

# WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

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June 27<sup>th</sup>, 2016

TO: Internal File

THRU: Daron Haddock, Coal Program Manager

FROM: Steve Christensen, Environmental Scientist



RE: 2015 4<sup>th</sup> Quarter Water Monitoring (WQ15-4), Price River Terminal, LLC., Wellington Preparation Plant, C/007/0012, Task ID #5052

The Wellington Preparation Plant is currently in temporary cessation of coal mining or reclamation operations. However; trans-loading of oil is currently being conducted at the site by Price River Terminal, LLC (the Permittee). Water-monitoring requirements are in Sections 7.23 and 7.31.2 through 7.31.22, and Tables 7.24-2 and 7.24-5 of the MRP.

## 1. On what date does the MRP require a five-year re-sampling of baseline water data.

Baseline parameters are collected in the year preceding permit renewal. The next baseline collection event will be the 3<sup>rd</sup> quarter of 2019.

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

### Streams and Ponds

YES  NO

The surface water monitoring plan requires sampling of nine surface water sites (SW-1, SW-2, SW-2A, SW-3, SW-4, SW-5, SW-6, SW-7 and SW-8). The required water quality parameters are provided in Table 7.24.5 with the exception of SW-2. Flow is the only data collected at monitoring site SW-2. Surface water monitoring sites are no longer monitored for BTEX-N. The reduction in monitoring at these sites was the result of inactivity at the site (Task ID #4253). Four of the sites are retention ponds (SW-5, SW-6, SW-7 and SW-8).

Water quality data was obtained from three sites: SW-1, SW-2, SW-2A and SW-4. The remaining monitoring locations reported no flow (SW-3, SW-5, SW-6, SW-7 and SW-8).

### Wells

YES  NO

The Permittee is required to analyze samples quarterly from 16 well sites. GW-12 is no longer required for monitoring (since 1<sup>st</sup> quarter 2012. Mid-term). GW-1, GW-3, GW-4, GW-6, GW-7, GW-8, GW-9, GW-9B, GW-10, GW-13, GW-14, GW-15A, GW-15B, GW-16, and GW-17

for the parameters in Table 7.24-2, and to measure depth only at GW-2.

Monitoring well GW-12 is no longer an actively monitored site. It was dropped during the most recent mid-term review (Task ID #4253). It was last sampled during the 4<sup>th</sup> quarter of 2012.

Data was submitted for all of the required monitoring well sites. Monitoring wells GW-3, and GW-17 did not have enough water to collect a sample (i.e. they were reported dry).

**UPDES** YES  NO

Six UPDES permitted outfalls at the Wellington Preparation Plant are monitored monthly: #UTG040010-003, 004, 005, 006, 007, and 008. None of the UPDES discharge points reported a discharge this quarter.

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

**Streams and Ponds** YES  NO

**Wells** YES  NO

**UPDES** YES  NO

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

**Streams and Ponds** YES  NO

Surface water monitoring site SW-1 reported an elevated total selenium concentration the previous quarter. The reported concentration of 50 ug/l was 2.82 standard deviations from the average of 18.21 ug/l. An elevated selenium concentration was again reported this quarter. A value of 70 ug/l was obtained. Additionally, an increase in dissolved boron was reported.

Additionally, surface water monitoring site SW-2A also reported an elevated total selenium concentration the 3<sup>rd</sup> quarter of 2015. The reported value was also 50 ug/l which is 3.41 standard deviations from the average of 21 ug/l. An elevated total selenium concentration was again reported this quarter. A concentration of 60 ug/l was reported which is 4.58 standard deviations from the mean of 21.00 ug/l.

**Wells** YES  NO

Monitoring well GW-1 reported slightly elevated concentrations for D-K, Cl and TDS the 4<sup>th</sup> quarter of 2014. The Cl concentration was again slightly elevated along with D-K and TDS the first quarter of 2015. The reported concentrations for the aforementioned parameters returned to

historical ranges the previous quarter (WQ15-2). Elevated concentrations of sulfate and TDS were reported the 3<sup>rd</sup> quarter of 2015 as well as a significant increase in total selenium with a reported concentration of 90 ug/l versus (4.58 standard deviations from the mean of 29.33 ug/l). Elevated concentrations of TDS and total selenium were again reported.

Monitoring well GW-10 reported an elevated total selenium concentration of 60 ug/l the last quarter of 2014. The selenium concentrations returned to within historic ranges for the 1<sup>st</sup> and 2<sup>nd</sup> quarters of 2015. However; an elevated total selenium concentration was reported 3<sup>rd</sup> quarter of 2015 (90 ug/l is 5.34 standard deviations from the mean of 21.47 ug/l). An elevated total selenium concentration was again reported this quarter (110 ug/l, 6.90 standard deviations from the mean of 21.47 ug/l).

Monitoring well GW-13 reported a slightly increased concentration for D-K in the 2<sup>nd</sup> quarter of 2015. Not enough water was in the well to be sampled 3<sup>rd</sup> quarter. An elevated D-K concentration was reported this quarter. 36.5 mg/l is 3.66 standard deviations from the mean of 27.59 mg/l.

