REPORT

Annual Groundwater Report - 2018

Great River Energy - Stanton Station

Submitted to:

Great River Energy
Stanton Station

Submitted by:

Golder Associates Inc.
44 Union Boulevard, Suite 300 Lakewood, Colorado 80228

+1 303 980-0540

1894121

January 29, 2019

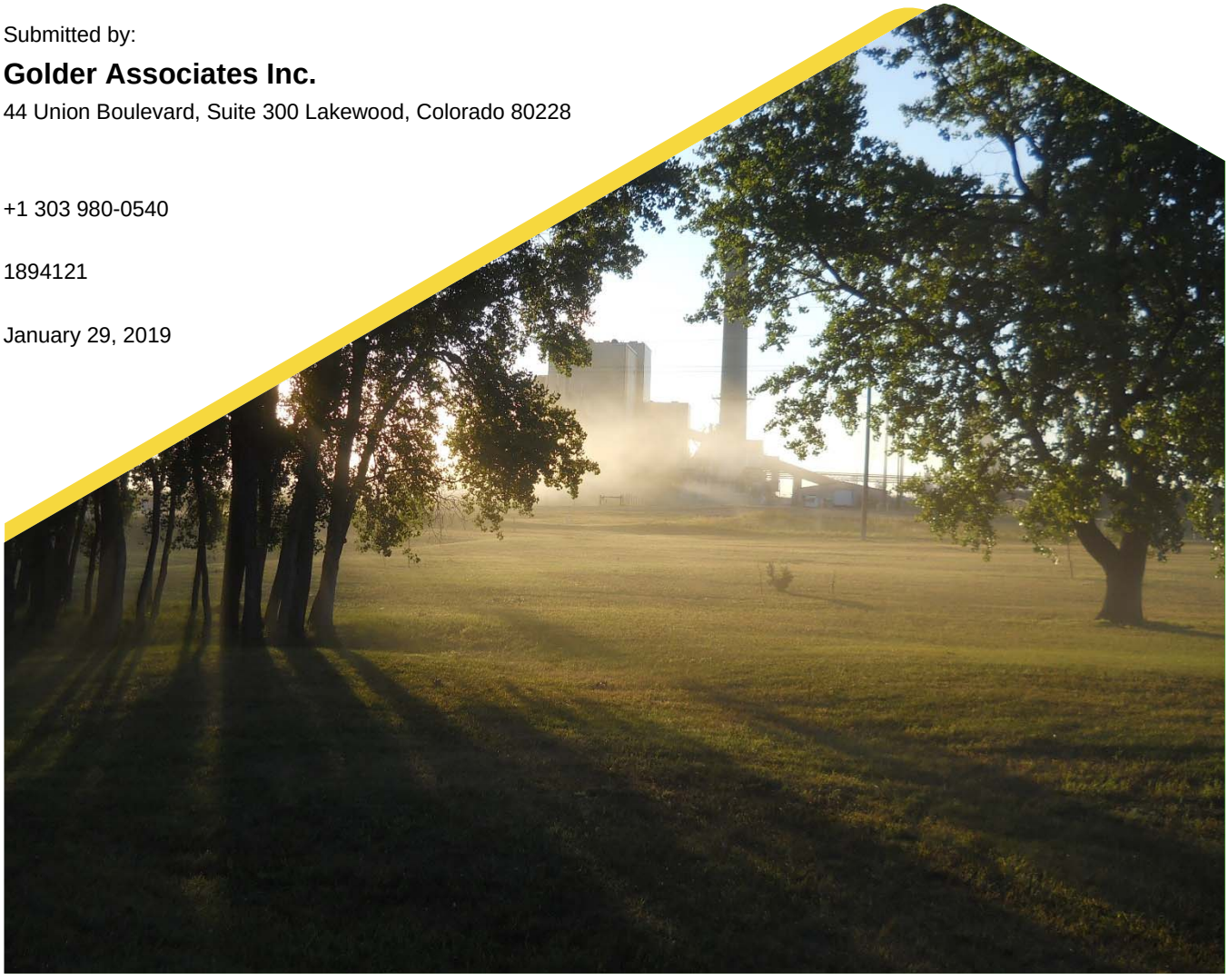

Table of Contents

TABLES

FIGURES

1.0 INTRODUCTION

Golder Associates Inc. (Golder) has prepared this report for the 2018 groundwater sampling and comparative statistical analysis for Great River Energy's (GRE) Stanton Station to meet the requirements of the Coal Combustion Residuals (CCR) rule's sections on groundwater monitoring and corrective action, 40 Code of Federal Regulations (CFR) 257.90 through 257.98.

1.1 Purpose

The CCR rule established specific requirements for reporting of actions related to groundwater monitoring and corrective actions in 40 CFR 257.90. Per part (e) of 40 CFR 257.90, no later than January 31, 2018, and annually thereafter, owners or operators of CCR units must prepare an annual groundwater monitoring and corrective action report.

1.2 Site Background

GRE's Stanton Station is a coal-fired power plant located in Mercer County, North Dakota, approximately three miles southeast of the city of Stanton along the Missouri River. Stanton Station began generating power in 1966 and ceased power production in February 2017. CCRs are managed in composite-lined surface water impoundment cells and dry waste facilities regulated and permitted by the North Dakota Department of Health (NDDH) in accordance with North Dakota Administrative Code Article 33-20, Solid Waste Management and Land Protection.

Stanton Station has two CCR facilities that are within the purview of the United States Environmental Protection Agency (USEPA) CCR rule:

- Bottom Ash CCR Landfill (Bottom Ash Landfill)
- Bottom Ash CCR Surface Impoundment (Bottom Ash Impoundment)

These facilities are currently separated into two monitoring network units. Locations of the facilities, groundwater monitoring network units, and groundwater monitoring wells are shown in Figures 1 and 2.

