

**Annual Groundwater Monitoring and Corrective
Action Report**

Indiana Michigan Power Company
Rockport Plant
Landfill CCR Management Unit
Rockport, Indiana

January 31, 2021

Prepared by:
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43215



An **AEP** Company

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I. Overview

This *Annual Groundwater Monitoring and Corrective Action Report* (Report) has been prepared to report the status of activities for the year 2020 for the CCR landfill at Indiana Michigan Power Company's (I&M) Rockport Plant. The Indiana Michigan Power Company is wholly-owned subsidiary of American Electric Power Company (AEP). The USEPA's CCR rules require that the Annual Groundwater Monitoring and Corrective Action Report covering 2020 groundwater monitoring activities be posted to the operating record no later than January 31, 2021.

In general, the following activities were completed:

- The Landfill CCR Unit remained in detection monitoring throughout the 2020 reporting period.
- Groundwater data underwent various validation tests, including tests for completeness, valid values, transcription errors, and consistent units;
- Background data were update and revised prediction intervals for the landfill monitoring wells were calculated. The analysis is summarized in a report in **Appendix 2**;
- A statistical process in accordance with 40 CFR 257.93 to evaluate groundwater data was updated, certified, and posted to AEP's CCR website in October 2020. AEP's *Statistical Analysis Plan* (Geosyntec 2020). The statistical process was guided by USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* ("Unified Guidance", USEPA, 2009);
- Data for the November 2019 event was expanded to include results resampling according to the Statistical Analysis Plan, which were not available for the 2019 annual report because analysis of the samples was completed after the January 31, 2020 annual report deadline. The following Appendix III parameters exceeded background:
 - Chloride at wells MW-2D and MW-16D
 - Fluoride at wells MW-21S
 - TDS at wells MW-1S and MW-16D

A successful Alternative Source Demonstration was completed for the November 2019 sampling event, and the landfill remained in detection monitoring for the first semi-annual sampling event for 2020.

- The first semi-annual detection monitoring samples for 2020 were obtained in May, and resampling according to the Statistical Analysis Plan was again necessary. The statistical analysis was completed in August 2020. The following Appendix III parameters exceeded background:

- Calcium at well MW-16D
- Chloride at wells MW-2D; MW-16D; and MW-16S
- Fluoride at well MW-21S
- TDS at wells MW-2D and MW-16D

A successful Alternative Source Demonstration was completed for the Appendix III exceedances, and the Landfill remained in detection monitoring for the second semi-annual sampling event.

- Samples were collected in November 2020 for the second semi-annual sampling event. There are potential statistically significant increases over background for the following Appendix III parameters:
 - Calcium at wells MW-1D and MW-16D
 - Chloride at wells MW-1I; MW-2D; and MW-16D
 - Fluoride at wells MW-2S; MW-15I; MW-21S; and MW-21I
 - TDS at wells MW-1D; MW-2D and MW-16D
 - pH at well MW-21I

Resampling is being conducted according to the Statistical Analysis Plan to complete the statistical analysis. If necessary, another Alternative Source Demonstration will be conducted. If the Alternative Source Demonstration is unsuccessful, the landfill will transition to assessment monitoring.

The major components of this annual report, to the extent applicable at this time, are presented in sections that follow:

- A map/aerial photograph showing the CCR landfill unit, all groundwater monitoring wells and monitoring well identification numbers (Attached as **Appendix 1**);
- All of the monitoring data collected, including the rate and direction of groundwater flow, plus a summary showing the number of samples collected per monitoring well, the dates the samples were collected, and whether the sample was collected as part of background, detection monitoring, or assessment monitoring programs (Attached as **Appendix 1**);
- Statistical comparison of monitoring data to determine if there have been significant increase over background concentrations (Attached as **Appendix 2**, where applicable);
- A discussion of whether any alternate source demonstrations were performed, and the conclusions (Attached as **Appendix 3**, where applicable);
- A summary of any transition between monitoring programs, or an alternate monitoring frequency, for example the date and circumstances for transitioning from detection

monitoring to assessment monitoring, in addition to identifying the constituents detected at a statistically significant increase over background concentrations (Notices Attached as **Appendix 4**, where applicable);

- Identification of any monitoring wells that were installed, or decommissioned during the preceding year, along with a statement as to why that happened (Attached as **Appendix 5**, where applicable); and
- Other information required to be included in the annual report such as alternate source demonstration or assessment of corrective measures, if applicable

In addition, this report summarizes key actions completed, and where applicable, describes any problems encountered and actions taken to resolve those problems. The report includes a projection of key activities for the upcoming year.

II. Groundwater Monitoring Well Locations and Identification Numbers

The CCR landfill monitoring wells are listed as follows (S=shallow, I=Intermediate, D=Deep):

- Five Upgradient/Off Gradient Wells: MW-6S; MW-8(S,I); MW-11S; MW-14S.
- Sixteen Downgradient Wells: MW-17(S,I); MW-15(S,I); MW-16(S,I,D); MW-1(S,I,D); MW-21(S,I,D); and MW-2(S,I,D).

A figure that depicts the PE-certified groundwater monitoring network, the monitoring well locations, and their corresponding identification numbers is provided in **Appendix 1**.

III. Monitoring Wells Installed or Decommissioned

There were no CCR monitoring wells installed or decommissioned in 2020. The network design, as summarized in the *Groundwater Monitoring Network Design Report (Amec Foster Wheeler, 2017)* and as posted at the CCR web site for Rockport Plant's Landfill, did not change. That design report, viewable on the AEP CCR web site, discusses the facility location, the hydrogeological setting, the hydrostratigraphic units, the uppermost aquifer, downgradient monitoring well locations and the upgradient monitoring well locations. The web site is located at: <https://aep.com/environment/ccr/Rockport>.

IV. Groundwater Quality Data and Static Water Elevation Data, With Flow Rates and Flow Directions

Appendix 1 contains tables showing the groundwater quality data collected during the establishment of background quality, detection and assessment monitoring. Static water elevation data from each monitoring event also are shown in **Appendix 1**, along with the groundwater velocity calculations, groundwater flow direction and potentiometric maps developed after each sampling event.

V. Groundwater Quality Data Statistical Analysis

November 2019 Samples

Statistical analysis of the detection monitoring samples taken in November 2019 with resamples taken in February 2020 was completed on May 15, 2020 and is contained in **Appendix 2**. The following Appendix III parameters exceeded background:

- Chloride at wells MW-2D and MW-16D
- Fluoride at wells MW-21S
- TDS at wells MW-1S and MW-16D

May 2020 Samples

Statistical analysis of the first 2020 semiannual detection monitoring samples taken in May with resamples taken in July was documented in the August 4, 2020 statistical analysis report as shown in **Appendix 2**. The following Appendix III parameters exceeded background:

- Calcium at well MW-16D
- Chloride at wells MW-2D; MW-16D; and MW-16S
- Fluoride at well MW-21S
- TDS at wells MW-2D and MW-16D

November 2020 Samples

Samples were collected in November 2020 for the second semi-annual sampling event. There are potential statistically significant increases over background for the following Appendix III parameters:

- Calcium at wells MW-1D and MW-16D
- Chloride at wells MW-1I; MW-2D; and MW-16D
- Fluoride at wells MW-2S; MW-15I; MW-21S; and MW-21I
- TDS at wells MW-1D; MW-2D and MW-16D
- pH at well MW-21I

Resampling is being conducted according to the Statistical Analysis Plan to complete the statistical analysis. If necessary, another Alternative Source Demonstration will be conducted. If the Alternative Source Demonstration is unsuccessful, the landfill will transition to assessment monitoring.

VI. Alternate Source Demonstrations

November 2019 Samples

An alternate source demonstration (ASD) by Wood Environment & Infrastructure Solutions Inc. relative to the Appendix III SSIs resulting from the November 2019 sampling event was undertaken and completed by report dated June 2, 2020. The demonstration concluded that the groundwater quality and Appendix III indicator parameter SSIs identified in the statistical evaluation were not the result of a release of leachate from the landfill, but were due to natural groundwater variation. The successful ASD is included in **Appendix 3**.

Because the ASD for the November 2019 samples was successful, the landfill remained in detection monitoring for the first semiannual samples of 2020 taken in May.

May 2020 Samples

The first semiannual detection monitoring samples of 2020 were taken in May with verification samples taken in July. As discussed above, there were SSIs for Appendix III parameters. An ASD by Wood Environment & Infrastructure Solutions Inc. relative to the Appendix III SSIs was undertaken and completed by report dated October 30, 2020. The demonstration concluded that the groundwater quality and Appendix III indicator parameter SSIs identified in the statistical evaluation were not the result of a release of leachate from the landfill, but were due to natural groundwater variation and impacts from historical oil and gas operations in the vicinity. The successful ASD is included in **Appendix 3**.

Because the ASD for the May 2020 samples was successful, the landfill remained in detection monitoring for the second semiannual samples of 2020 taken in November.

VII. Discussion About Transition Between Monitoring Requirements or Alternate Monitoring Frequency

Because an ASD was successful for the Appendix III SSIs resulting from the statistical analyses of results from both the November 2019 and May 2020 sampling events, the landfill remained in detection monitoring for the November 2020 sampling event. Completion of resampling and statistical analyses of results for the November 2020 sampling event will be completed in early 2021.

If there are no SSIs of Appendix III parameters resulting from statistical analyses of the November 2020 sampling results, the landfill will remain in detection monitoring. If SSIs for the Appendix III indicator parameters are identified, an ASD will be investigated. If the ASD is successful, the landfill will remain in detection monitoring. If an ASD is not successful, then the landfill will proceed with assessment monitoring as required by 40 CFR 257.95.

Regarding defining an alternate monitoring frequency, the groundwater velocity and monitoring well production is high enough at this facility that no modification of the twice-per-year detection monitoring effort is needed.

VIII. Other Information Required

The landfill is currently in detection monitoring. All required information has been included in this annual groundwater monitoring report.

IX. Description of Any Problems Encountered in 2020 and Actions Taken

No significant problems were encountered. The low flow sampling effort went smoothly and the schedule was met to support 2020 annual groundwater report preparation covering the 2020 groundwater monitoring activities.

X. A Projection of Key Activities for the Upcoming Year

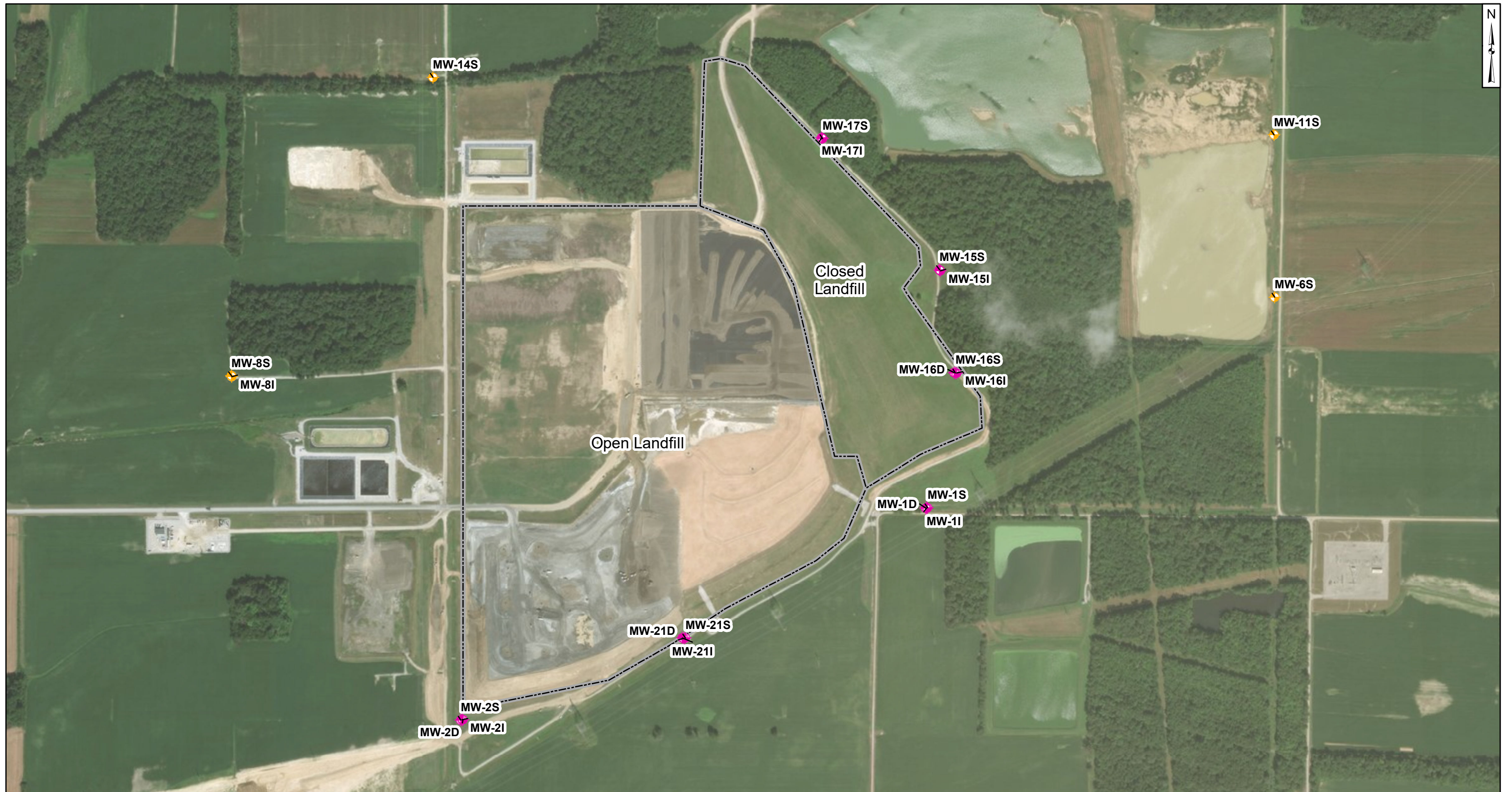
Key activities for 2021 include:

- Completion of resampling and statistical analyses of results from the November 2020 sampling event.
- Detection monitoring on a twice per year schedule (May and November) for 2021.
- Evaluation of the semiannual detection monitoring results from a statistical analysis viewpoint, looking for any statistically significant increases, or decreases when pH is considered.
- Alternate source demonstrations or assessment monitoring activities as necessary or required.
- Responding to any new data received in light of what the CCR rule requires.
- Preparation of the annual groundwater report.

APPENDIX 1 – Groundwater Data Tables and Figures

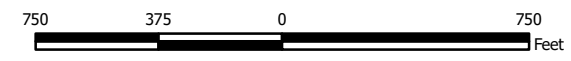
Figures and Tables follow, showing the groundwater monitoring network, data collected and the rate and direction of groundwater flow. The dates that the samples were collected and it also is shown whether the data were collected under background, detection, or assessment monitoring.

Groundwater Monitoring Network Figure



Monitoring Well Network
 ◆ Compliance Sampling Location
 ◆ Background Sampling Location
 Landfill Areas

Notes
 - Monitoring well coordinates provided by AEP.
 - Site features based on information available in the Groundwater Monitoring Network Evaluation (AMEC, 2016) provided by AEP.



**Site Layout
 CCR Landfills**

AEP-Rockport Power Plant



Figure
1

Columbus, Ohio

2018/01/26

Groundwater Data Tables

**Table 1 - Groundwater Data Summary: MW-001D
Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/8/2016	Background	0.017	63.6	27.3	0.28	7.6	40.2	331
7/19/2016	Background	0.015	57.9	29.8	0.30	7.1	40.6	329
9/20/2016	Background	0.016	65.2	29.8	0.28	7.4	32.3	288
11/16/2016	Background	0.018	69.3	39.3	0.29	7.5	33.6	339
1/11/2017	Background	0.006	63.4	40.6	0.26	7.4	36.4	323
3/8/2017	Background	0.055	70.0	40.3	0.26	7.3	37.0	330
5/9/2017	Background	0.046	67.8	40.9	0.28	7.3	39.5	342
7/18/2017	Background	0.019	63.9	39.3	0.24	8.1	39.6	338
10/4/2017	Detection	0.002 J	65.7	10.3	0.85	7.3	10.4	339
1/22/2018	Detection	--	--	--	0.31	--	--	--
6/7/2018	Detection	0.103	70.9	43.1	0.3	8.2	39.5	345
8/16/2018	Detection	0.02	--	43.8	--	7.4	--	--
11/14/2018	Detection	0.1	71.9	46.9	0.3	7.8	39.8	340
2/13/2019	Detection	< 0.02 U	--	--	--	7.4	--	--
5/23/2019	Detection	0.02 J	73.6	32.1	0.27	7.2	45.3	346
7/23/2019	Detection	--	--	--	--	7.3	39.2	--
11/22/2019	Detection	0.04 J	72.5	49.1	0.27	7.3	41.2	398
2/17/2020	Detection	--	--	--	--	7.4	--	257
5/19/2020	Detection	0.04 J	59.9	23.8	0.30	7.1	23.3	261
11/11/2020	Detection	0.04 J	80.3	56.2	0.3	7.1	37.7	397

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-001D

**Rockport - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/8/2016	Background	0.05	1.29	255	0.01 J	0.13	0.3	3.64	1.084	0.28	1.13	< 0.0002 U	0.002 J	3.44	0.07 J	0.04 J
7/19/2016	Background	0.03 J	0.73	147	< 0.005 U	0.07	1.5	0.373	0.195	0.30	1.37	0.017	< 0.002 U	3.59	0.03 J	0.02 J
9/20/2016	Background	0.03 J	1.07	160	0.007 J	0.04	0.3	0.836	1.457	0.28	0.500	0.0005 J	< 0.002 U	3.60	0.07 J	0.056
11/16/2016	Background	0.03 J	0.65	147	< 0.005 U	0.04	0.072	0.329	7.296	0.29	0.222	0.004	< 0.002 U	3.24	0.03 J	0.02 J
1/11/2017	Background	0.03 J	0.77	162	< 0.005 U	0.15	0.439	0.577	0.649	0.26	0.807	0.007	< 0.002 U	2.43	0.03 J	0.05 J
3/8/2017	Background	0.02 J	0.58	139	< 0.005 U	0.04	0.687	0.173	0.2384	0.26	1.92	0.007	< 0.002 U	3.40	0.03 J	0.03 J
5/9/2017	Background	0.02 J	0.75	142	0.006 J	0.04	0.174	0.440	0.724	0.28	0.419	0.009	< 0.002 U	3.05	0.06 J	0.04 J
7/18/2017	Background	0.02 J	0.59	139	< 0.004 U	0.05	0.131	0.212	0.946	0.24	0.355	0.002	< 0.002 U	2.94	< 0.03 U	0.03 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-001I

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.075	67.4	24.9	0.37	6.7	44.3	323
7/19/2016	Background	0.014	60.0	24.8	0.40	7.0	46.7	315
9/20/2016	Background	0.018	64.5	24.3	0.37	7.4	42.4	331
11/16/2016	Background	0.015	63.9	24.1	0.31	7.1	40.7	334
1/11/2017	Background	0.004 J	60.9	24.4	0.33	7.6	41.4	316
3/8/2017	Background	0.045	66.9	24.1	0.35	7.4	41.2	300
5/9/2017	Background	0.049	65.7	26.5	0.38	7.2	43.8	323
7/18/2017	Background	0.047	64.8	26.5	0.34	6.9	43.3	330
10/4/2017	Detection	0.018	68.1	27.5	0.37	7.1	44.1	327
6/6/2018	Detection	0.11	66.4	28.6	0.42	7.5	42	321
8/16/2018	Detection	0.056	--	--	--	7.3	--	--
11/14/2018	Detection	0.05 J	65.5	28.8	0.41	7.8	40.7	308
2/13/2019	Detection	--	--	30.1	--	7.5	--	--
4/1/2019	Detection	--	--	34.1	--	7.4	--	--
5/23/2019	Detection	0.02 J	67.7	33.1	0.42	7.0	40.2	341
7/23/2019	Detection	--	--	30.6	--	7.2	--	--
9/11/2019	Detection	--	--	33.5	--	7.3	--	--
11/22/2019	Detection	< 0.02 U	66.7	35.0	0.37	7.1	39.7	348
5/19/2020	Detection	0.02 J	71.2	37.7	0.40	7.2	40.1	323
7/16/2020	Detection	--	--	35.4	0.39	7.4	--	340
11/11/2020	Detection	< 0.02 U	65.9	36.3	0.43	7.3	39	322

