

# WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

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December 18<sup>th</sup>, 2017

TO: Internal File

THRU: Daron Haddock, Coal Program Manager

FROM: Steve Christensen, Environmental Scientist 

RE: 2017 2<sup>nd</sup> Quarter Water Monitoring, Price River Terminal, LLC., Wellington Preparation Plant, C/007/0012, Task ID #5543

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?**

The Permittee had issues uploading the water quality data for 1<sup>st</sup> quarter 2017. The Permittee performed the requisite sampling and analysis; however, due to technical issues they were unable to upload the data. As such, enforcement action was not warranted. The Permittee was able to upload 1<sup>st</sup> quarter and 2<sup>nd</sup> quarter 2017 into the Division's water quality database. All required monitoring sites were sampled and requisite data obtained.

**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).

Data was submitted for all surface water monitoring sites for both 1<sup>st</sup> and 2<sup>nd</sup> quarter 2017.

**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.

Data was submitted for all of the required monitoring well sites.

**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?**

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). The T-Se concentration for 2<sup>nd</sup> quarter 2017 was within historic ranges as were all other reported parameters. 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. T-Se was outside of two standard deviations (2.74) for first quarter 2017. However; all reported concentrations (including T-Se) were within established ranges for 2<sup>nd</sup> quarter 2017.

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 and 2016. The first two quarters of 2017 followed the same pattern of reported concentrations within normal ranges (i.e. within 2 standard deviations from the mean).

#### 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-1 reported significantly reduced concentrations for D-Ca, D-Mg and D-Na 1<sup>st</sup> quarter 2017. Oddly, elevated concentrations for D-K and D-Ca were reported 2<sup>nd</sup> quarter 2017. It's unclear what is causing these dramatic swings in concentrations. The depth to water increased fairly significantly the 2<sup>nd</sup> quarter of 2017. A depth of 21.15' was reported (average depth to water is 13.45').

Monitoring well GW-13 reported elevated concentrations for D-K and D-Ca the 2<sup>nd</sup> quarter of 2017 (97.51 ppm and 483.5 ppm respectively). There was not enough water in the well to sample during the 1<sup>st</sup> quarter of 2017.

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, SO<sub>4</sub>, total hardness, TDS, total cations, total anions and field conductivity for 4<sup>th</sup> quarter 2016. First quarter 2017 again reported a slew of elevated concentrations outside two standard deviations from the mean. Elevated concentrations for conductivity, D-Mg, D-K, D-Na, Cl, SO<sub>4</sub>, T-Alk, T-Hardness, TDS, Total Cations and Total Anions were reported 1<sup>st</sup> quarter 2017. Concentrations appeared to stabilize for 2<sup>nd</sup> quarter 2017. D-K was the elevated concentration reported. The aforementioned parameters returned to normal ranges. The depth to water did increase to 17.25' (average depth to water 10.07').

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. Monitoring well GW-15B reported elevated D-Mn, T-Mn, T-Fe and D-K concentrations 1<sup>st</sup> quarter 2017. Only D-K was reported to be elevated the 2<sup>nd</sup> quarter of 2017.

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 the 4<sup>th</sup> quarter 2016. Reduced concentrations for D-Mg, T-Hardness, Total Cations were reported 1<sup>st</sup> quarter 2017. A slightly elevated D-K concentration was reported 1<sup>st</sup> quarter 2017 as well. During the 2<sup>nd</sup> quarter 2017, the depth to water greatly reduced with a

reported depth of 18' (average depth to water is 41.79'). Slightly elevated D-Ca and D-K concentrations were reported.

Monitoring well GW-17 reported an elevated concentration for D-K 1<sup>st</sup> quarter 2017 and again in 2<sup>nd</sup> quarter 2017.

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 that quarter. Slightly elevated concentrations of D-K and CaCO<sub>3</sub> were reported 1<sup>st</sup> quarter 2017. Only D-K was reported outside of two standard deviations for 2<sup>nd</sup> quarter 2017. A reported concentration of 13.28 ppm was reported (8.58 standard deviations outside the mean).

GW-7 reported a T-Se concentration 2.41 standard deviations from the mean of 35.62 ppm for 1<sup>st</sup> quarter 2017. The reported concentration was 80 ppm. Additionally a D-K concentration was reported that was 3.51 standard deviations from the mean. The T-Se concentration for GW-7 was within established ranges for the 2<sup>nd</sup> quarter of 2017. The D-K concentration remained elevated.

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 (CaCO<sub>3</sub>) were reported for 4<sup>th</sup> quarter 2016. An elevated D-K concentration was reported 1<sup>st</sup> quarter 2017 and again in 2<sup>nd</sup> quarter 2017.

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 (CaCO<sub>3</sub>) was reported for the 4<sup>th</sup> quarter 2016. First quarter 2017 reported a reduced D-Mg concentration and a slightly increased concentration for D-K.

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 and 1<sup>st</sup> quarter 2017. The bicarbonate concentration was within normal ranges for 2<sup>nd</sup> quarter 2017. However; an elevated D-K concentration was reported (5.23 standard deviations from the mean).

Monitoring well GW-9 reported reductions in D-Mg and CaCO<sub>3</sub> 1<sup>st</sup> quarter 2017. The concentrations returned to normal ranges the 2<sup>nd</sup> quarter of 2017. An elevated D-K concentration was reported 2<sup>nd</sup> quarter 2017.

GW-9B reported a spike in D-Mg for 1<sup>st</sup> quarter 2017. A reported value of 1,494 ppm was 7.35 standard deviations from the mean of 609.77 ppm. The D-Mg concentration was within normal ranges for 2<sup>nd</sup> quarter 2017; however, an elevated D-K concentration was reported for 2<sup>nd</sup> quarter 2017. Additionally, TSS was reported as 25 ppm for 2<sup>nd</sup> quarter. The mean for TSS is 8,685.71 ppm.

**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?**

NA