

2023 Annual CCR Groundwater Report

Nebraska Public Power District, Sheldon Station

Submitted to:

Nebraska Public Power District

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31405886.001-006-RPT-0

October 2023

Executive Summary

This report presents the results from the 2023 Coal Combustion Residuals (CCR) groundwater monitoring program events at Nebraska Public Power District's Sheldon Station Ash Landfill 4. The facility entered 2023 under a detection monitoring program and remains in detection monitoring based on the results of the first (Q1) and third (Q3) quarter 2023 detection monitoring sampling and analysis events.

For the Q1 2023 detection monitoring sampling event, no items of statistical significance were identified.

For the Q3 2023 detection monitoring sampling event, a potential exceedance was identified for sulfate at AP4-MW2, an upgradient location. A confirmatory re-sample will be collected prior to determination of verified statistical significance.

The monitoring program for Ash Landfill 4 remains in detection monitoring entering 2024.

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1.0 INTRODUCTION

WSP USA Inc. (WSP) prepared this report describing the 2023 Coal Combustion Residuals (CCR) groundwater sampling events and comparative statistical analysis for Nebraska Public Power District's (NPPD) Sheldon Station Ash Landfill No. 4 (AP4; the Site) in Hallam, Nebraska. This report was written to meet the requirements of the Site's permitted Sampling and Analysis Plan (SAP) as approved by the Nebraska Department of Environment and Energy (NDEE) (GAUSA 2022a) and the federal CCR Rule's sections on groundwater monitoring and corrective action, 40 Code of Federal Regulations (CFR) 257.90 to 98 and applicable revisions to the CCR Rule.

1.1 Facility Information

Sheldon Station is owned and operated by NPPD and can generate 225 megawatts (MW) of power. The facility is located in southeastern Nebraska in Section 18, T7N, R6E, and is 19 miles south of Lincoln, in Lancaster County. The village of Hallam is the closest community to the Site and is 1.5 miles south of the facility. NPPD constructed Sheldon Station in 1958, switching the facility entirely to low-sulfur coal from Wyoming's Powder River Basin in 1974. The active CCR landfill at the Site (AP4) contains fly ash and bottom ash.

1.2 Purpose

The United States Environmental Protection Agency's (USEPA) CCR Rule established specific requirements for reporting of groundwater monitoring and corrective action at CCR facilities in 40 CFR 257.90 to 40 CFR 257.98. 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. The permitted SAP for AP4 was developed to comply with both the federal CCR regulations and NDEE requirements. In addition to the annual report for the federal CCR requirements, semi-annual reports are also prepared following each semi-annual sampling event, at the request of the NDEE.

2.0 GROUNDWATER MONITORING NETWORK PROGRAM STATUS

The groundwater monitoring network for the active CCR landfill at Sheldon Station consists of seven monitoring wells, as shown in Figure 1 and Figure 2. The two upgradient wells are AP4-MW1 and AP4-MW2. The upgradient wells are marked by (U) throughout this report. The five downgradient monitoring wells are AP4-MW3, AP4-MW4, AP4-MW5, AP4-MW6, and AP4-MW7.

2.1 Completed Key Actions in 2023

A detection monitoring sampling event was completed during the first quarter (Q1) of 2023, with an associated semi-annual report provided to the NDEE within 30 days of the end of the quarter. Results of the Q1 2023 sampling event have been placed in the facility operating record.

A detection monitoring sampling event was also completed during the third quarter (Q3) of 2023. Following the sampling event, the associated semi-annual report was provided to the NDEE within 30 days of the end of the quarter.

2.2 Installation and Decommissioning of Monitoring Wells

No monitoring wells were installed or decommissioned at Sheldon Station during 2023.

2.3 **Problems and Resolutions**

No problems were encountered as part of the field sampling in either the first or third quarters of 2023.

During both the Q1 and Q3 2023 monitoring events, analysis by Method 9056A required dilution due to the sample matrix, resulting in non-detects with elevated reporting limits for several well-parameter pairs. Results are consistent with past required dilutions. The following well-parameter pairs were reported as non-detects with elevated reporting limits:

- Chloride, 5x dilution factor, elevated reporting limit equal to 5.00 milligrams per liter (mg/L) in Q1 and Q3 2023: AP4-MW3, AP4-MW4, AP4-MW6
- Fluoride, 5x dilution factor, elevated reporting limit equal to 0.500 mg/L in Q1 2023: AP4-MW5 and AP4-MW7
- Fluoride, 5x dilution factor, elevated reporting limit equal to 1.00 mg/L in Q3 2023: AP4-MW1, AP4-MW2, AP4-MW4, AP4-MW5, AP4-MW7

Upon review of the analytical report results received in Q3 2023, a difference was noted in the provided reporting limit for fluoride across the collected samples when compared to past results. Eurofins Environment Testing Ceder Falls (Eurofins), as the contracted analytical laboratory, was contacted for additional information. Eurofins noted that during a recent reevaluation and certification of the minimal detectable levels (MDLs) for the laboratory instrument using method SW9056A for fluoride, the undiluted MDL for fluoride increased from 0.044 mg/L to 0.075 mg/L. The change in MDL resulted in a concurrent increase in the undiluted reporting limit, given as the practical quantitation limit (PQL), from 0.10 mg/L to 0.20 mg/L. Samples were analyzed using a similar dilution factor to prior results (5x dilution factor), resulting in non-detects reported as non-detect (ND) < 1.0 mg/L for associated samples. This result is not considered a statistical increase, based on the difference in results stemming from changes to the laboratory reporting limits. However, efforts will be taken with the laboratory to review the necessity of the applied dilution factor in testing of future samples.

Further, as part of the data review during Q3 2023, the sulfate and total dissolved solids results for AP4-MW2 as initially received differed from past concentrations at the well. A request was made to Eurofins to review the data. No issues were readily identified based on the original analysis or associated quality control. For the sulfate concentration, while varying from past results, a re-test was not requested, as the displayed difference was not improbable based on past concentrations. However, based on the originally reported concentration for total dissolved solids, a re-test was requested. Eurofins conducted both a re-test and a duplicate re-test for total dissolved solids at AP4-MW2, and found that the results of the two reruns did not agree with the original result. The Eurofins department manager provided context, indicating that the difference is believed to be a result of a data entry error on the initial volume, causing the originally reported result to be reported at 5 times the original concentration. Consequently, a revised report was provided, with an updated case narrative, a corrected result for the original concentration, and the additional re-test and duplicate re-tests.

2.4 Proposed Key Activities for 2024

Detection monitoring sampling events are planned for the first and third quarters (Q1 and Q3) of 2024. The detection monitoring sampling events will consist of sampling, data review, and comparative statistical analysis. Following each detection monitoring sampling event, semi-annual reports will be provided to the NDEE and placed in the facility operating record, and an annual report will be prepared to meet the requirements of the federal CCR rule.

3.0 GROUNDWATER MONITORING ANALYTICAL PROGRAM STATUS

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

3.1 Samples Collected

Sheldon Station staff collected eight initial baseline samples for the CCR program on a quarterly basis between September 15, 2015, and May 16, 2017, at each of the two upgradient and five downgradient monitoring wells. Detection monitoring samples have been collected on a semi-annual basis beginning on September 18, 2017. This report outlines the results of the detection monitoring sampling events that occurred on March 6, 2023, and August 28, 2023. Specific dates for each sample collected as part of the program are provided in Table 1 through Table 7.

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 Table 8. Groundwater elevations and interpolated groundwater contours from the March 2023 (Q1 2023) detection monitoring sampling event and the August 2023 (Q3 2023) detection monitoring sampling event are shown in Figure 1 and Figure 2, respectively. Figure 3 shows groundwater elevations over time at the Site.

The groundwater flow rate across AP4 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 in ft/day, estimated at 0.005 ft/day from slug testing results from system wells.
- *i* is the hydraulic gradient in feet per feet (ft/ft), calculated based on groundwater elevations during each monitoring event.
- n_e is the effective porosity, a unitless parameter, estimated to be 0.2 for site soils.

The average groundwater flow rate for March 2023 was estimated to be 7.3×10^{-4} ft/day, based on the calculated hydraulic gradient for March 2023 of 0.03 ft/ft. The average groundwater flow rate for August 2023 was estimated to be 6.9×10^{-4} ft/day, based on the calculated hydraulic gradient for August 2023 of 0.03 ft/ft.

3.2 Monitoring Data (Analytical Results)

Analytical results for the federal CCR Rule Appendix III detection monitoring results for the March 2023 and August 2023 detection monitoring events are shown in Table 1 through Table 7.

3.3 Comparative Statistical Analysis

Comparative statistical analysis was conducted using the results of the most recent baseline update conducted prior to the Q1 2022 detection monitoring event, with details of the baseline update provided in the 2022 annual report (GAUSA 2022b) following guidance provided by USEPA (USEPA 2009). The results of the comparative statistical analysis are summarized below and presented in Table 9 through Table 15. A full description of the steps taken for the comparative statistical analysis can be found in the Groundwater Monitoring Statistical Methods Certification (GAI 2017a).

3.3.1 Definitions

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

 Statistically significant increase (SSI) - defined as a result that exceeds the statistical limit established by the baseline statistical analysis, which has been verified by confirmatory re-sampling and analysis.

- Elevated Cumulative Sum (CUSUM) occurs when the calculated CUSUM value 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 defined as an initial elevated CUSUM or an analytical result that exceeds the Shewhart-CUSUM limit or non-parametric prediction limit established by the baseline statistical analysis. Confirmatory re-sampling will determine if a potential exceedance is a false-positive or a verified SSI. Non-detect results that exceed either the Shewhart-CUSUM limit or the non-parametric prediction limit are not considered potential exceedances.
- False-positive defined as an analytical result or elevated CUSUM that exceeded the associated statistical limit, but can be clearly attributed to laboratory error, changes in analytical precision, or is invalidated through confirmatory re-sampling. False-positives are not used in calculation of any subsequent CUSUM values.
- Confirmatory re-sampling designated as the next sampling event.
- Verified exceedances (verified SSIs) interpreted as two consecutive samples exceeding the statistical limit (the original sample and the confirmatory re-sample, or two consecutive elevated CUSUMs) for the same parameter at the same well.

3.3.2 Potential Exceedances

No potential exceedances were identified for the Q1 2023 detection monitoring event.

For the Q3 2023 detection monitoring event, a potential exceedance was identified for sulfate at AP4-MW2 (U). A confirmatory re-sample will be collected during the Q1 2024 detection monitoring event.

3.3.3 False-Positives

No false-positives were identified for either the Q1 2023 or the Q3 2023 detection monitoring events.

3.3.4 Verified Exceedances

No verified SSIs were identified for either the Q1 2023 or the Q3 2023 detection monitoring events.

3.4 **Program Transitions**

Beginning in Q3 2017, the groundwater monitoring program at Sheldon Station transitioned from the initial baseline period to detection monitoring. During the initial baseline period, eight independent samples from each well within eh program were collected and analyzed for the constituents listed in Appendix III and Appendix IV of the federal CCR Rule prior to October 17, 2017, as specified in 40 CFR 257.94(b).

3.4.1 Detection Monitoring

Samples for the detection monitoring program are collected on a semi-annual basis, beginning with the sample collected in September 2017. Samples collected in Q1 2023 and Q3 2023 were collected for the detection monitoring program. NPPD plans to continue to collect semi-annual samples under the detection monitoring program in 2024.

3.4.2 Alternative Source Demonstrations

Results collected in 2023 for the detection monitoring program did not include items of verified statistical significance, and consequently, no alternative source demonstrations were conducted in 2023. Results of previous alternative source demonstrations have been included in prior annual reports (see for instance GAI 2021 and GAUSA 2022b).

3.4.3 Assessment Monitoring

The current groundwater monitoring program at Sheldon Station is not in assessment monitoring. Assessment monitoring has not been triggered as described in 40 CFR 257.95.

3.4.4 Corrective Measures and Assessment

The current groundwater monitoring program at Sheldon Station does not indicate the need for corrective measures. An assessment of corrective measures, as described in 40 CFR 257.96, has not been required. No alternative source demonstrations stemming from statistically significant levels of federal Appendix IV parameters identified as part of an assessment monitoring program has been made. No actions are required at this time.

4.0 RECOMMENDATIONS AND CLOSING

This report presents the results from the CCR detection monitoring events that occurred on March 3, 2023, and August 28, 2023, along with the associated comparative statistical analysis.

As described in the Groundwater Monitoring System Certification (GAI 2017b) and the Groundwater Monitoring Statistical Methods Certification (GAI 2017a), the groundwater monitoring and analytical procedures meet the general requirements of the CCR Rule, and modifications to the monitoring network and sampling program are not recommended at this time.