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-001I

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.04 J	0.86	85.5	< 0.005 U	0.08	0.2	0.341	0.3903	0.37	0.851	0.005	< 0.002 U	2.47	< 0.03 U	0.03 J
7/19/2016	Background	0.04 J	0.78	86.1	< 0.005 U	0.10	1.0	0.364	1.675	0.40	1.25	0.022	0.002 J	2.85	0.04 J	0.02 J
9/20/2016	Background	0.01 J	0.92	84.9	< 0.005 U	0.02	0.2	0.401	1.696	0.37	0.156	0.007	< 0.002 U	2.89	< 0.03 U	0.02 J
11/16/2016	Background	0.02 J	0.80	93.4	< 0.005 U	0.02 J	0.051	0.381	1.312	0.31	0.059	0.005	< 0.002 U	3.27	< 0.03 U	0.03 J
1/11/2017	Background	0.02 J	0.82	90.5	0.005 J	0.02 J	0.390	0.424	0.621	0.33	0.099	0.005	< 0.002 U	3.33	< 0.03 U	0.104
3/8/2017	Background	0.03 J	0.69	76.7	< 0.005 U	0.05	0.686	0.054	0.15	0.35	0.427	0.006	< 0.002 U	1.82	0.04 J	0.03 J
5/9/2017	Background	0.04 J	0.89	85.0	< 0.004 U	0.01 J	0.155	0.558	0.63	0.38	0.068	0.008	< 0.002 U	2.87	< 0.03 U	0.02 J
7/18/2017	Background	0.02 J	0.86	94.3	< 0.004 U	0.007 J	0.112	0.569	2.533	0.34	0.137	0.0005 J	< 0.002 U	2.85	< 0.03 U	0.02 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-001S

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.037	70.7	29.6	0.59	8.1	33.7	392
7/19/2016	Background	0.015	62.9	31.1	0.65	7.2	35.5	392
9/20/2016	Background	0.022	68.0	31.4	0.60	7.1	32.4	411
11/16/2016	Background	0.020	74.4	31.9	0.54	7.3	30.7	398
1/11/2017	Background	0.005 J	65.0	32.0	0.57	7.4	30.7	392
3/8/2017	Background	0.030	71.5	30.7	0.59	7.1	30.5	384
5/9/2017	Background	0.031	72.6	31.3	0.63	7.2	33.3	402
7/18/2017	Background	0.028	69.2	30.4	0.58	7.3	33.6	406
10/4/2017	Detection	0.044	67.6	33.1	0.57	7.1	34.6	396
1/3/2018	Detection	--	--	39.9	--	7.6	--	--
6/6/2018	Detection	0.046	71.8	34.9	0.61	7.5	34.2	386
8/16/2018	Detection	--	--	37.3	--	7.3	--	--
11/14/2018	Detection	0.04 J	71.9	38.1	0.63	7.5	32.3	410
2/13/2019	Detection	--	--	40.4	--	7.5	--	--
4/1/2019	Detection	--	--	38.5	--	7.4	--	--
5/23/2019	Detection	< 0.02 U	73.7	33.7	0.55	7.9	36.3	388
7/23/2019	Detection	--	--	30.0	--	7.4	--	--
11/22/2019	Detection	< 0.02 U	69.8	30.6	0.57	6.9	35.9	444
2/18/2020	Detection	--	--	--	--	7.1	--	442
5/19/2020	Detection	0.02 J	72.0	34.7	0.55	7.0	37.1	350
11/11/2020	Detection	< 0.02 U	67.8	33.3	0.66	7.0	34.1	402

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-001S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.03 J	0.43	18.5	< 0.01 U	0.02 J	0.3	0.171	0.0665	0.59	0.204	0.004	< 0.002 U	0.65	1.1	< 0.02 U
7/19/2016	Background	0.20	0.69	21.9	0.160	0.22	0.7	0.398	0.819	0.65	0.572	0.024	< 0.002 U	0.80	1.1	0.168
9/20/2016	Background	0.02 J	0.38	17.2	< 0.005 U	0.005 J	0.3	0.014	0.244	0.60	0.01 J	0.002	< 0.002 U	0.68	0.9	< 0.01 U
11/16/2016	Background	0.02 J	0.38	17.9	< 0.005 U	0.007 J	0.207	0.01 J	0.296	0.54	0.022	0.010	< 0.002 U	0.74	0.9	< 0.01 U
1/11/2017	Background	0.04 J	0.43	17.7	< 0.005 U	0.02	0.720	0.052	0.934	0.57	0.076	0.008	< 0.002 U	0.59	1.0	< 0.01 U
3/8/2017	Background	0.04 J	0.76	36.5	0.023	0.09	1.38	1.21	0.0407	0.59	1.26	0.010	< 0.002 U	0.97	1.1	0.03 J
5/9/2017	Background	0.05 J	0.50	22.3	0.01 J	0.22	0.552	0.164	0.0324	0.63	0.526	0.009	< 0.002 U	1.64	1.1	< 0.01 U
7/18/2017	Background	0.02 J	0.39	17.3	< 0.004 U	0.01 J	0.255	0.02 J	0.309	0.58	0.033	0.0007 J	< 0.002 U	0.64	1.2	< 0.01 U

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-002D

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	< 0.002 U	75.6	24.2	0.19	7.9	42.1	341
7/20/2016	Background	0.010	65.8	24.2	0.21	7.5	44.2	339
9/21/2016	Background	0.013	66.7	22.8	0.20	7.3	39.6	338
11/17/2016	Background	0.014	73.9	22.2	0.19	7.1	35.4	327
1/11/2017	Background	< 0.002 U	64.2	22.3	0.19	7.4	38.3	318
3/8/2017	Background	0.030	74.2	21.7	0.20	7.4	37.6	318
5/9/2017	Background	0.027	70.8	23.1	0.21	7.3	40.5	343
7/19/2017	Background	0.073	64.7	23.0	0.18	8.5	40.5	340
10/4/2017	Detection	0.041	67.7	22.4	0.20	7.2	42.3	332
6/7/2018	Detection	0.076	78.6	43.1	0.22	7.6	39.8	361
8/16/2018	Detection	0.038	--	93	--	7.3	--	--
11/12/2018	Detection	0.07 J	72.4	51.3	0.2	7.4	36.1	348
2/13/2019	Detection	--	--	40.9	--	7.3	--	--
4/1/2019	Detection	--	--	69.4	--	7.5	--	--
5/22/2019	Detection	< 0.02 U	98.5	135	0.18	7.3	33.3	531
7/24/2019	Detection	--	114	156	--	6.3	--	540
9/11/2019	Detection	--	103	110	--	7.2	--	443
11/14/2019	Detection	0.02 J	76.9	56.5	0.18	7.3	38.9	356
2/18/2020	Detection	--	--	76.3	--	7.1	--	--
5/18/2020	Detection	< 0.02 U	88.7	93.6	0.21	7.8	36.2	399
7/15/2020	Detection	--	--	96.2	0.20	7.3	--	411
11/11/2020	Detection	< 0.02 U	92.2	92.2	0.2	7.2	35.1	395

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-002D

**Rockport - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.03 J	0.78	185	< 0.005 U	0.12	0.2	0.473	0.0495	0.19	0.648	0.002	< 0.002 U	2.11	< 0.03 U	0.02 J
7/20/2016	Background	0.06	0.82	195	0.006 J	0.12	0.4	0.439	0.328	0.21	0.359	0.018	< 0.002 U	2.16	< 0.03 U	0.02 J
9/21/2016	Background	0.02 J	0.81	180	0.007 J	0.07	0.3	0.425	0.451	0.20	0.247	0.002	< 0.002 U	1.97	0.05 J	0.03 J
11/17/2016	Background	0.02 J	0.61	172	< 0.005 U	0.10	0.05 J	0.212	2.243	0.19	0.021	0.007	< 0.002 U	2.09	0.09 J	0.01 J
1/11/2017	Background	0.03 J	0.62	157	< 0.005 U	0.26	0.277	0.327	1.278	0.19	0.378	0.007	< 0.002 U	1.80	0.08 J	0.02 J
3/8/2017	Background	0.03 J	0.59	160	< 0.005 U	0.09	0.562	0.252	1.295	0.20	0.045	0.008	< 0.002 U	2.13	0.03 J	0.02 J
5/9/2017	Background	0.04 J	0.65	159	< 0.004 U	0.08	0.188	0.335	0.4554	0.21	0.144	0.011	< 0.002 U	1.90	0.06 J	0.02 J
7/19/2017	Background	0.02 J	0.62	169	< 0.004 U	0.08	0.162	0.353	0.372	0.18	0.075	0.0006 J	< 0.002 U	1.89	0.04 J	0.02 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-002I

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.019	74.0	28.6	0.30	7.9	42.9	332
7/20/2016	Background	0.009	67.5	29.7	0.33	7.1	45.7	363
9/21/2016	Background	0.025	66.8	28.0	0.31	7.5	41.1	330
11/17/2016	Background	0.013	73.9	25.8	0.36	7.3	36.9	326
1/11/2017	Background	< 0.002 U	63.9	27.1	0.30	7.7	39.2	314
3/8/2017	Background	0.024	71.5	25.8	0.31	7.6	39.2	312
5/9/2017	Background	0.034	71	28.6	0.31	8.4	42.4	343
7/19/2017	Background	0.025	68.9	29.7	0.28	7.0	44.1	346
10/4/2017	Detection	0.030	72.5	29.8	0.28	7.2	45.5	343
1/4/2018	Detection	--	--	28.8	--	7.8	--	--
6/6/2018	Detection	0.052	72.7	31.8	0.32	7.6	43.2	356
8/16/2018	Detection	0.03	--	31.5	--	7.5	--	--
11/13/2018	Detection	0.05 J	64.8	27.9	0.32	7.2	39	308
2/13/2019	Detection	< 0.02 U	--	--	--	7.6	--	--
5/22/2019	Detection	< 0.02 U	64.3	25.4	0.32	7.3	39.2	328
11/14/2019	Detection	< 0.02 U	63.4	23.3	0.33	7.4	39.3	296
5/18/2020	Detection	< 0.02 U	61.9	24.4	0.36	7.8	40.5	297
11/11/2020	Detection	< 0.02 U	66.6	24.3	0.37	6.9	38.6	296

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-002I

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.06	0.64	78.5	< 0.005 U	0.03	0.2	0.606	0.398	0.30	0.208	0.005	< 0.002 U	4.91	0.7	0.051
7/20/2016	Background	0.06	0.68	84.0	0.006 J	0.05	0.6	0.760	0.962	0.33	0.454	0.021	< 0.002 U	5.00	0.7	0.04 J
9/21/2016	Background	0.07	0.55	67.1	< 0.005 U	0.05	0.1	0.415	0.508	0.31	0.178	0.002	< 0.002 U	4.21	0.6	0.04 J
11/17/2016	Background	0.13	0.61	60.1	< 0.005 U	0.07	0.143	0.260	0.425	0.36	0.231	0.006	< 0.002 U	3.14	0.4	0.02 J
1/11/2017	Background	0.10	0.65	59.4	< 0.005 U	0.16	0.154	0.280	0.845	0.30	0.383	0.007	< 0.002 U	2.07	0.2	0.03 J
3/8/2017	Background	0.10	0.74	58.4	0.01 J	0.22	1.01	0.581	0.435	0.31	0.588	0.005	< 0.002 U	2.06	0.2	0.03 J
5/9/2017	Background	0.15	0.9	59.3	0.022	0.09	0.829	1.28	0.491	0.31	1.39	0.007	< 0.002 U	2.17	0.4	< 0.01 U
7/19/2017	Background	0.11	0.76	62.9	0.020	0.05	0.567	0.995	0.536	0.28	1.19	< 0.0002 U	< 0.002 U	2.07	0.2	0.064

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-002S**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	< 0.002 U	59.4	21.5	0.26	6.4	26.0	298
7/20/2016	Background	0.015	51.6	21.8	0.29	7.7	27.6	265
9/21/2016	Background	0.014	57.4	23.8	0.26	7.6	26.2	301
11/17/2016	Background	0.018	62.4	21.8	0.26	7.3	24.1	316
1/11/2017	Background	0.004 J	51.6	21.2	0.25	7.7	25.9	284
3/8/2017	Background	0.069	57.9	21.0	0.26	7.7	26.6	285
5/9/2017	Background	0.084	59	20.8	0.26	7.1	30.3	321
7/19/2017	Background	0.052	53.3	19.6	0.23	7.5	33.8	308
10/4/2017	Detection	0.045	60.7	21.2	0.25	7.2	30.0	323
6/6/2018	Detection	0.073	57	25.3	0.29	7.6	28.9	329
11/13/2018	Detection	0.06 J	54.7	24.8	0.28	7.5	24.7	272
2/13/2019	Detection	--	--	26.5	--	7.8	--	--
4/1/2019	Detection	--	--	26.1	--	7.7	--	--
5/22/2019	Detection	< 0.02 U	51.3	26.4	0.30	7.7	26.2	352
7/23/2019	Detection	--	--	26.8	0.30	7.5	--	339
9/11/2019	Detection	--	--	26.6	--	7.3	--	--
11/14/2019	Detection	0.03 J	59.2	27.3	0.28	7.5	27.8	336
2/18/2020	Detection	--	--	--	--	7.4	--	--
5/18/2020	Detection	0.02 J	53.7	28.9	0.34	7.4	24.9	344
7/15/2020	Detection	--	--	28.7	0.33	7.6	--	347
11/11/2020	Detection	0.03 J	58.4	27	0.34	7.4	25.7	336

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-002S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	< 0.02 U	0.97	16.0	< 0.01 U	0.01 J	0.4	0.177	< 1.2 U	0.26	0.158	0.0004 J	< 0.002 U	2.03	0.3	< 0.02 U
7/20/2016	Background	0.02 J	1.09	14.0	< 0.005 U	0.01 J	0.6	0.090	0.66	0.29	0.105	0.018	< 0.002 U	2.39	0.3	< 0.01 U
9/21/2016	Background	0.04 J	0.94	12.4	< 0.005 U	0.02 J	0.3	0.017	0.172	0.26	0.101	0.005	< 0.002 U	2.07	0.2	< 0.01 U
11/17/2016	Background	0.02 J	0.94	12.4	< 0.005 U	0.02	0.337	0.019	0.371	0.26	0.022	0.008	< 0.002 U	1.91	0.3	< 0.01 U
1/11/2017	Background	0.02 J	0.92	11.0	< 0.005 U	0.09	0.329	0.014	0.654	0.25	0.063	0.009	< 0.002 U	2.14	0.4	0.074
3/8/2017	Background	0.02 J	0.95	12.3	< 0.005 U	0.009 J	0.670	0.051	0.5205	0.26	0.042	0.0007 J	< 0.002 U	1.92	0.3	< 0.01 U
5/9/2017	Background	0.04 J	0.95	12.3	< 0.004 U	0.01 J	0.370	0.064	0.434	0.26	0.047	0.002	< 0.002 U	1.75	0.2	< 0.01 U
7/19/2017	Background	0.12	0.96	13.6	< 0.004 U	0.03	0.410	0.121	0.6927	0.23	0.243	0.005	< 0.002 U	1.81	0.3	0.03 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-006S**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/8/2016	Background	0.012	46.1	8.44	0.73	7.9	18.8	294
7/18/2016	Background	0.014	46.3	8.35	0.79	7.5	18.3	290
9/20/2016	Background	0.012	44.4	6.04	0.73	7.4	10.9	266
11/16/2016	Background	0.028	50.8	7.04	0.69	8.1	14.3	279
1/10/2017	Background	0.006	47.8	7.03	0.65	7.9	14.0	287
3/8/2017	Background	0.032	53.2	3.32	0.25	7.9	6.9	296
5/8/2017	Background	0.051	50.3	8.68	0.69	7.6	17.5	305
7/18/2017	Background	0.078	47.0	4.88	0.57	7.7	9.6	274
10/3/2017	Detection	0.094	44.8	3.28	0.71	7.3	7.5	261
6/5/2018	Detection	0.09	45.2	2.38	0.89	7.5	3.8	225
8/15/2018	Detection	0.101	52.8	11.9	0.81	7.7	15.6	277
9/26/2018	Detection	0.08 J	44.1	6.83	0.84	--	9.8	261
11/1/2018	Detection	0.04 J	42.3	3.52	0.86	7.3	4.9	225
11/15/2018	Detection	0.04 J	38.8	3.91	0.88	7.9	5.2	196
5/23/2019	Detection	0.02 J	52.5	9.64	0.95	7.4	16.8	315
11/14/2019	Detection	< 0.02 U	47.8	5.36	0.90	7.3	12.0	277
5/19/2020	Detection	< 0.02 U	43.1	1.49	1.02	7.7	1.6	214
11/12/2020	Detection	< 0.02 U	43	2.07	1.11	7.1	4.4	225

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-006S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/8/2016	Background	0.02 J	0.28	13.9	< 0.005 U	0.006 J	0.4	0.097	0.156	0.73	0.396	< 0.0002 U	0.002 J	5.99	0.4	< 0.01 U
7/18/2016	Background	0.03 J	0.26	13.6	0.005 J	0.25	0.4	0.052	0.101	0.79	0.074	0.015	< 0.002 U	3.28	0.3	0.01 J
9/20/2016	Background	0.03 J	0.26	13.6	< 0.005 U	0.02	0.3	0.019	0.8651	0.73	0.034	0.004	< 0.002 U	3.34	0.2	< 0.01 U
11/16/2016	Background	0.03 J	0.26	14.1	< 0.005 U	0.02 J	0.200	0.027	0.202	0.69	0.050	0.006	< 0.002 U	2.80	0.3	< 0.01 U
1/10/2017	Background	0.03 J	0.28	14.8	< 0.005 U	0.008 J	0.599	0.045	0.5825	0.65	0.032	0.014	< 0.002 U	2.93	0.4	0.01 J
3/8/2017	Background	0.03 J	0.26	15.8	< 0.005 U	0.05	1.37	0.049	0.297	0.25	0.113	0.009	< 0.002 U	3.29	0.7	< 0.01 U
5/8/2017	Background	0.03 J	0.28	15.4	< 0.004 U	0.009 J	0.583	0.061	0.12	0.69	0.083	0.011	< 0.002 U	2.73	0.8	< 0.01 U
7/18/2017	Background	0.02 J	0.27	14.3	< 0.004 U	0.04	0.291	0.026	0.954	0.57	0.056	< 0.0002 U	< 0.002 U	4.36	0.4	< 0.01 U

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-008I

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/7/2016	Background	0.017	72.0	21.7	0.35	7.2	87.5	370
7/19/2016	Background	0.016	67.9	22.0	0.34	7.2	86.3	358
9/21/2016	Background	0.017	67.4	21.5	0.29	7.4	79.2	376
11/17/2016	Background	0.028	77.5	21.3	0.29	7.6	77.5	387
1/10/2017	Background	0.006	79.5	20.9	0.25	7.6	80.0	371
3/6/2017	Background	0.083	74.7	20.7	0.28	7.4	80.3	391
5/9/2017	Background	0.045	71.9	21.2	0.28	7.2	81.9	376
7/18/2017	Background	0.026	72.2	20.9	0.25	7.3	83.4	379
10/4/2017	Detection	0.096	74.7	20.1	0.27	7.6	85.9	378
12/12/2017	Detection	--	--	19.3	0.29	7.9	87.1	--
6/4/2018	Detection	0.044	76.7	20.9	0.29	7.7	79	407
11/14/2018	Detection	0.06 J	67.7	20.6	0.33	7.2	68.2	390
5/23/2019	Detection	0.03 J	70.7	21.0	0.34	7.2	62.3	371
11/22/2019	Detection	0.02 J	66.9	19.7	0.30	6.7	68.3	381
5/19/2020	Detection	0.02 J	68.8	20.4	0.32	7.8	61.7	357
11/10/2020	Detection	< 0.02 U	66.8	19.3	0.38	7.4	56.7	343

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-008I

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/7/2016	Background	0.12	5.86	61.4	< 0.005 U	0.04	0.1	0.800	0.538	0.35	0.083	0.006	< 0.002 U	2.85	6.2	0.063
7/19/2016	Background	0.27	11.5	70.1	0.119	0.28	0.5	0.961	1.2515	0.34	0.242	0.007	< 0.002 U	3.00	7.5	0.166
9/21/2016	Background	0.07	2.08	57.0	< 0.005 U	0.02 J	0.1	0.643	0.678	0.29	0.02 J	0.008	< 0.002 U	2.34	2.7	0.03 J
11/17/2016	Background	0.10	1.39	58.4	< 0.005 U	0.04	0.055	0.646	1.166	0.29	0.032	0.009	< 0.002 U	2.47	3.0	0.03 J
1/10/2017	Background	0.08	2.58	54.9	< 0.005 U	0.02 J	0.817	0.671	1.825	0.25	0.025	0.005	< 0.002 U	2.31	2.3	0.04 J
3/6/2017	Background	0.08	2.78	56.9	< 0.005 U	0.04	0.511	0.656	1.015	0.28	0.032	0.010	< 0.002 U	2.73	2.9	0.05 J
5/9/2017	Background	0.08	2.09	57.8	< 0.004 U	0.05	0.230	0.770	1.011	0.28	0.054	0.001	< 0.002 U	2.29	4.5	0.03 J
7/18/2017	Background	0.07	1.31	60.4	< 0.004 U	0.02 J	0.077	0.672	1.079	0.25	0.01 J	< 0.0002 U	< 0.002 U	2.58	4.7	0.03 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-008S