Monitoring well GW-14 reported elevated concentrations for bicarbonate and total selenium during the 3<sup>rd</sup> quarter. The total selenium concentration of 110 ug/l is 3.24 standard deviations from the mean of 31.15 ug/l last quarter. A concentration of 160 ug/l for total selenium was reported this quarter.

GW-15A reported numerous concentrations outside of historical ranges during the 2<sup>nd</sup> quarter of 2015. The 3<sup>rd</sup> quarter sampling produced only one elevated parameter. The total selenium concentration was 4.86 standard deviations from the mean of 23.14 ug/l with a reported value of 70 ug/l. An elevated total selenium concentration of 120 ug/l was reported this quarter. The average total selenium value is 23.14 ug/l.

GW-15B reported large increases in concentration for total iron and total manganese during the 2<sup>nd</sup> quarter of 2015. The concentrations for total iron and total manganese returned to historical in the 3<sup>rd</sup> quarter of 2015; however; an elevated concentration for total selenium was reported at 70 ug/l. An elevated total selenium concentration was again reported for this quarter. The reported value of 90 ug/l is 6.67 standard deviations from the mean of 25.44 ug/l.

GW-16 reported elevated total selenium concentrations the previous quarter (3<sup>rd</sup> quarter 2015). The reported value of 80 ug/l was 3.96 standard deviations from the mean of 29.83 ug/l. Total selenium was again elevated this quarter with a reported value of 90 ug/l; 2.27 standard deviations from the average of 29.83 ug/l.

Monitoring well GW-17 did not have enough water to obtain a sample.

Monitoring well GW-3 has not had a measurable water level since June of 2009.

Monitoring well GW-4 reported a decrease in dissolved calcium (D-Ca), dissolved magnesium (D-Mg) and Total Anions (T-Anis) in the 1<sup>st</sup> quarter of 2014. A reduction in bicarbonate (CaCO<sub>3</sub>) was during the 2<sup>nd</sup> quarter of 2014. A reduced concentration for dissolved calcium was reported for 3<sup>rd</sup> and 4<sup>th</sup> quarter of 2014. Concentrations for all required parameters returned to historical ranges the 1<sup>st</sup> quarter of 2015. Reported concentrations for the 2<sup>nd</sup> quarter of 2015 were slightly elevated for bicarbonate and total anions. Total selenium was reported 5.22 standard deviations from the mean of 19 ug/l with a concentration of 80 ug/l for 3<sup>rd</sup> quarter 2015. Total selenium was again elevated with a reported value of 110 ug/l.

Monitoring well G-6 reported an elevated concentration of 80 ug/l for total selenium the previous quarter (3.95 standard deviations from the mean of 22.63 ug/l). The total selenium concentration was again elevated this quarter with a reported value of 110 ug/l, 6.02 standard deviations from the mean 22.63 ug/l.

Monitoring well GW-7 reported an elevated total selenium concentration of 60 ug/l the 3<sup>rd</sup> quarter of 2015. The mean of 23.29 was exceeded by 5.71 standard deviations. This quarter, total selenium was again elevated with a reported concentration of 80 ug/l.

Significantly lower concentrations were reported for D-Ca, D-Mg, D-K, D-Na for monitoring well GW-8 during the 1<sup>st</sup> quarter of 2015. These parameters were reported within historic ranges the 2<sup>nd</sup> quarter of 2015. A reduced concentration for bicarbonate was the only irregularity reported in the 3<sup>rd</sup> quarter of 2015. The total selenium concentration was reported at 160 ug/l (2.47 standard deviations from the mean of 35.75 ug/l).

A reduction in D-Na and CaCO<sub>3</sub> was reported for monitoring well GW-9 during the 4<sup>th</sup> quarter of 2014. A reduced concentration for bicarbonate was reported again during the 1<sup>st</sup> quarter of 2015. A reduction of bicarbonate was again reported along with a reduction in dissolved sodium concentration during the 2<sup>nd</sup> quarter of 2015. For the second quarter in a row, total selenium concentrations have increased. A concentration of 120 ug/l and 160 ug/l was reported for the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2015.

Monitoring well GW-9B reported a reduction in concentration for D-Mg, dissolved sodium (D-Na) and total cations (T-Cats) during the 3<sup>rd</sup> quarter of 2014. A continued reduction in D-Na was produced during the 4<sup>th</sup> quarter of 2014 and again during the 1<sup>st</sup> quarter of 2015. Sodium was again reported lower than the mean for 2<sup>nd</sup> quarter. An increase in total selenium was reported for the 3<sup>rd</sup> quarter of 2015. The concentration of 100 ug/l is 2.60 standard deviations from the mean of 34.47 ug/l. The total selenium value reported this quarter is again elevated with a concentration of 150 ug/l. The mean for total selenium at this monitoring point is 34.47.

**UPDES**

YES  NO

**5. Does the Mine Permittee need to submit more information to fulfill this quarter's**

**monitoring requirements?**

YES  NO

**6. Follow-up from last quarter, if necessary.**

NA

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

Total selenium concentrations have increased rather significantly in the last two to three quarters. It's unclear at this time as to what is causing this increase. The Utah Division of Water Quality as well as the Permittee have been notified. Continued monitoring and research will be conducted.