2.0 GROUNDWATER MONITORING NETWORK PROGRAM STATUS

The CCR groundwater monitoring system at Stanton Station consists of a total of 12 monitoring locations (five background and seven downgradient wells). The monitoring locations are shown in Figures 1 and 2 and listed in Table 1. Additional information on the groundwater monitoring system can be found in the Coal Combustion Residuals Groundwater Monitoring System Certification (Golder 2017a). Each CCR facility is part of a monitoring network consisting of a least one upgradient and three downgradient monitoring wells.

The groundwater monitoring system at Stanton Station is divided as follows:

- The background monitoring wells are located south and west of the CCR units where groundwater is not expected to have been influenced by historic CCR deposition based on groundwater flow trends. There are four upgradient monitoring wells and one side-gradient monitoring well shared between the CCR facilities.
- The Bottom Ash Landfill has four downgradient monitoring wells.
- The Bottom Ash Impoundment has three downgradient monitoring wells.

2.1 Completed Key Actions in 2018

The following key actions were completed in 2018:

- The first annual CCR groundwater monitoring and corrective action report was completed and placed within the operating record and on the publicly accessible CCR website (Golder 2018).
- Detection monitoring samples were collected in May and November 2018, respectively, and analyzed for the Appendix III constituent list associated with the CCR rule for the program wells.
- Baseline statistical analysis was established for the Appendix III parameters following the methodology outlined in the Groundwater Monitoring Statistical Methods Certification, Great River Energy – Stanton Station (Golder 2017b).
- Comparative statistical analysis was completed for the Quarter 4 (Q4) 2017 and Quarter 2 (Q2) 2018 detection monitoring samples, which were collected in October 2017 and May 2018, respectively.
- Demolition activities at Stanton Station continued through 2018 in preparation for closure and site restoration scheduled to occur in 2019 and 2020.

2.2 Installation and Decommissioning of Wells

No wells were installed as part of the Stanton Station CCR monitoring well network in 2018. No wells were decommissioned from the Stanton Station CCR monitoring well network in 2018.

2.3 Problems and Resolutions

During the November 2018 detection monitoring event well MW-1R was inaccessible for sampling due to the presence of demolition materials and equipment associated with the demolition of Stanton Station. Access to the well is anticipated to be possible during the Q2 2019 sampling event.

2.4 Key Activities for 2019

The following key actions are anticipated to be completed in 2019:

- Comparative statistics for the Q4 2018 detection monitoring event (see Section 3.3 for further details).
- Detection monitoring sampling events will occur in the second and fourth quarter of 2019, and will consist of sampling, evaluation of data, and comparative statistics.

3.0 GROUNDWATER MONITORING ANALYTICAL PROGRAM STATUS

Analytical activities associated with the groundwater monitoring program are described below.

3.1 Collected Samples

Detection monitoring samples were collected by field staff from Minnesota Valley Testing Laboratory (MVTL) in May 2018 and November 2018. Precise dates vary between locations and can be found in Tables 2 through 13. Samples were collected using low-flow methodology with dedicated bladder pumps. The sampling procedures and analytical test methods are in accordance with USEPA-accepted procedures.

3.1.1 Groundwater Elevation and Flow Rate

Groundwater elevations were measured in each well during each sampling event prior to purging. Elevation measurements can be found in Tables 2 through 13. Groundwater elevations and interpolated groundwater contours from the May 2018 detection monitoring event are shown on Figure 1. Groundwater elevations and interpolated groundwater contours from the November 2018 detection monitoring event are shown on Figure 2. Based on both the May 2018 and November 2018 groundwater elevations/contours, the shallow groundwater at the CCR facilities generally flows northeast.

The groundwater flow rate across each facility was estimated with the equation $V_s = k \times i/n_e$, where:

- V_s is the groundwater flow rate, in feet per day (ft/day);
- k is the hydraulic conductivity, estimated from slug testing results from system wells (Braun 1993), in ft/day;
- i is the hydraulic gradient, calculated based on groundwater elevations for each monitoring event, in feet per feet (ft/ft);
- n_e is the effective porosity, estimated to be 0.25 for a silt/sand and is reflective of site soils (Duffield 2007).

The range of groundwater flow velocities calculated for the units during the May 2018 and November 2018 detection monitoring sampling events are shown below. As the Bottom Ash Landfill and Bottom Ash Impoundment are adjacent to one another and intersect similar geologic formations within the uppermost water-bearing zone, the groundwater flow rates are the same during each sampling event and are presented below based on a range of measured hydraulic conductivity (k) values from 1.05 ft/day to 40 ft/day.

- May 2018: 0.03 – 1.20 ft/day
- November 2018: 0.03 – 1.30 ft/day

3.2 Monitoring Data (Analytical Results)

Analytical results for samples collected in 2018 for monitoring wells within the network are shown in Tables 2 through 13.

3.3 Baseline Statistical Analysis

Baseline was established for the Appendix III parameters following the methodology outlined in the Groundwater Monitoring Statistical Methods Certification, Great River Energy – Stanton Station (Golder 2017b). Either a parametric or non-parametric method was used to generate the baseline statistical limit for each constituent. The methods vary between well-constituent pairs and are based on the percentage of non-detect values in the baseline period and the baseline data distribution for each well-constituent pair, in accordance with the Unified Guidance (USEPA 2009). A full description of the steps taken for baseline statistical analyses can be found in the Coal Combustion Residuals Groundwater Statistical Method Certification, Great River Energy – Stanton Station, available on the publicly accessible CCR website (Golder 2017b).