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https://wsponline.sharepoint.com/sites/global-nppd2023gwqualityrep/project files/6 deliverables/006-rpt-2023_annual_ccr_gw_rpt_nppd_ss/rev0/31405886.001-006-rpt-a-2023_annual_ccr_gw_rpt_nppd_ss_20oct23.docx

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Tables

NEBRASKA PUBLIC POWER DISTRICT SHELDON STATION

Table 1. Data Summary Table - AP4-MW1

Analytes		09/15/2015	11/23/2015	03/15/2016	05/18/2016	08/09/2016	11/09/2016	03/07/2017	05/16/2017	09/19/2017	03/21/2018	09/11/2018	03/20/2019	09/17/2019	03/08/2020	09/01/2020	03/09/2021	08/25/2021	03/02/2022	08/23/2022	03/06/2023	08/29/2023
	Units				Background	I Collection			1						Deteo	tion Monito	oring ¹					
Appendix III																						
Boron, Total	mg/L	0.0784	< 0.150	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	0.130
Calcium, Total	mg/L	89.8	90.4	95.1	103	93.0	88.3	103	92.3	91.0	99.6	82.4	94.2	93.7	85.3	94.0	96.2	93.7	92.6	101	85.2	99.4
Chloride	mg/L	22.5	7.05	5.57	6.43	6.24	11	5.37	7.48	7.47	6.52	5.61	6.15	1.18	6.74	7.27	7.13	7.17	6.81	7.59	7.19	7.33
Fluoride	mg/L	< 0.500	0.598	0.923	0.796	0.604	< 0.500	0.656	1.22	1.2	0.846	0.723	1.07	0.194	0.552	0.816	0.856	0.615	0.611	0.524	0.811	< 1.00
Field pH	pH units	6.95	6.94	7.46	7.26	7.19	7.19	7.32	7.19	7.17	7.36	7.23	7.59	7.60	7.37	7.16	6.8	7.14	7.11	7.20	7.04	6.95
Sulfate	mg/L	22.8	23.7	22.2	22.2	22.8	24.5	20.6	21.7	24.4	23.4	19.6	23.2	4.79	25.7	25.3	25.2	27.2	26.2	22.7	23.2	27.3
Total Dissolved Solids	mg/L	440	462	428	430	462	464	484	520	464	408	406	416	392	422	396	388	388	396	368	362	400
Appendix IV																						
Antimony, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Arsenic, Total	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002													
Barium, Total	mg/L	0.23	0.258	0.221	0.199	0.193	0.209	0.269	0.231													
Beryllium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Cadmium, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Chromium, Total	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005													
Cobalt, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Fluoride	mg/L	< 0.500	0.598	0.923	0.796	0.604	< 0.500	0.656	1.22													
Lead, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Lithium, Total	mg/L	0.0508	0.0513	0.0504	0.0505	0.0506	0.0546	< 0.05	< 0.05													
Mercury, Total	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002													
Molybdenum, Total	mg/L	0.00725	0.00823	0.00724	0.00647	0.00656	0.00655	0.00883	0.00739													
Radium-226	pCi/L	0.257 ± 0.0866	0.293 ± 0.104	0.35 ± 0.097	0.314 ± 0.0878	0.417 ± 0.111	0.527 ± 0.33	0.208 ± 0.0918	0.373 ± 0.125													
Radium-228	pCi/L	2.14 ± 0.411	2.68 ± 0.446	1.49 ± 0.319	1.19 ± 0.318	1.26 ± 0.383	2.09 ± 0.453	2.02 ± 0.392	1.88 ± 0.383													
Radium-226 + Radium-228	pCi/L	2.397 ± 0.42	2.973 ± 0.458	1.84 ± 0.333	1.51 ± 0.33	1.67 ± 0.399	2.62 ± 0.561	2.22 ± 0.403	2.25 ± 0.403													
Selenium, Total	mg/L	0.00901	0.0123	0.0101	0.00873	0.00826	0.00816	0.0114	0.00999													
Thallium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													

Legend: --- Not analyzed mg/L: milligrams per liter pCi/L: picocuries per liter

NEBRASKA PUBLIC POWER DISTRICT SHELDON STATION

Table 2. Data Summary Table - AP4-MW2

Analytes		09/15/2015	11/23/2015	03/15/2016	05/18/2016	08/09/2016	11/09/2016	03/07/2017	05/16/2017	09/19/2017	03/21/2018	09/11/2018	03/20/2019	09/17/2019	03/08/2020	09/01/2020	03/09/2021	08/25/2021	03/02/2022	08/23/2022	03/06/2023	08/29/2023
	Units			1	Background	Collection		•	•				•		Detection	n Monitoring	j ¹					
Appendix III																						
Boron, Total	mg/L	0.0831	< 0.500	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.100	< 0.100	< 0.100	< 0.400	< 0.100	< 0.100	0.111
Calcium, Total	mg/L	335	321	294	320	289	286	342	278	293	331	263	297	291	239	292	296	288	295	336	269	309
Chloride	mg/L	89.9	93.3	83.6	94.2	92.7	92.5	87	88.6	88.6	94.3	92	87.6	88.8	93.9	106.0	113.0	111	115	99.6	106	111
Fluoride	mg/L	< 0.500	3.1	0.596	0.666	0.558	< 0.500	< 0.500	0.935	0.677	0.687	< 0.500	0.612	0.702	0.715	< 0.500	< 0.500	0.533	< 0.500	< 0.500	0.544	< 1.00
Field pH	pH units	6.98	6.99	7.37	7.2	7.16	7.13	7.25	7.18	7.16	7.26	7.19	7.44	7.60	7.33	7.09	7.05	7.08	7.09	7.1	6.97	6.97
Sulfate	mg/L	884	888	797	804	901	842	774	797	894	879 E	827	923	855	857	874	876	882	933	906	874	1120
Total Dissolved Solids	mg/L	1720	1840	1700	1830	1900	1790	2360	1780	2210	1650	1680	1730	1570	1740	1620	1680	1620	1560	1680	1380	1750
Appendix IV																						
Antimony, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Arsenic, Total	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002													
Barium, Total	mg/L	0.0115	0.0117	0.0107	0.0102	0.00996	0.012	0.0138	0.0103													
Beryllium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Cadmium, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Chromium, Total	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005													
Cobalt, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Fluoride	mg/L	< 0.500	3.1	0.596	0.666	0.558	< 0.500	< 0.500	0.935													
Lead, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Lithium, Total	mg/L	0.0811	0.0754	0.0699	0.0681	0.0523	0.0705	0.0661	0.0694													
Mercury, Total	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002													
Molybdenum, Total	mg/L	0.00543	0.00555	0.00526	0.00533	0.00519	0.00494	0.00627	0.00491													
Radium-226	pCi/L	0.258 ± 0.0937	0.241 ± 0.0886	0.28 ± 0.0846	0.312 ± 0.0834	0.334 ± 0.097	0.778 ± 0.403	0.25 ± 0.103	0.188 ± 0.0925													
Radium-228	pCi/L	2.02 ± 0.457	2.53 ± 0.497	2.07 ± 0.384	2.2 ± 0.449	2.41 ± 0.467	2.49 ± 0.485	2.01 ± 0.41	2.01 ± 0.405													
Radium-226 + Radium-228	pCi/L	2.278 ± 0.467	2.771 ± 0.505	2.35 ± 0.394	2.51 ± 0.456	2.74 ± 0.477	3.27 ± 0.631	2.26 ± 0.423	2.2 ± 0.415													
Selenium, Total	mg/L	0.714	0.697	0.634	0.706	0.628	0.628	0.779	0.657													
Thallium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													

Legend: --- Not analyzed mg/L: milligrams per liter pCi/L: picocuries per liter E: Result exceeded calibration range.

NOTES:

NEBRASKA PUBLIC POWER DISTRICT SHELDON STATION

Table 3. Data Summary Table - AP4-MW3

Analytes		09/15/2015	11/23/2015	03/15/2016	05/18/2016	08/09/2016	11/09/2016	03/07/2017	05/16/2017	09/19/2017	03/21/2018	09/11/2018	03/20/2019	09/17/2019	03/08/2020	09/01/2020	03/09/2021	08/25/2021	03/02/2022	08/23/2022	03/06/2023	08/29/2023
	Units				Backgroun	d Collection									Detectio	on Monitorin	g ¹				1	
Appendix III																						
Boron, Total	mg/L	0.0687	< 0.150	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Calcium, Total	mg/L	82.4	85.9	89.8	88.5	87.5	85	95.8	86.1	83.7	92.3	74.7	88.5	87.8	81.1	84.1	88.4	88.3	84.3	94.5	78.8	88.5
Chloride	mg/L	12.4	< 5.00	< 5.00	< 5.00	6.94	5.4	< 5.00	5.18	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Fluoride	mg/L	< 0.500	0.975	1.08	1.1	0.513	0.884	1.04	1.82	1.2	1.29	1.05	1.29	1.24	1.24	1.34	1.33	0.914	0.972	0.717	1.23	1.14
Field pH	pH units	7.15	7.21	7.60	7.38	7.30	7.34	7.39	7.40	7.28	7.48	7.43	7.69	7.60	7.56	7.3	6.55	7.36	7.27	7.40	7.14	7.13
Sulfate	mg/L	33.2	24.4	25.2	34.6	31.2	29	20.6	21.7	33.2	30.7	20	35	32.3	30.3	26.7	22.9	29.2	22.3	21	19.3	17.7
Total Dissolved Solids	mg/L	418	460	390	420	488	430	428	442	494	404	374	426	378	374	378	348	344	354	326	318	360
Appendix IV																						
Antimony, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Arsenic, Total	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002													
Barium, Total	mg/L	0.218	0.235	0.225	0.222	0.206	0.232	0.271	0.238													
Beryllium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Cadmium, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Chromium, Total	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005													
Cobalt, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Fluoride	mg/L	< 0.500	0.975	1.08	1.1	0.513	0.884	1.04	1.82													
Lead, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Lithium, Total	mg/L	0.0502	< 0.0500	0.0519	< 0.05	< 0.05	0.0538	0.0520	0.0547													
Mercury, Total	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002													
Molybdenum, Total	mg/L	0.00922	0.0101	0.00992	0.00873	0.00928	0.00978	0.0116	0.00983													
Radium-226	pCi/L	0.401 ± 0.101	0.389 ± 0.106	0.384 ± 0.103	0.501 ± 0.104	0.4 ± 0.102	0.426 ± 0.292	0.318 ± 0.108	0.188 ± 0.0889													
Radium-228	pCi/L	3.69 ± 0.576	2.87 ± 0.491	2.91 ± 0.463	3.42 ± 0.547	2.65 ± 0.477	3.19 ± 0.561	2.35 ± 0.432	2.26 ± 0.422													
Radium-226 + Radium-228	pCi/L	4.091 ± 0.474	3.259 ± 0.502	3.3 ± 0.474	3.92 ± 0.557	3.04 ± 0.487	3.62 ± 0.632	2.67 ± 0.445	2.45 ± 0.431													
Selenium, Total	mg/L	0.0138	0.0164	0.0165	0.0145	0.0152	0.0154	0.0201	0.0191													
Thallium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													

Legend: --- Not analyzed mg/L: milligrams per liter pCi/L: picocuries per liter

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Table 4. Data Summary Table - AP4-MW4

Analytes		09/15/2015	11/23/2015	03/15/2016	05/18/2016	08/09/2016	11/09/2016	03/07/2017	05/16/2017	09/19/2017	03/21/2018	09/11/2018	03/20/2019	09/17/2019	03/08/2020	09/01/2020	03/09/2021	08/25/2021	03/02/2022	08/23/2022	03/06/2023	08/29/2023
	Units				Backgro	und Collection									Detec	tion Monito	ring ¹					
Appendix III																						
Boron, Total	mg/L	0.0674	< 0.150	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Calcium, Total	mg/L	128	123	103	115	111	105	132	95.4	108	109	97.1	100	112	91.9	104	112	109	102	119	100	117
Chloride	mg/L	13	8.99	< 5.00	6.71	8.55	7.77	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Fluoride	mg/L	< 0.500	0.987	0.946	0.949	< 0.500	0.732	0.786	1.33	1.18	1.2	0.796	1.17	1.12	0.983	1.110	0.989	0.900	0.837	0.626	1.03	< 1.00
Field pH	pH units	7.02	7.17	7.40	7.25	7.15	7.22	7.23	7.31	7.23	7.32	7.29	7.60	7.75	7.43	7.22	7.23	7.17	7.13	7.3	7.02	6.97
Sulfate	mg/L	82.8	127	62.6	89.5	99.6	110	123	59.4	53.5	100	81.9	85.7	109	114	95.5	97.5	87.3	84.7	76.1	96.7	96.5
Total Dissolved Solids	mg/L	506	590	476	518	582	556	576	666	498	530	466	486	490	516	510	466	452	452	436	460	504
Appendix IV																						
Antimony, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Arsenic, Total	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002													
Barium, Total	mg/L	0.151	0.14	0.168	0.128	0.131	0.177	0.123	0.158													
Beryllium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Cadmium, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Chromium, Total	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005													
Cobalt, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Fluoride	mg/L	< 0.500	0.987	0.946	0.949	< 0.500	0.732	0.786	1.33													
Lead, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Lithium, Total	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05													
Mercury, Total	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002													
Molybdenum, Total	mg/L	0.00509	0.0054	0.00493	0.00443	0.00481	0.00466	0.00642	0.00483													
Radium-226	pCi/L	0.45 ± 0.107	0.451 ± 0.124	0.362 ± 0.104	0.471 ± 0.0996	0.36 ± 0.0976	< 0.481 U ± 0.277	0.327 ± 0.112	0.185 ± 0.0900													
Radium-228	pCi/L	2.78 ± 0.489	1.59 ± 0.370	1.86 ± 0.360	2.62 ± 0.468	2.05 ± 0.452	1.39 ± 0.384	1.93 ± 0.397	1.9 ± 0.388													
Radium-226 + Radium-228	pCi/L	3.23 ± 0.501	2.041 ± 0.390	2.23 ± 0.375	3.09 ± 0.478	2.41 ± 0.462	1.56 ± 0.474	2.25 ± 0.413	2.08 ± 0.399													
Selenium, Total	mg/L	0.0259	0.0137	0.0181	0.0132	0.0198	0.0119	0.0104	0.013													
Thallium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													

Legend: --- Not analyzed mg/L: milligrams per liter pCi/L: picocuries per liter U: Result is less than the sample detection limit (varies by sample for radiological results).