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/7/2016	Background	0.010	42.7	23.7	0.56	7.3	26.5	345
7/19/2016	Background	0.012	41.5	23.5	0.56	7.2	26.4	321
9/21/2016	Background	0.011	42.7	22.1	0.54	7.1	23.4	332
11/17/2016	Background	0.032	42.9	21.1	0.55	7.9	21.7	322
1/9/2017	Background	< 0.002 U	45.8	20.8	0.47	7.6	22.1	300
3/7/2017	Background	0.043	44.8	21.4	0.52	7.6	21.7	320
5/9/2017	Background	0.028	42.9	22.8	0.52	7.4	21.8	319
7/18/2017	Background	0.022	44.4	22.7	0.47	7.4	22.3	319
10/4/2017	Detection	0.016	39.8	22.4	0.52	7.8	23.1	317
12/12/2017	Detection	--	--	22.5	0.56	7.7	24.9	--
6/5/2018	Detection	0.058	42.3	23.8	0.59	7.6	21.2	324
11/13/2018	Detection	0.04 J	35.6	22.9	0.57	7.6	19.5	288
5/23/2019	Detection	< 0.02 U	35.9	23.6	0.58	7.4	20.4	312
11/21/2019	Detection	< 0.02 U	39.0	23.1	0.49	7.4	20.0	324
5/19/2020	Detection	< 0.02 U	42.2	27.2	0.50	6.3	23.8	342
11/10/2020	Detection	< 0.02 U	43.5	27.1	0.56	6.8	23.3	326

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-008S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/7/2016	Background	0.02 J	1.61	15.4	< 0.005 U	0.07	0.3	0.400	0.204	0.56	0.207	0.004	< 0.002 U	0.81	0.4	< 0.01 U
7/19/2016	Background	0.30	1.78	13.1	0.232	0.31	0.6	0.453	0.577	0.56	0.364	0.025	< 0.002 U	1.10	0.6	0.276
9/21/2016	Background	0.02 J	1.33	12.2	< 0.005 U	0.02 J	0.4	0.125	1.291	0.54	0.066	0.001	< 0.002 U	0.80	0.2	0.03 J
11/17/2016	Background	0.03 J	1.26	10.9	< 0.005 U	0.05	0.156	0.113	0.49	0.55	0.065	0.002	< 0.002 U	0.71	0.2	< 0.01 U
1/9/2017	Background	0.02 J	1.56	13.8	0.006 J	0.01 J	1.04	0.447	0.676	0.47	0.190	0.002	< 0.002 U	0.77	0.2	0.01 J
3/7/2017	Background	0.04 J	1.53	14.5	0.009 J	0.26	0.881	0.433	0.3161	0.52	0.278	0.006	< 0.002 U	1.56	0.2	0.170
5/9/2017	Background	0.03 J	2.09	16.9	0.01 J	0.09	0.423	0.981	0.127	0.52	0.389	0.006	< 0.002 U	0.75	0.3	< 0.01 U
7/18/2017	Background	0.02 J	1.19	10.9	< 0.004 U	0.13	0.277	0.052	1.653	0.47	0.038	0.001	0.015	0.83	0.2	< 0.01 U

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-011S**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/8/2016	Background	0.062	41.6	1.82	0.74	7.9	10.9	212
7/18/2016	Background	0.062	38.8	1.83	0.76	7.3	10.6	201
9/20/2016	Background	0.077	45.1	1.62	0.73	7.3	5.3	196
11/16/2016	Background	0.053	37.3	1.54	0.92	8.4	4.1	182
1/10/2017	Background	0.029	40.4	2.12	0.96	8.1	7.6	179
3/7/2017	Background	0.057	42.8	4.63	1.00	7.9	13.7	197
5/9/2017	Background	0.047	41.2	9.87	0.86	7.8	16.4	239
7/18/2017	Background	0.067	44.2	8.19	0.75	7.7	15.6	224
10/3/2017	Detection	0.090	43.7	3.68	0.89	7.2	9.3	200
12/13/2017	Detection	--	--	2.4	0.82	8.3	8	--
6/5/2018	Detection	0.076	55.8	6.98	0.62	7.2	21.7	276
11/14/2018	Detection	0.11	56.4	1.79	0.72	7.6	5.9	238
5/23/2019	Detection	0.08 J	54.3	1.62	0.82	7.7	14.7	279
11/15/2019	Detection	0.052	47.6	1.48	0.77	7.8	2.7	216
5/20/2020	Detection	0.04 J	55.8	2.68	0.58	7.4	13.5	246
11/11/2020	Detection	0.04 J	52.4	1.52	0.83	7.4	2.9	211

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-011S

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/8/2016	Background	0.05 J	0.47	10.4	< 0.005 U	0.006 J	0.4	0.113	0.422	0.74	0.046	< 0.0002 U	< 0.002 U	4.70	0.07 J	< 0.01 U
7/18/2016	Background	0.04 J	0.53	9.79	< 0.005 U	0.03	0.5	0.043	0.815	0.76	0.02 J	0.024	< 0.002 U	4.36	0.08 J	0.01 J
9/20/2016	Background	0.04 J	0.42	11.3	< 0.005 U	0.03	0.8	0.029	0.741	0.73	0.046	0.004	< 0.002 U	3.37	0.1	0.01 J
11/16/2016	Background	0.05 J	0.45	7.91	< 0.005 U	0.02	0.416	0.027	0.288	0.92	0.027	0.005	< 0.002 U	4.71	0.07 J	0.02 J
1/10/2017	Background	0.04 J	0.52	6.52	< 0.005 U	0.01 J	0.725	0.022	2.101	0.96	0.02 J	0.003	< 0.002 U	6.09	0.05 J	0.01 J
3/7/2017	Background	0.04 J	0.52	7.09	< 0.005 U	0.007 J	1.25	0.027	0.1865	1.00	0.02 J	0.013	0.002 J	6.03	0.2	0.01 J
5/9/2017	Background	0.04 J	0.48	7.73	< 0.004 U	0.03	0.567	0.030	0.1247	0.86	0.023	0.009	0.002 J	4.86	0.2	0.01 J
7/18/2017	Background	< 0.05 U	0.50	8.16	< 0.02 U	< 0.02 U	0.568	0.02 J	0.7935	0.75	0.06 J	0.002	< 0.002 U	4.69	0.3 J	0.2 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-014S

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/7/2016	Background	0.011	59.2	28.6	0.39	7.2	34.9	368
7/20/2016	Background	0.008	56.3	29.4	0.39	7.1	36.5	364
9/21/2016	Background	0.010	59.5	28.1	0.36	7.0	32.5	361
11/17/2016	Background	0.008	65.4	27.8	0.35	7.7	29.1	362
1/9/2017	Background	< 0.002 U	65.7	27.2	0.33	7.5	30.7	344
3/7/2017	Background	0.031	63.4	26.8	0.36	7.4	29.9	354
5/9/2017	Background	0.017	59.8	29.4	0.37	7.0	32.3	376
7/18/2017	Background	0.030	65.6	29.6	0.33	7.3	33.1	377
10/4/2017	Detection	0.042	67.0	29.9	0.34	7.0	34.8	376
12/12/2017	Detection	--	--	30	0.34	7.6	35.5	--
6/5/2018	Detection	0.046	61.1	27.1	0.39	7.6	29.4	360
11/13/2018	Detection	0.04 J	59.2	29	0.37	6.8	30.8	344
5/23/2019	Detection	< 0.02 U	66.9	28.6	0.37	7.2	32.4	390
11/16/2019	Detection	< 0.02 U	65.1	28.9	0.38	7.5	32.8	374
5/19/2020	Detection	< 0.02 U	66.6	28.6	0.33	7.7	32.5	411
11/10/2020	Detection	< 0.02 U	66.4	26.3	0.39	6.7	31.4	370

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-014S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/7/2016	Background	0.06	2.33	29.7	0.02 J	0.32	1.0	1.49	0.512	0.39	1.02	< 0.0002 U	0.002 J	12.7	1.4	0.01 J
7/20/2016	Background	0.02 J	1.54	31.0	0.008 J	0.21	0.3	0.573	0.594	0.39	0.307	0.018	< 0.002 U	1.51	1.4	< 0.01 U
9/21/2016	Background	0.02 J	1.29	27.8	0.005 J	0.07	0.3	0.333	0.9	0.36	0.310	0.006	< 0.002 U	1.43	1.2	< 0.01 U
11/17/2016	Background	0.03 J	0.75	26.3	< 0.005 U	0.03	0.162	0.088	1.106	0.35	0.549	0.004	< 0.002 U	1.26	1.2	0.02 J
1/9/2017	Background	0.02 J	0.91	27.0	< 0.005 U	0.05	0.575	0.187	0.78	0.33	0.115	0.006	< 0.002 U	1.62	1.1	0.054
3/7/2017	Background	0.02 J	0.76	26.3	< 0.005 U	0.01 J	0.660	0.083	0.0525	0.36	0.061	0.005	< 0.002 U	1.84	1.1	0.055
5/9/2017	Background	0.06	0.75	25.0	< 0.004 U	0.08	0.301	0.065	0.0316	0.37	0.071	0.001	< 0.002 U	1.35	1.2	0.01 J
7/18/2017	Background	< 0.05 U	0.70	27.0	< 0.02 U	< 0.02 U	0.258	0.03 J	1.883	0.33	0.116	< 0.0002 U	< 0.002 U	1.67	1.3	0.07 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-015I

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/7/2016	Background	0.060	44.1	59.3	0.25	7.2	42.5	380
7/19/2016	Background	0.032	44.6	53.8	0.25	7.1	41.0	356
9/21/2016	Background	0.030	46.1	43.4	0.23	7.1	34.0	334
11/16/2016	Background	0.022	51.4	44.9	0.25	7.5	33.6	340
1/10/2017	Background	0.019	46.5	48.3	0.34	7.7	35.4	351
3/7/2017	Background	0.047	51.1	38.5	0.32	7.5	31.1	331
5/10/2017	Background	0.038	46.6	32.7	0.31	7.2	29.7	322
7/18/2017	Background	0.050	43.9	27.1	0.22	7.2	26.6	300
10/4/2017	Detection	0.080	44.6	23.7	0.23	7.3	27.3	287
12/12/2017	Detection	--	--	22.8	0.22	7.8	26.7	--
1/4/2018	Detection	0.04	--	--	--	7.8	--	--
6/6/2018	Detection	0.066	47	25.1	0.26	8.1	25.3	279
8/16/2018	Detection	--	--	--	--	7.4	--	--
11/13/2018	Detection	0.07 J	39.9	23.7	0.25	7.6	25.3	248
5/23/2019	Detection	0.03 J	47.8	18.0	0.26	7.3	20.9	260
11/15/2019	Detection	0.03 J	45.2	16.9	0.27	7.4	17.6	248
5/19/2020	Detection	0.03 J	49.2	19.0	0.25	7.5	17.8	253
11/10/2020	Detection	0.03 J	44.2	12.8	0.47	7.5	11.7	213

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-015I

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/7/2016	Background	0.01 J	25.2	118	< 0.005 U	0.02 J	0.2	1.24	0.863	0.25	0.026	0.005	< 0.002 U	5.76	< 0.03 U	0.04 J
7/19/2016	Background	0.25	27.9	132	0.165	0.23	0.5	1.66	1.091	0.25	0.254	0.018	< 0.002 U	6.74	0.2	0.273
9/21/2016	Background	0.01 J	21.1	119	< 0.005 U	0.009 J	0.1	1.32	0.504	0.23	0.026	0.004	< 0.002 U	5.75	< 0.03 U	0.03 J
11/16/2016	Background	0.04 J	23.6	107	0.005 J	0.06	0.132	1.03	1.747	0.25	0.213	0.004	< 0.002 U	6.73	< 0.03 U	0.04 J
1/10/2017	Background	0.01 J	20.2	91.2	< 0.005 U	0.005 J	0.350	1.00	0.869	0.34	0.01 J	0.011	< 0.002 U	7.63	< 0.03 U	0.04 J
3/7/2017	Background	0.02 J	20.4	88.9	< 0.005 U	0.03	0.700	0.903	0.865	0.32	0.065	0.006	< 0.002 U	7.91	0.07 J	0.112
5/10/2017	Background	0.02 J	20.2	86.1	< 0.004 U	0.03	0.134	1.02	0.189	0.31	0.090	0.002	< 0.002 U	6.52	0.04 J	0.03 J
7/18/2017	Background	0.02 J	23.6	94.8	< 0.004 U	0.02	0.089	1.25	1.643	0.22	0.082	< 0.0002 U	< 0.002 U	5.58	< 0.03 U	0.04 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-015S**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/7/2016	Background	0.011	46.9	21.2	0.65	7.2	30.3	338
7/19/2016	Background	0.012	43.6	18.7	0.65	7.1	27.7	319
9/21/2016	Background	0.008	46.6	18.9	0.63	7.2	25.1	329
11/16/2016	Background	< 0.002 U	52.3	18.3	0.50	7.7	23.2	338
1/11/2017	Background	< 0.002 U	63.6	21.9	0.36	7.2	28.3	374
3/7/2017	Background	0.084	62.9	16.1	0.42	7.2	23.4	342
5/10/2017	Background	0.077	45.7	14.1	0.65	7.3	21.0	294
7/19/2017	Background	0.073	44.4	11.8	0.66	7.3	20.3	263
10/4/2017	Detection	0.095	48.3	13.3	0.62	7.4	23.2	300
6/5/2018	Detection	0.078	44.7	8.84	0.69	7.2	16.3	274
11/13/2018	Detection	0.04 J	41.8	8.78	0.72	7.5	13.1	232
5/23/2019	Detection	< 0.02 U	41.3	8.88	0.88	7.5	10.2	207
7/23/2019	Detection	--	--	--	0.87	5.7	--	--
9/11/2019	Detection	--	--	--	0.81	7.4	--	--
11/15/2019	Detection	< 0.02 U	40.2	9.48	0.70	7.4	8.4	234
5/19/2020	Detection	< 0.02 U	42.4	10.3	0.86	7.6	9.1	218
11/10/2020	Detection	< 0.02 U	45.4	10.1	0.78	7.3	10.3	236

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-015S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/7/2016	Background	0.04 J	0.32	4.71	0.007 J	0.14	0.2	3.03	0.4175	0.65	0.286	0.007	< 0.002 U	2.52	0.4	0.03 J
7/19/2016	Background	0.04 J	0.24	5.85	< 0.005 U	0.25	1.7	1.17	< 0.71 U	0.65	0.101	0.022	0.002 J	2.89	0.7	< 0.01 U
9/21/2016	Background	0.02 J	0.21	3.21	< 0.005 U	0.05	0.5	1.09	0.418	0.63	0.098	0.005	< 0.002 U	2.54	0.5	0.02 J
11/16/2016	Background	0.04 J	0.18	3.27	< 0.005 U	0.05	0.058	0.794	1.249	0.50	0.037	0.005	< 0.002 U	1.57	0.3	0.02 J
1/11/2017	Background	0.04 J	0.26	6.05	< 0.005 U	0.06	0.493	1.75	0.189	0.36	0.039	0.008	< 0.002 U	0.78	0.3	0.03 J
3/7/2017	Background	0.03 J	0.21	4.98	< 0.005 U	0.04	0.934	1.26	0.0973	0.42	0.024	0.008	< 0.002 U	1.17	0.5	0.04 J
5/10/2017	Background	0.04 J	0.21	3.54	0.005 J	0.05	0.198	1.20	0.241	0.65	0.062	0.003	< 0.002 U	2.08	0.5	0.02 J
7/19/2017	Background	0.02 J	0.23	3.11	< 0.004 U	0.05	0.096	1.25	0.0916	0.66	0.083	0.0009 J	< 0.002 U	2.87	0.2	0.02 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-016D

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.033	84.3	68.7	0.20	6.8	36.4	350
7/19/2016	Background	0.013	68.7	69.6	0.22	7.3	37.4	321
9/20/2016	Background	0.012	70.5	67.6	0.22	7.3	33.4	342
11/17/2016	Background	0.014	77.9	63.6	0.17	7.3	33.2	356
1/11/2017	Background	0.004 J	72.4	67.9	0.21	7.5	34.0	343
3/8/2017	Background	0.023	79.2	65.4	0.22	7.4	35.3	347
5/10/2017	Background	0.102	75.8	69.9	0.22	7.5	37.2	367
7/18/2017	Background	0.017	71.7	69.6	0.17	9.0	36.8	363
10/4/2017	Detection	0.059	80.4	81.5	0.22	7.6	40.0	383
1/4/2018	Detection	--	80.1	86	--	7.7	37.9	--
6/6/2018	Detection	0.033	90.2	108	0.22	7.3	38.6	434
8/16/2018	Detection	--	83.8	99.7	--	7.3	--	447
11/14/2018	Detection	0.07 J	84.1	102	0.21	7.4	38.6	434
2/12/2019	Detection	--	--	109	--	7.4	--	439
4/1/2019	Detection	--	--	107	--	7.3	--	429
5/22/2019	Detection	0.03 J	88.5	104	0.20	7.3	38.0	460
7/24/2019	Detection	--	95.6	106	--	7.0	--	457
9/11/2019	Detection	--	109	125	--	7.3	--	523
11/15/2019	Detection	0.03 J	100	127	0.17	7.3	40.8	537
2/18/2020	Detection	--	--	133	--	7.2	38.9	579
5/19/2020	Detection	0.03 J	108	135	0.17	7.7	40.1	558
7/15/2020	Detection	--	102	133	0.20	7.2	--	519
11/11/2020	Detection	0.04 J	109	130	0.21	7.2	39.1	547

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-016D

**Rockport - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.02 J	0.48	240	< 0.005 U	0.08	0.3	0.617	0.0514	0.20	0.078	0.001	< 0.002 U	2.06	0.04 J	0.03 J
7/19/2016	Background	0.02 J	0.40	246	< 0.005 U	0.08	0.4	0.547	0.294	0.22	0.040	0.013	< 0.002 U	2.31	0.04 J	0.069
9/20/2016	Background	0.02 J	0.31	221	< 0.005 U	0.02 J	0.1	0.418	1.348	0.22	0.021	0.003	< 0.002 U	1.96	< 0.03 U	0.02 J
11/17/2016	Background	0.02 J	0.32	217	< 0.005 U	0.05	1.21	0.452	0.909	0.17	0.066	0.006	< 0.002 U	1.98	< 0.03 U	0.02 J
1/11/2017	Background	0.01 J	0.34	210	< 0.005 U	0.02 J	0.112	0.354	1.716	0.21	0.008 J	0.013	< 0.002 U	1.99	< 0.03 U	0.02 J
3/8/2017	Background	0.02 J	0.31	224	< 0.005 U	0.01 J	0.188	0.401	0.811	0.22	0.022	0.007	< 0.002 U	2.27	0.05 J	0.04 J
5/10/2017	Background	0.03 J	0.33	212	< 0.004 U	0.07	0.151	0.466	0.151	0.22	0.070	0.008	< 0.002 U	1.90	< 0.03 U	0.02 J
7/18/2017	Background	0.03 J	0.39	247	< 0.004 U	0.10	0.141	0.571	0.514	0.17	0.103	0.0006 J	< 0.002 U	2.03	< 0.03 U	0.02 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-016I

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.031	110	80.4	0.1 J	7.7	38.7	539
7/20/2016	Background	0.027	93.9	86.8	0.15	7.6	42.2	532
9/21/2016	Background	0.026	95.9	90.2	0.1 J	7.4	36.8	544
11/17/2016	Background	0.024	96.2	59.1	0.1 J	7.1	33.0	508
1/11/2017	Background	0.015	89.3	44.1	0.1 J	7.4	34.0	481
3/8/2017	Background	0.100	101	39.3	0.16	7.3	35.4	460
5/19/2017	Background	0.032	86.7	39.4	0.15	7.0	35.4	455
7/18/2017	Background	0.044	91.3	50.2	0.08 J	7.2	36.1	465
10/4/2017	Detection	0.050	84.0	70.8	0.1 J	7.5	40.4	495
1/4/2018	Detection	--	71.9	71.2	--	7.7	--	487
6/6/2018	Detection	0.046	82.9	58.6	0.17	7.4	38.7	480
8/16/2018	Detection	--	61.6	61.1	--	7.2	--	456
11/14/2018	Detection	0.139	53.7	47.8	0.17	7.3	32.5	408
2/12/2019	Detection	0.02 J	--	--	--	7.4	--	--
5/22/2019	Detection	0.03 J	56.0	45.5	0.17	7.4	33.2	405
11/15/2019	Detection	0.02 J	41.0	31.2	0.14	7.4	25.2	343
5/19/2020	Detection	0.02 J	51.9	31.3	0.14	7.8	25.8	350
11/10/2020	Detection	0.02 J	44.5	19.6	0.2	6.8	21.4	273