For wells in the site's current NDDH monitoring program (upgradient wells MW-6B, MW-7A, MW-7B, and MW-8B, and downgradient wells MW-1R, MW-3B, and MW-9N), additional data collected in 2017 between the end of the baseline period (April 2017) and the beginning of detection monitoring (October 2017) has been incorporated into the baseline data sets where possible. Determination of eligibility of the additional data was based on the methods

used for establishing baseline discussed in the Groundwater Statistical Method Certification (Golder 2017b). Additional baseline data is presented for the corresponding wells on Tables 2 through 13.

3.4 Comparative Statistical Analysis

The comparative statistical analysis for the October 2017 and May 2018 detection monitoring events is summarized below, and the results are presented in Tables 14 through 25. Based on the timing of the November 2018 detection monitoring sample, comparative statistical analysis for the third detection monitoring event will occur within 90 days of data evaluation following receipt of the analytical data. Comparative statistical analysis for the Q4 2018 event will be completed during the first quarter of 2019. A full description of the steps taken for comparative statistical analysis can be found in the Coal Combustion Residuals Groundwater Statistical Method Certification, Great River Energy – Stanton Station (Golder 2017b).

Comparative statistical analysis is conducted following each detection monitoring event, consisting of the Appendix III parameters (USEPA 2015). For both Shewhart-CUSUM limits and non-parametric prediction limits (NPPL), the comparative statistical analysis consists of a comparison of detection monitoring results collected during the period of interest to the statistical limit calculated from the baseline data collection period. For constituent-well pairs with increasing trends identified during the baseline period, an alternative trend test, has been used to determine statistical significance. For constituent-well pairs with decreasing trends identified during the baseline period, a Sen's Slope trend test was used to assess the results.

3.4.1 Definitions

The following definitions will be used in discussion of the comparative statistical analysis:

- Elevated CUSUM – an elevated CUSUM occurs when the CUSUM is greater than the Shewhart-CUSUM limit established by the baseline statistical analysis, but the analytical result does not exceed the Shewhart-CUSUM limit. An elevated CUSUM is an indication that concentrations are gradually increasing and that analytical results may exceed the Shewhart-CUSUM limit in the future.
- Potential Exceedance –is defined as an initial elevated CUSUM or an initial analytical result that exceeds the Shewhart-CUSUM limit or non-parametric statistical limit established by the baseline statistical analysis. Confirmatory resampling will determine if the potential exceedance is a false-positive or a verified statistically significant increase (SSI). Non-detect results that exceed either the Shewhart-CUSUM limit or the non-parametric statistical limit are not considered potential exceedances.
- False-positive – is defined as an analytical result that exceeds the statistical limit that can clearly be attributed to laboratory error, changes in analytical precision, or is invalidated through confirmatory re-sampling. False-positive SSIs are not used in calculation of any subsequent CUSUMs.
- Confirmatory re-sampling – is designated as the next scheduled sampling event.
- Verified SSI – is interpreted as two consecutive statistically significant increase (the original sample and the confirmatory re-sample for analytical results, or two consecutive elevated CUSUMs) for the same constituent at the same well.

3.4.2 Elevated CUSUMs

No elevated CUSUMs were identified during either the Q4 2017 or the Q2 2018 detection monitoring events.

3.4.3 Potential Exceedances

No potential exceedances were identified during the Q2 2018 detection monitoring event.

3.4.4 False-Positives

The following false-positives were confirmed during the Q2 2018 detection monitoring sampling event based on potential exceedances identified during the Q4 2017 detection monitoring sampling event:

- MW-3B (downgradient, Bottom Ash Landfill), TDS: The TDS potential exceedance at MW-3B identified during the Q4 2017 detection monitoring event was shown to be a false-positive through confirmatory re-sampling during the Q2 2018 detection monitoring event.
- MW-103 (downgradient, Bottom Ash Impoundment), Fluoride: The fluoride potential exceedance at MW-103 identified during the Q4 2017 detection monitoring event was shown to be a false-positive through confirmatory re-sampling during the Q2 2018 detection monitoring event.

3.4.5 Verified SSIs

No verified SSIs were identified during either the Q4 2017 or the Q2 2018 detection monitoring events.

3.4.6 Trending Data

During establishment of baseline statistical periods, a few wells at the site were found to have trending data, preventing establishment of a statistical limit using data solely from the baseline sampling period. A description of the methods used for determining statistical significance at these wells follows.

3.4.6.1 Increasing Trends in Baseline Data

- MW-102 (downgradient, Bottom Ash Landfill) – Fluoride: For comparative statistics, an alternative trend test was used. Both the complete data set and the most recently collected eight points were analyzed with Sen's Slope trend tests to determine if the data show a statistically significant trend. Following the Q2 2018 detection monitoring sampling event, both data sets did not exhibit a statistically significant trend. During comparative statistics for the Q4 2018 sampling event, data will be assessed to determine whether a baseline period can be established using data collected through the Q2 2018 result.
- MW-103 (downgradient, Bottom Ash Impoundment) – Calcium: For comparative statistics, an alternative trend test was used. Both the complete data set and the most recently collected eight points were analyzed with Sen's Slope trend tests to determine if the data show a statistically significant trend. Following the Q2 2018 detection monitoring sampling event, both data sets did not exhibit a statistically significant trend. During comparative statistics for the Q4 2018 sampling event, data will be assessed to determine whether a baseline period can be established using data collected through the Q2 2018 result.

4.0 PROGRAM TRANSITIONS

Beginning in the fourth quarter of 2017, the groundwater monitoring program at Stanton Station transitioned from the baseline period to detection monitoring. During the baseline period, at least eight independent samples from each well within the program were collected and analyzed for the constituents listed in Appendix III and Appendix IV of the rule prior to October 17, 2017, as specified in 40 CFR 257.94(b). The first detection monitoring samples were collected in the fourth quarter of 2017.