NOTES:

NEBRASKA PUBLIC POWER DISTRICT SHELDON STATION

Table 5. Data Summary Table - AP4-MW5

Analytes		09/15/2015	11/23/2015	03/15/2016	05/18/2016	08/09/2016	11/09/2016	03/07/2017	05/16/2017	09/19/2017	03/21/2018	09/11/2018	03/20/2019	09/17/2019	03/08/2020	09/01/2020	03/09/2021	08/25/2021	03/02/2022	08/23/2022	03/06/2023	08/29/2023
	Units				Backgrou	nd Collection									Detec	tion Monito	ring ¹					
Appendix III																						
Boron, Total	mg/L	0.0934	< 0.150	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	0.133	< 0.100	< 0.100	< 0.400	< 0.100	0.109	0.125
Calcium, Total	mg/L	358	520	439	460	523	517	608	310	488	537	146	541	504	363	579	210	177	600	178	471	468
Chloride	mg/L	8.98	8.99	5.77	6.97	7.98	10	5.69	6.76	< 5.00	6.59	< 5.00	5.1	5.43	6.03	6.19	5.56	< 5.00	5.71	< 5.00	6.28	6.11
Fluoride	mg/L	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	1.27	0.658	0.601	< 0.500	0.664	0.61	< 0.500	< 0.500	0.53	< 0.500	< 0.500	< 0.500	< 0.500	< 1.00
Field pH	pH units	6.75	7.05	7.08	6.89	6.81	6.82	6.90	6.90	6.82	6.97	7.27	7.23	7.26	7.06	6.82	6.94	7.04	6.67	7.1	6.63	6.64
Sulfate	mg/L	1420	1480	969	1410	1620	1570	1350	740	784	1630	468	1470	1370	1540	1580	678	592	1670	426	1590	1550
Total Dissolved Solids	mg/L	2540	2740	1950	2620	2860	2920	3010	1490	1710	2690	1020	2390	2210	2500	2740 H	1180	980	2450	750	2350	2660
Appendix IV																						1
Antimony, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Arsenic, Total	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002													
Barium, Total	mg/L	0.017	0.00903	0.0117	0.00926	0.00843	0.00795	0.00756	0.0124													
Beryllium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Cadmium, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Chromium, Total	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005													
Cobalt, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Fluoride	mg/L	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	1.27													
Lead, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Lithium, Total	mg/L	0.0948	0.1330	0.1210	0.1280	0.1480	0.1680	0.1660	0.1080													
Mercury, Total	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002													
Molybdenum, Total	mg/L	0.00444	0.00329	0.0035	0.00274	0.00263	0.00284	0.00373	0.00344												!	
Radium-226	pCi/L	0.167 ± 0.0816	0.156 ± 0.103	0.267 ± 0.084	0.176 ± 0.0734	0.217 ± 0.0891	< 0.397 U ± 0.253	0.105 ± 0.068	< 0.109 U ± 0.058												!	
Radium-228	pCi/L	2.08 ± 0.432	< 0.471 U ± 0.297	2 ± 0.392	1.02 ± 0.317	1.36 ± 0.373	0.972 ± 0.383	0.934 ± 0.294	< 0.361 U ± 0.234													
Radium-226 + Radium-228	pCi/L	2.247 ± 0.44	0.505 ± 0.314	2.27 ± 0.40	1.19 ± 0.325	1.57 ± 0.384	1.21 ± 0.459	1.04 ± 0.302	< 0.361 U ± 0.241													
Selenium, Total	mg/L	0.0563	< 0.00500	0.0286	0.0236	0.00561	< 0.00500	< 0.00500	0.0562													
Thallium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													

Legend: --- Not analyzed

mg/L: milligrams per liter pCi/L: picocuries per liter U: Result is less than the sample detection limit (varies by sample for radiological results). H: Sample was prepped or analyzed beyond the specified holding time.

NEBRASKA PUBLIC POWER DISTRICT SHELDON STATION

Table 6. Data Summary Table - AP4-MW6

Analytes		09/15/2015	11/23/2015	03/15/2016	05/18/2016	08/09/2016	11/09/2016	03/07/2017	05/16/2017	09/19/2017	03/21/2018	09/11/2018	03/20/2019	09/17/2019	03/08/2020	09/01/2020	03/09/2021	08/25/2021	03/02/2022	08/23/2022	03/06/2023	08/29/2023
	Units		1		Background	Collection									Dete	ction Monite	oring ¹			1		
Appendix III																						
Boron, Total	mg/L	0.0862	< 0.150	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Calcium, Total	mg/L	103	105	101	104	106	101	118	94.1	106	106	92.7	90.6	101	99.2	99.5	105	99.9	99	116	97.2	112
Chloride	mg/L	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	5.28	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
Fluoride	mg/L	0.87	0.85	1.37	1.61	1.21	1.45	1.35	1.62	1.62	2.19	1.31	1.5	1.46	2.08	1.82	1.53	1.20	1.35	102	1.45	1.28
Field pH	pH units	6.92	7.21	7.46	7.19	7.11	7.21	7.35	7.33	7.16	7.40	7.32	7.63	7.22	7.49	7.20	7.16	7.17	7.15	7.20	7.04	6.91
Sulfate	mg/L	58.5	96.6	51.3	50.7	70.6	69.1	59.3	53.4	50	60.5	46.7	57.7	65.2	75.5	51.8	58.4	61.8	53.8	52.3	59.8	65.9
Total Dissolved Solids	mg/L	468	506	506	436	514	530	584	550	498	432	396	440	458	422	454	414	414	402	382	394	428
Appendix IV																						
Antimony, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Arsenic, Total	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002													
Barium, Total	mg/L	0.0725	0.0611	0.0622	0.0589	0.0605	0.0629	0.0672	0.0568													
Beryllium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Cadmium, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Chromium, Total	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005													
Cobalt, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Fluoride	mg/L	0.869	0.845	1.37	1.61	1.21	1.45	1.35	1.62													
Lead, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Lithium, Total	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05													
Mercury, Total	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002													
Molybdenum, Total	mg/L	0.00329	0.0039	0.00393	0.00344	0.00281	0.00397	0.00455	0.00411													
Radium-226	pCi/L	0.287 ± 0.0872	0.232 ± 0.0917	0.227 ± 0.0771	0.261 ± 0.073	0.361 ± 0.113	0.545 ± 0.358	0.163 ± 0.0907	0.17 ± 0.0861													
Radium-228	pCi/L	0.983 ± 0.307	0.766 ± 0.31	0.672 ± 0.243	0.699 ± 0.279	1.27 ± 0.439	0.735 ± 0.378	0.451 ± 0.245	0.752 ± 0.244													
Radium-226 + Radium-228	pCi/L	1.27 ± 0.319	0.998 ± 0.323	0.899 ± 0.254	0.961 ± 0.288	1.63 ± 0.454	1.28 ± 0.521	0.614 ± 0.261	0.921 ± 0.259													
Selenium, Total	mg/L	0.0103	0.00883	0.0109	0.00974	0.00984	0.0098	0.0112	0.0104													
Thallium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													

Legend: --- Not analyzed mg/L: milligrams per liter pCi/L: picocuries per liter

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Table 7. Data Summary Table - AP4-MW7

Analytes		09/15/2015	11/23/2015	03/15/2016	05/18/2016	08/09/2016	11/09/2016	03/07/2017	05/16/2017	09/19/2017	03/21/2018	09/11/2018	03/20/2019	09/17/2019	03/08/2020	09/01/2020	03/09/2021	08/25/2021	03/02/2022	08/23/2022	03/06/2023	08/29/2023
	Units				Backgroun	d Collection		1							Detec	tion Monito	ring ¹		I			1
Appendix III																						
Boron, Total	mg/L	0.0758	< 0.150	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Calcium, Total	mg/L	67.7	68.7	72	66.2	69.4	66.9	79	67.6	67.5	64.3	65.5	66.4	69.4	66.6	66.3	71.7	70.5	68.2	78.2	64.8	75.7
Chloride	mg/L	16.1	11.8	11.4	11.2	13	11.7	10.6	12.9	13.3	12.5	12.1	12.9	11.3	11.8	9.89	11.4	9.65	11.4	13.3	13.9	16.8
Fluoride	mg/L	< 0.500	< 0.500	0.738	< 0.500	< 0.500	< 0.500	< 0.500	1.02	< 0.500	0.52	< 0.500	< 0.500	0.589	< 0.500	0.513	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 1.00
Field pH	pH units	7.20	7.45	7.65	7.39	7.40	7.48	7.57	7.52	7.46	7.56	7.54	7.94	7.15	7.70	7.39	7.34	7.37	7.36	7.30	7.23	7.11
Sulfate	mg/L	46	39.8	40.4	43.3	40.7	45.6	36.8	35.2	42.7	41.6	34.5	44.2	51.1	49.9	40.6	47.7	50.5	47	40.8	42.1	40.1
Total Dissolved Solids	mg/L	546	548	516	558	588	616	534	538	598	476	480	536	504	510	404	488	488	490	490	478	516
Appendix IV																						
Antimony, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Arsenic, Total	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002													
Barium, Total	mg/L	0.165	0.161	0.154	0.137	0.146	0.159	0.177	0.159													
Beryllium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													
Cadmium, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Chromium, Total	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005													
Cobalt, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Fluoride	mg/L	< 0.500	< 0.500	0.738	< 0.500	< 0.500	< 0.500	< 0.500	1.02													
Lead, Total	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005													
Lithium, Total	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05													
Mercury, Total	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002												<u> </u>	
Molybdenum, Total	mg/L	0.00841	0.00827	0.00823	0.0069	0.00785	0.00788	0.00955	0.00768												'	
Radium-226	pCi/L	0.189 ± 0.0807	0.206 ± 0.865	0.277 ± 0.0928	0.25 ± 0.0781	0.29 ± 0.0907	< 0.404 U ± 0.271	0.357 ± 0.112	0.227 ± 0.092													
Radium-228	pCi/L	1.2 ± 0.313	1.92 ± 0.396	1.58 ± 0.322	1.52 ± 0.342	1.60 ± 0.415	2.52 ± 0.481	1.91 ± 0.372	1.67 ± 0.358													
Radium-226 + Radium-228	pCi/L	1.389 ± 0.323	2.126 ± 0.405	1.86 ± 0.335	1.77 ± 0.350	1.89 ± 0.425	2.83 ± 0.552	2.27 ± 0.389	1.89 ± 0.369													
Selenium, Total	mg/L	0.00812	0.00846	0.00898	0.00834	0.00926	0.00764	0.00995	0.0103													
Thallium, Total	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001													

Legend: --- Not analyzed mg/L: milligrams per liter pCi/L: picocuries per liter U: Result is less than the sample detection limit (varies by sample for radiological results).

Table 8 - Sheldon Station Ash Landfill No. 4 Groundwater Levels (ft amsl)

