES  NO

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

Listed parameters were outside two standard deviations. An asterisk (\*) indicates this is not a parameter specifically required by the MRP.

Springs YES  NO

Burnt Tree July: bicarbonate as CaCO<sub>3</sub>, acidity\*, cation-anion balance;

Elk July: Ca, cation-anion balance;

Sheba July: bicarbonate;

Ted's Tub July: acidity;

79-2 July: bicarbonate as CaCO<sub>3</sub>, acidity\*, cation-anion balance;

79-10 July: cation-anion balance;

79-15 July: bicarbonate as CaCO<sub>3</sub>, cation-anion balance;

79-28 July: DO\*, bicarbonate as CaCO<sub>3</sub>, acidity\*;

79-35 July: cation-anion balance;

79-38 July: Na, bicarbonate as CaCO<sub>3</sub>;

80-47 July: bicarbonate as CaCO<sub>3</sub>,

80-48 July: Mg, cation-anion balance;

80-50 July: bicarbonate as CaCO<sub>3</sub>,

82-51 July: Na;

82-52 July: bicarbonate as CaCO<sub>3</sub>, acidity\*;

89-60 July: Na, cation-anion balance;

89-65 July: total alkalinity;

89-66 July: water temperature;

JV-9 July: acidity\*;

MF-7 July: bicarbonate as CaCO<sub>3</sub>, total alkalinity;

MF-10 July: bicarbonate as CaCO<sub>3</sub>;

MF-213 July: flow, bicarbonate as CaCO<sub>3</sub>, total alkalinity;

MFR-10 July: flow;

RR-5 July: flow;

RR-15 July: flow;

RR-23A July: acidity\*;

SP1-26 July: flow;

SP1-29 July: total alkalinity;

UJV 101 July: field pH;

Little Bear July: Ca, total hardness;

91-72 (not a required site) July: field DO\* (the reported value of zero is probably a transcription or notation error).

- Streams** YES  NO   
 MHC01 September: bicarbonate as CaCO<sub>3</sub>;  
 RCW4 September: field electrical conductivity, Ca, Mg, K, SO<sub>4</sub>, total hardness, lab electric conductivity\*, TDS, total cations\*, and total anions\*.
- Wells** YES  NO   
 DCWR1 September: bicarbonate as CaCO<sub>3</sub>.
- UPDES** YES  NO
- In-mine** YES  NO

**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: renewal submittal due 10/07/10, renewal due 02/07/11.

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

In the parameters noted above as being more than two standard deviations from the mean:

- none of the cation-anion balances exceeded 5 percent difference,
- the elevated Na, Mg, and Ca values are not extreme, and
- all CaCO<sub>3</sub> values were below the mean.

An inverse relationship between acidity and bicarbonate is expected, but several sites with lower bicarbonate had notable elevated acidity, as shown in the following table.

	Bicarbonate as CaCO <sub>3</sub>	Mean ± 2 Std Dev	Acidity	Mean ± 2 Std Dev
Burnt Tree Spring	258	265.71 ± 6.54	21	9.40 ± 6.78
79-2	278	287.14 ± 3.98	18	10 ± 4.70
79-28	211	224.38 ± 11.42	18	8.33 ± 3.80
82-52	334	347.71 ± 11.54	20	10.10 ± 9.78

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)?**

Yes.