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-016I

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.02 J	0.71	267	< 0.005 U	0.06	0.1	0.602	0.592	0.1 J	0.023	0.005	< 0.002 U	1.02	0.2	0.085
7/20/2016	Background	0.01 J	0.75	267	< 0.005 U	0.03	0.2	0.627	1.576	0.15	0.025	0.005	< 0.002 U	1.02	0.2	0.060
9/21/2016	Background	0.01 J	0.75	262	< 0.005 U	0.03	0.1	0.576	1.225	0.1 J	0.023	0.006	< 0.002 U	1.03	0.1	0.074
11/17/2016	Background	0.05	0.67	234	< 0.005 U	0.05	0.082	0.546	0.587	0.1 J	0.053	0.013	< 0.002 U	0.93	0.2	0.069
1/11/2017	Background	0.01 J	0.72	220	< 0.005 U	0.04	0.085	0.514	2.632	0.1 J	0.01 J	0.010	< 0.002 U	1.00	0.1	0.071
3/8/2017	Background	0.02 J	0.68	221	< 0.005 U	0.03	0.422	0.580	0.581	0.16	0.034	0.013	< 0.002 U	1.17	0.2	0.075
5/19/2017	Background	0.06	0.70	206	< 0.004 U	0.08	0.204	0.707	0.938	0.15	0.153	0.010	< 0.002 U	0.91	0.4	0.075
7/18/2017	Background	0.02 J	0.73	238	< 0.004 U	0.03	0.118	0.599	0.787	0.08 J	0.065	0.003	< 0.002 U	1.07	0.2	0.070

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-016S

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.028	96.2	18.7	0.44	7.5	46.9	483
7/20/2016	Background	0.025	83.0	19.0	0.46	7.1	50.1	471
9/21/2016	Background	0.024	93.5	17.1	0.38	7.3	42.1	509
11/17/2016	Background	0.025	96.4	16.4	0.30	6.9	38.3	486
1/11/2017	Background	0.017	94.6	17.5	0.35	7.2	39.2	474
3/8/2017	Background	0.038	106	19.3	0.36	7.1	39.6	473
5/10/2017	Background	0.082	105	22.9	0.38	8.3	42.3	499
7/19/2017	Background	0.037	91.8	19.8	0.33	6.3	40.7	484
10/4/2017	Detection	0.061	108	19.3	0.41	7.3	45.0	503
1/4/2018	Detection	--	109	--	--	7.3	--	517
6/6/2018	Detection	0.109	108	17.3	0.42	7.2	40.8	520
8/16/2018	Detection	0.034	109	--	--	7.1	--	533
11/14/2018	Detection	0.107	104	16.2	0.39	7.0	40.3	548
2/12/2019	Detection	0.02 J	--	--	--	7.1	--	517
5/22/2019	Detection	0.03 J	99.2	18.0	0.38	7.1	34.5	493
11/15/2019	Detection	0.02 J	92.2	20.7	0.32	7.0	35.2	497
5/19/2020	Detection	0.03 J	104	26.7	0.34	7.5	34.9	470
7/15/2020	Detection	--	--	25.8	0.37	7.1	--	489
11/11/2020	Detection	0.02 J	103	21.8	0.38	6.5	34.5	473

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-016S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.03 J	0.37	32.3	< 0.005 U	0.03	0.2	0.073	0.163	0.44	0.074	0.007	< 0.002 U	1.15	0.6	0.01 J
7/20/2016	Background	0.03 J	0.37	29.9	< 0.005 U	0.03	0.5	0.025	1.047	0.46	0.057	0.031	< 0.002 U	1.21	0.6	< 0.01 U
9/21/2016	Background	0.25	0.38	29.5	< 0.005 U	0.10	0.3	0.070	0.0255	0.38	0.182	0.005	< 0.002 U	1.11	0.8	< 0.01 U
11/17/2016	Background	0.02 J	0.34	25.3	< 0.005 U	0.006 J	1.03	0.028	0.2943	0.30	< 0.004 U	0.018	< 0.002 U	1.19	0.4	< 0.01 U
1/11/2017	Background	0.02 J	0.42	25.1	< 0.005 U	0.008 J	0.081	0.014	1.993	0.35	0.039	0.013	< 0.002 U	1.21	0.4	0.02 J
3/8/2017	Background	0.02 J	0.31	25.7	< 0.005 U	0.004 J	0.463	0.012	0.282	0.36	0.006 J	0.013	< 0.002 U	1.32	0.4	0.02 J
5/10/2017	Background	0.02 J	0.39	29.8	< 0.004 U	0.01 J	0.196	0.063	0.145	0.38	0.027	0.008	< 0.002 U	1.14	0.3	0.01 J
7/19/2017	Background	0.02 J	0.33	25.6	< 0.004 U	0.04	0.101	0.01 J	2.8533	0.33	0.01 J	0.010	< 0.002 U	0.98	0.4	0.01 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-017I

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/8/2016	Background	0.058	73.7	195	0.57	7.6	43.1	609
7/20/2016	Background	0.056	83.1	209	0.56	7.2	49.3	569
9/20/2016	Background	0.051	88.9	214	0.52	7.1	48.1	620
11/16/2016	Background	0.041	80.0	164	0.56	7.8	44.1	540
1/10/2017	Background	0.034	72.3	159	0.56	7.5	43.2	513
3/7/2017	Background	0.079	81.4	158	0.58	7.5	44.9	549
5/9/2017	Background	0.083	69.6	151	0.61	7.2	43.5	528
7/19/2017	Background	0.052	64.4	145	0.63	7.3	44.7	509
10/4/2017	Detection	0.061	63.0	115	0.66	7.4	46.6	486
12/13/2017	Detection	--	--	86	0.76	7.5	44.8	--
1/4/2018	Detection	--	--	110	0.65	7.8	--	471
6/5/2018	Detection	0.081	51.2	80.2	0.87	7.4	41	418
8/16/2018	Detection	--	--	61.1	0.98	7.5	--	376
9/26/2018	Detection	--	--	--	1.03	--	--	--
11/13/2018	Detection	0.07 J	36.5	50.1	1	7.6	29.6	328
2/12/2019	Detection	--	--	--	1.05	7.7	--	--
4/1/2019	Detection	--	--	--	1.08	7.6	--	--
5/23/2019	Detection	0.04 J	45.1	60.2	1.07	7.5	32.8	352
7/23/2019	Detection	--	--	--	1.06	6.7	--	--
9/12/2019	Detection	--	--	--	1.08	7.6	--	--
11/15/2019	Detection	0.04 J	43.9	41.2	0.95	7.4	23.2	309
5/19/2020	Detection	0.04 J	40.3	32.8	1.07	7.9	20.7	273
7/15/2020	Detection	--	--	--	--	7.3	--	--
11/10/2020	Detection	0.04 J	38.1	25.5	1.16	8.4	16.8	239

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-017I

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/8/2016	Background	0.07	7.14	168	0.020	0.12	0.6	1.24	1.925	0.57	1.19	< 0.0002 U	0.003 J	3.60	0.1	0.03 J
7/20/2016	Background	0.05 J	7.41	190	0.006 J	0.13	2.1	0.778	1.167	0.56	0.284	0.004	< 0.002 U	3.66	0.05 J	0.02 J
9/20/2016	Background	0.04 J	6.45	198	< 0.005 U	0.04	0.1	0.472	1.587	0.52	0.133	0.005	< 0.002 U	3.08	0.05 J	0.02 J
11/16/2016	Background	0.03 J	3.38	149	< 0.005 U	0.04	0.059	0.370	0.762	0.56	0.049	0.006	< 0.002 U	3.37	< 0.03 U	0.056
1/10/2017	Background	0.02 J	3.94	148	< 0.005 U	0.008 J	0.254	0.391	1.51	0.56	0.02 J	0.009	< 0.002 U	3.20	< 0.03 U	0.02 J
3/7/2017	Background	0.02 J	4.61	159	< 0.005 U	0.007 J	0.776	0.406	1.023	0.58	0.026	0.008	< 0.002 U	3.62	0.05 J	0.02 J
5/9/2017	Background	0.02 J	3.61	133	< 0.004 U	0.03	0.196	0.394	1.007	0.61	0.115	0.005	< 0.002 U	3.26	0.03 J	0.01 J
7/19/2017	Background	0.02 J	3.76	140	< 0.004 U	0.02 J	0.127	0.372	0.8141	0.63	0.02 J	< 0.0002 U	< 0.002 U	3.42	< 0.03 U	0.05 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-017S**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/8/2016	Background	0.015	36.9	13.9	0.85	7.8	14.3	272
7/20/2016	Background	0.016	34.8	15.4	0.86	7.3	14.8	235
9/20/2016	Background	0.016	34.8	12.3	0.73	7.7	10.9	233
11/16/2016	Background	0.017	35.9	11.4	0.70	7.7	10.5	232
1/10/2017	Background	0.006	32.3	11.0	0.48	7.6	10.7	262
3/7/2017	Background	0.058	40.0	10.7	0.46	7.5	12.0	251
5/9/2017	Background	0.041	35.5	10.4	0.58	7.3	13.1	250
7/19/2017	Background	0.020	34.4	10.8	0.82	7.5	10.2	201
10/4/2017	Detection	0.033	34.1	10.5	0.89	7.4	10.7	214
6/5/2018	Detection	0.045	32.4	10.8	0.98	7.4	9.5	214
11/13/2018	Detection	0.05 J	33.1	11.5	0.91	7.5	8.4	196
5/23/2019	Detection	0.03 J	32.7	12.0	1.08	7.6	7.7	217
11/15/2019	Detection	0.02 J	28.7	12.6	0.96	7.6	6.2	207
5/19/2020	Detection	0.02 J	32.8	12.7	0.95	7.8	6.5	200
7/14/2020	Detection	--	--	--	--	6.8	--	--
11/10/2020	Detection	0.02 J	33.9	12.9	0.9	7.5	8.2	211

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-017S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/8/2016	Background	0.01 J	0.24	2.12	< 0.005 U	0.02	0.5	0.047	1.036	0.85	0.024	< 0.0002 U	< 0.002 U	3.98	0.07 J	0.01 J
7/20/2016	Background	0.03 J	0.26	2.74	< 0.005 U	0.08	0.2	0.105	0.0439	0.86	0.098	0.020	0.002 J	4.20	0.06 J	0.01 J
9/20/2016	Background	0.02 J	0.22	2.24	< 0.005 U	0.01 J	0.1	0.034	0.0759	0.73	0.025	0.003	< 0.002 U	4.08	0.08 J	0.01 J
11/16/2016	Background	0.03 J	0.20	2.40	< 0.005 U	0.02	0.066	0.029	1.594	0.70	0.020	0.004	< 0.002 U	3.39	0.1	0.053
1/10/2017	Background	0.03 J	0.21	3.45	< 0.005 U	0.02 J	0.489	0.040	0.17	0.48	0.02 J	0.003	< 0.002 U	0.44	0.2	0.02 J
3/7/2017	Background	0.04 J	0.20	3.94	< 0.005 U	0.09	0.776	0.076	0.47	0.46	0.079	0.008	0.002 J	0.70	0.1	0.02 J
5/9/2017	Background	0.04 J	0.22	4.37	< 0.004 U	0.02 J	0.233	0.138	0.433	0.58	0.108	0.003	< 0.002 U	1.14	0.1	< 0.01 U
7/19/2017	Background	0.02 J	0.22	2.25	< 0.004 U	0.06	0.124	0.053	1.748	0.82	0.038	< 0.0002 U	< 0.002 U	4.38	0.08 J	0.03 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-021D**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.022	74.2	19.2	0.36	8.1	39.2	328
7/19/2016	Background	0.015	60.6	19.6	0.38	7.8	41.0	299
9/21/2016	Background	0.015	70.4	18.9	0.36	7.7	35.5	315
11/16/2016	Background	0.013	74.7	19.1	0.33	7.5	32.0	346
1/11/2017	Background	0.004 J	67.3	19.4	0.36	7.2	34.4	332
3/8/2017	Background	0.024	76.2	18.9	0.33	7.6	35.1	304
5/9/2017	Background	0.062	71.5	19.9	0.35	7.4	37.1	339
7/19/2017	Background	0.015	70.9	19.5	0.30	8.5	36.5	332
10/4/2017	Detection	0.092	67.8	18.5	0.32	7.5	37.4	339
1/11/2018	Detection	0.088	--	--	--	7.0	--	--
6/6/2018	Detection	0.03	70.7	19.9	0.4	7.7	38.4	347
11/13/2018	Detection	0.04 J	62.1	18.8	0.34	7.7	35.2	314
5/22/2019	Detection	< 0.02 U	69.3	19.1	0.36	7.5	36.8	348
11/14/2019	Detection	< 0.02 U	69.4	19.2	0.32	7.4	38.6	323
5/19/2020	Detection	0.02 J	69.2	19.9	0.26	7.6	33.3	328
11/11/2020	Detection	< 0.02 U	70.9	19.5	0.38	7.0	37.1	318

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-021D

**Rockport - LF
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.08	1.07	241	< 0.005 U	0.02	0.2	0.216	0.567	0.36	0.107	0.002	< 0.002 U	6.31	0.2	0.03 J
7/19/2016	Background	0.08	1.06	240	< 0.005 U	0.03	0.3	0.210	1.428	0.38	0.075	0.025	< 0.002 U	6.66	0.2	0.02 J
9/21/2016	Background	0.06	0.95	226	< 0.005 U	0.02 J	0.1	0.195	0.834	0.36	0.066	0.005	< 0.002 U	6.13	0.3	0.03 J
11/16/2016	Background	0.06	0.86	206	< 0.005 U	0.03	0.05 J	0.171	1.078	0.33	0.056	0.007	< 0.002 U	5.33	0.3	0.02 J
1/11/2017	Background	0.07	0.99	220	0.01 J	0.02	0.124	0.202	1.144	0.36	0.091	0.009	< 0.002 U	6.09	0.2	0.04 J
3/8/2017	Background	0.07	0.92	220	< 0.005 U	0.02	0.433	0.182	0.938	0.33	0.092	0.005	< 0.002 U	5.68	0.5	0.02 J
5/9/2017	Background	0.08	0.97	216	< 0.004 U	0.04	0.165	0.208	0.4495	0.35	0.118	0.013	< 0.002 U	5.07	0.6	0.02 J
7/19/2017	Background	0.12	1.04	226	< 0.004 U	0.02	0.110	0.203	0.856	0.30	0.089	0.0005 J	< 0.002 U	5.29	0.5	0.03 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-021I

**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.007	69.0	21.1	0.33	8.0	46.2	331
7/19/2016	Background	0.012	64.7	21.7	0.36	7.6	47.9	334
9/21/2016	Background	0.011	65.1	20.4	0.34	7.6	43.2	305
11/16/2016	Background	0.012	68.4	20.0	0.34	7.3	40.4	317
1/11/2017	Background	< 0.002 U	59.5	19.9	0.30	7.4	41.0	292
3/8/2017	Background	0.028	66.5	19.6	0.32	7.5	39.6	275
5/9/2017	Background	0.027	62.9	21.0	0.34	8.6	42.4	306
7/19/2017	Background	0.080	60.1	20.4	0.30	7.4	43.6	322
10/4/2017	Detection	0.029	63.9	20.5	0.31	7.4	45.7	306
6/6/2018	Detection	0.034	66.5	20.6	0.38	7.5	44.6	317
11/13/2018	Detection	0.08 J	61.5	20.2	0.36	7.7	43.4	294
5/22/2019	Detection	< 0.02 U	62.4	18.1	0.36	7.5	36.0	278
11/14/2019	Detection	< 0.02 U	56.5	17.5	0.38	7.5	35.5	262
5/19/2020	Detection	< 0.02 U	58.5	19.3	0.35	7.4	38.8	283
11/11/2020	Detection	< 0.02 U	58.6	18	0.45	7.0	36.4	266

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-0211

Rockport - LF

Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.02 J	1.55	127	< 0.005 U	0.02	0.1	0.514	0.349	0.33	0.02 J	< 0.0002 U	< 0.002 U	4.92	< 0.03 U	0.03 J
7/19/2016	Background	0.02 J	1.67	136	< 0.005 U	0.02	0.2	0.558	1.406	0.36	0.021	0.019	< 0.002 U	5.25	0.05 J	0.03 J
9/21/2016	Background	0.02 J	1.55	121	< 0.005 U	0.02	0.1	0.422	0.981	0.34	0.046	0.004	< 0.002 U	4.46	0.03 J	0.02 J
11/16/2016	Background	0.02 J	1.41	126	< 0.005 U	0.04	0.386	0.524	0.6556	0.34	0.035	0.006	< 0.002 U	4.40	0.09 J	0.02 J
1/11/2017	Background	0.02 J	1.39	126	0.01 J	0.02 J	1.04	0.437	2.733	0.30	< 0.004 U	0.005	< 0.002 U	4.63	0.07 J	0.04 J
3/8/2017	Background	0.03 J	1.08	123	< 0.005 U	0.01 J	0.349	0.437	0.882	0.32	0.01 J	0.007	< 0.002 U	4.31	0.07 J	0.02 J
5/9/2017	Background	0.05	1.2	116	< 0.004 U	0.01 J	0.125	0.412	0.591	0.34	0.022	0.008	< 0.002 U	4.06	0.05 J	0.03 J
7/19/2017	Background	0.03 J	1.38	123	< 0.004 U	0.01 J	0.143	0.517	1.225	0.30	0.033	0.004	< 0.002 U	4.18	0.05 J	0.03 J

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

Table 1 - Groundwater Data Summary: MW-021S**Rockport - LF
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/9/2016	Background	0.002 J	55.1	15.0	0.61	6.6	21.2	275
7/19/2016	Background	0.011	52.8	15.1	0.64	7.5	21.2	292
9/21/2016	Background	0.007	52.0	14.7	0.62	7.6	17.4	285
11/16/2016	Background	0.015	60.0	14.7	0.63	7.5	14.9	294
1/11/2017	Background	0.002 J	54.4	14.4	0.54	7.3	15.9	287
3/8/2017	Background	0.018	59.0	14.8	0.58	7.6	16.5	298
5/9/2017	Background	0.033	56.0	15.7	0.60	8.9	17.6	296
7/19/2017	Background	0.034	55.9	15.9	0.54	7.2	18.8	304
10/4/2017	Detection	0.027	59.8	17.7	0.60	7.5	20.1	300
12/12/2017	Detection	--	--	18	0.6	8.0	21.1	--
6/6/2018	Detection	0.039	52.8	17.5	0.66	7.8	18.7	283
11/14/2018	Detection	0.06 J	55	17.9	0.66	7.3	17	278
2/12/2019	Detection	< 0.02 U	--	17.9	--	7.7	--	--
4/1/2019	Detection	--	--	17.5	--	7.8	--	--
5/21/2019	Detection	< 0.02 U	52.5	16.0	0.65	7.6	14.1	258
11/14/2019	Detection	< 0.02 U	50.4	17.4	0.73	7.5	15.8	241
2/18/2020	Detection	--	--	--	0.79	7.5	--	--
5/19/2020	Detection	< 0.02 U	49.1	18.0	0.76	8.1	15.1	238
7/16/2020	Detection	--	--	16.1	0.77	7.9	--	228
11/11/2020	Detection	< 0.02 U	50.9	18.1	0.83	7.6	16.4	259