31405886.001

Bange Period April Vet	Occurrente Descient	Upgradie	ent Wells			Downgradient Wells	;	
MP Elsv. 1428.95 1445.09 1491.72 1398.10 1405.10 1398.41 1422.42 CTR-2002-1 140.93 142.275 1302.14 1377.00 1385.77 1374.15 1401.53 CTR-2002-1 1412.99 142.11 1386.11 1375.62 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.84 1387.85 1387.84 1387.85 1387.84 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1387.85 1400.75 1400.85 1441.84 1387.85 1387.85 1387.85 1387.85 1400.75 1386.86 1377.76 1378.85 1400.75 1398.96 1477.85 1387.85 1377.85 1387.85 1397.85 1397.85 1397.85 1397.85 1397.	Sample Period	AP4-MW1	AP4-MW2	AP4-MW3	AP4-MW4	AP4-MW5	AP4-MW6	AP4-MW7
OTR-002-4 1400.50 1422.78 1302.14 1375.69 1386.76 1374.15 1401.55 OTR-002-2 1412.26 1302.31 1374.01 1385.07 1374.16 1398.82 OTR-002-2 1412.20 124.17 1300.31 1374.66 1367.69 1376.86 1376.80 1398.88 1401.34 OTR-2002-4 1410.01 1422.27 1300.31 1374.42 1302.35 1398.48 1401.34 OTR-2002-4 1410.01 1420.22 1304.77 1376.64 1383.75 1374.85 1400.70 OTR-2002-4 1410.01 1420.72 1301.65 1377.75 1381.88 1374.85 1400.70 OTR-2002-4 1400.82 1419.77 1386.86 1372.24 1380.85 1974.85 1400.70 OTR-2002-4 1408.35 1419.71 1386.86 1372.42 1380.51 1374.85 1397.92 OTR-2002-4 1408.37 1417.31 1386.32 1372.25 1380.51 1397.92 1374.67 1397.46 <t< th=""><th>MP Elev.</th><th>1425.95</th><th>1445.03</th><th>1411.72</th><th>1396.10</th><th>1403.10</th><th>1386.61</th><th>1424.29</th></t<>	MP Elev.	1425.95	1445.03	1411.72	1396.10	1403.10	1386.61	1424.29
OTR-2002-4 1410:00 1422 78 1392.14 1375.69 1385.78 1374.16 1490.15 OTR-2003-2 1412.90 1421.11 1306.11 1375.62 1387.86 1397.80 1398.28 OTR-2003-3 1411.22 1421.07 1390.31 1372.66 1382.35 1398.44 1401.34 OTR-2003-4 1410.02 1422.24 1390.31 1373.46 1382.35 1398.44 1401.34 OTR-2004-1 141.11 1422.24 1390.40 1377.42 1384.72 1377.84 1384.72 1377.84 1404.74 1404.94 OTR-2005-1 1409.32 1420.12 1398.48 1377.65 1381.29 1374.62 1407.83 1499.58 1397.67 1372.62 1380.80 1309.44 1399.92 1397.46 1399.92 1397.46 1399.92 1397.49 1399.43 1397.49 1399.44 1399.57 1397.46 1399.92 1397.46 1397.97 1372.65 1387.45 1397.45 1397.45 1397.45 1397.45 1399.44 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
OTR-2000-1 1409-28 1421-35 1300-20 1374-01 1333.07 1374-06 1374-06 1394-06 OTR-2000-3 1411-22 1421-07 1300.01 1373.46 1382.30 1398.46 1401.34 OTR-2000-4 1410-02 1422.42 1390.31 1373.46 1382.30 1398.46 1401.34 OTR-2000-4 1410-21 1420.72 1391.47 1375.64 1303.75 1374.83 1400.73 OTR-2000-4 1400.21 1420.72 1391.66 1377.64 1307.47 1374.65 1307.45 1394.65 1400.72 OTR-2000-5 1400.32 1420.72 1391.66 1377.67 1391.89 1374.65 1398.82 OTR-2000-5 1400.33 1449.58 1387.07 1372.42 1300.01 1397.45 1398.92 OTR-2000-2 1400.33 1449.53 1377.42 1300.65 1377.42 1300.64 1397.62 1397.62 1397.62 1397.62 1397.62 1399.69 0777.22 1399.64 1397.74	OTR-2002-4	1/10 90	1/22 78	1302 1/	1375.00	1385 78	137/ 15	1/01 53
OIR-2005-2 1412.99 142.11 136.11 137.62 1387.69 1397.60 1398.02 OIR-2005-3 1411.22 142.24 1300.31 137.246 1382.30 1398.40 1401.33 OIR-2005-4 1411.02 142.24 1300.31 137.246 1382.30 1398.43 1400.70 OIR-2005-4 1412.24 142.22 1398.47 137.564 1381.87 137.46 140.24 OIR-2005-4 1400.40 142.130 1391.66 1372.52 1380.88 1402.72 1397.64 1409.40 147.25 1397.65 1381.87 1397.65 1394.16 1402.72 1397.65 1391.67 1372.69 1397.65 1391.67 1372.69 1397.65 1391.67 1372.69 1397.65 1398.46 1402.83 1499.77 1397.62 1398.05 1372.59 1380.50 1372.59 1380.50 1372.59 1397.64 1499.44 1399.76 1372.42 1380.50 1372.59 1397.64 1499.44 1399.77 1372.52 1380.50	OTR-2002-4	1410.30	1422.70	1390.20	1374.01	1383.07	1374.15	1300.28
OTR-2003-3 1:11:22 1:21:24 1:300:34 1:372:46 1:302:30 1:300:46 1:400:34 OTR-2003-4 1:41:12 1:400:72 1:300:31 1:373:46 1:302:30 1:300:46 1:400:34 OTR-2004-2 1:41:20 1:400:72 1:300:31 1:373:46 1:307:55 1:381:75 1:374:45 1:400:70 OTR-2004-3 1:41:20 1:400:72 1:300:86 1:372:85 1:381:88 1:374:65 1:400:72 OTR-2005-1 1:400:32 1:400:72 1:300:86 1:372:28 1:381:27 1:374:65 1:380:86 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:87 1:377:45 1:380:47 1:377:45 1:380:47 1:377:45 1:380:47 1:377:45 1:380:47 1:377:45 1:380:47	QTR-2003-1	1409.30	1421.33	1390.20	1374.01	1303.07	1374.00	1399.20
GIT 11100 1110 1110 <t< td=""><td>QTR-2003-2</td><td>1412.99</td><td>1421.11</td><td>1390.11</td><td>1370.52</td><td>1387.08</td><td>1376.90</td><td>1398.78</td></t<>	QTR-2003-2	1412.99	1421.11	1390.11	1370.52	1387.08	1376.90	1398.78
GH 2005-1 14102 142.024 1300.31 137.484 1382.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.30 1397.45 1397.45 1397.46 1407.23 GTR 2005-1 1409.32 1420.12 1390.66 1572.78 1381.88 1374.65 1390.82 GTR 2005-2 1400.35 1440.58 1397.67 1372.42 1380.56 1372.38 1397.45 1390.62 GTR 2005-1 1400.35 1441.63 1397.92 1372.42 1380.56 1372.38 1397.48 1397.	QTR-2003-3	1411.22	1421.87	1390.91	1372.66	1382.35	1369.46	1401.34
ORR-200-1 1411.81 142.02 1383.41 1377.52 1383.75 1377.88 1400.71 ORR-200-2 1411.20 1401.72 1391.85 1375.54 1383.75 1377.88 1400.71 ORR-200-1 1411.80 1421.72 1391.86 1372.26 1391.28 1377.82 1400.71 ORR-2005-1 1400.83 1419.77 1398.46 1372.28 1391.29 1397.462 1401.20 ORR-2005-1 1407.83 1419.56 1397.67 1372.22 1390.06 1399.44 1393.52 1399.44 1393.52 1399.44 1393.52 1399.44 1393.52 1399.44 1393.59 1397.48 1397.22 1390.46 1399.44 1393.54 1372.30 1396.81 1372.23 1396.15 1377.76 1372.23 1396.15 1377.76 1392.24 1398.44 1398.59 1396.44 1398.59 1396.44 1398.59 1396.44 1398.59 1397.45 1396.44 1398.59 1397.45 1396.45 1398.59 1398.59 1398.59 <td>QTR-2003-4</td> <td>1410.02</td> <td>1422.24</td> <td>1390.31</td> <td>1373.48</td> <td>1382.30</td> <td>1369.10</td> <td>1401.38</td>	QTR-2003-4	1410.02	1422.24	1390.31	1373.48	1382.30	1369.10	1401.38
ORR-2004-2 1412.04 1400.70 1398.47 1375.55 1398.18 1373.86 1400.70 ORR-2004-4 1400.80 1421.22 1398.48 1373.40 1381.18 1373.86 1400.72 ORR-2004-4 1400.82 1400.72 1390.66 1372.78 1381.29 1374.62 1402.20 ORR-2005-5 1410.95 1419.56 1397.67 1372.82 1390.00 1399.84 1399.82 ORR-2005-4 1406.83 1418.91 1397.72 1372.42 1380.05 1372.86 1397.48 1400.74 1397.43 1400.74 1397.43 1398.59 1398.59 1398.59 1398.59 1398.5	QTR-2004-1	1411.81	1420.78	1393.01	1377.92	1384.12	1377.59	1398.98
OTR-2004-4 1411.24 1421.32 1383.89 1375.55 1384.18 1373.85 1406.14 OTR-2005-1 1409.32 1420.12 1390.66 1372.78 1381.27 1374.62 1407.23 OTR-2005-2 1409.83 1419.77 1388.86 1372.78 1381.27 1374.62 1407.23 OTR-2005-2 1409.37 1414.73 1377.22 1300.05 1377.85 1397.68 OTR-2005-3 1409.26 1417.13 1386.32 1372.23 1307.28 1397.69 1397.69 OTR-2005-3 1409.21 1417.13 1396.32 1372.25 1390.51 1376.67 1397.74 OTR-2007-4 1409.21 1417.13 1306.03 1332.69 1397.64 1409.77 1416.64 OTR-2007-3 1409.61 1417.72 1306.05 1385.64 1397.44 1409.74 1416.76 OTR-2008-3 1412.64 1416.84 1393.01 1372.65 1385.64 1397.43 1437.49 1409.76 OTR-2007-3 <	QTR-2004-2	1412.04	1420.72	1394.77	1375.64	1383.75	1374.83	1400.70
OTR-2004-4 1409.40 1423.99 1391.85 1373.40 1391.82 1374.65 1407.23 OTR-2005-2 1410.38 1439.77 1390.66 1372.78 1391.27 1374.65 1407.23 OTR-2005-3 1407.83 1449.58 1387.67 1372.42 1380.15 1377.76 1397.69 OTR-2006-1 1408.37 1448.41 1387.22 1393.63 1372.29 1393.53 1372.29 1397.46 1407.23 OTR-2006-4 1409.37 1444.43 1387.23 1372.29 1393.54 1372.29 1397.46 1407.24 OTR-2007-4 1409.21 1417.72 1398.63 1372.29 1398.54 1374.67 1372.45 1407.23 OTR-2007-3 1409.61 1417.78 1393.61 1372.68 1392.64 1407.74 1374.65 1397.44 1407.43 1407.74 1407.74 1407.74 1417.76 1374.45 1397.45 1441.74 1440.74 1440.74 1440.74 1440.74 1440.74 1440.74 1440.74	QTR-2004-3	1411.24	1421.22	1393.89	1375.55	1384.18	1373.85	1408.14
OTR-2005-1 1400.52 1420.12 1398.86 1372.78 1391.27 1374.62 1401.20 OTR-2005-3 1419.77 1374.63 1419.76 1398.86 1372.63 1380.80 1382.90 1380.80 1382.90 1380.80 1382.90 1380.80 1382.90 1380.80 1382.90 1380.80 1382.90 1380.80 1382.90 1380.80 1382.40 1374.45 1440.74 1440.74 1440.74 1440.74 1440.74 1440.74 1440.74 1440.74 1440.74 1440.74 <t< td=""><td>QTR-2004-4</td><td>1409.40</td><td>1421.39</td><td>1391.65</td><td>1373.40</td><td>1381.88</td><td>1374.65</td><td>1407.23</td></t<>	QTR-2004-4	1409.40	1421.39	1391.65	1373.40	1381.88	1374.65	1407.23
OTR-2005-3 1410.36 1419.77 1388.86 1372.63 1391.27 1374.55 1398.82 OTR-2005-4 1407.83 1419.58 1387.07 1372.42 1380.16 1377.76 1397.39 OTR-2006-1 1406.35 1414.84 1387.92 1372.42 1380.58 1372.28 1399.92 OTR-2006-2 1406.37 1414.84 1386.38 1372.25 1390.58 1372.28 1399.90 1599.90 OTR-2006-4 1404.91 1417.13 1380.68 1372.86 1382.26 1377.64 1409.77 OTR-2007.1 1409.61 1417.43 1380.68 1372.86 1382.85 1377.64 1409.76 OTR-2007.2 1409.86 1417.86 1390.72 1398.61 1373.45 1410.73 1410.70 OTR-2007.2 1419.86 1417.86 1390.72 1398.61 1373.45 1410.73 OTR-2010.2 1419.83 1418.21 1399.92 1374.46 1387.45 1410.73 OTR-2010.3 1411.22 <	QTR-2005-1	1409.32	1420.12	1390.66	1372.78	1381.29	1374.62	1401.20
OTR-2005-4 1407.83 1419.58 1387.67 1372.52 1380.80 1389.44 OTR-2006-1 1406.35 1418.43 1387.02 1372.42 1380.15 1371.76 1397.99 OTR-2006-2 1408.37 1418.43 1387.23 1378.43 1302.21 1399.99 OTR-2006-3 1403.26 1417.13 1388.38 1372.29 1382.19 1399.80 1379.74 OTR-2007-1 1407.21 1417.13 1390.80 1372.28 1382.19 1370.44 1409.77.4 OTR-2007-3 1409.81 1417.83 1406.88 1385.69 1390.40 1379.15 1414.16 OTR-2008-2 1409.86 1477.98 1300.72 1374.15 1381.84 1373.43 1400.78 OTR-2009-2 1409.86 1477.98 1300.72 1374.45 1380.60 1375.51 1447.63 OTR-2010-2 1413.88 1446.12 1381.84 1383.56 1374.35 1447.63 OTR-2010-2 1410.87 1380.97 1377.64	QTR-2005-2	1410.36	1419.77	1388.86	1372.63	1381.27	1374.55	1399.82
OTR-2005-1 1406.35 1416.95 1387.07 1372.52 1380.05 1397.44 1399.32 OTR-2005-2 1406.837 1416.43 1387.52 1372.42 1380.15 1372.36 1397.48 OTR-2005-3 1404.41 1417.13 1386.83 1372.30 1372.36 1397.93 1370.22 1380.15 1399.93 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.98 1399.74 1400.74 1417.38 1398.01 1372.47 1389.58 1374.41 1403.78 1413.89 1417.38 1399.80 1370.31 1407.03 1417.39 1413.24 148.58 1391.58 1374.43 1433.56 1374.43 1433.56 1374.44 1383.56 1374.44 1403.78 1414.39 1413.39 1414.58 1399.80 1374.53 1392.48 1373.56 1414.14 1416.58 1	QTR-2005-3							
OTF.:000-12 1406.35 1416.43 1387.02 1372.42 1383.05 1377.76 1397.99 OTF.:000-2 1408.32 1417.13 1386.53 1372.30 1378.33 1370.22 1399.99 OTF.:000-4 1404.91 1419.42 1386.53 1372.28 1380.51 1389.90 1399.99 OTF.:000-4 1407.21 1417.13 1390.63 1372.88 1382.19 1370.64 1397.74 OTF.:000-5 1415.33 1417.33 1406.88 1385.69 1390.64 1373.45 144.64 1400.78 OTF.:000-5 1409.86 1417.98 1390.72 1374.15 1385.64 1370.31 1407.83 OTF.:200-5 1409.86 1417.88 1390.02 1374.45 1380.80 1375.51 144.59 OTF.:201-5 1413.81 1390.77 1374.80 1382.48 1374.45 1400.83 OTF.:201-2 140.82 1481.13 1390.77 1377.40 1382.84 1374.45 1403.29 OTF.:201-2 <td< td=""><td>QTR-2005-4</td><td>1407.83</td><td>1419.58</td><td>1387.67</td><td>1372.52</td><td>1380.80</td><td>1369.44</td><td>1399.32</td></td<>	QTR-2005-4	1407.83	1419.58	1387.67	1372.52	1380.80	1369.44	1399.32