4.1 Detection Monitoring

The site is currently in detection monitoring. Samples for the detection monitoring program are collected on a semi-annual basis, beginning with the samples collected in the fourth quarter of 2017. GRE plans to collect the fourth and fifth semi-annual samples for the detection monitoring program in the second and fourth quarters of 2019.

4.2 Assessment Monitoring

Results to date from the current CCR groundwater monitoring program at Stanton Station do not trigger the need to implement assessment monitoring as described in 40 CFR 257.95. As such, no alternative source demonstrations have been made and there are no actions that are required as part of the assessment monitoring program.

4.3 Corrective Measures and Assessment

Results to date from the CCR groundwater monitoring program at Stanton Station do not trigger the need to assess or implement corrective measures. Since the CCR groundwater monitoring program does not require corrective measures, an assessment of corrective measures, as described in 40 CFR 257.96, has not been initiated and no actions are required.

5.0 CLOSING

This report presents the results from the Q2 2018 and Q4 2018 detection monitoring events of the CCR program at Stanton Station. Comparative statistics for the Q4 2017 and Q2 2018 detection monitoring events are also included. Comparative statistics for the Q4 2018 detection monitoring event, conducted in November 2018, will occur within 90 days of finalization of data evaluation, during the first quarter of 2019. The groundwater monitoring and analytical procedures implemented meet the requirements of the CCR rule and are consistent with the approach described in the Groundwater Monitoring System Certification (Golder 2017a) and the Groundwater Monitoring Statistical Methods Certification (Golder 2017b). Results presented within this report support remaining in detection monitoring, and do not trigger assessment monitoring nor an assessment of corrective measures.

Signature Page

Golder Associates Inc.

Erin L. Hunter, PhD
Project Engineer

Craig Schuettepelz, PE
Senior Project Engineer

ELH/CCS/ds

https://golderassociates.sharepoint.com/sites/23293g/deliverables/reports/ss_ccr_gwannualreport_fnl_29jan19/1894121_ss-ccr-gwannualreport_29jan19.docx

6.0 REFERENCES

Braun, 1993. Hydrogeologic Assessment Report, Stanton Station Ash Ponds. Prepared for Great River Energy Stanton Generating Station. Prepared by Braun Intertec Environmental Inc., 1993.

Duffield, Glenn M., 2007. AQTESOLV for Windows Version 4.5 User's Guide.

Golder, 2017a. Coal Combustion Residuals Groundwater Monitoring System Certification, Great River Energy – Stanton Station. October 12, 2017.

Golder, 2017b. Coal Combustion Residuals Groundwater Monitoring Statistical Method Certification, Great River Energy – Stanton Station. October 12, 2017.

Golder, 2018. Annual Groundwater Report – 2018, Great River Energy – Stanton Station. January 29, 2018.

United States Environmental Protection Agency (USEPA), 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance; EPA 530/R-09-007. March 2009.

USEPA, 2015. Code of Federal Regulations Title 40 Part 257: Hazardous and Solid Waste Management System; *Disposal of Coal Combustion Residuals from Electric Utilities*. April 17, 2015.

Tables

Table 1: Monitoring Well Summary

Location	Well ID	Date Constructed	TOC Elevation ft amsl	Ground Surface Elevation ft amsl	Screen Interval ft bgs	Top of Screen Elevation ft amsl	Bottom of Screen Elevation ft amsl	Sand Pack Interval ft bgs	Geologic Unit(s) Completed In
Upgradient/Side-gradient	MW-6B	9/8/1992	1711.2	1709.3	28.4-38.4	1681	1671	19.0-38.5	Outwash
	MW-7A	8/27/1992	1713.4	1711.0	7.0-17.0	1704	1694	5.0-18.0	Silty Sand/Clay
	MW-7B	9/9/1992	1712.7	1710.9	28.1-38.1	1682	1672	23.0-38.5	Silty Sand/Outwash
	MW-8B	9/3/1992	1749.7	1747.2	54.0-64.0	1694	1684	49.0-64.5	Outwash
	MW-105	11/18/2015	1716.6	1713.5	9.0-19.0	1704	1694	7.0-19.0	Clay/Outwash
Bottom Ash Landfill Downgradient	MW-3B	6/11/1982	1713.0	1709.4	23.7-28.7	1687	1682	23.2-29.5	Outwash
	MW-9N	7/19/2010	1708.1	1705.5	16.0-26.0	1689	1679	14.0 - 26.0	Outwash
	MW-101	11/17/2015	1710.8	1707.5	8.0-18.0	1700	1690	6.0-18.0	Silty Sand/Clay
	MW-102	11/17/2015	1711.7	1708.5	14.0-24.0	1694	1684	12.0-24.0	Silty Sand/Clay
Bottom Ash Impoundment Downgradient	MW-1R	11/8/1995	1709.2	1706.8	27.0-36.0	1682	1671	25.0-38.0	Outwash/Clay
	MW-103	11/17/2015	1709.1	1705.6	14.0-24.0	1692	1682	12.0-24.0	Outwash
	MW-104	11/17/2015	1711.7	1708.5	14.0-24.0	1694	1684	12.0-24.0	Outwash

Notes:
TOC: top of casing
ft amsl: feet above mean sea level
ft bgs: feet below ground surface
TOC and ground surface elevations surveyed by Interstate Engineering, Inc. in December 2015.
Well construction measurements are from the original bore log, well data sheet or well construction form.