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

--: Not analyzed

Table 1 - Groundwater Data Summary: MW-021S

Rockport - LF
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
6/9/2016	Background	0.03 J	0.53	18.5	< 0.005 U	0.02	0.4	0.104	0.1599	0.61	0.095	0.003	< 0.002 U	1.78	0.7	0.01 J
7/19/2016	Background	0.02 J	0.47	19.6	< 0.005 U	0.02 J	0.7	0.033	0.5728	0.64	0.042	0.013	< 0.002 U	1.85	0.5	0.01 J
9/21/2016	Background	0.02 J	0.46	19.4	< 0.005 U	0.006 J	0.3	0.030	0.452	0.62	0.025	0.003	< 0.002 U	1.74	0.2	< 0.01 U
11/16/2016	Background	0.02 J	0.43	19.1	< 0.005 U	0.02	0.292	0.023	0.484	0.63	0.023	0.009	< 0.002 U	1.63	0.2	< 0.01 U
1/11/2017	Background	0.03 J	0.47	19.3	0.006 J	0.01 J	0.401	0.022	2.067	0.54	0.024	0.007	< 0.002 U	1.74	0.1	0.058
3/8/2017	Background	0.03 J	0.49	21.9	< 0.005 U	0.01 J	0.536	0.053	0.0305	0.58	0.095	0.002	< 0.002 U	2.00	0.1	< 0.01 U
5/9/2017	Background	0.04 J	0.47	17.7	< 0.004 U	0.01 J	0.300	0.027	0.2351	0.60	0.023	0.005	< 0.002 U	1.62	0.1	< 0.01 U
7/19/2017	Background	0.05 J	0.42	21.9	< 0.004 U	0.01 J	0.272	0.006 J	1.098	0.54	0.024	< 0.0002 U	< 0.002 U	2.31	0.2	< 0.01 U

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

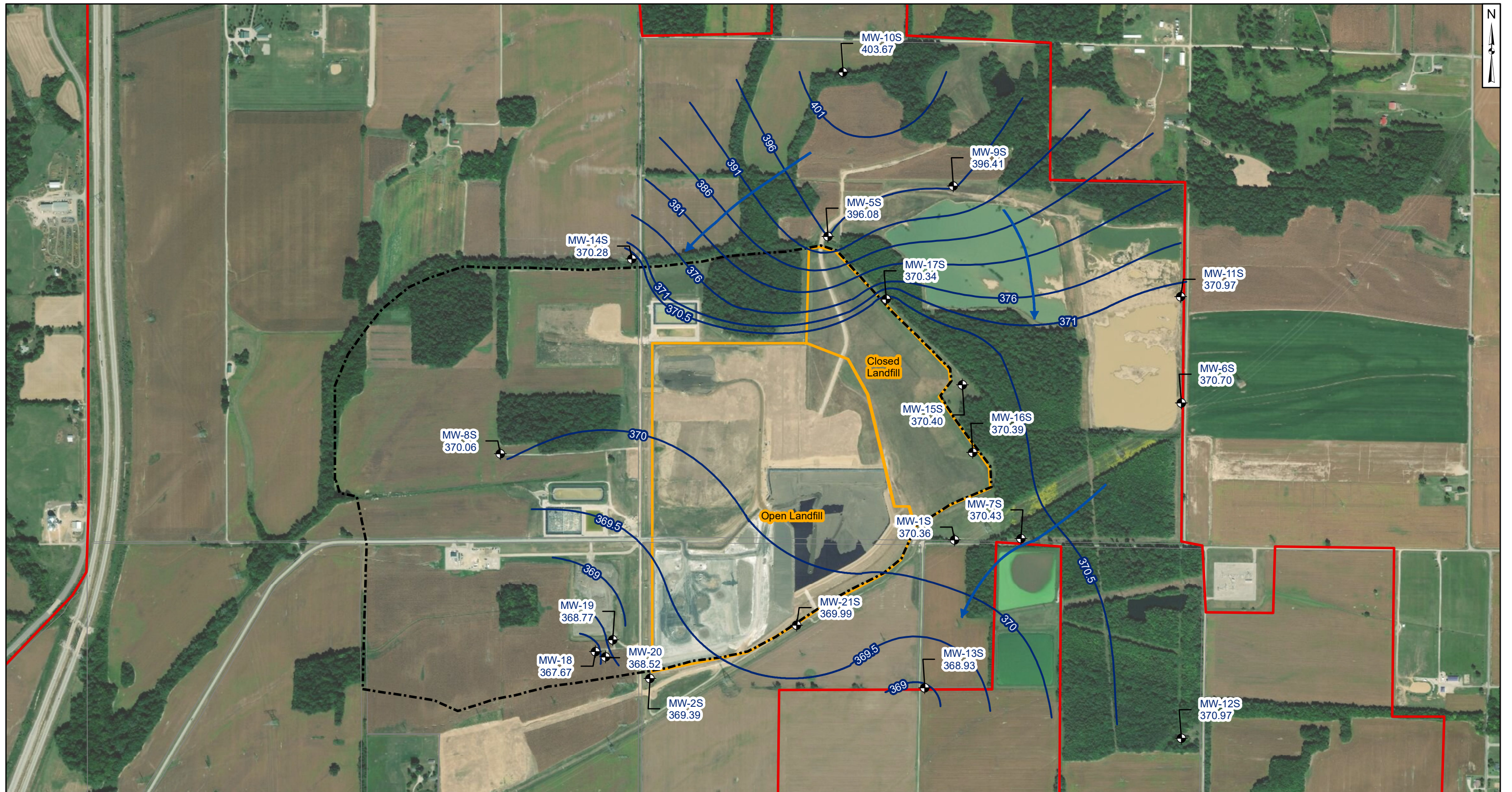
<: Non-detect value. Parameters which were not detected are shown as less than the method detection limit (MDL) followed by a 'U' flag.

J: Estimated value. Parameter was detected at concentration below the reporting limit

- -: Not analyzed

pCi/L: picocuries per liter

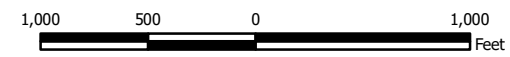
Groundwater Flow Direction Maps



- Legend**
- ◆ Groundwater Monitoring Well
 - ➔ Approximate Groundwater Flow Direction
 - Groundwater Elevation Contour
 - ⬛ 1984 Landfill Permit Boundary (Area 1)
 - ▭ Property Boundary
 - ▭ Landfill Area 1A (Active and Closed)

Notes

- Monitoring well coordinates and water level data (collected on May 18, 2020) provided by AEP.
- Site features based on information available in the Groundwater Monitoring Network Evaluation (AMEC, 2016) provided by AEP.
- Property and parcel boundaries taken from Spencer County Assessor.
- The water level from the shallowest screen interval in each well cluster was used in groundwater contouring.
- Groundwater elevation units are feet above mean sea level.



**Potentiometric Surface Contours - Uppermost Aquifer
May 2020**

AEP-Rockport Power Plant - CCR Landfill
Rockport, Indiana

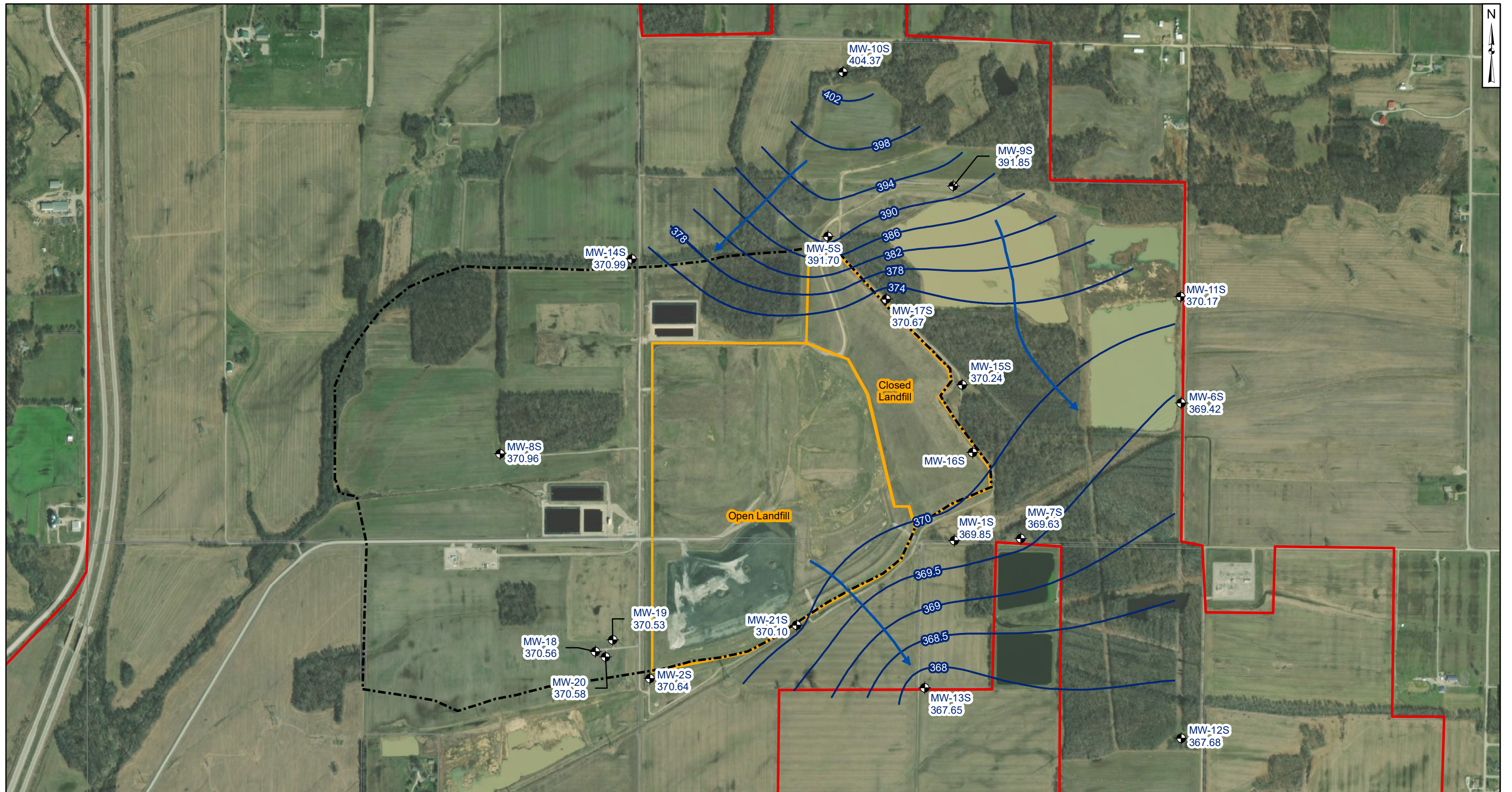


Figure

2

Columbus, Ohio

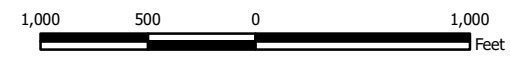
2020/06/17



- Legend**
- ◆ Groundwater Monitoring Well
 - ➔ Approximate Groundwater Flow Direction
 - Groundwater Elevation Contour
 - ⬡ 1984 Landfill Permit Boundary (Area 1)
 - ▭ Property Boundary
 - ▭ Landfill Area 1A (Active and Closed)

Notes

- Monitoring well coordinates and water level data (collected on November 10, 2020) provided by AEP.
- Site features based on information available in the Groundwater Monitoring Network Evaluation (AMEC, 2016) provided by AEP.
- Property and parcel boundaries taken from Spencer County Assessor.
- The water level from the shallowest screen interval in each well cluster was used in groundwater contouring.
- Groundwater elevation units are feet above mean sea level.
- MW-16S (392.06 ft amsl) was not used to generate contours due to anomalous or inconsistent reading.



**Potentiometric Surface Contours - Uppermost Aquifer
November 2020**

AEP-Rockport Power Plant - CCR Landfill
Rockport, Indiana



Figure

3

Columbus, Ohio

2021/01/14

Groundwater Flow Velocity Calculations

**Table 2: Residence Time Calculation Summary
Rockport - Landfill**

CCR Management Unit	Monitoring Well	Well Diameter (inches)	2016-06		2016-07		2016-09		2016-11	
			Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Landfill	MW-11S ^[1]	2.0	200	0.30	240	0.25	302	0.20	292	0.21
	MW-14S ^[1]	2.0	99	0.61	98	0.62	92	0.66	51	1.2
	MW-15I ^[2]	2.0	304	0.20	287	0.21	374	0.16	456	0.13
	MW-15S ^[2]	2.0	304	0.20	265	0.23	346	0.18	498	0.12
	MW-16D ^[2]	2.0	363	0.17	449	0.14	422	0.14	208	0.29
	MW-16I ^[2]	2.0	301	0.20	299	0.20	330	0.18	340	0.18
	MW-16S ^[2]	2.0	208	0.29	274	0.22	293	0.21	358	0.17
	MW-17I ^[2]	2.0	98	0.62	208	0.29	234	0.26	277	0.22
	MW-17S ^[2]	2.0	152	0.40	176	0.35	226	0.27	255	0.24
	MW-1D ^[2]	2.0	179	0.34	580	0.10	438	0.14	118	0.52
	MW-1I ^[2]	2.0	87	0.70	32	1.9	280	0.22	383	0.16
	MW-1S ^[2]	2.0	103	0.59	129	0.47	289	0.21	309	0.20
	MW-21D ^[2]	2.0	65	0.94	107	0.57	373	0.16	179	0.34
	MW-21I ^[2]	2.0	17.1	3.6	207	0.29	44	1.4	358	0.17
	MW-21S ^[2]	2.0	44	1.4	147	0.41	219	0.28	257	0.24
	MW-2D ^[2]	2.0	148	0.41	59	1.0	128	0.47	431	0.14
	MW-2I ^[2]	2.0	49	1.23	44	1.4	163	0.37	404	0.15
	MW-2S ^[2]	2.0	444	0.14	44	1.4	231	0.26	310	0.20
MW-6S ^[1]	2.0	46	1.3	229	0.27	357	0.17	383	0.16	
MW-8I ^[1]	2.0	583	0.10	794	0.08	201	0.30	175	0.35	
MW-8S ^[1]	2.0	190	0.32	397	0.15	85	0.72	86	0.71	

Notes:

[1] - Background Well

[2] - Downgradient Well

**Table 2: Residence Time Calculation Summary
Rockport - Landfill**

CCR Management Unit	Monitoring Well	Well Diameter (inches)	2017-01		2017-03		2017-05		2017-07		2017-10	
			Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Landfill	MW-11S ^[1]	2.0	258	0.24	1,370	0.04	78	0.78	58	1.0	3,616	0.02
	MW-14S ^[1]	2.0	175	0.35	144	0.42	72	0.85	696	0.09	15,070	0.004
	MW-15I ^[2]	2.0	377	0.16	250	0.24	351	0.17	151	0.40	4,314	0.01
	MW-15S ^[2]	2.0	173	0.35	70	0.87	74	0.82	157	0.39	3,835	0.02
	MW-16D ^[2]	2.0	592	0.10	603	0.10	387	0.16	229	0.27	677	0.09
	MW-16I ^[2]	2.0	333	0.18	381	0.16	221	0.27	131	0.46	301	0.20
	MW-16S ^[2]	2.0	333	0.18	381	0.16	240	0.25	49	1.2	301	0.20
	MW-17I ^[2]	2.0	307	0.20	277	0.22	243	0.25	96	0.63	25,799	0.002
	MW-17S ^[2]	2.0	307	0.20	253	0.24	233	0.26	96	0.63	3,586	0.02
	MW-1D ^[2]	2.0	664	0.09	287	0.21	249	0.24	78	0.78	89	0.68
	MW-1I ^[2]	2.0	213	0.29	120	0.51	96	0.63	26	2.4	372	0.16
	MW-1S ^[2]	2.0	292	0.21	176	0.35	128	0.47	69	0.88	758	0.08
	MW-21D ^[2]	2.0	1,001	0.06	1,620	0.04	356	0.17	104	0.58	503	0.12
	MW-21I ^[2]	2.0	501	0.12	853	0.07	150	0.40	274	0.22	466	0.13
	MW-21S ^[2]	2.0	723	0.08	1,876	0.03	383	0.16	157	0.39	385	0.16
	MW-2D ^[2]	2.0	563	0.11	180	0.34	389	0.16	2,630	0.02	257	0.24
	MW-2I ^[2]	2.0	1,189	0.05	269	0.23	111	0.55	970	0.06	232	0.26
	MW-2S ^[2]	2.0	1,627	0.04	673	0.09	167	0.36	1,552	0.04	206	0.30
MW-6S ^[1]	2.0	343	0.18	90	0.68	96	0.63	211	0.29	708	0.09	
MW-8I ^[1]	2.0	1,592	0.04	173	0.35	138	0.44	843	0.07	1,391	0.04	
MW-8S ^[1]	2.0	140	0.43	99	0.61	79	0.77	459	0.13	892	0.07	

Notes:

[1] - Background Well

[2] - Downgradient Well

**Table 2: Residence Time Calculation Summary
Rockport - Landfill**

CCR Management Unit	Monitoring Well	Well Diameter (inches)	2018-06		2018-08		2018-11	
			Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Landfill	MW-11S ^[1]	2.0	5,799	0.010	5,419	0.011	5,125	0.012
	MW-14S ^[1]	2.0	10,043	0.006	9,336	0.007	9,942	0.006
	MW-15I ^[2]	2.0	9,193	0.007	2,097	0.029	528	0.12
	MW-15S ^[2]	2.0	9,211	0.007	1,873	0.032	426	0.14
	MW-16D ^[2]	2.0	689	0.088	1,432	0.042	901	0.068
	MW-16I ^[2]	2.0	844	0.072	661	0.092	225	0.270
	MW-16S ^[2]	2.0	844	0.072	1,322	0.046	826	0.074
	MW-17I ^[2]	2.0	23,838	0.003	17,221	0.004	NC	NC
	MW-17S ^[2]	2.0	23,793	0.003	18,011	0.003	NC	NC
	MW-1D ^[2]	2.0	516	0.12	54	1.12	151	0.402
	MW-1I ^[2]	2.0	715	0.085	63	0.96	76	0.80
	MW-1S ^[2]	2.0	669	0.091	91	0.67	303	0.20
	MW-21D ^[2]	2.0	502	0.12	124	0.49	303	0.20
	MW-21I ^[2]	2.0	670	0.091	124	0.49	326	0.19
	MW-21S ^[2]	2.0	550	0.11	113	0.54	396	0.15
	MW-2D ^[2]	2.0	89	0.68	199	0.31	241	0.25
	MW-2I ^[2]	2.0	84	0.73	180	0.34	80	0.76
	MW-2S ^[2]	2.0	33	1.82	199	0.31	241	0.25
MW-6S ^[1]	2.0	99	0.62	371	0.16	207	0.29	
MW-8I ^[1]	2.0	82	0.74	202	0.30	6,214	0.010	
MW-8S ^[1]	2.0	224	0.27	806	0.075	961	0.063	

Notes:

[1] - Upgradient Well

[2] - Downgradient Well

NC - No groundwater residence time calculated due to an anomalous water level reading

**Table 2: Residence Time Calculation Summary
Rockport - Landfill**

CCR Management Unit	Monitoring Well	Well Diameter (inches)	2019-05	
			Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Landfill	MW-11S ^[1]	2.0	514	0.12
	MW-14S ^[1]	2.0	8,562	0.007
	MW-15I ^[2]	2.0	89	0.69
	MW-15S ^[2]	2.0	354	0.17
	MW-16D ^[2]	2.0	120	0.51
	MW-16I ^[2]	2.0	419	0.15
	MW-16S ^[2]	2.0	180	0.34
	MW-17I ^[2]	2.0	11,847	0.005
	MW-17S ^[2]	2.0	12,205	0.005
	MW-1D ^[2]	2.0	125	0.49
	MW-1I ^[2]	2.0	110	0.55
	MW-1S ^[2]	2.0	141	0.43
	MW-21D ^[2]	2.0	444	0.14
	MW-21I ^[2]	2.0	400	0.15
	MW-21S ^[2]	2.0	311	0.20
	MW-2D ^[2]	2.0	229	0.27
	MW-2I ^[2]	2.0	154	0.39
	MW-2S ^[2]	2.0	224	0.27
	MW-6S ^[1]	2.0	182	0.33
	MW-8I ^[1]	2.0	526	0.12
MW-8S ^[1]	2.0	665	0.092	

Notes:

[1] - Upgradient Well

[2] - Downgradient Well

**Table 2: Residence Time Calculation Summary
Rockport - Landfill**

CCR Management Unit	Monitoring Well	Well Diameter (inches)	2020-02 ^[3]		2020-05		2020-07 ^[3]		2020-11	
			Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Landfill	MW-11S ^[1]	2.0	261	0.23	145	0.42	286	0.21	504	0.12
	MW-14S ^[1]	2.0	10,171	0.01	4,315	0.01	9,357	0.01	10,683	0.01
	MW-15I ^[2]	2.0	NC	NC	247	0.25	599	0.10	271	0.22
	MW-15S ^[2]	2.0	179	0.34	145	0.42	150	0.41	232	0.26
	MW-16D ^[2]	2.0	244	0.25	260	0.23	290	0.21	353	0.17
	MW-16I ^[2]	2.0	NC	NC	225	0.27	235	0.26	340	0.18
	MW-16S ^[2]	2.0	232	0.26	195	0.31	271	0.22	14,459	0.004
	MW-17I ^[2]	2.0	NC	NC	2,822	0.02	17,194	0.004	18,536	0.003
	MW-17S ^[2]	2.0	112	0.54	4,049	0.02	18,484	0.003	18,852	0.003
	MW-1D ^[2]	2.0	649	0.09	576	0.11	760	0.08	1,049	0.06
	MW-1I ^[2]	2.0	NC	NC	576	0.11	785	0.08	1,024	0.06
	MW-1S ^[2]	2.0	611	0.10	518	0.12	709	0.09	896	0.07
	MW-21D ^[2]	2.0	NC	NC	577	0.11	4,068	0.01	1,016	0.06
	MW-21I ^[2]	2.0	NC	NC	602	0.10	4,216	0.01	1,033	0.06
	MW-21S ^[2]	2.0	664	0.09	628	0.10	4,216	0.01	1,033	0.06
	MW-2D ^[2]	2.0	NC	NC	33	1.82	480	0.13	564	0.11
	MW-2I ^[2]	2.0	NC	NC	67	0.91	530	0.11	585	0.10
	MW-2S ^[2]	2.0	1,464	0.04	123	0.50	5,507	0.01	580	0.10
	MW-6S ^[1]	2.0	78	0.78	176	0.35	138	0.44	514	0.12
MW-8I ^[1]	2.0	NC	NC	561	0.11	39	1.57	847	0.07	
MW-8S ^[1]	2.0	804	0.08	673	0.09	69	0.89	815	0.07	

Notes:

[1] - Upgradient Well

[2] - Downgradient Well

[3] - Only select wells were gauged as part of two-of-two verification sampling

NC - Not Calculated

APPENDIX 2 – Statistical Analyses

The memorandums summarizing the statistical evaluation follow.