OTR-2006-2 1408.37 141.4.3 1397.52 1372.42 1330.65 1372.38 1397.44 OTR-2006-3 1404.01 1417.13 1386.32 1372.25 1330.65 1372.42 1380.80 1390.26 1390.66 1390.68 1390.26 1397.64 1390.64 1397.64 1397.64 1397.64 1407.21 1417.13 1390.64 1397.64 1406.74 1397.64 1406.74 1397.64 1406.74 1397.64 1406.74 1397.64 1406.74 1397.64 1406.74 1397.64 1406.74 1397.65 1395.64 1373.43 1413.10 1377.65 1395.64 1373.43 1413.70 1374.61 1385.86 1374.44 1405.72 1386.85 1374.43 1433.85 1374.44 1405.72 1398.74 1403.75 1414.55 1391.67 1373.60 1382.48 1374.55 1382.48 1374.54 1408.57 1414.55 1411.74 1418.58 1391.67 1373.60 1382.48 1373.65 1414.77 140.77 1407.72 1474.81 <td< td=""><td>OTB-2006-1</td><td>1406.35</td><td>1418 91</td><td>1387 02</td><td>1372 42</td><td>1380 15</td><td>1371 76</td><td>1397 99</td></td<>	OTB-2006-1	1406.35	1418 91	1387 02	1372 42	1380 15	1371 76	1397 99
OTTR-2006-3 1403.26 1417 13 1396.38 1372.30 1379.83 1370.22 1399.99 OTTR-2007-1 1407.21 1417 13 1390.63 1372.29 1392.25 1390.61 1399.99 OTTR-2007-3 1406.61 1417.43 1406.64 1335.64 1372.16 1395.64 1379.15 1412.64 OTTR-2008-2 1412.64 1417.64 1330.72 1374.05 1395.14 1374.43 1413.10 OTTR-2008-3 1402.86 1417.98 1390.02 1374.15 1395.16 1372.41 1403.75 OTTR-2010-2 1413.38 1416.11 1405.12 1381.85 1390.80 1375.51 1443.39 OTTR-2010-3 1411.22 1418.12 1390.92 1374.80 1392.48 1374.65 1413.39 OTTR-2010-3 1411.24 1418.12 1390.92 1374.40 1403.76 1414.39 OTTR-2010-2 1412.26 1418.12 1390.92 1374.43 1403.87 1403.87 OTTR-2010-2 1412.65	OTB-2006-2	1408 37	1418.43	1387 52	1372.42	1383.05	1372 36	1397.48
GTR.2008-1 140.9 bit 1410.42 1386.82 1372.25 1309.51 1399.90 1399.80 GTR.2007-1 1407.21 1417.42 1391.60 1372.85 1392.51 1399.90 1399.90 GTR.2007-2 1409.61 1417.42 1391.60 1372.85 1392.51 1370.64 1406.74 GTR.2008-2 1409.81 1417.73 1406.84 1376.84 1375.51 1414.61 GTR.2008-3 1412.64 1417.86 1380.02 1377.43 1380.80 1375.51 1414.53 GTR.2008-3 1411.24 1416.51 1380.92 1374.49 1333.30 1375.51 1414.53 GTR.2018-2 1413.28 1418.11 1466.51 1381.85 1330.80 1375.51 1414.53 GTR.2018-2 1412.84 1418.12 1389.92 1374.81 1333.80 1375.51 1414.53 GTR.2018-2 1412.85 1418.13 1399.97 1377.74 1388.74 1375.41 1413.29 GTR.2018-2 1414.74	OTR-2006-3	1403.26	1/17 13	1386 38	1372.30	1370.83	1370.22	1300.00
CITR-2004-1 Internal	QTR-2000-5	1404.01	1410.42	1396.30	1372.30	1373.03	1360.00	1305.55
CITR-2007-3 HUL-21 HUL-21 HUL-13 1326.269 1326.269 1326.269 1376.07 1397.44 CITR-2008-2 1415.33 1417.73 1406.86 1376.06 1385.64 1379.15 1414.16 CITR-2008-3 1412.64 1418.64 1398.61 1376.05 1385.14 1374.43 1413.10 CITR-2008-3 1400.86 1417.98 1390.72 1374.15 1381.86 1397.49 1403.73 CITR-2010-3 1411.22 1418.11 1405.12 1381.85 1393.00.0 1375.51 1414.59 CITR-2010-3 1411.24 1418.25 1398.27 1374.80 1382.48 1374.55 1403.85 CITR-2010-3 1411.24 1418.53 1399.77 1377.74 1388.74 1375.41 1413.29 CITR-2012-2 1414.85 1390.01 1375.34 1382.49 1375.51 1400.77 CITR-2013-4 1400.70 1416.93 1391.01 1375.34 1382.79 1376.11 1402.57 CITR-2015-2 <td>QTT-2000-4 OTD 2007 4</td> <td>1404.91</td> <td>1413.42</td> <td>1300.32</td> <td>1372.23</td> <td>1300.01</td> <td>1309.90</td> <td>1339.09</td>	QTT-2000-4 OTD 2007 4	1404.91	1413.42	1300.32	1372.23	1300.01	1309.90	1339.09
unr-cours- 140051 1417.42 1391.00 137.885 1395.04 137.97.15 1414.16 QTR-2008-2 1415.33 1407.83 1408.64 1393.61 1376.05 1385.14 1373.43 1414.16 QTR-2009-2 1409.66 1417.98 1398.01 1372.47 1386.16 1377.34 1414.30 QTR-2010-2 1413.98 1418.11 1405.12 1381.85 1390.080 1375.51 1414.49 QTR-2010-2 1418.12 1419.23 1392.72 1374.81 1385.64 1374.35 1403.38 QTR-2011-2 1418.55 1391.97 1373.60 1382.84 1374.55 1413.28 QTR-2012-2 1411.87 1418.53 1390.03 1372.72 1383.74 1475.74 1446.02 QTR-2013-2 1411.47 1416.83 1390.03 1372.72 1383.19 1374.23 1400.05 QTR-2014-2 1401.04 1417.32 1391.21 1373.05 1382.29 1377.64 1480.25 1377.57 1404.99	QIR-2007-1	1407.21	1417.13	1390.03	1312.09	1302.00	13/4.0/	1397.74
unr-cue-z 1417.33 1417.33 1409.88 1380.69 1395.14 1379.15 1414.16 GTR-2008-3 1409.86 1417.98 1390.72 1374.15 1381.56 1374.49 1403.76 GTR-2009-3 1408.87 1417.88 1390.72 1374.15 1381.56 1374.49 1403.76 GTR-2010-3 1411.22 1418.12 1392.72 1374.81 1383.50 1374.39 1413.39 GTR-2010-3 1411.22 1418.12 1389.92 1374.80 1382.48 1374.55 1403.83 GTR-2011-3 1411.24 1418.53 1391.01 1382.48 1375.56 1411.10 GTR-2012-2 1412.85 1418.13 1399.77 1377.74 1383.23 1375.31 1402.57 GTR-2012-2 1410.78 1416.88 1391.01 1375.34 1407.27 1418.20 1387.50 1372.13 1382.23 1375.31 1402.57 GTR-2014-2 1407.80 1416.88 1391.01 1375.55 1402.57 1404.99	QTR-2007-3	1409.61	1417.42	1391.60	13/3.85	1382.19	13/0.84	1409.74
CIR-2008-2 1412.64 1418.64 1393.61 1376.05 1385.16 1377.43 1413.10 CIR-2009-2 1409.86 1417.88 1389.01 1372.47 1381.56 1377.31 1407.03 CIR-2010-2 1413.98 1418.11 1405.12 1381.85 1390.80 1375.51 1414.45 CIR-2010-2 1418.22 1419.23 1392.72 1374.81 1382.48 1374.55 1403.83 CIR-2011-2 1409.52 1418.13 1391.97 1373.80 1382.84 1374.55 1411.18 OIR-2012-2 1412.85 1418.13 1390.77 1373.80 1382.84 1375.54 1410.27 OIR-2012-2 1410.87 1391.01 1375.34 1388.23 1395.31 1402.57 CIR-2013-4 1410.76 1416.68 1387.42 1372.03 1382.19 1371.16 1440.49 CIR-2014-2 1407.70 1416.68 1387.42 1372.03 1384.69 1377.75 1404.49 CIR-2015-2 1412.00 <	QTR-2008-2	1415.33	1417.33	1406.98	1385.69	1395.04	13/9.15	1414.16
OTR-2009-3 1409.86 1417.98 1390.72 1374.15 1381.58 1374.49 1403.78 OTR-2010-3 1413.88 1418.11 1405.12 1381.56 1370.31 1407.03 OTR-2010-3 1411.22 1419.32 1322.22 1374.81 1383.50 1374.39 1413.38 OTR-2011-3 1411.24 1418.65 1391.97 1373.60 1382.48 1374.55 1403.83 OTR-2012-2 1418.45 1418.13 1399.77 1377.74 1388.74 1375.41 1410.27 OTR-2013-2 1400.70 1418.58 1390.03 1372.22 1381.55 1399.47 1410.77 OTR-2013-2 1411.47 1416.88 1392.03 1381.91 1375.34 1492.57 OTR-2014-2 1407.74 1417.32 1371.61 1375.24 1386.29 1376.13 1400.77 OTR-2015-2 1412.05 1418.38 1393.37 1372.10 1381.27 1371.75 1404.99 OTR-2015-4 1410.05 1418.88 <	QTR-2008-3	1412.64	1418.64	1393.61	1376.05	1385.14	1373.43	1413.10
OTR-2009-3 1408.87 1417.88 1389.01 1372.47 1380.60 1370.31 1407.03 OTR-2010-2 1413.98 1418.11 1405.12 1381.85 1390.80 1375.51 1414.59 OTR-2011-2 1409.32 1418.12 1389.92 1374.80 1382.48 1374.56 1403.83 OTR-2011-2 1412.54 1418.13 1390.77 1373.60 1382.48 1375.41 1413.29 OTR-2012-2 1411.47 1416.85 1390.03 1372.74 1381.35 1395.47 1410.77 OTR-2012-2 1411.47 1416.85 1391.01 1375.34 1382.27 1370.11 1402.57 OTR-2013-2 1410.70 1417.32 1391.21 1373.05 1382.79 1370.11 1407.75 OTR-2015-3 1412.00 1416.98 1387.42 1372.10 1381.27 1371.75 1409.78 OTR-2015-3 1412.05 1418.83 1406.57 1378.69 1372.44 1406.89 1371.66 1412.67	QTR-2009-2	1409.86	1417.98	1390.72	1374.15	1381.58	1374.49	1403.78
OTR-2010-2 1413.98 1418.11 1405.12 1391.85 1390.80 1375.51 1414.49 OTR-2010-3 1411.22 1419.32 1374.81 1383.50 1374.85 1413.38 OTR-2011-2 1409.32 1418.12 1389.92 1374.80 1382.48 1374.55 1403.83 OTR-2012-2 1412.25 1418.58 1390.03 1372.72 1388.74 1375.31 1402.77 OTR-2013-2 1411.47 1416.98 1391.01 1375.34 1388.74 1375.31 1402.57 OTR-2014-2 1407.66 1487.42 1372.03 1383.19 1375.17 1404.25 OTR-2014-2 1407.74 1417.08 1387.30 1372.10 1381.27 1371.75 1404.99 OTR-2015-2 1412.05 1418.38 1393.87 1376.47 1386.46 1371.86 1412.67 OTR-2015-4 1410.50 1418.88 1394.97 1376.45 1372.41 1408.79 OTR-2015-4 1410.50 1488.33 1406.92 <	QTR-2009-3	1408.87	1417.88	1389.01	1372.47	1380.60	1370.31	1407.03
ORR-2010-3 1411.22 1419.23 1392.72 1374.80 1382.60 1374.39 1413.39 ORR-2011-3 1411.24 1418.58 1391.87 1374.80 1382.48 1374.55 1403.83 ORR-2012-2 1412.65 1411.81 1399.77 1377.74 1388.74 1376.61 1413.29 ORR-2012-3 1406.70 1418.58 1390.03 1372.72 1381.35 1369.47 1410.77 ORR-2013-4 1410.46 1417.32 1391.01 1375.34 1388.73 1382.79 1370.11 1402.57 ORR-2014-4 1407.74 1417.08 1387.42 1372.01 1381.27 1371.75 1404.99 ORR-2015-3 1412.00 1418.88 1393.67 1374.60 1374.64 1374.65 1372.41 1408.79 ORR-2016-1 1412.60 1418.88 1393.67 1374.65 1374.41 1408.79 ORR-2016-1 1412.66 1419.51 1394.97 1377.65 1368.69 1372.41 1408.79	QTR-2010-2	1413.98	1418.11	1405.12	1381.85	1390.80	1375.51	1414.59
ORR-2011-3 14109.32 1418.12 1389.92 1374.80 1382.48 1374.55 1403.83 ORR-2012-2 1412.65 1418.13 1399.77 1377.74 1388.74 1375.64 1413.29 ORR-2012-3 1408.70 1418.58 1390.03 1372.72 1381.35 1369.47 1410.77 ORR-2013-2 1411.47 1416.93 1391.21 1375.34 1388.23 1375.31 1402.57 ORR-2014-2 1407.76 1417.08 1387.42 1372.03 1382.79 1371.15 1404.99 ORR-2015-2 1412.05 1418.38 1397.63 1384.50 1375.75 1409.78 ORR-2015-3 1412.05 1418.38 1393.87 1376.77 1386.49 1371.86 1412.67 ORR-2016-1 1412.60 1420.83 1394.97 1377.65 1387.79 1410.87 ORR-2016-2 1414.94 1418.83 1406.51 1397.65 1386.49 1373.86 1472.61 ORR-2016-3 1412.60 1420.51	QTR-2010-3	1411.22	1419.23	1392.72	1374.81	1383.50	1374.39	1413.39
OTR-2011-3 1411.24 1418.58 1398.77 1377.74 1382.88 1375.56 1411.18 OTR-2012-2 1412.85 1418.13 1399.77 1377.74 1382.74 1375.34 1386.47 1410.77 OTR-2013-2 1411.47 1416.93 1391.01 1375.34 1388.23 1375.31 1402.57 OTR-2013-2 1411.46 1417.32 1391.21 1373.54 1388.23 1375.31 1402.57 OTR-2014-4 1407.80 1416.98 1387.42 1372.03 1381.27 1371.75 1404.99 OTR-2015-2 1412.00 1415.13 1405.17 1376.63 1394.50 1377.74 1470.87 OTR-2015-1 1412.65 1418.38 1394.97 1377.65 1382.79 1374.66 1405.79 1410.67 OTR-2016-1 1412.60 1408.38 1394.97 1377.65 1387.59 1374.66 1406.79 OTR-2016-1 1412.60 1419.54 1392.24 1375.66 1386.20 1373.11 1414.29 </td <td>QTR-2011-2</td> <td>1409.32</td> <td>1418.12</td> <td>1389.92</td> <td>1374.80</td> <td>1382.48</td> <td>1374.55</td> <td>1403.83</td>	QTR-2011-2	1409.32	1418.12	1389.92	1374.80	1382.48	1374.55	1403.83
OTR-2012-2 1412.85 1418.18 1399.77 1377.74 1388.74 1375.41 1413.29 OTR-2013-2 1411.47 1416.93 1391.01 1375.34 1388.27 1381.35 1369.47 1410.77 OTR-2013-2 1411.47 1416.93 1391.01 1375.34 1382.27 1370.11 1402.57 OTR-2014-2 1407.74 1417.32 1391.01 1375.34 1382.79 1370.11 1402.57 OTR-2014-2 1407.74 1417.08 1387.42 1372.00 1381.17 1371.75 1404.99 OTR-2015-2 1412.05 1418.38 1393.46 1376.77 1386.49 1371.86 1412.67 OTR-2015-3 1412.60 1418.89 1394.47 1383.76 1372.41 1408.79 OTR-2016-1 1412.60 1449.53 1394.57 1387.59 1374.66 1405.38 OTR-2016-2 1414.94 1418.83 1406.92 1387.72 1385.85 1376.79 1410.62 OTR-2016-3 1412.60 <	QTR-2011-3	1411.24	1418.58	1391.87	1373.60	1382.88	1373.56	1411.18
