

# WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

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June 27<sup>th</sup>, 2017

TO: Internal File

THRU: Daron Haddock, Coal Program Manager

FROM: Steve Christensen, Environmental Scientist 

RE: 2016 4<sup>th</sup> Quarter Water Monitoring, Price River Terminal, LLC., Wellington Preparation Plant, C/007/0012, Task ID #5394

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, and SW-2A. The remaining monitoring locations reported no flow (SW-3, SW-4, SW-5, SW-6, SW-7 and SW-8).

**Wells**

YES  NO

The Permittee is required to analyze samples quarterly from 15 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 well GW-3 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?**

Beginning in the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2015, total selenium concentrations began to show elevated concentrations in numerous ground and surface water samples. It was noteworthy in that historically, total selenium levels above the laboratory detection limit were sporadic and only occurring periodically. During the 2<sup>nd</sup> quarter of 2015, the total selenium concentrations reported by the laboratory (SGS) for all of the 16 samples that tested for total selenium produced a concentration below the detection limit of 0.02 mg/L.

Elevated total selenium was detected in 14 samples during the 3<sup>rd</sup> quarter of 2015. Additionally, all of the 15 samples tested for selenium during the 4<sup>th</sup> quarter reported elevated total selenium concentrations. The Division contacted the Permittee and discussed with them the presence of the elevated selenium. It was agreed that the Permittee would contact the laboratory and inquire as to the possibility that some type of lab error or change in method could've caused the elevated total selenium.

This course of action was reasonable for several reasons: 1) the 2<sup>nd</sup> quarter of 2015 did not report any total selenium concentrations above the laboratory detection limit. 2) the monitoring sites that reported elevated total selenium concentrations were located both above and below stream of the mine site as well as up-gradient and down-gradient. As a result, it seemed

possible that the laboratory may have produced some error during the sample extraction/analysis.

The Permittee instructed SGS Laboratory (the lab) to re-run for total selenium on the samples collected from the previous three quarters. The lab investigated and found that there had been errors in the reported total selenium values and the errors were produced as a result of calculation (dilution) errors. The lab staff was able to review the archived data and correct the analytical results. The amended reports have been provided to the Division. The corrected total selenium concentrations will hand keyed into the Water Quality Database.

#### Surface Water Monitoring Sites:

SW-1 reported elevated total selenium (T-Se) during the 1<sup>st</sup> quarter of 2016 (2.15 standard deviations from the mean). However; the total selenium concentrations were reported below the detection limit (<20 ppm) for both the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2016.

SW-2A reported elevated concentrations for Cl during the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2016. An elevated D-K concentration was reported the 3<sup>rd</sup> quarter of 2016; however, the D-K was markedly lower than the historical average for 4<sup>th</sup> quarter 2016.

SW-2 reported T-Se concentrations below the detection limit during the period in question (i.e. 3<sup>rd</sup> and 4<sup>th</sup> quarter 2015). All required parameters were within historical ranges for all of 2015 and 2015.

#### Ground Water Monitoring Sites:

The following ground water monitoring sites did not report elevated T-Se concentrations for 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarter of 2016: GW-1, GW-10, GW-14, GW-17, GW-4, GW-6, GW-7, GW-8 and GW-9.

GW-15A, GW-16 and GW-15B reported elevated T-Se the 1<sup>st</sup> quarter of 2016; however, the T-Se concentration was below the detection limit (<20 ppm) for the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2016.

GW-1 reported slightly elevated concentrations of D-K, TDS and T-Cats the 2<sup>nd</sup> quarter of 2016. During the 3<sup>rd</sup> quarter of 2016, GW-1 gain reported several parameters outside of two standard deviations from the mean: D-Mg, T-Alk, T-Hardness, TDS, bicarbonate, T-Cats and T-Anions. The 4<sup>th</sup> quarter monitoring reported reductions in concentrations for bicarbonate and total alkalinity. Elevated concentrations for Cl and TDS were reported during the 4<sup>th</sup> quarter of 2016.

GW-15A reported elevated TDS and D-Mg concentrations the 2<sup>nd</sup> quarter of 2016. During the 3<sup>rd</sup> quarter, GW-15A reported elevated concentrations for Cl, SO<sub>4</sub>, TDS, T-cations and T-anions.

Elevated concentrations were reported for D-Ca, D-Mg, D-Na, Cl, SO4, total hardness, TDS, total cations, total anions and field conductivity for 4<sup>th</sup> quarter 2016.

GW-6 reported a slightly elevated concentration for bicarbonate 2<sup>nd</sup> quarter 2016. However; bicarbonate was reported slightly lower than the mean for the 3<sup>rd</sup> quarter 2016. GW-8 produced an elevated concentration for D-K 2<sup>nd</sup> quarter of 2016. As with GW-6, the bicarbonate concentration reported for 3<sup>rd</sup> quarter 2016 was well below the mean of 959.76 ppm (reported concentration of 784 ppm). GW-9 reported an elevated D-K concentration the 2<sup>nd</sup> quarter of 2016. During the 3<sup>rd</sup> quarter GW-9 reported a reduction in bicarbonate and D-Na concentrations. The D-K concentration for GW-9 returned to historical range the 3<sup>rd</sup> quarter of 2016. A reduced bicarbonate value was reported for the 4<sup>th</sup> quarter of 2016. It was the only parameter outside of two standard deviations from the mean.

GW-15B reported reduced concentrations for T-alkalinity and bicarbonate for the 3<sup>rd</sup> quarter of 2016. For 4<sup>th</sup> quarter 2016, all required parameters reported concentrations within established historical ranges.

GW-4 reported reduced concentrations for T-alkalinity, bicarbonate and T-anions the 3<sup>rd</sup> quarter of 2016. Reduced concentrations for D-Mg and bicarbonate (CaCO3) were reported for 4<sup>th</sup> quarter 2016.

GW-16 reported reduced concentrations of D-Mg, D-Na, T-Alkalinity, T-hardness, TDS, bicarbonate, T-cations and T-anions for 3<sup>rd</sup> quarter 2016. The reduction in concentration continued for D-Mg, total alkalinity, total hardness, bicarbonate and total cations for 4<sup>th</sup> quarter 2016.

GW-10 reported a slight reduction in bicarbonate concentration during the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2016.

GW-14 reported an elevated concentration for D-K the 2<sup>nd</sup> quarter of 2016. The well could not be accessed during the 3<sup>rd</sup> quarter of 2016 due to the area being inundated with Price River water. A reduction in bicarbonate (CaCO3) was reported for the 4<sup>th</sup> quarter 2016.

GW-8 reported a reduced bicarbonate concentration 3<sup>rd</sup> quarter 2016. A reduced bicarbonate concentration was again reported for 4<sup>th</sup> quarter 2016.

**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?**

Continued monitoring of total selenium concentrations will continue in order to determine if the lab is consistently calculating/reporting the values.