STATISTICAL ANALYSIS SUMMARY-
Background Update Calculations
Landfill – Rockport Plant
Rockport, Indiana

Submitted to



1 Riverside Plaza
Columbus, Ohio 43215-2372

Submitted by



engineers | scientists | innovators

941 Chatham Lane
Suite 103
Columbus, Ohio 43221

February 24, 2020

CHA8473

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LIST OF ATTACHMENTS

Attachment A	Certification by a Qualified Professional Engineer
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LIST OF ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variance
CCR	Coal Combustion Residuals
CCV	Continuing Calibration Value
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
LF	Landfill
LFB	Laboratory Fortified Blanks
LPL	Lower Prediction Limit
LRB	Laboratory Reagent Blanks
NELAP	National Environmental Laboratory Accreditation Program
PQL	Practical Quantitation Limit
QA	Quality Assurance
QC	Quality Control
SSI	Statistically Significant Increase
TDS	Total Dissolved Solids
UPL	Upper Prediction Limit
USEPA	United States Environmental Protection Agency

SECTION 1

EXECUTIVE SUMMARY

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257.90-257.98, "CCR rule"), groundwater monitoring was conducted at the Landfill (LF), an existing CCR unit at the Rockport Power Plant located in Rockport, Indiana.

Eight monitoring events were completed prior to July 2017 to establish background concentrations for Appendix III and Appendix IV parameters under the CCR rule. A minimum of four semiannual detection monitoring events were conducted between October 2017 and September 2019. Data from these events, including both initial and verification results, and additional sampling events completed at upgradient locations were evaluated for inclusion in the background dataset. Groundwater data underwent several validation tests, including those for completeness, sample tracking accuracy, transcription errors, and consistent use of measurement units. No data quality issues were identified which would impact the usability of the data.

The detection monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. The compliance data were reviewed for outliers, which were removed (when appropriate) prior to updating upper prediction limits (UPLs) for each Appendix III parameter to represent background values. Oversight on the use of statistical calculations was provided by Dr. Kirk Cameron of MacStat Consulting, Ltd. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

SECTION 2

LANDFILL EVALUATION

2.1 Previous Background Calculations

Eight background monitoring events were completed from June 2016 through July 2017 to establish background concentrations for Appendix III and Appendix IV parameters under the CCR rule. The data were reviewed for outliers and trends prior to calculating upper prediction limits (UPLs) for each Appendix III parameter. Lower prediction limits (LPLs) were also established for pH. Intrawell prediction limits were selected for boron, fluoride, pH, and sulfate with a one-of-three resampling procedure. Interwell prediction limits were selected for calcium, chloride, and total dissolved solids (TDS) with a one-of-two resampling procedure. The statistical analyses to establish background levels were previously documented in the January 2018 *Statistical Analysis Summary* report (Geosyntec, 2018). An ASD was certified in January 2019 which resulted in a revision to intrawell tests for calcium, chloride, and TDS due to impacts from historical off-site oil and gas production wells on groundwater chemistry (Geosyntec, 2019).

2.2 Data Validation & QA/QC

Since October 2017, semiannual detection monitoring events have been conducted at the LF. If the initial results for each detection monitoring event identified possible exceedances, verification sampling was completed on an individual well/parameter basis. Thus, a minimum of four samples were collected from each compliance well. A summary of data collected during these detection monitoring events may be found in Table 1. Results from additional sampling events at select wells completed in December 2017, August 2018, September 2018, and November 2018, which were also included in the update to background levels, are also provided in Table 1.

Chemical analysis was completed by an analytical laboratory certified by the National Environmental Laboratory Accreditation Program (NELAP). Quality assurance and quality control (QA/QC) samples completed by the analytical laboratory included the use of laboratory reagent blanks (LRBs), continuing calibration verification (CCV) samples, and laboratory fortified blanks (LFBs).

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.9.6.23 statistics software. The export was checked against the analytical data for transcription errors and completeness. No QA/QC issues were noted which would impact data usability.

2.3 Statistical Analysis

The data used to conduct the statistical analyses described below are summarized in Table 1. Statistical analyses for the LF were conducted in accordance with the January 2017 *Statistical Analysis Plan* (AEP, 2017), except where noted below. The complete statistical analysis results are included in Attachment B.

Time series plots of Appendix III parameters are included in Attachment B and were used to evaluate concentrations over time and to provide an initial screening of suspected outliers and trends. Box plots were also compiled to provide visual representation of variations between wells and within individual wells (Attachment B).

2.3.1 Outlier Evaluation

Potential outliers were evaluated using Tukey's outlier test; i.e., data points were considered potential outliers if they met one of the following criteria:

$$x_i < \tilde{x}_{0.25} - 3 \times IQR \quad (1)$$

or

$$x_i > \tilde{x}_{0.75} + 3 \times IQR \quad (2)$$

where:

$$\begin{aligned} x_i &= \text{individual data point} \\ \tilde{x}_{0.25} &= \text{first quartile} \\ \tilde{x}_{0.75} &= \text{third quartile} \\ IQR &= \text{the interquartile range} = \tilde{x}_{0.75} - \tilde{x}_{0.25} \end{aligned}$$

Data that were evaluated as potential outliers are summarized in Attachment B. Tukey's outlier test and visual inspection indicated several potential outliers. Next, the data were reviewed to identify possible sources of errors or discrepancies, including data recording errors, unusual sampling conditions, laboratory quality, or inconsistent sample turbidity. After further review, five values were removed from the dataset, including:

- The pH value of 9.03 SU at MW-016D from July 18, 2017;
- The fluoride concentration of 0.85 mg/L at MW-001D from October 4, 2017;
- The sulfate concentration of 10.4 mg/L at MW-001D from October 4, 2017;
- The pH of 5.7 from MW-015S from July 23, 2019; and,

- The TDS values of 531 mg/L and 540 mg/L at MW-002D from May 22, 2019 and July 24, 2019, respectively.

While the sulfate and TDS values were not identified by Tukey's outlier test, they were removed based on visual screening to reduce variation within a well and to generate more conservative limits.

2.3.2 Establishment of Updated Background Levels

Analysis of variance (ANOVA) was conducted during the initial background screening to assist in identifying if intrawell tests are the most appropriate statistical approach for assessing Appendix III parameters. Intrawell tests compare compliance data from a single well to background data within the same well and are most appropriate when 1) upgradient wells exhibit spatial variation; 2) when statistical limits constructed from upgradient wells would not be conservative from a regulatory perspective; or 3) when downgradient water quality is not impacted compared to upgradient water quality for the same parameter. Periodic updating of background statistical limits is necessary as natural systems continuously change due to physical changes to the environment. For intrawell analyses, data for all wells and constituents are re-evaluated when a minimum of four new data points are available. These four (or more) new data points are used to determine if earlier concentrations are representative of present-day groundwater quality. For interwell comparisons, newer data are evaluated during each event for new outliers, and prediction limits are constructed using all available data from upgradient wells.

For intrawell comparisons, Mann-Whitney (Wilcoxon rank-sum) tests were used to compare the medians of historical data (June 2016 - July 2017) to the new compliance samples (October 2017 – September 2019). Results were evaluated to determine if the medians of the two groups were similar at the 99% confidence level. Where no significant difference was found, the new compliance data were added to the background dataset. Where a statistically significant difference was found between the medians of the two groups, the data were reviewed to evaluate the cause of the difference and to determine if adding newer data to the background dataset, replacing the background dataset with the newer data, or continuing to use the existing background dataset was most appropriate. If the differences appeared to have been caused by a release, then the previous background dataset would have continued to be used.

The complete Mann-Whitney test results and a summary of the significant findings can be found in Attachment B. Significant differences were found between the two groups for the following well/constituent pairs:

- Boron in downgradient well MW-001S;
- Calcium at upgradient well MW-008S and downgradient wells MW-016D, MW-016I, and MW-17I;

- Chloride at downgradient wells MW-001I, MW-001S, MW-002D, MW-002S, MW-015I, MW-015S, MW-016D, MW-021S, and MW-17I;
- Fluoride in downgradient wells MW-17I and MW-17S and upgradient well MW-6S;
- Sulfate in downgradient wells MW-015I and MW-016D; and,
- TDS in downgradient wells MW-015I, MW-016D, MW-016S, and MW-17I.

Upon review of the differences between the two groups, it was found that for all well-parameter pairs except chloride at MW-002D, chloride and TDS at MW-016D, and fluoride, calcium, and chloride at MW-17I, patterns were similar to upgradient wells and affected all constituents. Similar patterns between upgradient and downgradient monitoring wells is an indication that groundwater quality may be naturally changing unrelated to the site. Therefore, construction of intrawell prediction limits at these wells utilized all historic data through July 2019. During the next background update, data from all wells and parameters will be re-evaluated to determine whether the more historic data are no longer representative of present-day groundwater quality.

Increasing trends were observed for chloride at MW-002D and chloride and TDS at MW-016D. Thus, the background dataset was not updated to include the more recent data for these well-parameter pairs. While recent concentrations of fluoride at downgradient well MW-17I were significantly higher than the background dataset, the concentrations appear to have stabilized. Additionally, recent concentrations of calcium and chloride at MW-17I have lowered and better resemble concentrations in upgradient wells. Thus, the dataset for calcium, chloride, and TDS at MW-17I will use the eight most recent sample events.

2.3.3 Updated Prediction Limits

After the revised background set was established, a parametric or non-parametric analysis was selected based on the distribution of the data and the frequency of non-detect data. Estimated results less than the practical quantitation limit (PQL) – i.e., “J-flagged” data – were considered detections and the estimated results were used in the statistical analyses. Non-parametric analyses were selected for datasets with at least 50% non-detect data or datasets that could not be normalized. Parametric analyses were selected for datasets (either transformed or untransformed) that passed the Shapiro-Wilk / Shapiro-Francia test for normality. The Kaplan-Meier non-detect adjustment was applied to datasets with between 15% and 50% non-detect data. For datasets with fewer than 15% non-detect data, non-detect data were replaced with one half of the PQL. The selected analysis (i.e., parametric or non-parametric) and transformation (where applicable) for each background dataset are shown in Attachment B.

Intrawell UPLs were updated using a one-of-three retesting procedure for all the historical data through September 2019 to represent background values, except for the specific cases listed above. Intrawell LPLs were also generated for pH. The updated prediction limits are summarized in Table 2.

The intrawell UPLs were calculated for a one-of-two retesting procedure; i.e., if at least one sample in a series of two does not exceed the UPL, then it can be concluded that an SSI has not occurred. In practice, where the initial result did not exceed the UPL, a second sample was not collected. The retesting procedures are able to achieve an acceptably high statistical power to detect changes at downgradient wells for constituents evaluated using intrawell prediction limits.

2.4 Conclusions

Four detection monitoring events were completed in accordance with the CCR Rule. Additional sampling events completed during the detection monitoring period were also included in the new dataset. The laboratory and field data from these events were reviewed prior to statistical analysis, with no QA/QC issues identified that impacted data usability. Mann-Whitney tests were completed to evaluate whether data from the detection monitoring events could be added to the existing background dataset. Where appropriate, the background datasets were updated, and UPLs and LPLs were recalculated. Intrawell prediction limits using a one-of-two retesting procedure were updated for all Appendix III parameters.

SECTION 3

REFERENCES

American Electric Power (AEP). 2017. Statistical Analysis Plan – Rockport Plant. January.

Geosyntec Consultants, 2018. Statistical Analysis Summary. Landfill – Rockport Plant. January.

Geosyntec Consultants, 2019. Alternative Source Demonstration Report – Federal CCR Rule. Rockport Plant Landfill. January.

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

TABLES

**Table 1: Groundwater Data Summary
Rockport - Landfill**

Parameter	Unit	MW-001D								MW-001I								
		10/4/2017	1/3/2018	6/7/2018	8/16/2018	11/14/2018	2/13/2019	5/23/2019	7/23/2019	10/4/2017	6/6/2018	8/16/2018	11/14/2018	2/13/2019	4/1/2019	5/23/2019	7/23/2019	9/11/2019
		2017-D1	2017-D1-R1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2019-D1	2019-D1-R1	2017-D1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2018-D2-R2	2019-D1	2019-D1-R1	2019-D1-R2
Boron	mg/L	0.002 J	-	0.103	0.02	0.100	0.100 U	0.020 J	-	0.018	0.110	0.056	0.050 J	-	-	0.020 J	-	-
Calcium	mg/L	65.7	-	70.9	-	71.9	-	73.6	-	68.1	66.4	-	65.5	-	-	67.7	-	-
Chloride	mg/L	10.3	-	43.1	43.8	46.9	-	32.1	-	27.5	28.6	-	28.8	30.1	34.1	33.1	30.6	33.5
Fluoride	mg/L	0.850	0.310	0.300	-	0.300	-	0.270	-	0.370	0.420	-	0.410	-	-	0.420	-	-
Total Dissolved Solids	mg/L	339	-	345	-	340	-	346	-	327	321	-	308	-	-	341	-	-
Sulfate	mg/L	10.4	-	39.5	-	39.8	-	45.3	39.2	44.1	42.0	-	40.7	-	-	40.2	-	-
pH	SU	7.3	-	8.2	7.4	7.8	7.4	7.2	7.3	7.1	7.5	7.3	7.8	7.5	7.4	7.0	7.2	7.3

Parameter	Unit	MW-001S									MW-002D								
		10/4/2017	1/3/2018	6/6/2018	8/16/2018	11/14/2018	2/13/2019	4/1/2019	5/23/2019	7/23/2019	10/4/2017	6/7/2018	8/16/2018	11/12/2018	2/13/2019	4/1/2019	5/22/2019	7/24/2019	9/11/2019
		2017-D1	2017-D1-R1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2018-D2-R2	2019-D1	2019-D1-R1	2017-D1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2018-D2-R2	2019-D1	2019-D1-R1	2019-D1-R2
Boron	mg/L	0.044	-	0.046	-	0.040 J	-	-	0.100 U	-	0.041	0.076	0.038	0.070 J	-	-	0.100 U	-	-
Calcium	mg/L	67.6	-	71.8	-	71.9	-	-	73.7	-	67.7	78.6	-	72.4	-	-	98.5	114	103
Chloride	mg/L	33.1	39.9	34.9	37.3	38.1	40.4	38.5	33.7	30.0	22.4	43.1	93.0	51.3	40.9	69.4	135	156	110
Fluoride	mg/L	0.570	-	0.610	-	0.630	-	-	0.550	-	0.200	0.220	-	0.200	-	-	0.180	-	-
Total Dissolved Solids	mg/L	396	-	386	-	410	-	-	388	-	332	361	-	348	-	-	531	540	443
Sulfate	mg/L	34.6	-	34.2	-	32.3	-	-	36.3	-	42.3	39.8	-	36.1	-	-	33.3	-	-
pH	SU	7.1	7.6	7.5	7.3	7.5	7.5	7.4	7.9	7.4	7.2	7.6	7.3	7.4	7.3	7.5	7.3	6.3	7.2

Parameter	Unit	MW-002I							MW-002S							
		10/4/2017	1/4/2018	6/6/2018	8/16/2018	11/13/2018	2/13/2019	5/22/2019	10/4/2017	6/6/2018	11/13/2018	2/13/2019	4/1/2019	5/22/2019	7/23/2019	9/11/2019
		2017-D1	2017-D1-R1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2019-D1	2017-D1	2018-D1	2018-D2	2018-D2-R1	2018-D2-R2	2019-D1	2019-D1-R1	2019-D1-R2
Boron	mg/L	0.03	-	0.052	0.03	0.050 J	0.100 U	0.100 U	0.045	0.073	0.060 J	-	-	0.100 U	-	-
Calcium	mg/L	72.5	-	72.7	-	64.8	-	64.3	60.7	57.0	54.7	-	-	51.3	-	-
Chloride	mg/L	29.8	28.8	31.8	31.5	27.9	-	25.4	21.2	25.3	24.8	26.5	26.1	26.4	26.8	26.6
Fluoride	mg/L	0.280	-	0.320	-	0.320	-	0.320	0.250	0.290	0.280	-	-	0.300	0.300	-
Total Dissolved Solids	mg/L	343	-	356	-	308	-	328	323	329	272	-	-	352	339	-
Sulfate	mg/L	45.5	-	43.2	-	39.0	-	39.2	30.0	28.9	24.7	-	-	26.2	-	-
pH	SU	7.2	7.8	7.6	7.5	7.2	7.6	7.3	7.2	7.6	7.5	7.8	7.7	7.7	7.5	7.3

Parameter	Unit	MW-6S							MW-008I					MW-008S				
		10/3/2017	6/5/2018	8/15/2018	9/26/2018	11/1/2018	11/15/2018	5/23/2019	10/4/2017	12/12/2017	6/4/2018	11/14/2018	5/23/2019	10/4/2017	12/12/2017	6/5/2018	11/13/2018	5/23/2019
		2017-D1	2018-D1	*	*	*	2018-D2	2019-D1	2017-D1	*	2018-D1	2018-D2	2019-D1	2017-D1	*	2018-D1	2018-D2	2019-D1
Boron	mg/L	0.094	0.09	0.101	0.080 J	0.040 J	0.040 J	0.020 J	0.096	-	0.044	0.060 J	0.030 J	0.016	-	0.058	0.040 J	0.100 U
Calcium	mg/L	44.8	45.2	52.8	44.1	42.3	38.8	52.5	74.7	-	76.7	67.7	70.7	39.8	-	42.3	35.6	35.9
Chloride	mg/L	3.28	2.38	11.9	6.83	3.52	3.91	9.64	20.1	19.3	20.9	20.6	21.0	22.4	22.5	23.8	22.9	23.6
Fluoride	mg/L	0.710	0.890	0.810	0.840	0.860	0.880	0.950	0.270	0.290	0.290	0.330	0.340	0.520	0.560	0.590	0.570	0.580
Total Dissolved Solids	mg/L	261	225	277	261	225	196	315	378	-	407	390	371	317	-	324	288	312
Sulfate	mg/L	7.50	3.80	15.6	9.80	4.90	5.20	16.8	85.9	87.1	79.0	68.2	62.3	23.1	24.9	21.2	19.5	20.4
pH	SU	7.3	7.5	7.7	-	7.3	7.9	7.4	7.6	7.9	7.7	7.2	7.2	7.8	7.7	7.6	7.6	7.4

Notes:

mg/L: milligrams per liter

SU: standard unit

U: Parameter was not present in concentrations above the method detection limit and is reported as the reporting limit

J: Estimated value. Parameter was detected in concentrations below the reporting limit

--: Not Measured

D1: First semi-annual detection monitoring event of the year

D2: Second semi-annual detection monitoring event of the year

R1: First verification event associated with detection monitoring round

R2: Second verification event associated with detection monitoring round

*Samples noted with an asterisk were not associated with a specific semiannual detection monitoring event but were included in the background update.