OTR-2012-3 1408.70 1418.58 1390.03 1372.72 1381.35 1369.47 1410.77 QTR-2013-2 1411.47 1416.93 1391.01 1375.34 1386.23 1375.31 1402.57 QTR-2014-4 1410.46 1417.32 1391.21 1373.05 1382.79 1370.11 1407.77 QTR-2014-4 1407.74 1417.08 1387.42 1372.03 1381.19 1374.23 1400.05 QTR-2015-3 1412.05 1418.38 1993.87 1376.77 1386.49 1371.86 1412.67 QTR-2015-4 1410.50 1418.83 1394.97 1377.65 1387.59 1374.66 1405.79 QTR-2015-1 1412.60 1420.38 1394.97 1377.65 1387.59 1374.66 1405.79 QTR-2016-2 1414.44 1418.83 1398.22 1375.65 1386.20 1373.11 1414.26 QTR-2016-4 1410.10 1419.93 1398.94 1372.83 1384.80 1373.81 1403.49 QTR-2016-4 <	QTR-2012-2	1412.85	1418.13	1399.77	1377.74	1388.74	1375.41	1413.29
OTF-2013-2 1411.47 1416.93 1391.01 1375.34 1388.23 1375.31 1402.57 OTR-2014-4 1407.60 1416.98 1391.21 1370.05 1382.79 1370.11 1407.27 OTR-2014-4 1407.74 1417.08 1387.03 1372.10 1381.27 1371.75 1404.99 OTR-2015-2 1412.00 1415.13 1405.17 1376.63 1394.50 1377.56 1409.76 OTR-2015-3 1412.05 1418.88 1393.87 1374.67 1386.49 1371.86 1412.67 OTR-2016-1 1412.60 1420.38 1394.97 1377.65 1387.59 1374.66 1405.38 OTR-2016-3 1412.60 1449.51 1393.22 1375.60 1382.98 1372.41 1408.79 OTR-2016-4 1410.10 1419.54 1392.22 1375.60 1382.98 1372.41 1408.39 OTR-2017-2 1410.15 1419.06 1389.82 1372.80 1382.98 1372.41 1408.39 OTR-2016-3 <	QTR-2012-3	1408.70	1418.58	1390.03	1372.72	1381.35	1369.47	1410.77
OTR-2013-4 1410.46 1417.32 1391.21 1373.05 1382.79 1370.11 1407.27 OTR-2014-2 1407.80 1416.98 1387.42 1372.10 1383.19 1374.23 1400.05 OTR-2015-2 1412.00 1415.13 1405.17 1376.63 1394.50 1375.75 1409.78 OTR-2015-2 1412.05 1418.38 1393.87 1376.77 1366.49 1371.86 1412.67 OTR-2015-4 1410.50 1418.89 1391.46 1374.49 1383.76 1372.41 1408.79 OTR-2016-1 1412.60 1440.38 1394.97 1375.65 1386.20 1373.11 1414.29 OTR-2016-3 1412.06 1419.51 1393.22 1375.65 1386.20 1373.31 1410.83 OTR-2016-1 1408.24 1419.54 1389.29 1372.83 1386.96 1373.36 1402.41 OTR-2017-1 1408.24 1419.55 1372.37 1381.38 1374.21 1408.39 OTR-2017-1 1408.01 <	QTR-2013-2	1411.47	1416.93	1391.01	1375.34	1388.23	1375.31	1402.57
GTR-2014-2 1407.80 1416.98 1387.42 1372.03 1383.19 1374.23 1400.05 GTR-2014-4 1407.74 1417.08 1387.30 1372.10 1381.27 1371.75 1400.99 GTR-2015-2 1412.00 1415.13 1405.17 1378.63 1394.60 1375.75 1409.98 GTR-2015-3 1412.05 1418.38 1393.87 1374.49 1383.76 1372.41 1408.79 GTR-2016-1 1412.60 1420.38 1394.97 1377.65 1387.59 1374.66 1405.38 GTR-2016-2 1414.94 1418.83 1406.92 1374.65 1386.20 1373.11 1414.29 GTR-2016-4 1410.10 1419.93 1390.81 1373.60 1382.98 1372.41 1408.39 GTR-2017-1 1408.24 1419.54 1389.29 1372.35 1386.96 1372.42 1409.31 GTR-2017-2 1410.15 1419.35 1392.04 1372.37 1381.38 1373.46 1402.41 GTR-2018-3 <	OTB-2013-4	1410.46	1417.32	1391 21	1373.05	1382 79	1370 11	1407 27
GTR-2014.1 1407.74 1417.08 1307.20 1307.20 1307.27 1307.17 1404.09 GTR-2015.2 1412.00 1415.13 1405.17 1379.63 1334.50 1377.55 1409.78 GTR-2015.3 1412.05 1418.89 1391.46 1374.49 1383.76 1372.41 1408.79 GTR-2016.1 1412.60 1420.38 1394.97 1377.65 1387.59 1374.46 1405.38 GTR-2016.2 1414.94 1418.83 1406.92 1384.72 1395.55 1376.71 1406.538 GTR-2016.3 1412.06 1419.51 1393.22 1375.65 1386.20 1373.11 1414.29 GTR-2016.4 1410.10 1419.93 1390.81 1373.56 1386.20 1373.11 1408.39 GTR-2017.2 1410.15 1419.00 1389.52 1373.35 1386.66 1373.86 1402.41 GTR-2017.3 1410.40 1419.35 1392.04 1372.37 1381.30 1372.41 1408.24 GTR-2018.1	OTR-2014-2	1407.80	1416.98	1387.42	1372.03	1383 19	1374 23	1400.05
GTR-2015-2 1412.00 1307.30 1307.30 1307.30 1307.30 1307.35 1408.39 GTR-2015-3 1412.05 1418.38 1398.87 1376.77 1386.49 1371.86 1412.67 GTR-2015-4 1410.50 1418.83 1394.97 1377.65 1387.59 1374.66 1406.39 GTR-2016-1 1412.60 1420.38 1394.97 1377.65 1386.20 1373.16 1405.38 GTR-2016-2 1414.94 1418.83 1406.92 1384.72 1395.85 1376.79 1410.62 GTR-2016-4 1410.10 1419.93 1390.81 1373.86 1382.98 1372.41 1408.39 GTR-2017-2 1410.15 1419.54 1382.92 1373.35 1386.96 1373.83 1402.41 GTR-2017-2 1410.15 1490.82 1372.70 1383.08 1372.12 1402.91 GTR-2018-1 1400.801 1418.76 1399.64 1372.59 1384.80 1374.85 1410.27 GTR-2018-3 1410.46	OTP 2014 4	1407.30	1417.09	1397.30	1372.00	1391.27	1374.25	1404.00
CH-2015-2 1412.05 1418.13 1403.17 1379.33 1394.30 1394.35 1394.35 CTR-2015-3 1412.05 1418.89 1391.46 1374.49 1383.76 1372.41 1405.79 OTR-2016-1 1412.06 1420.38 1394.97 1377.65 1387.59 1374.66 1405.38 OTR-2016-2 1414.94 1418.83 1406.92 1384.72 1395.85 1376.79 1410.62 OTR-2016-3 1412.06 1419.51 1393.22 1375.65 1386.20 1373.11 1414.29 OTR-2017-1 1408.24 1419.54 1389.29 1372.83 1381.40 1373.83 1403.49 OTR-2017-2 1410.15 1419.00 1389.52 1373.25 1383.00 1372.12 1409.31 OTR-2018-1 1408.01 1418.76 1389.65 1372.37 1381.30 1374.45 1410.27 OTR-2018-3 1410.40 1418.76 1389.65 1372.37 1381.30 1374.45 1410.27 OTR-2018-1 <t< td=""><td>QTR-2014-4</td><td>1407.74</td><td>1417.00</td><td>1405 17</td><td>1372.10</td><td>1301.27</td><td>1371.75</td><td>1404.55</td></t<>	QTR-2014-4	1407.74	1417.00	1405 17	1372.10	1301.27	1371.75	1404.55
GTR-2015-3 1412.05 1416.36 1393.67 1316.77 1366.49 131.66 1412.67 GTR-2015-4 1410.50 1418.83 1394.97 1377.65 1387.59 1374.66 1406.79 GTR-2016-2 1414.94 1418.83 1406.92 1384.72 1395.85 1376.79 1410.62 GTR-2016-2 1414.94 1418.83 1406.92 1384.72 1395.85 1376.79 1410.62 GTR-2016-2 1414.91 1419.93 1390.81 1373.60 1382.98 1372.41 1408.39 GTR-2017-1 1408.24 1419.54 1399.29 1372.83 1381.40 1373.83 1402.41 GTR-2017-3 1410.40 1419.35 1392.04 1372.70 1383.00 1372.12 1409.31 GTR-2018-3 1410.46 1417.88 1397.84 1375.50 1388.87 1374.45 1410.27 GTR-2019-1 1413.80 1418.53 1400.72 1383.19 1391.10 1377.46 1411.27 GTR-2019-1 <t< td=""><td>QTR-2015-2</td><td>1412.00</td><td>1415.15</td><td>1403.17</td><td>1379.03</td><td>1394.50</td><td>1373.75</td><td>1409.76</td></t<>	QTR-2015-2	1412.00	1415.15	1403.17	1379.03	1394.50	1373.75	1409.76
G1R2013-4 1410.50 1416.59 1391.48 1391.49 1374.49 1374.49 1374.41 1406.79 G1R2016-2 1414.94 1418.83 1406.92 1387.65 1387.59 1374.66 1405.38 G1R-2016-2 1414.94 1418.83 1406.92 1384.72 1395.85 1376.79 1410.62 G1R-2016-3 1410.10 1419.93 1390.81 1373.60 1382.98 1372.41 1408.39 G1R-2017-1 1408.24 1419.54 1389.52 1373.35 1386.96 1373.96 1402.41 G1R-2017-2 1410.40 1419.35 1397.64 1372.70 1383.00 1372.12 1409.31 G1R-2018-1 1408.01 1418.76 1389.64 1375.90 1389.87 1374.85 1400.292 G1R-2018-1 1418.30 1418.53 1400.72 1383.19 1377.65 1380.40 1377.45 1400.292 G1R-2018-1 1413.80 1418.53 1400.72 1383.19 1374.85 1410.292 <td< td=""><td>QTR-2015-5</td><td>1412.03</td><td>1410.30</td><td>1393.67</td><td>1370.77</td><td>1300.49</td><td>137 1.00</td><td>1412.07</td></td<>	QTR-2015-5	1412.03	1410.30	1393.67	1370.77	1300.49	137 1.00	1412.07
GIR-2016-1 1412.60 1420.38 1394.97 1377.65 1387.59 1374.66 1405.38 QIR-2016-2 1414.94 1418.83 1406.92 1384.72 1395.85 1376.79 1410.62 QIR-2016-3 1412.06 1419.51 1393.22 1375.65 1386.20 1373.11 1412.49 QIR-2017-4 1400.24 1419.54 1389.29 1372.83 1381.40 1373.83 1403.49 QIR-2017-2 1410.15 1419.00 1389.52 1373.35 1386.96 1373.96 1402.41 QIR-2017-3 1410.40 1419.35 1392.04 1372.70 1383.00 1374.21 1409.31 QIR-2018-3 1410.46 1417.86 1397.84 1375.90 1389.87 1374.85 1410.27 QIR-2019-1 1413.80 1418.53 1400.72 1383.19 1391.10 1377.46 1411.27 QIR-2020-2 1414.47 1427.03 1403.73 1380.90 1394.55 1375.70 1415.83 QIR-2020-3 <	QTR-2015-4	1410.50	1418.89	1391.46	1374.49	1383.76	1372.41	1408.79
QIR-2016-2 1414.94 1418.83 1406.92 1384.72 1395.85 1376.79 1410.62 QIR-2016-3 1412.06 1419.51 1393.22 1376.65 1386.20 1371.11 1414.29 QIR-2016-4 1410.10 1419.93 1390.81 1373.60 1382.98 1372.41 1408.39 QIR-2017-1 1408.24 1419.54 1389.52 1373.35 1386.96 1373.96 1402.41 QIR-2017-3 1410.40 1419.35 1392.04 1372.70 1383.00 1372.12 1409.91 QIR-2018-1 1408.01 1418.76 1389.65 1372.37 1381.38 1374.21 1402.92 QIR-2018-3 1410.46 1417.88 1397.84 1375.90 1389.87 1374.85 1410.27 QIR-2019-3 1412.07 1422.34 1399.14 1377.58 1390.40 1374.46 1415.12 QIR-2020-1 1414.83 1424.75 1399.62 1378.73 1390.27 1374.60 1411.49 QIR-2020-1 1414.67 1422.34 1399.14 1375.29 1387.19 1373.30 <	QIR-2016-1	1412.60	1420.38	1394.97	1377.65	1387.59	1374.66	1405.38
QTR-2016-3 1412.06 1419.51 1392.22 1375.65 1386.20 1373.11 1414.29 QTR-2016-4 1410.10 1419.93 1390.81 1373.60 1382.98 1372.41 1408.39 QTR-2017-1 1408.24 1419.54 1389.29 1372.83 1381.40 1373.86 1402.41 QTR-2017-2 1410.15 1419.00 1389.52 1373.35 1386.96 1373.96 1402.41 QTR-2017-3 1410.40 1419.35 1392.04 1372.70 1383.00 1372.12 1409.31 QTR-2018-3 1410.46 1417.88 1397.84 1375.90 1389.87 1374.85 1410.292 QTR-2019-1 1413.80 1418.53 1400.72 1383.19 1391.10 1377.89 1411.27 QTR-2019-1 1414.38 1422.74 1399.42 1376.75 1390.40 1374.46 1415.12 QTR-2020-1 1414.67 1427.03 1403.73 1380.27 1374.60 1411.49 QTR-2020-2 1414.67	QTR-2016-2	1414.94	1418.83	1406.92	1384.72	1395.85	1376.79	1410.62
QTR-2016-4 1410.10 1419.93 1390.81 1373.60 1382.98 1372.41 1408.39 QTR-2017-1 1408.24 1419.54 1389.29 1372.83 1381.40 1373.83 1403.49 QTR-2017-2 1410.15 1419.00 1389.52 1373.35 1386.96 1373.96 1402.41 QTR-2017-3 1410.40 1418.76 1380.65 1372.37 1381.30 1372.12 1409.31 QTR-2018-1 1408.01 1418.76 1389.65 1372.37 1381.38 1374.21 1402.92 QTR-2018-3 1410.46 1418.78 1397.84 1375.90 1389.87 1374.85 1410.27 QTR-2019-3 1412.07 1422.34 1399.14 1375.50 1380.40 1374.46 1415.12 QTR-2020-1 1414.38 1424.75 1399.62 1376.73 1390.27 1374.60 1411.49 QTR-2020-2 1414.67 1427.03 1400.72 1380.90 1375.70 1415.83 QTR-202-3 1414.67 <t< td=""><td>QTR-2016-3</td><td>1412.06</td><td>1419.51</td><td>1393.22</td><td>1375.65</td><td>1386.20</td><td>1373.11</td><td>1414.29</td></t<>	QTR-2016-3	1412.06	1419.51	1393.22	1375.65	1386.20	1373.11	1414.29
QTR-2017-1 1408.24 1419.54 1389.52 1372.83 1381.40 1373.83 1403.49 QTR-2017-2 1410.15 1419.00 1389.52 1373.35 1386.96 1373.96 1402.41 QTR-2017-3 1410.40 1419.35 1392.62 1372.70 1383.00 1372.12 1409.31 QTR-2018-1 1408.01 1418.76 1389.65 1372.37 1381.38 1374.21 1402.92 QTR-2018-3 1410.46 1417.88 1397.84 1375.90 1389.87 1374.85 1410.27 QTR-2019-1 1413.80 1418.53 1400.72 1383.19 1391.10 1377.485 1415.12 QTR-2020-1 1414.38 1424.75 1399.62 1378.73 1390.27 1374.60 1411.49 QTR-2020-2 1414.67 1427.03 1403.73 1380.90 1387.19 1373.30 1414.78 QTR-2020-3 1411.00 1428.23 1394.10 1375.29 1387.19 1374.60 14414.78 QTR-2021-1	QTR-2016-4	1410.10	1419.93	1390.81	1373.60	1382.98	1372.41	1408.39