Table 2: Sample Results Summary Table - MW-6B

		MW-6B				
		Additional Baseline Data (NDDH Monitoring)		Detection Monitoring		
	Units	**13-Jun-17**	**24-Jul-17**	**25-Oct-17**	**14-May-18**	**26-Nov-18**
Water Elevation	ft AMSL	1693.5	1693.2	1693.2	1693.7	1693.1
Appendix III Parameters						
Boron	mg/L	---	---	0.29	0.32	0.31
Calcium	mg/L	---	31.8	22.7	25.1	21.1
Chloride	mg/L	---	13.6	10.9	15	14.8
Fluoride	mg/L	---	0.51	0.56	0.53	0.59
pH, Field	s.u.	7.47	7.68	7.48	7.65	7.59
Sulfate	mg/L	348	310	316	337	353
Total Dissolved Solids	mg/L	---	---	1020	1050	1040

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 3: Sample Results Summary Table - MW-7A

		MW-7A				
		Additional Baseline Data (NDDH Monitoring)		Detection Monitoring		
	Units	**13-Jun-17**	**24-Jul-17**	**25-Oct-17**	**14-May-18**	**26-Nov-18**
Water Elevation	ft AMSL	1703.0	1702.6	1701.9	1701.9	1700.9
Appendix III Parameters						
Boron	mg/L	---	---	0.58	0.57	0.66
Calcium	mg/L	---	438	420	428	403
Chloride	mg/L	---	49.4	45.7	49.7	35.9
Fluoride	mg/L	---	0.52	0.57	0.52	0.53
pH, Field	s.u.	7.12	7.21	7.06	7.22	7.2
Sulfate	mg/L	9950	9600	9620	10600	9460
Total Dissolved Solids	mg/L	---	---	15800	16700	14500

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 4: Sample Results Summary Table - MW-7B

		MW-7B				
		Additional Baseline Data (NDDH Monitoring)		Detection Monitoring		
	Units	**13-Jun-17**	**24-Jul-17**	**25-Oct-17**	**14-May-18**	**26-Nov-18**
Water Elevation	ft AMSL	1701.7	1701.5	1702.3	1701.8	1702.1
Appendix III Parameters						
Boron	mg/L	---	---	0.37	0.43	0.41
Calcium	mg/L	---	18.1	16.7	16.1	15.6
Chloride	mg/L	---	10.8	8.6	11.6	11.4
Fluoride	mg/L	---	0.56	0.57	0.59	0.58
pH, Field	s.u.	7.43	7.65	7.43	7.63	7.64
Sulfate	mg/L	262	362	262	288	304
Total Dissolved Solids	mg/L	---	---	1020	1060	937

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 5: Sample Results Summary Table - MW-8B

		MW-8B				
		Additional Baseline Data (NDDH Monitoring)		Detection Monitoring		
	Units	**13-Jun-17**	**24-Jul-17**	**25-Oct-17**	**14-May-18**	**26-Nov-18**
Water Elevation	ft AMSL	1706.8	1708.7	1710.6	1706.6	1708.5
Appendix III Parameters						
Boron	mg/L	---	---	0.30	0.29	0.38
Calcium	mg/L	---	79	83.9	80.3	77
Chloride	mg/L	---	13.4	10.5	10.9	13
Fluoride	mg/L	---	0.3	0.29	0.22	0.35
pH, Field	s.u.	7.33	7.52	7.21	7.32	7.34
Sulfate	mg/L	345	496	439	282	490
Total Dissolved Solids	mg/L	---	---	1200	911	1270

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 6: Sample Results Summary Table - MW-105

		MW-105		
		Detection Monitoring		
	Units	**25-Oct-17**	**14-May-18**	**26-Nov-18**
Water Elevation	ft AMSL	1703.1	1702.4	1702.8
Appendix III Parameters				
Boron	mg/L	0.32	0.35	0.34
Calcium	mg/L	46.8	57	38.9
Chloride	mg/L	12.8	16.2	13
Fluoride	mg/L	1.00	0.82	1.04
pH, Field	s.u.	7.73	7.66	7.77
Sulfate	mg/L	642	870	597
Total Dissolved Solids	mg/L	1650	2170	1410

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 7: Sample Results Summary Table - MW-3B

		MW-3B				
		Additional Baseline Data (NDDH Monitoring)		Detection Monitoring		
	Units	**14-Jun-17**	**25-Jul-17**	**26-Oct-17**	**15-May-18**	**27-Nov-18**
Water Elevation	ft AMSL	1700.1	1699.5	1699.7	1700.3	1699.7
Appendix III Parameters						
Boron	mg/L	---	---	0.41	0.47	0.42
Calcium	mg/L	---	53.7	49	48.3	45.6
Chloride	mg/L	---	18.8	15.2	18.7	17.2
Fluoride	mg/L	---	0.52	0.52	0.49	0.53
pH, Field	s.u.	7.42	7.63	7.58	7.55	7.58
Sulfate	mg/L	666	546	517	513	506
Total Dissolved Solids	mg/L	---	---	1730	1420	1410

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 8: Sample Results Summary Table - MW-9N

		MW-9N				
		Additional Baseline Data (NDDH Monitoring)		Detection Monitoring		
	Units	**14-Jun-17**	**25-Jul-17**	**26-Oct-17**	**15-May-18**	**27-Nov-18**
Water Elevation	ft AMSL	1688.9	1688.8	1688.6	1688.8	1688.4
Appendix III Parameters						
Boron	mg/L	---	---	2.85	2.48	2.67
Calcium	mg/L	---	85	84.5	83.6	85.5
Chloride	mg/L	---	19	17.8	21.7	21.2
Fluoride	mg/L	---	0.51	0.56	0.51	0.6
pH, Field	s.u.	6.95	7.03	7.00	6.98	7
Sulfate	mg/L	1100	1300	1120	1240	1350
Total Dissolved Solids	mg/L	---	---	2900	3030	3110

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 9: Sample Results Summary Table - MW-101