**Table 1: Groundwater Data Summary
Rockport - Landfill**

Parameter	Unit	MW-11S					MW-14S					MW-015I						
		10/3/2017	12/13/2017	11/14/2018	6/5/2018	5/23/2019	10/4/2017	12/12/2017	6/5/2018	11/13/2018	5/23/2019	10/4/2017	12/12/2017	1/4/2018	6/6/2018	8/16/2018	11/13/2018	5/23/2019
		2017-D1	*	2018-D2	2018-D1	2019-D1	2017-D1	*	2018-D1	2018-D2	2019-D1	2017-D1	2017-D1-R1	2017-D1-R2	2018-D1	2018-D1-R1	2018-D2	2019-D1
Boron	mg/L	0.09	-	0.110	0.076	0.080 J	0.042	-	0.046	0.040 J	0.100 U	0.08	-	0.04	0.066	-	0.070 J	0.030 J
Calcium	mg/L	43.7	-	56.4	55.8	54.3	67.0	-	61.1	59.2	66.9	44.6	-	-	47.0	-	39.9	47.8
Chloride	mg/L	3.68	2.40	1.79	6.98	1.62	29.9	30.0	27.1	29.0	28.6	23.7	22.8	-	25.1	-	23.7	18.0
Fluoride	mg/L	0.890	0.820	0.720	0.620	0.820	0.340	0.340	0.390	0.370	0.370	0.230	0.220	-	0.260	-	0.250	0.260
Total Dissolved Solids	mg/L	200	-	238	276	279	376	-	360	344	390	287	-	-	279	-	248	260
Sulfate	mg/L	9.30	8.00	5.90	21.7	14.7	34.8	35.5	29.4	30.8	32.4	27.3	26.7	-	25.3	-	25.3	20.9
pH	SU	7.2	8.3	7.6	7.2	7.7	7.0	7.6	7.6	6.8	7.2	7.3	7.8	7.8	8.1	7.4	7.6	7.3

Parameter	Unit	MW-015S						MW-016D										
		10/4/2017	6/5/2018	11/13/2018	5/23/2019	7/23/2019	9/11/2019	10/4/2017	1/4/2018	6/6/2018	8/16/2018	11/14/2018	2/11/2019	4/1/2019	5/22/2019	7/24/2019	9/11/2019	
		2017-D1	2018-D1	2018-D2	2019-D1	2019-D1-R1	2019-D1-R2	2017-D1	2018-D1-R1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2018-D2-R2	2019-D1	2019-D1-R1	2019-D1-R2	
Boron	mg/L	0.095	0.078	0.040 J	0.100 U	-	-	0.059	-	0.033	-	0.070 J	-	-	0.030 J	-	-	
Calcium	mg/L	48.3	44.7	41.8	41.3	-	-	80.4	80.1	90.2	83.8	84.1	-	-	88.5	95.6	109	
Chloride	mg/L	13.3	8.84	8.78	8.88	-	-	81.5	86.0	108	99.7	102	109	107	104	106	125	
Fluoride	mg/L	0.620	0.690	0.720	0.880	0.870	0.810	0.220	-	0.220	-	0.210	-	-	0.200	-	-	
Total Dissolved Solids	mg/L	300	274	232	207	-	-	383	-	434	447	434	439	429	460	457	523	
Sulfate	mg/L	23.2	16.3	13.1	10.2	-	-	40.0	37.9	38.6	-	38.6	-	-	38.0	-	-	
pH	SU	7.4	7.2	7.5	7.5	5.7	7.4	7.6	7.7	7.3	7.3	7.4	7.4	7.3	7.3	7.0	7.3	

Parameter	Unit	MW-016I							MW-016S						
		10/4/2017	1/4/2018	6/6/2018	8/16/2018	11/14/2018	2/11/2019	5/22/2019	10/4/2017	1/4/2018	6/6/2018	8/16/2018	11/14/2018	2/11/2019	5/22/2019
		2017-D1	2017-D1-R1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2019-D1	2017-D1	2017-D1-R1	2018-D1	2018-D1-R1	2018-D2	2018-D2-R1	2019-D1
Boron	mg/L	0.05	-	0.046	-	0.139	0.020 J	0.030 J	0.061	-	0.109	0.034	0.107	0.020 J	0.030 J
Calcium	mg/L	84.0	71.9	82.9	61.6	53.7	-	56.0	108	109	108	109	104	-	99.2
Chloride	mg/L	70.8	71.2	58.6	61.1	47.8	-	45.5	19.3	-	17.3	-	16.2	-	18.0
Fluoride	mg/L	0.100 J	-	0.170	-	0.170	-	0.170	0.410	-	0.420	-	0.390	-	0.380
Total Dissolved Solids	mg/L	495	487	480	456	408	-	405	503	517	520	533	548	517	493
Sulfate	mg/L	40.4	-	38.7	-	32.5	-	33.2	45.0	-	40.8	-	40.3	-	34.5
pH	SU	7.5	7.7	7.4	7.2	7.3	7.4	7.4	7.3	7.3	7.2	7.1	7.0	7.1	7.1

Parameter	Unit	MW-17I											MW-17S				
		10/4/2017	12/13/2017	1/4/2018	6/5/2018	8/16/2018	9/26/2018	11/13/2018	2/12/2019	4/1/2019	5/23/2019	7/23/2019	9/12/2019	10/4/2017	6/5/2018	11/13/2018	5/23/2019
		2017-D1	2017-D1	2017-D1-R1	2018-D1	2018-D1-R1	2018-D1-R2	2018-D2	2018-D2-R1	2018-D2-R2	2019-D1	2019-D1-R1	2019-D1-R2	2017-D1	2018-D1	2018-D2	2019-D1
Boron	mg/L	0.061	-	-	0.081	-	-	0.070 J	-	-	0.040 J	-	-	0.033	0.045	0.050 J	0.030 J
Calcium	mg/L	63.0	-	-	51.2	-	-	36.5	-	-	45.1	-	-	34.1	32.4	33.1	32.7
Chloride	mg/L	115	86.0	110	80.2	61.1	-	50.1	-	-	60.2	-	-	10.5	10.8	11.5	12.0
Fluoride	mg/L	0.660	0.760	0.650	0.870	0.980	1.03	1.00	1.05	1.08	1.07	1.06	1.08	0.890	0.980	0.910	1.08
Total Dissolved Solids	mg/L	486	-	471	418	376	-	328	-	-	352	-	-	214	214	196	217
Sulfate	mg/L	46.6	44.8	-	41.0	-	-	29.6	-	-	32.8	-	-	10.7	9.50	8.40	7.70
pH	SU	7.4	7.5	7.8	7.4	7.5	-	7.6	7.7	7.6	7.5	6.7	7.6	7.4	7.4	7.5	7.6

Notes:

mg/L: milligrams per liter

SU: standard unit

U: Parameter was not present in concentrations above the method detection limit and is reported as the reporting limit

J: Estimated value. Parameter was detected in concentrations below the reporting limit

--: Not Measured

D1: First semi-annual detection monitoring event of the year

D2: Second semi-annual detection monitoring event of the year

R1: First verification event associated with detection monitoring round

R2: Second verification event associated with detection monitoring round

*Samples noted with an asterisk were not associated with a specific semiannual detection monitoring event but were included in the background update.

**Table 1: Groundwater Data Summary
Rockport - Landfill**

Parameter	Unit	MW-021D						MW-021I					MW-021S						
		10/4/2017	1/11/2018	2/8/2018	6/6/2018	11/13/2018	5/22/2019	10/4/2017	6/6/2018	11/13/2018	5/21/2019	5/22/2019	10/4/2017	12/12/2017	6/6/2018	11/14/2018	2/11/2019	4/1/2019	5/21/2019
		2017-D1	2017-D1-R1	2017-D1-R2	2018-D1	2018-D2	2019-D1	2017-D1	2018-D1	2018-D2	2019-D1	2019-D1	2017-D1	2017-D1-R1	2018-D1	2018-D2	2018-D2-R1	2018-D2-R2	2019-D1
Boron	mg/L	0.092	0.088	0.0921	0.03	0.040 J	0.100 U	0.029	0.034	0.080 J	0.100 U	-	0.027	-	0.039	0.060 J	0.100 U	-	0.100 U
Calcium	mg/L	67.8	-	-	70.7	62.1	69.3	63.9	66.5	61.5	62.4	-	59.8	-	52.8	55.0	-	-	52.5
Chloride	mg/L	18.5	-	-	19.9	18.8	19.1	20.5	20.6	20.2	18.1	-	17.7	18.0	17.5	17.9	17.9	17.5	16.0
Fluoride	mg/L	0.320	-	-	0.400	0.340	0.360	0.310	0.380	0.360	0.360	-	0.600	0.600	0.660	0.660	-	-	0.650
Total Dissolved Solids	mg/L	339	-	-	347	314	348	306	317	294	278	-	300	-	283	278	-	-	258
Sulfate	mg/L	37.4	-	-	38.4	35.2	36.8	45.7	44.6	43.4	36.0	-	20.1	21.1	18.7	17.0	-	-	14.1
pH	SU	7.5	7.0	-	7.7	7.7	7.5	7.4	7.5	7.7	7.3	7.5	7.5	8.0	7.8	7.3	7.7	7.8	7.6

Notes:

mg/L: milligrams per liter

SU: standard unit

U: Parameter was not present in concentrations above the method detection limit and is reported as the reporting limit

J: Estimated value. Parameter was detected in concentrations below the reporting limit

--: Not Measured

D1: First semi-annual detection monitoring event of the year

D2: Second semi-annual detection monitoring event of the year

R1: First verification event associated with detection monitoring round

R2: Second verification event associated with detection monitoring round

**Table 2: Revised Prediction Limits
Rockport - Landfill**

Parameter	Unit	Description	MW-001D	MW-001I	MW-001S	MW-002D	MW-002I	MW-002S	MW-015I	MW-015S
Boron	mg/L	Intrawell Background Value (UPL)	0.151	0.122	0.0686	0.106	0.0632	0.120	0.0976	0.146
Calcium	mg/L	Intrawell Background Value (UPL)	79.4	72.3	79.8	114	79.9	67.0	55.0	70.5
Chloride	mg/L	Intrawell Background Value (UPL)	62.4	36.2	43.0	26.0	33.8	29.8	72.2	28.6
Fluoride	mg/L	Intrawell Background Value (UPL)	0.339	0.473	0.686	0.232	0.372	0.328	0.367	1.05
pH	SU	Intrawell Background Value (UPL)	8.3	8.0	8.1	8.5	8.5	8.1	8.2	7.8
pH		Intrawell Background Value (LPL)	6.6	6.5	6.7	6.3	6.6	6.4	6.7	6.8
Sulfate	mg/L	Intrawell Background Value (UPL)	48.1	48.0	38.5	48.0	49.5	35.3	48.2	38.9
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	364	355	422	374	382	379	430	439

Parameter	Unit	Description	MW-016D	MW-016I	MW-016S	MW-17I	MW-17S	MW-021D	MW-021I	MW-021S
Boron	mg/L	Intrawell Background Value (UPL)	0.115	0.156	0.147	0.105	0.0751	0.115	0.0831	0.0695
Calcium	mg/L	Intrawell Background Value (UPL)	100	130	122	112	40.9	82.8	72.8	63.4
Chloride	mg/L	Intrawell Background Value (UPL)	75.5	106	23.6	201	16.1	20.5	22.8	19.9
Fluoride	mg/L	Intrawell Background Value (UPL)	0.220	0.227	0.510	1.25	1.32	0.425	0.409	0.719
pH	SU	Intrawell Background Value (UPL)	7.9	7.9	8.2	8.1	7.9	8.6	8.6	8.8
pH		Intrawell Background Value (LPL)	6.8	6.8	6.2	6.7	7.1	6.6	7.3	6.4
Sulfate	mg/L	Intrawell Background Value (UPL)	42.5	45.0	53.2	58.1	17.1	43.2	51.9	24.6
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	398	595	561	736	299	376	360	324

Notes

UPL: Upper prediction limit

LPL: Lower prediction limit

ATTACHMENT A

Certification by a Qualified Professional Engineer

Certification by a Qualified Professional Engineer

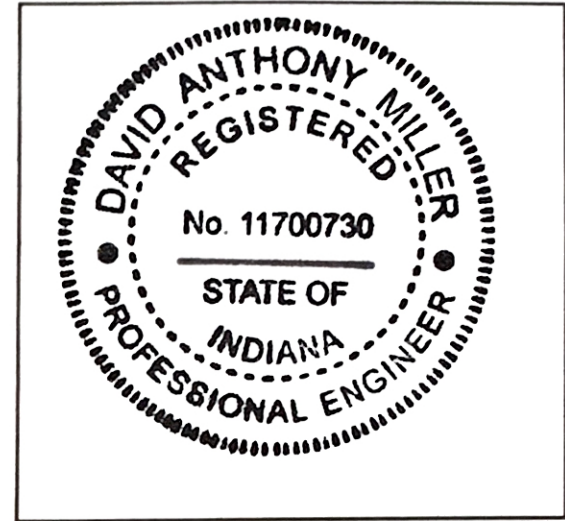
I certify that the selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Rockport Landfill CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature



11700730

License Number

INDIANA

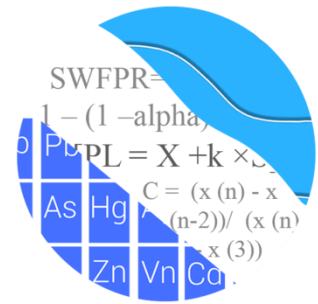
Licensing State

02.27.2020

Date

ATTACHMENT B
Statistical Analysis Output

GROUNDWATER STATS CONSULTING



January 29, 2020

Geosyntec Consultants
Attn: Ms. Allison Kreinberg
941 Chatham Lane, Suite #103
Columbus, OH 43221

RE: Rockport Landfill Background Update - 2019

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the background update of groundwater data for American Electric Power's Rockport Landfill. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015) as well as with the USEPA Unified Guidance (2009).

Sampling began at Rockport Landfill for the CCR program in 2016, and at least 8 background samples have been collected at each of the groundwater monitoring wells. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** MW-008I, MW-008S, MW-014S, MW-11S, MW-6S
- **Downgradient wells:** MW-001D, MW-001I, MW-001S, MW-002D, MW-002I, MW-002S, MW-015I, MW-015S, MW-016D, MW-016I, MW-016S, MW-021D, MW-021I, MW-021S, MW-17I, and MW-17S

Data were provided electronically to Groundwater Stats Consulting, and the statistical analysis was performed according to the groundwater data screening that was performed in December 2017 by GSC and approved by Dr. Kirk Cameron, PhD Statistician with MacStat Consulting and primary author of the USEPA Unified Guidance. The background update performed during this analysis was reviewed by Dr. Cameron.

The following CCR Detection Monitoring constituents were evaluated:

- **Appendix III parameters** – boron, calcium, chloride, fluoride, pH, sulfate, and TDS;

Time series plots for Appendix III parameters at all wells are provided for the purpose of screening data at these wells (Figure A). Additionally, box plots are included for all constituents at upgradient and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells.

Data at all wells were screened during the December 2017 analysis for the following: 1) outliers; 2) trends; 3) most appropriate statistical method for Appendix III parameters based on site characteristics of groundwater data upgradient of the facility; and 4) eligibility of downgradient wells when intrawell statistical methods are recommended. Power curves were provided with this screening to demonstrate that the selected statistical methods for Appendix III parameters comply with the USEPA Unified Guidance recommendations as discussed below.

Summary of Statistical Method:

- 1) Intrawell prediction limits, combined with a 1-of-2 resample plan for boron, calcium, chloride, fluoride, pH, sulfate, and TDS

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are nondetects, a nonparametric test is utilized. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009), data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% nondetects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for nondetects is the practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% nondetects, the Kaplan-Meier nondetect adjustment is applied to the background data. This technique adjusts the mean

and standard deviation of the historical concentrations to account for concentrations below the reporting limit.

- Nonparametric prediction limits are used on data containing greater than 50% nondetects.

Historical Summary – December 2017 Background Screening

Outlier Evaluation

Time series plots are used to identify suspected outliers, or extreme values that would result in limits that are not conservative from a regulatory perspective, in proposed background data. Suspected outliers at all wells for Appendix III parameters were formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits.

Tukey's outlier test noted a few outliers which were included on the Outlier Summary Table and accompanying graphs on the previous screening. Any values identified as outliers are plotted in a lighter font on the time series graph. While the test identified a few high outliers for pH in upgradient and downgradient wells, no values were flagged at that time. In the case of lithium in well MW-001I and selenium in well MW-015I where the test identified both a high and low outlier, only the high values were flagged as outlier since the low values were reported in more recent data, and additional observations will be needed to determine whether ongoing concentrations will continue to decrease. Overall, when additional data are available, a determination will be made as to whether those values represent natural variation or whether they are anomalous. The test also identified an outlier for fluoride in well MW-002S; however, this value was similar to surrounding wells and, therefore, was not flagged at this time. A substitution of the most recent reporting limit was applied when varying detection limits existed in data.

No true seasonal patterns were observed on the time series plots for any of the detected data; therefore, no deseasonalizing adjustments were made to the data. When seasonal patterns are observed, data may be deseasonalized so that the resulting limits will correctly account for the seasonality as a predictable pattern rather than random variation or a release.

While trends may be visual, a quantification of the trend and its significance is needed. The Sen's Slope/Mann Kendall trend test was used to evaluate all data at each well to identify statistically significant increasing or decreasing trends. In the absence of suspected contamination, significant trending data are typically not included as part of

the background data used for construction of prediction limits. This step serves to eliminate the trend and, thus, reduce variation in background. When statistically significant decreasing trends are present, earlier data are evaluated to determine whether earlier concentration levels are significantly different than current reported concentrations and will be deselected as necessary. When the historical records of data are truncated for the reasons above, a summary report will be provided to show the date ranges used in construction of the statistical limits.

The results of the trend analyses showed several statistically significant decreasing trends, along with a couple statistically significant increasing trends as may be seen on the Trend Test Summary Table that accompanies the trend tests. All of these trends are relatively low in magnitude when compared to average concentrations; therefore, no adjustments were made to the data sets.

Appendix III – Determination of Spatial Variation

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach. Interwell tests, which compare downgradient well data to statistical limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells would not be conservative from a regulatory perspective; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameter.

The ANOVA identified variation among upgradient well data for all of the Appendix III parameters. Therefore, all data were further evaluated as described for the appropriateness of intrawell testing to accommodate the groundwater quality. A summary table of the ANOVA results was included with the previous screening.

Appendix III – Intrawell Method Eligibility Screening

Intrawell limits constructed from carefully screened background data from within each well serve to provide statistical limits that are conservative (i.e. lower) from a regulatory perspective, and that will rapidly identify a change in more recent compliance data from within a given well. This statistical method removes the element of variation from across wells and eliminates the chance of mistaking natural spatial variation for a release from the facility. Prior to performing intrawell prediction limits, several steps were required to

reasonably demonstrate downgradient water quality does not have existing impacts from the practices of the facility.

Exploratory data analysis was used as a general comparison of concentrations in downgradient wells for all Appendix III parameters recommended for intrawell analyses to concentrations reported in upgradient wells. Upper tolerance limits were used in conjunction with confidence intervals to determine whether the estimated averages in downgradient wells are higher than observed levels upgradient of the facility. The upper tolerance limits were constructed to represent the extreme upper range of possible background levels at the site.

In cases where downgradient average concentrations are higher than observed concentrations upgradient for a given constituent, an independent study and hydrogeological investigation would be required to identify local geochemical conditions and expected groundwater quality for the region to justify an intrawell approach. Such an assessment is beyond the scope of services provided by Groundwater Stats Consulting. When there is not an obvious explanation for observed concentration differences in downgradient wells relative to reported concentrations in upgradient wells, interwell prediction limits will initially be selected for the statistical method until further evidence shows that concentrations are due to natural variation rather than a result of the facility.

Parametric tolerance limits were constructed with a target of 99% confidence and 95% coverage using pooled upgradient well data for each of the Appendix III parameters recommended for intrawell analyses. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. As more data are collected, the background population is better represented and the confidence and coverage levels increase.

Confidence intervals were constructed on downgradient wells for each of the Appendix III parameters exhibiting spatial variation, using the tolerance limits discussed above, to determine intrawell eligibility. When the entire confidence interval is above a background standard for a given parameter, interwell methods are initially recommended as the statistical method. Therefore, only parameters with confidence intervals which did not exceed background standards are eligible for intrawell prediction limits.

Confidence intervals for the above parameters were found to be within their respective background limit for boron, fluoride, pH, and sulfate; while the confidence intervals for calcium, chloride, and TDS were above the background standards. Therefore, intrawell

methods are recommended for boron, fluoride, pH, and sulfate. Interwell methods were initially recommended for calcium, chloride, and TDS., however; a demonstration from upgradient wells supports natural variation in groundwater and therefore, intrawell methods will be considered for all parameters.