QTR-2017-2 1410.15 1419.00 1389.52 1373.35 1386.96 1373.96 1402.41 QTR-2017-3 1410.40 1419.35 1389.04 1372.70 1383.00 1372.12 1409.31 QTR-2018-1 1408.01 1418.76 1389.65 1372.37 1381.38 1374.21 1402.92 QTR-2018-3 1410.46 1417.88 1397.84 1375.90 1389.87 1374.85 1410.27 QTR-2019-1 1413.80 1418.53 1400.72 1383.19 1390.40 1374.46 1415.2 QTR-2019-3 1412.07 1422.34 1399.14 1377.58 1390.40 1374.46 1415.12 QTR-2020-1 1414.87 1424.75 1399.62 1378.73 1390.40 1374.60 1411.49 QTR-2020-3 1411.10 1428.23 1394.10 1375.29 1387.19 1373.30 1414.78 QTR-2020-3 1411.10 1428.54 1390.69 1375.14 1386.42 1374.19 1405.72 QTR-2021-3 1410.66 1424.04 1389.13 1372.69 1381.70 1373.66 <t< td=""><td>QTR-2017-1</td><td>1408.24</td><td>1419.54</td><td>1389.29</td><td>1372.83</td><td>1381.40</td><td>1373.83</td><td>1403.49</td></t<>	QTR-2017-1	1408.24	1419.54	1389.29	1372.83	1381.40	1373.83	1403.49
QTR-2017-3 1410.40 1419.35 1392.04 1372.70 1383.00 1372.12 1409.31 QTR-2018-1 1408.01 1418.76 1389.65 1372.37 1381.38 1374.21 1402.92 QTR-2018-3 1410.46 1417.88 1397.84 1375.90 1389.87 1374.85 1410.27 QTR-2019-3 1412.07 1422.34 1399.14 1377.58 1390.40 1374.46 1415.12 QTR-2020-1 1414.38 1424.75 1399.62 1378.73 1390.27 1374.60 1411.49 QTR-2020-2 1411.67 1427.03 1403.73 1380.90 1394.55 1375.70 1415.83 QTR-2020-3 1411.10 1428.23 1394.10 1375.29 1387.19 1373.30 1414.78 QTR-2021-3 1410.62 1425.54 1390.69 1375.14 1386.42 1374.19 1405.72 QTR-2021-3 1410.86 1424.94 1389.13 1372.69 1381.70 1371.66 1404.24 QTR-2023-3 <	QTR-2017-2	1410.15	1419.00	1389.52	1373.35	1386.96	1373.96	1402.41
QTR-2018-11408.011418.761389.651372.371381.381374.211402.92QTR-2018-31410.461417.881397.841375.901389.871374.851410.27QTR-2019-11413.801418.531400.721383.191391.101377.891411.27QTR-2019-31412.071422.341399.141377.581390.401374.461411.51QTR-2020-11414.381424.751399.621378.731390.271374.601411.49QTR-2020-21414.671427.031403.731380.901394.551375.701415.83QTR-2020-31411.101428.231394.101375.291387.191373.301414.78QTR-2021-11410.621425.541390.691375.141386.421374.191405.72QTR-2021-31410.461426.361392.031373.931384.001371.921412.38QTR-2022-11408.651421.921390.691371.451379.751370.261408.57QTR-2023-11408.651421.921390.691371.451379.751370.261408.57QTR-2023-11408.651421.921390.691371.451379.751370.261408.57QTR-2023-11408.651421.921390.691371.451379.751370.261408.57QTR-2023-11408.651421.921390.691371.451379.751370.261408.57QTR-2023-11408.651421.921390.69137	QTR-2017-3	1410.40	1419.35	1392.04	1372.70	1383.00	1372.12	1409.31
QTR-2018-31410.461417.881397.841375.901389.871374.851410.27QTR-2019-11413.801418.531400.721383.191391.101377.891411.27QTR-2019-31412.071422.341399.141377.581390.401374.461415.12QTR-2020-11414.381424.751399.621378.731390.271374.601411.49QTR-2020-21414.671427.031403.731380.901394.551375.701415.83QTR-2020-31411.101428.231394.101375.291387.191373.301414.78QTR-2021-11410.621425.541390.691375.141386.421374.191405.72QTR-2021-31410.461426.361392.031373.931384.001371.921412.84QTR-2022-11408.651424.041389.131372.691381.701373.661404.24QTR-2023-31408.651421.921390.691371.451379.751370.261408.57QTR-2023-11406.851419.931386.321370.001378.271369.801400.39QTR-2023-11405.851419.931386.321370.051384.701373.401406.13QTR-2023-11405.851419.931386.321370.001378.271369.801406.33QTR-2023-11405.851419.931386.321370.001384.701373.401406.13SD2.552.705.323.374.28 <td>QTR-2018-1</td> <td>1408.01</td> <td>1418.76</td> <td>1389.65</td> <td>1372.37</td> <td>1381.38</td> <td>1374.21</td> <td>1402.92</td>	QTR-2018-1	1408.01	1418.76	1389.65	1372.37	1381.38	1374.21	1402.92
QTR-2019-1 1413.80 1418.53 1400.72 1383.19 1391.10 1377.89 1411.27 QTR-2019-3 1412.07 1422.34 1399.14 1377.58 1390.40 1374.46 1415.12 QTR-2020-1 1414.38 1424.75 1399.62 1378.73 1390.27 1374.60 1411.49 QTR-2020-2 1414.67 1427.03 1403.73 1380.90 1394.55 1375.70 1415.83 QTR-2020-3 1411.10 1428.23 1394.10 1375.29 1387.19 1373.30 1414.78 QTR-2021-3 1410.62 1425.54 1390.69 1375.14 1386.42 1374.19 1405.72 QTR-2021-3 1408.66 1424.04 1389.13 1372.69 1381.70 1373.66 1404.24 QTR-2022-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-3 <	QTR-2018-3	1410.46	1417.88	1397.84	1375.90	1389.87	1374.85	1410.27
QTR-2019-3 1412.07 1422.34 1399.14 1377.58 1390.40 1374.46 1415.12 QTR-2020-1 1414.38 1424.75 1399.62 1378.73 1390.27 1374.60 1411.49 QTR-2020-2 1414.67 1427.03 1403.73 1380.90 1394.55 1375.70 1415.83 QTR-2020-3 1411.10 1428.23 1394.10 1375.29 1387.19 1373.30 1414.78 QTR-2021-1 1410.62 1425.54 1390.69 1375.14 1386.42 1374.19 1405.72 QTR-2021-3 1410.46 1426.36 1392.03 1373.93 1384.00 1371.92 1412.38 QTR-2022-1 1408.46 1424.04 1389.13 1372.69 1381.70 1370.66 1404.24 QTR-2023-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1406.13 QTR-2023-3 <	QTR-2019-1	1413.80	1418.53	1400.72	1383.19	1391.10	1377.89	1411.27
QTR-2020-1 1414.38 1424.75 1399.62 1378.73 1390.27 1374.60 1411.49 QTR-2020-2 1414.67 1427.03 1403.73 1380.90 1394.55 1375.70 1415.83 QTR-2020-3 1411.10 1428.23 1394.10 1375.29 1387.19 1373.30 1414.78 QTR-2021-1 1410.62 1425.54 1390.69 1375.14 1386.42 1374.19 1405.72 QTR-2021-3 1410.46 1426.36 1392.03 1373.93 1384.00 1371.92 1412.88 QTR-2022-1 1408.46 1424.04 1389.13 1372.69 1381.70 1370.66 1404.24 QTR-2023-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.85 1419.93 1386.92 1375.00 1374.45 1370.86 1398.85 QTR-2023-3 <	QTR-2019-3	1412.07	1422.34	1399.14	1377.58	1390.40	1374.46	1415.12
OTR-2020-2 1414.67 1427.03 1403.73 1380.90 1394.55 1375.70 1415.83 QTR-2020-3 1411.10 1428.23 1394.10 1375.29 1387.19 1373.30 1411.78 QTR-2021-1 1410.62 1425.54 1390.69 1375.14 1386.42 1374.19 1405.72 QTR-2021-3 1410.46 1426.36 1392.03 1373.93 1384.00 1371.92 1412.82 QTR-2022-1 1408.46 1424.04 1389.13 1372.69 1381.70 1373.66 1404.24 QTR-2022-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.55 1419.93 1386.92 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55<	QTR-2020-1	1414.38	1424.75	1399.62	1378.73	1390.27	1374.60	1411.49
OTR-2020-3 1411.10 1428.23 1394.10 1375.29 1387.19 1373.30 1414.78 QTR-2021-1 1410.62 1425.54 1390.69 1375.14 1386.42 1374.19 1405.72 QTR-2021-3 1410.46 1426.36 1392.03 1373.93 1384.00 1371.92 1412.38 QTR-2022-1 1408.66 1424.04 1389.13 1372.69 1381.70 1373.66 1404.24 QTR-2022-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.35 1418.68 1386.93 1370.55 1379.99 1370.86 1498.38 OTR-2023-3 1405.35 1418.68 1386.93 1375.00 1384.70 1373.40 1406.13 SD 2.55<	QTR-2020-2	1414.67	1427.03	1403.73	1380.90	1394.55	1375.70	1415.83
CITE 20 Intrition Intrition <thintrite< th=""> <thintrite< th=""> Intrit</thintrite<></thintrite<>	OTR-2020-3	1411 10	1428 23	1394 10	1375 29	1387 19	1373 30	1414 78
CIT. 2021 - 3 1410.62 1426.36 1392.03 1373.93 1384.00 1371.92 1412.38 QTR-2021-3 1400.46 1426.36 1392.03 1373.93 1384.00 1371.92 1412.38 QTR-2022-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.47 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.35 1418.68 1386.93 1370.55 1379.99 1370.86 1398.88 V V Mean 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1406.98 1386.69 1398.85 1379.15 1418.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 13	OTR_2021-1	1410.62	1425 54	1390 69	1375 1/	1386 / 2	137/ 10	1405 72
Mean 1410.30 1420.30 1330.33 1304.00 131.32 1412.30 QTR-2022-1 1408.65 1424.04 1389.13 1372.69 1381.70 1373.66 1404.24 QTR-2022-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.35 1418.68 1386.93 1370.75 1379.99 1370.86 1398.38 Mean 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1406.98 1385.69 1398.85 1379.15 1415.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 QUTR-2027 13.10 20.66 15.69 17	OTR-2021 3	1/10.02	1/26 26	1302.03	1372.02	138/ 00	1371 02	1/12 20
G1172022-1 1400.40 1424.04 1309.13 1372.09 1361.70 1373.06 1404.24 QTR-2022-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.35 1418.68 1386.93 1370.75 1379.99 1370.86 1398.38 OTR-2023-3 1405.35 1419.91 1386.93 1376.50 1378.47 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1386.32 1370.00 1378.27 1369.10 1397.48 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Minimum 1403.26 1415.13	QIR-2021-3 OTD 2022 4	1410.40	1420.00	1392.03	1373.83	1304.00	1373 66	1412.30
QTR-2022-3 1408.65 1421.92 1390.69 1371.45 1379.75 1370.26 1408.57 QTR-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.35 1418.68 1386.93 1370.75 1379.99 1370.86 1398.38 Mean 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1406.98 1385.69 1395.85 1379.15 1415.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35	QTR-2022-1	1408.46	1424.04	1389.13	13/2.09	1301.70	13/3.00	1404.24
Q1R-2023-1 1405.85 1419.93 1386.32 1370.00 1378.27 1369.80 1400.39 QTR-2023-3 1405.35 1418.68 1386.93 1370.75 1379.99 1370.86 1398.83 Mean 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1406.98 1386.69 1398.85 1379.15 1415.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35	QIR-2022-3	1408.65	1421.92	1390.69	13/1.45	13/9.75	13/0.26	1408.57
QTR-2023-3 1405.35 1418.68 1386.93 1370.75 1379.99 1370.86 1398.38 Mean 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1406.98 1385.69 1395.85 1379.15 1415.83 Minimum 1403.26 1415.13 1388.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35 Hydraulic Gradient 0.03 0.03 1405.83 14.28 2.35 1458.32	QTR-2023-1	1405.85	1419.93	1386.32	1370.00	1378.27	1369.80	1400.39
Mean 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1406.98 1385.69 1395.85 1379.15 1415.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35	QTR-2023-3	1405.35	1418.68	1386.93	1370.75	1379.99	1370.86	1398.38
Mean 1410.27 1419.91 1392.80 1375.00 1384.70 1373.40 1406.13 SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1306.98 1385.69 1395.85 1379.15 1415.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35								
SD 2.55 2.70 5.32 3.37 4.28 2.35 5.65 Maximum 1415.33 1428.23 1406.98 1385.69 1395.85 1379.15 1415.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35	Mean	1410.27	1419.91	1392.80	1375.00	1384.70	1373.40	1406.13
Maximum 1415.33 1428.23 1406.98 1385.69 1395.85 1379.15 1415.83 Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35 Hydraulic Gradient 0.03 10.3 10.05 18.35 10.05 18.35	SD	2.55	2.70	5.32	3.37	4.28	2.35	5.65
Minimum 1403.26 1415.13 1386.32 1370.00 1378.27 1369.10 1397.48 Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35 Hydraulic Gradient 0.03 10.03 10.05 18.35	Maximum	1415.33	1428.23	1406.98	1385.69	1395.85	1379.15	1415.83
Range 12.07 13.10 20.66 15.69 17.58 10.05 18.35 Hydraulic Gradient 0.03 0.03 0.05 0.	Minimum	1403.26	1415.13	1386.32	1370.00	1378.27	1369.10	1397.48
Hydraulic Gradient 0.03	Range	12.07	13.10	20.66	15.69	17.58	10.05	18.35
		Hydraulic	Gradient	0.03				