		MW-101		
		Detection Monitoring		
	Units	**26-Oct-17**	**15-May-18**	**27-Nov-18**
Water Elevation	ft AMSL	1695.0	1696.0	1695.0
Appendix III Parameters				
Boron	mg/L	1.66	1.46	1.56
Calcium	mg/L	11.0	11.1	9.2
Chloride	mg/L	11.8	11.1	8.7
Fluoride	mg/L	1.00	0.91	0.89
pH, Field	s.u.	10.2	9.98	10
Sulfate	mg/L	337	249	488
Total Dissolved Solids	mg/L	2090	2130	2090

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 10: Sample Results Summary Table - MW-102

		MW-102		
		Detection Monitoring		
	Units	**26-Oct-17**	**15-May-18**	**27-Nov-18**
Water Elevation	ft AMSL	1692.9	1692.9	1692.9
Appendix III Parameters				
Boron	mg/L	2.17	0.75	1.39
Calcium	mg/L	58.4	77.1	58.4
Chloride	mg/L	14.9	17.2	17.7
Fluoride	mg/L	0.82	0.46	0.64
pH, Field	s.u.	7.37	7.33	7.41
Sulfate	mg/L	860	615	787
Total Dissolved Solids	mg/L	2050	1800	1820

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 11: Sample Results Summary Table - MW-1R

		MW-1R				
		Additional Baseline Data (NDDH Monitoring)		Detection Monitoring		
	Units	**14-Jun-17**	**25-Jul-17**	**26-Oct-17**	**16-May-18**	**27-Nov-18**
Water Elevation	ft AMSL	1689.2	1688.9	1688.8	1689.1	***
Appendix III Parameters						
Boron	mg/L	---	---	1.25	1.28	***
Calcium	mg/L	---	123	130	124	***
Chloride	mg/L	---	20.2	20.2	20.3	***
Fluoride	mg/L	---	0.62	0.64	0.63	***
pH, Field	s.u.	7.53	7.61	7.61	7.54	***
Sulfate	mg/L	354	331	287	352	***
Total Dissolved Solids	mg/L	---	---	1070	1060	***

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
*** See text regarding sampling access issues during the November 2018 sampling event.
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 12: Sample Results Summary Table - MW-103

		MW-103		
		Detection Monitoring		
	Units	**26-Oct-17**	**16-May-18**	**27-Nov-18**
Water Elevation	ft AMSL	1688.9	1689.2	1688.6
Appendix III Parameters				
Boron	mg/L	1.24	1.25	1.25
Calcium	mg/L	23.4	22.7	16.8
Chloride	mg/L	14.4	18.6	17.4
Fluoride	mg/L	0.36	0.32	0.41
pH, Field	s.u.	9.16	9.21	9.4
Sulfate	mg/L	460	591	833
Total Dissolved Solids	mg/L	1800	1800	1910

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 13: Sample Results Summary Table - MW-104

		MW-104		
		Detection Monitoring		
	Units	**26-Oct-17**	**16-May-18**	**27-Nov-18**
Water Elevation	ft AMSL	1688.9	1689.3	1688.6
Appendix III Parameters				
Boron	mg/L	0.64	0.68	0.68
Calcium	mg/L	95.9	91.1	92.8
Chloride	mg/L	12.4	15.1	14.8
Fluoride	mg/L	0.82	0.73	0.7
pH, Field	s.u.	7.05	7.2	7.09
Sulfate	mg/L	392	381	392
Total Dissolved Solids	mg/L	1120	1110	1130

Legend:
--, not analyzed
ft AMSL, feet above mean sea level
mg/L, milligrams per liter
s.u., standard units for pH
pCi/L, picocuries per liter

Notes:
Non-detects have been listed at the reported primary quantitation limit.
Metal concentrations represent the total fraction (i.e. samples have not been filtered).
Precision is not recorded for samples with radiological concentrations below the reporting limit.

Table 14: Comparative Statistics - MW-6B

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**25-Oct-17**			**14-May-18**		
Boron, Total	mg/L	CUSUM	0.40	0.29	0.33	Yes	0.32	0.33	Yes
Calcium, Total	mg/L	CUSUM	41.7	22.7	29.2	Yes	25.1	29.2	Yes
Chloride	mg/L	CUSUM	16.2	10.9	12.4	Yes	15.0	14.2	Yes
Fluoride	mg/L	CUSUM	0.70	0.56	0.55	Yes	0.53	0.55	Yes
pH, Field-Measured	s.u.	CUSUM	7.23, 8.00	7.48	7.58, 7.61	Yes	7.65	7.61, 7.61	Yes
Sulfate	mg/L	CUSUM	461	316	350	Yes	337	350	Yes
Total Dissolved Solids	mg/L	CUSUM	1182	1020	1053	Yes	1050	1053	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 15: Comparative Statistics - MW-7A

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**25-Oct-17**			**14-May-18**		
Boron, Total	mg/L	CUSUM	1.28	0.58	0.77	Yes	0.57	0.77	Yes
Calcium, Total	mg/L	CUSUM	509	420	429	Yes	428	429	Yes
Chloride	mg/L	CUSUM	66.7	45.7	41.9	Yes	49.7	44.2	Yes
Fluoride	mg/L	CUSUM	0.64	0.57	0.55	Yes	0.52	0.54	Yes
pH, Field-Measured	s.u.	CUSUM	6.88, 7.48	7.06	7.14, 7.18	Yes	7.22	7.18, 7.18	Yes
Sulfate	mg/L	CUSUM	14880	9620	10695	Yes	10600	10695	Yes
Total Dissolved Solids	mg/L	CUSUM	18466	15800	15650	Yes	16700	16074	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 16: Comparative Statistics - MW-7B

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**25-Oct-17**			**14-May-18**		
Boron, Total	mg/L	CUSUM	0.52	0.37	0.43	Yes	0.43	0.43	Yes
Calcium, Total	mg/L	CUSUM	21.2	16.7	18.9	Yes	16.1	18.9	Yes
Chloride	mg/L	CUSUM	14.1	8.6	9.2	Yes	11.6	10.5	Yes
Fluoride	mg/L	CUSUM	0.71	0.57	0.58	Yes	0.59	0.58	Yes
pH, Field-Measured	s.u.	CUSUM	7.18, 8.03	7.43	7.54, 7.60	Yes	7.63	7.60, 7.60	Yes
Sulfate	mg/L	CUSUM	440.6	262	309	Yes	288	309	Yes
Total Dissolved Solids	mg/L	NP-PL	1510	1020	---	Yes	1060	---	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart
NLS: No limit set due to trending data. See text for further detail.

Table 17: Comparative Statistics - MW-8B

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**25-Oct-17**			**14-May-18**		
Boron, Total	mg/L	CUSUM	0.59	0.30	0.30	Yes	0.29	0.30	Yes
Calcium, Total	mg/L	CUSUM	106.3	83.9	84.5	Yes	80.3	84.5	Yes
Chloride	mg/L	CUSUM	23.0	10.5	11.3	Yes	10.9	11.3	Yes
Fluoride	mg/L	CUSUM	0.47	0.29	0.24	Yes	0.22	0.24	Yes
pH, Field-Measured	s.u.	CUSUM	7.14, 7.63	7.21	7.27, 7.38	Yes	7.32	7.27, 7.38	Yes
Sulfate	mg/L	CUSUM	912.6	439	364.9	Yes	282	365	Yes
Total Dissolved Solids	mg/L	CUSUM	2054	1200	963.1	Yes	911	963	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 18: Comparative Statistics - MW-105

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**25-Oct-17**			**14-May-18**		
Boron, Total	mg/L	CUSUM	0.48	0.32	0.37	Yes	0.35	0.37	Yes
Calcium, Total	mg/L	NP-PL	63.4	46.8	---	Yes	57.0	---	Yes
Chloride	mg/L	CUSUM	66.8	12.8	19.7	Yes	16.2	19.7	Yes
Fluoride	mg/L	CUSUM	1.35	1.00	0.96	Yes	0.82	0.96	Yes
pH, Field-Measured	s.u.	CUSUM	7.43, 8.02	7.73	7.72, 7.72	Yes	7.66	7.72, 7.72	Yes
Sulfate	mg/L	CUSUM	2028	642	916.4	Yes	870	916	Yes
Total Dissolved Solids	mg/L	NP-PL	2470	1650	---	Yes	2170	---	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 19: Comparative Statistics - MW-3B

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**26-Oct-17**			**15-May-18**		
Boron, Total	mg/L	CUSUM	0.67	0.41	0.48	Yes	0.47	0.48	Yes
Calcium, Total	mg/L	CUSUM	63.4	49.0	54.8	Yes	48.3	54.8	Yes
Chloride	mg/L	CUSUM	23.6	15.2	17.7	Yes	18.7	17.7	Yes
Fluoride	mg/L	CUSUM	0.70	0.52	0.55	Yes	0.49	0.55	Yes
pH, Field-Measured	s.u.	CUSUM	7.20, 7.97	7.58	7.58, 7.58	Yes	7.55	7.58, 7.58	Yes
Sulfate	mg/L	CUSUM	866	517	621	Yes	513	621	Yes
Total Dissolved Solids	mg/L	CUSUM	1694	1730	1689	No	1420	1559	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 20: Comparative Statistics - MW-9N

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**26-Oct-17**			**15-May-18**		
Boron, Total	mg/L	CUSUM	3.75	2.85	2.77	Yes	2.48	2.77	Yes
Calcium, Total	mg/L	CUSUM	94.1	84.5	80.9	Yes	83.6	82.9	Yes
Chloride	mg/L	CUSUM	22.0	17.8	16.4	Yes	21.7	21.1	Yes
Fluoride	mg/L	CUSUM	0.69	0.56	0.55	Yes	0.51	0.55	Yes
pH, Field-Measured	s.u.	CUSUM	6.71, 7.26	7	6.99, 6.99	Yes	6.98	6.99, 6.99	Yes
Sulfate	mg/L	CUSUM	1721	1120	1283	Yes	1240	1283	Yes
Total Dissolved Solids	mg/L	CUSUM	3394	2900	2819	Yes	3030	2902	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 21: Comparative Statistics - MW-101

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**26-Oct-17**			**15-May-18**		
Boron, Total	mg/L	CUSUM	2.20	1.66	1.57	Yes	1.46	1.57	Yes
Calcium, Total	mg/L	NP-PL	17.6	11	---	Yes	11.1	---	Yes
Chloride	mg/L	CUSUM	17.6	11.8	10.6	Yes	11.1	10.6	Yes
Fluoride	mg/L	CUSUM	1.49	1.00	1.15	Yes	0.91	1.15	Yes
pH, Field-Measured	s.u.	CUSUM	9.66, 10.96	10.2	10.31, 10.31	Yes	9.98	10.13, 10.31	Yes
Sulfate	mg/L	CUSUM	799	337	419	Yes	249	419	Yes
Total Dissolved Solids	mg/L	NP-PL	2250	2090	---	Yes	2130	---	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 22: Comparative Statistics - MW-102

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**26-Oct-17**			**15-May-18**		
Boron, Total	mg/L	CUSUM	2.84	2.17	2.09	Yes	0.75	2.09	Yes
Calcium, Total	mg/L	CUSUM	105.7	58.4	65.2	Yes	77.1	68.1	Yes
Chloride	mg/L	CUSUM	22.3	14.9	16.1	Yes	17.2	16.1	Yes
Fluoride	mg/L	Increasing Trend	NLS	0.82	---	Yes	0.46	---	Yes
pH, Field-Measured	s.u.	CUSUM	7.06, 7.71	7.37	7.38, 7.38	Yes	7.33	7.38, 7.38	Yes
Sulfate	mg/L	CUSUM	1592	860	1008	Yes	615	1008	Yes
Total Dissolved Solids	mg/L	NP-PL	2410	2050	---	Yes	1800	---	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 23: Comparative Statistics - MW-1R