MP = Measuring Point MSL = Mean Sea Level (measured to nearest 0.01')

wsp

Table 9: Comparative Statistics - AP4-MW1 (Upgradient)

		Statistical Method	Statistical Limit	Q1 2023 Detection Monitoring Result	Q1 2023 CUSUM Value	Q1 2023 - Within Limit?	Q3 2023 Detection Monitoring Result	Q3 2023 CUSUM Value	Q3 2023 - Within Limit?
Appendix III Analytes	Unit				03/06/2023			08/29/2023	
Boron, Total	mg/L	NP-PL	0.200	< 0.100		Yes	0.13		Yes
Calcium, Total	mg/L	CUSUM	115.1	85.2	93.2	Yes	99.4	94.0	Yes
Chloride	mg/L	NP-PL	11.0	7.19		Yes	7.33		Yes
Fluoride	mg/L	CUSUM	1.95	0.811	0.734	Yes	< 1.00	0.73	Yes
pH, Field	pH units	CUSUM	6.49, 8.00	7.04	7.17, 7.25	Yes	6.95	7.06, 7.25	Yes
Sulfate	mg/L	CUSUM	31.6	23.2	23.6	Yes	27.3	25.3	Yes
Total Dissolved Solids	mg/L	CUSUM	584	362	434	Yes	400	434	Yes

NOTES:

NP-PL: Non-Parametric Prediction Limit

CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 10: Comparative Statistics - AP4-MW2 (Upgradient)

		Statistical Method	Statistical Limit	Q1 2023 Detection Monitoring Result	Q1 2023 CUSUM Value	Q1 2023 - Within Limit?	Q3 2023 Detection Monitoring Result	Q3 2023 CUSUM Value	Q3 2023 - Within Limit?
Appendix III Analytes	Unit				03/06/2023			08/29/2023	
Boron, Total	mg/L	NP-PL	0.200	< 0.100		Yes	0.111		Yes
Calcium, Total	mg/L	CUSUM	402	269	297	Yes	309	297	Yes
Chloride	mg/L	NP-PL	113	106		Yes	111		Yes
Fluoride	mg/L	NP-PL	0.94	0.544		Yes	< 1.00		Yes - See Text
pH, Field	pH units	CUSUM	6.55, 7.85	6.97	7.05, 7.20	Yes	6.97	6.98, 7.20	Yes
Sulfate	mg/L	CUSUM	1027	874	873	Yes	1120	1094	No - Potential Exceedance
Total Dissolved Solids	mg/L	NP-PL	2360	1380		Yes	1750		Yes

NOTES:

NP-PL: Non-Parametric Prediction Limit

CUSUM: Parametric Shewhart-CUSUM Control Chart

See discussion of non-detect reporting for compliance results in the text.

Table 11: Comparative Statistics - AP4-MW3

		Statistical Method	Statistical Limit	Q1 2023 Detection Monitoring Result	Q1 2023 CUSUM Value	Q1 2023 - Within Limit?	Q3 2023 Detection Monitoring Result	Q3 2023 CUSUM Value	Q3 2023 - Within Limit?
Appendix III Analytes	Unit				03/06/2023			08/29/2023	
Boron, Total	mg/L	NP-PL	0.200	< 0.100		Yes	< 0.100		Yes
Calcium, Total	mg/L	CUSUM	105.2	78.8	86.5	Yes	88.5	86.5	Yes
Chloride	mg/L	NP-PL	12.40	< 5.00		Yes	< 5.00		Yes
Fluoride	mg/L	CUSUM	2.48	1.23	1.09	Yes	1.14	1.09	Yes
pH, Field	pH units	CUSUM	6.81, 7.99	7.14	7.19, 7.40	Yes	7.13	7.07, 7.40	Yes
Sulfate	mg/L	CUSUM	48.2	19.3	28.3	Yes	17.7	28.3	Yes
Total Dissolved Solids	mg/L	CUSUM	567	318	435	Yes	360	435	Yes

NOTES:

NP-PL: Non-Parametric Prediction Limit

CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 12: Comparative Statistics - AP4-MW4

		Statistical Method	Statistical Limit	Q1 2022 Detection Monitoring Result	Q1 2023 Detection Monitoring Result	Q1 2023 CUSUM Value	Q1 2023 - Within Limit?	Q3 2023 Detection Monitoring Result	Q3 2023 CUSUM Value	Q3 2023 - Within Limit?
Appendix III Analytes	Unit					03/06/2023			08/29/2023	
Boron, Total	mg/L	NP-PL	0.200	< 0.100	< 0.100		Yes	< 0.100		Yes
Calcium, Total	mg/L	CUSUM	153	102	100	109	Yes	117	109	Yes
Chloride	mg/L	NP-PL	8.99	< 5.00	< 5.00		Yes	< 5.00		Yes
Fluoride	mg/L	CUSUM	1.67	0.837	1.03	0.97	Yes	< 1.00	0.97	Yes
pH, Field	pH units	CUSUM	6.73, 7.79	7.13	7.02	7.07, 7.26	Yes	6.97	6.91, 7.26	Yes
Sulfate	mg/L	CUSUM	179.8	84.7	96.7	93.5	Yes	96.5	93.5	Yes
Total Dissolved Solids	mg/L	CUSUM	746	452	460	523	Yes	504	523	Yes

NOTES:

NP-PL: Non-Parametric Prediction Limit

CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 13: Comparative Statistics - AP4-MW5

		Statistical Method	Statistical Limit	Q1 2023 Detection Monitoring Result	Q1 2023 CUSUM Value	Q1 2023 - Within Limit?	Q3 2023 Detection Monitoring Result	Q3 2023 CUSUM Value	Q3 2023 - Within Limit?
Appendix III Analytes	Unit				03/06/2023			08/29/2023	
Boron, Total	mg/L	NP-PL	0.200	0.109		Yes	0.125		Yes
Calcium, Total	mg/L	CUSUM	798	471	450	Yes	468	450	Yes
Chloride	mg/L	CUSUM	15.58	6.28	6.37	Yes	6.11	6.37	Yes
Fluoride	mg/L	NP-PL	0.664	< 0.500		Yes	< 1.00		Yes - See Text
pH, Field	pH units	CUSUM	6.32, 7.63	6.63	6.79, 6.98	Yes	6.64	6.62, 6.98	Yes
Sulfate	mg/L	NP-PL	1630	1590		Yes	1550		Yes
Total Dissolved Solids	mg/L	CUSUM	4040	2350	2308	Yes	2660	2308	Yes

NOTES:

NP-PL: Non-Parametric Prediction Limit

CUSUM: Parametric Shewhart-CUSUM Control Chart

See discussion of non-detect reporting for compliance results in the text.

Table 14: Comparative Statistics - AP4-MW6

		Statistical Method	Statistical Limit	Q1 2023 Detection Monitoring Result	Q1 2023 CUSUM Value	Q1 2023 - Within Limit?	Q3 2023 Detection Monitoring Result	Q3 2023 CUSUM Value	Q3 2023 - Within Limit?
Appendix III Analytes	Unit				03/06/2023			08/29/2023	
Boron, Total	mg/L	NP-PL	0.200	< 0.100		Yes	< 0.100		Yes
Calcium, Total	mg/L	CUSUM	127	97.2	101.9	Yes	112	106	Yes
Chloride	mg/L	NP-PL	5.28	< 5.00		Yes	< 5.00		Yes
Fluoride	mg/L	CUSUM	2.90	1.45	1.47	Yes	1.28	1.47	Yes
pH, Field	pH units	CUSUM	6.72, 7.82	7.04	6.97, 7.27	Yes	6.91	6.81, 7.27	Yes
Sulfate	mg/L	CUSUM	114.9	59.8	60.5	Yes	65.9	60.5	Yes
Total Dissolved Solids	mg/L	CUSUM	687	394	472	Yes	428	472	Yes

NOTES:

NP-PL: Non-Parametric Prediction Limit

CUSUM: Parametric Shewhart-CUSUM Control Chart

Table 15: Comparative Statistics - AP4-MW7

		Statistical Method	Statistical Limit	Q1 2023 Detection Monitoring Result	Q1 2023 CUSUM Value	Q1 2023 - Within Limit?	Q3 2023 Detection Monitoring Result	Q3 2023 CUSUM Value	Q3 2023 - Within Limit?	
Appendix III Analytes	Unit			03/06/2023				08/29/2023		
Boron, Total	mg/L	NP-PL	0.200	< 0.100		Yes	< 0.100		Yes	
Calcium, Total	mg/L	NP-PL	79.0	64.8		Yes	75.7		Yes	
Chloride	mg/L	CUSUM	17.9	13.9	12.4	Yes	16.8	15.8	Yes	
Fluoride	mg/L	NP-PL	1.02	< 0.500		Yes	< 1.00		Yes	
pH, Field	pH units	CUSUM	6.87, 8.09	7.23	7.19, 7.48	Yes	7.11	7.05, 7.48	Yes	
Sulfate	mg/L	CUSUM	63.2	42.1	43.0	Yes	40.1	43.0	Yes	
Total Dissolved Solids	mg/L	CUSUM	732	478	525	Yes	516	525	Yes	

NOTES:

NP-PL: Non-Parametric Prediction Limit

CUSUM: Parametric Shewhart-CUSUM Control Chart

Figures







MONITORING WELL GROUNDWATER ELEVATION (ft AMSL)

1'' = 150' FEET

FIGURE 1 ASH LANDFILL NO. 4 GROUNDWATER CONTOURS MARCH 2023







MONITORING WELL GROUNDWATER ELEVATION (ft AMSL)

1'' = 150' FEET

FIGURE 2 ASH LANDFILL NO. 4 GROUNDWATER CONTOURS AUGUST 2023



FIGURE 3 Sheldon Station Ash Landfill No. 4 Groundwater Elevations

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