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**26-Oct-17**			**16-May-18**		
Boron, Total	mg/L	CUSUM	1.48	1.25	1.28	Yes	1.28	1.28	Yes
Calcium, Total	mg/L	CUSUM	138	130	125	Yes	124	128	Yes
Chloride	mg/L	CUSUM	24.0	20.2	18.9	Yes	20.3	19.7	Yes
Fluoride	mg/L	CUSUM	0.88	0.64	0.70	Yes	0.63	0.70	Yes
pH, Field-Measured	s.u.	CUSUM	7.31, 7.90	7.61	7.60, 7.60	Yes	7.54	7.60, 7.60	Yes
Sulfate	mg/L	CUSUM	466	287	376	Yes	352	376	Yes
Total Dissolved Solids	mg/L	CUSUM	1210	1070	1065	Yes	1060	1065	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 24: Comparative Statistics - MW-103

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**26-Oct-17**			**16-May-18**		
Boron, Total	mg/L	CUSUM	1.33	1.24	1.20	Yes	1.25	1.26	Yes
Calcium, Total	mg/L	Increasing Trend	NLS	23	---	Yes	22.7	---	Yes
Chloride	mg/L	CUSUM	18.7	14.4	13.7	Yes	18.6	17	Yes
Fluoride	mg/L	CUSUM	0.33	0.36	0.34	No	0.32	0.30	Yes
pH, Field-Measured	s.u.	CUSUM	8.89, 9.47	9.16	9.18, 9.18	Yes	9.21	9.18, 9.18	Yes
Sulfate	mg/L	CUSUM	961	460	649	Yes	591	649	Yes
Total Dissolved Solids	mg/L	CUSUM	1948	1800	1732	Yes	1800	1807	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 25: Comparative Statistics - MW-104

		Statistical Method	Statistical Limit	Q4 2017 Detection Monitoring Result	Q4 2017 CUSUM Value	Q4 2017 - Within Limit?	Q2 2018 Detection Monitoring Result	Q2 2018 CUSUM Value	Q2 2018 - Within Limit?
Appendix III Analytes	**Units**			**26-Oct-17**			**16-May-18**		
Boron, Total	mg/L	CUSUM	0.84	0.64	0.67	Yes	0.68	0.67	Yes
Calcium, Total	mg/L	CUSUM	108.4	95.9	92.2	Yes	91.1	92.0	Yes
Chloride	mg/L	NP-PL	16.7	12.4	---	Yes	15.1	---	Yes
Fluoride	mg/L	CUSUM	0.89	0.82	0.79	Yes	0.73	0.76	Yes
pH, Field-Measured	s.u.	CUSUM	6.75, 7.56	7.05	7.14, 7.16	Yes	7.20	7.16, 7.16	Yes
Sulfate	mg/L	CUSUM	586	392	388.8	Yes	381	389	Yes
Total Dissolved Solids	mg/L	CUSUM	1254	1120	1099	Yes	1110	1099	Yes

Notes:
mg/L, milligrams per liter
s.u., standard units for pH
NP-PL: Non-Parametric Prediction Limit
CUSUM: Parametric Shewhart-CUSUM Control Chart

Figures

LEGEND

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- DOWNGRADIENT MONITORING WELL - BOTTOM ASH LANDFILL
- DOWNGRADIENT MONITORING WELL - BOTTOM ASH IMPOUNDMENT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- 1690 — POTENTIOMETRIC SURFACE CONTOUR (NOTE 3)

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AERIAL IMAGERY PROGRAM, 2017.
2. GROUNDWATER ELEVATIONS SHOWN WERE MEASURED IN MAY 2018.
3. GROUNDWATER SITE INFORMATION WAS USED IN THE CREATION OF POTENTIOMETRIC SURFACE CONTOURS. CONTOUR INTERVAL IS 5 FEET.

N

0 200 400
1" = 200' FEET

GOLDER

MONITORING WELL LOCATIONS AND MAY 2018 GROUNDWATER CONTOURS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 1

LEGEND

- UPGRADIENT OR SIDEGRADIENT MONITORING WELL
- DOWNGRADIENT MONITORING WELL - BOTTOM ASH LANDFILL
- DOWNGRADIENT MONITORING WELL - BOTTOM ASH IMPOUNDMENT
- GENERAL DIRECTION OF GROUNDWATER FLOW
- 1690 — POTENTIOMETRIC SURFACE CONTOUR (NOTE 3)

NOTE(S)

1. AERIAL IMAGERY OBTAINED FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATIONAL AERIAL IMAGERY PROGRAM, 2017.
2. GROUNDWATER ELEVATIONS SHOWN WERE MEASURED IN MAY 2018.
3. GROUNDWATER SITE INFORMATION WAS USED IN THE CREATION OF POTENTIOMETRIC SURFACE CONTOURS. CONTOUR INTERVAL IS 5 FEET.
4. GROUNDWATER ELEVATION MEASUREMENTS FOR MW-1R DID NOT OCCUR DURING NOVEMBER 2018 AS THE MONITORING WELL WAS INACCESSIBLE DURING PLANT DECONSTRUCTION.

N

0 200 400
1" = 200' FEET

GOLDER

MONITORING WELL LOCATIONS AND NOVEMBER 2018 GROUNDWATER CONTOURS
GREAT RIVER ENERGY - STANTON STATION

FIGURE 2

golder.com