Prior to this update, all available data through July 2017 at each well were originally used to establish intrawell background limits based on a 1-of-3 resample plan. Currently, enough samples have been collected to utilize a 1-of-2 resample plan, which will now be used for future comparisons. Downgradient measurements will then be compared to these background limits during each subsequent semi-annual sampling event.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits will be necessary to accommodate these types of changes. In the interwell case, newer upgradient well data are carefully screened for anomalous values that would result in a statistical limit that is not conservative from a regulatory perspective. On an annual basis, all upgradient well data are tested for increasing or decreasing trends, and data are adjusted as necessary. In the intrawell case, data for all wells and constituents are re-evaluated when a minimum of 4 new data points are available to determine whether earlier concentrations are representative of present-day groundwater quality. In some cases, the earlier portion of data are deselected prior to construction of limits in order to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Background Update Summary – July 2019

Prior to updating background data, samples were re-evaluated for all wells for intrawell parameters and all upgradient wells for interwell parameters using Tukey's outlier test and visual screening for all samples through July 2019 (Figure C). In some cases, wells had samples reported only through May 2019. Additionally, while no values were flagged at upgradient wells for parameters using interwell methods, Tukey's test noted outliers for fluoride in wells MW-001D and pH in wells MW-015S and MW-016D which were flagged in the database. Additionally, while Tukey's test did not identify an outlier for sulfate in well MW-001D, the lowest value was flagged to reduce variation and potentially inflate the statistical limit, as it was not consistent with remaining measurements within that well. In order to construct limits that were conservative from a regulatory perspective, the highest values for TDS in well MW-002D were flagged as

outliers. As mentioned above, flagged data are displayed in a lighter font and as a disconnected symbol on the time series reports, as well as in a lighter font on the accompanying data pages. An updated summary of Tukey's test results and flagged outliers follows this letter.

For constituents requiring intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through July 2017 to the new compliance samples at each well through the most recent sample to evaluate whether the groups are significantly different at the 99% confidence level, in which case background data may not be updated with compliance data (Figure D). A few statistically significant differences were found between the two groups for boron in downgradient well MW-001S; calcium in upgradient well MW-008S and downgradient wells MW-016D, MW-016I, and MW-17I; chloride in downgradient wells MW-001I, MW-001S, MW-002D, MW-002S, MW-015I, MW-015S, MW-016D, MW-021S, and MW-17I; fluoride in upgradient wells MW-6S and downgradient wells MW-17I and MW-17S; sulfate in downgradient wells MW-015I and MW-016D; and TDS in downgradient wells MW-015I, MW-016D, MW-016S, and MW-17I.

Generally, when the test concludes that the medians of the two groups are significantly different, particularly in the downgradient wells, the background are not updated to include the newer data unless it can be reasonably justified that the change in concentrations reflect a regional shift unrelated to practices at the site. In those cases, the more historical data may be deselected prior to construction of statistical limits so that limits are reflective of present-day conditions.

Typically, when the test concludes that the medians of the two groups are significantly different, particularly in the downgradient wells, the background are not updated to include the newer data but will be reconsidered in the future. This scenario applies to chloride in wells MW-002D and MW-016D, and TDS in well MW-016D, which shows a substantial increasing trend, has high recent concentrations, and yields a larger median difference between the two groups than other wells for their respective constituents. However, in the case of calcium in upgradient well MW-008S, since its concentrations are similar to those in one or more surrounding upgradient wells and it represents natural variation in groundwater quality, the background was, therefore, updated.

Regarding concentrations for boron in well MW-001S; calcium in wells MW-016D and MW-016I; chloride in wells MW-001I, MW-001S, MW-002S, MW-015I, MW-015S, and MW-021S; fluoride in wells MW-6S and MW-17S; sulfate in wells MW-015I and MW-016D; and TDS in wells MW-015I, MW-016S, and MW-17I; the Mann Whitney identified differences in which both shared very similar patterns and concentrations among other

of their respective wells where differences were not statistically significant. As a result, the background data for these well/constituent pairs were updated with compliance data. When similar patterns exist upgradient of the facility, it is an indication that groundwater quality is naturally changing and is unrelated to the landfill.

Recent concentrations for fluoride in downgradient well MW-171 have stabilized and will use the most recent 8 samples rather than historical samples as background data. Additionally, recent concentrations for calcium and chloride in downgradient well MW-171 have lowered and better resemble concentrations in upgradient wells, and therefore, these will also use the most recent 8 samples. All wells, with the exception of those that were not updated or are using the most recent samples, will use all historical data through July 2019 for construction of intrawell prediction limits. A summary of these results follows this letter and the test results are included with the Mann Whitney test section at the end of this report.

During the next background update, all data will be re-evaluated to determine whether the more historical data are no longer representative of present-day groundwater quality. In those cases, the earlier measurements may be deselected so that resulting statistical limits are representative of current groundwater conditions. A summary of these results follows this letter and the test results are included with the Mann Whitney test section at the end of this report.

Intrawell prediction limits using all reported data through July 2019, except for the cases mentioned combined with a 1-of-2 resample plan, were constructed and a summary of the updated limits follows this letter (Figure E).

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Rockport Landfill. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,



Andrew T. Collins
Groundwater Analyst



Kristina Rayner
Groundwater Statistician

Date Ranges

Date: 1/28/2020 12:53 PM

Rockport Landfill Client: Geosyntec Data: Rockport_LF

Calcium, total (mg/L)

MW-171 background:1/10/2017-5/23/2019

Chloride, total (mg/L)

MW-002D background:6/7/2016-7/19/2017

MW-016D background:6/7/2016-7/19/2017

MW-171 background:7/19/2017-5/23/2019

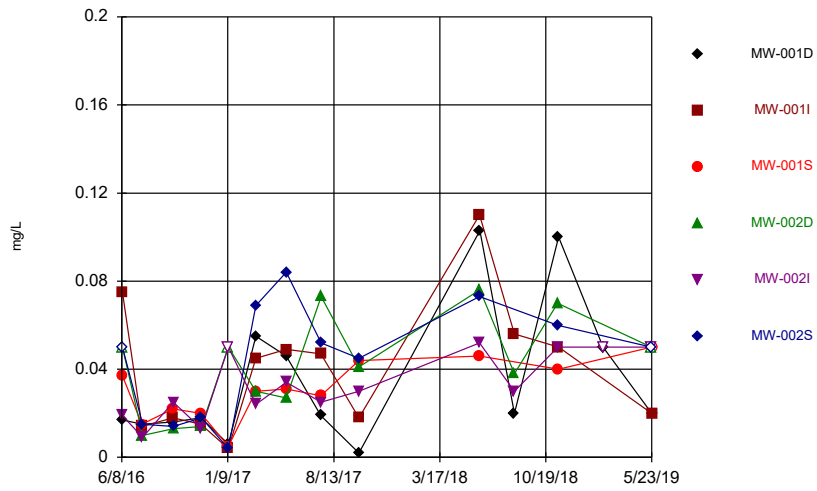
Fluoride, total (mg/L)

MW-171 background:6/5/2018-7/23/2019

Total Dissolved Solids [TDS] (mg/L)

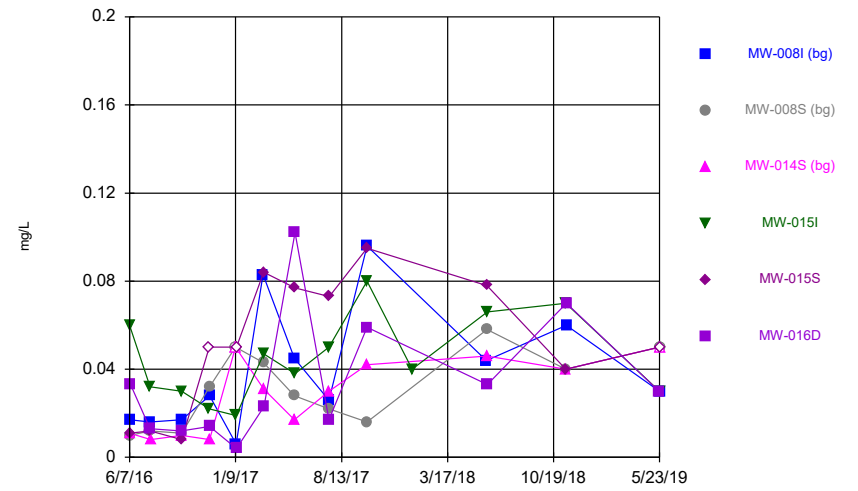
MW-016D background:6/7/2016-7/19/2017

Time Series



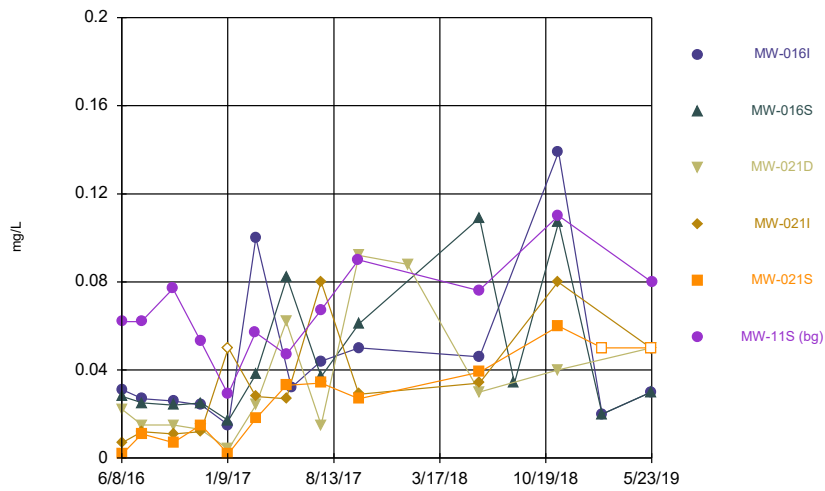
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



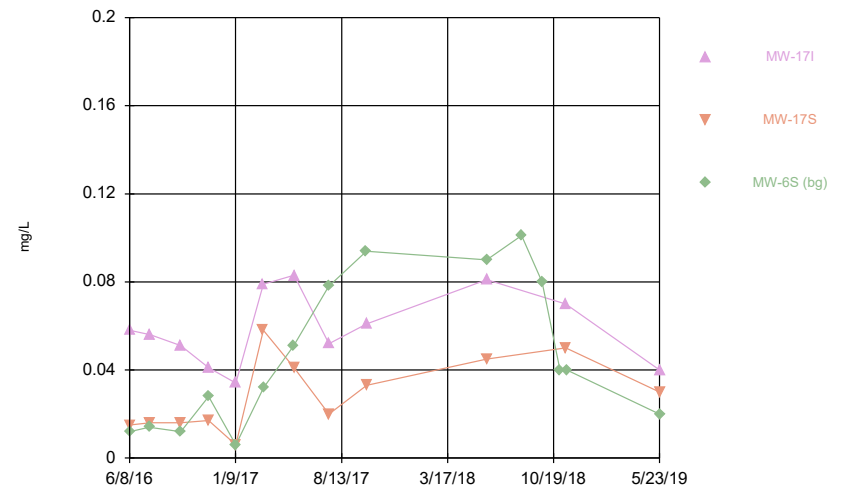
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Time Series



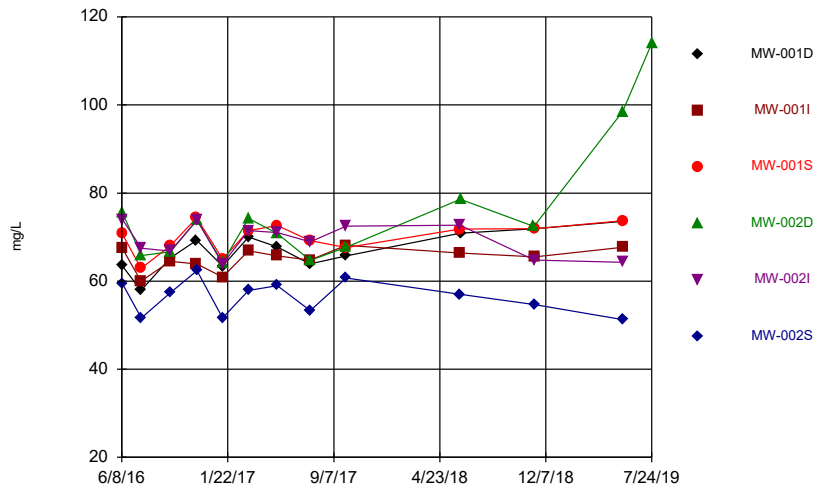
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Time Series



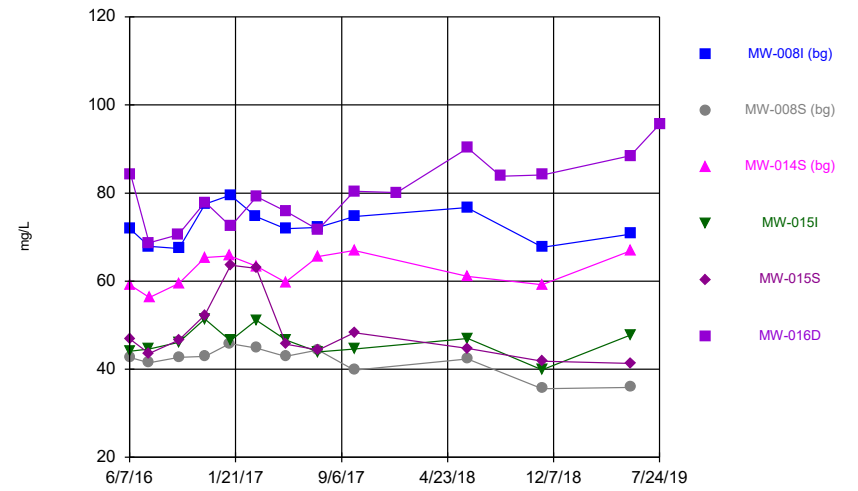
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Time Series



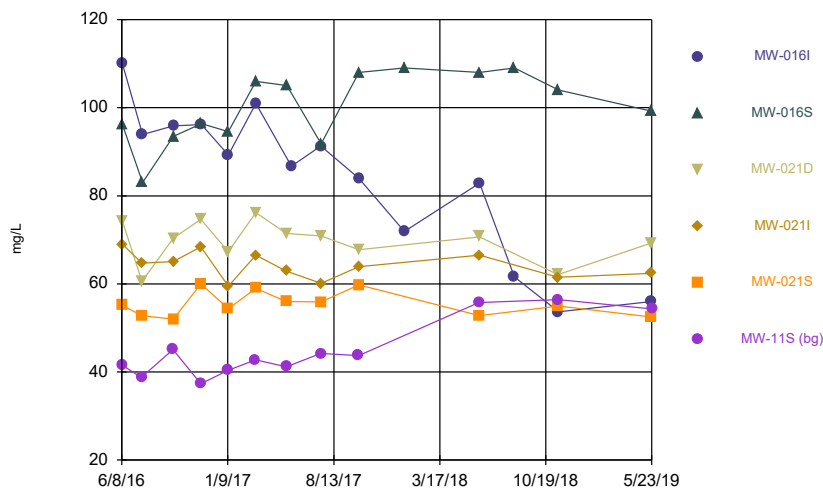
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Time Series



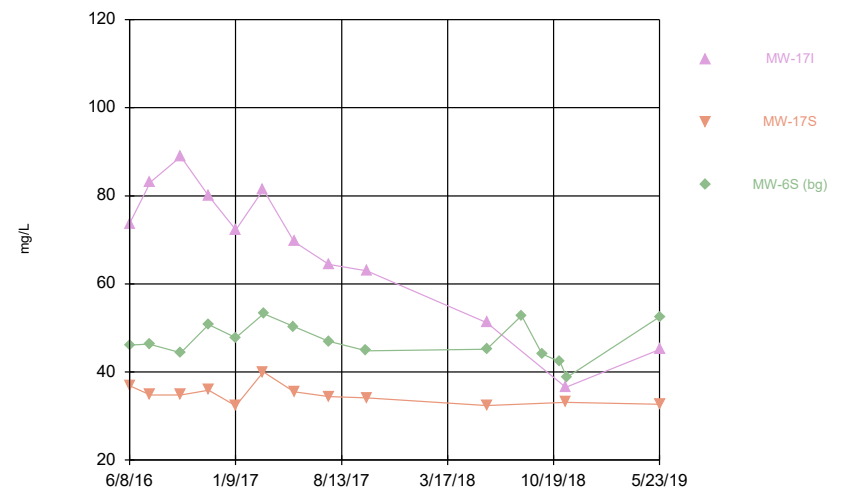
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



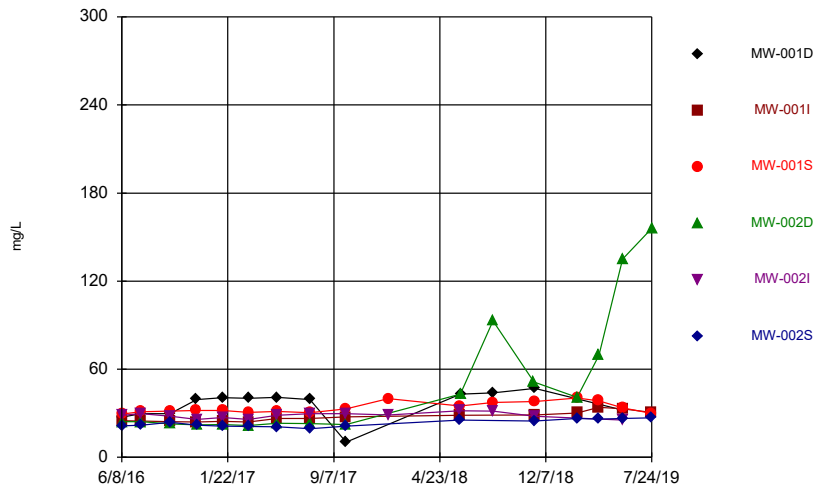
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Time Series



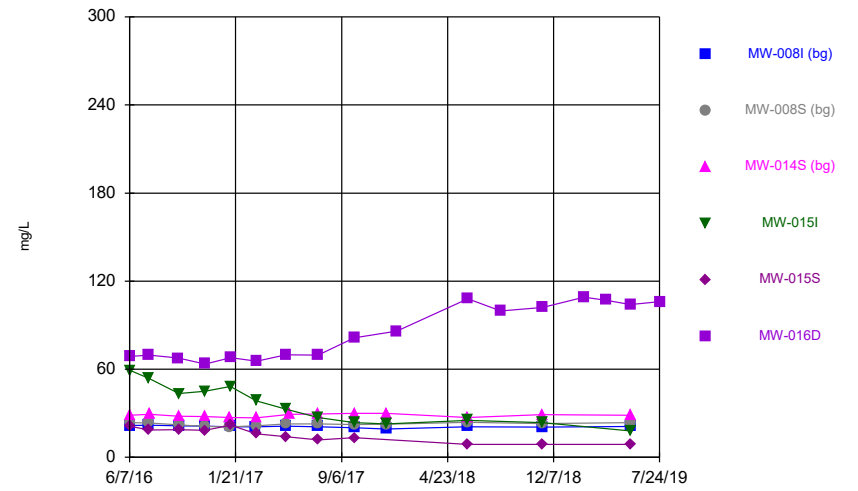
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Time Series



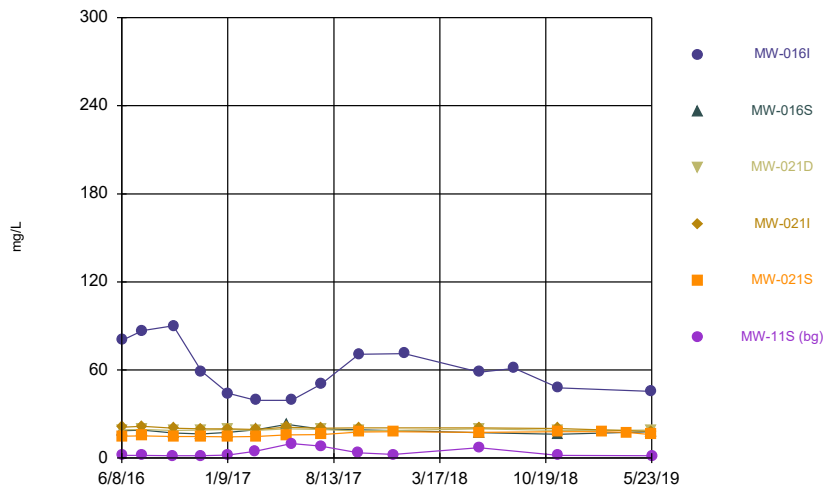
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



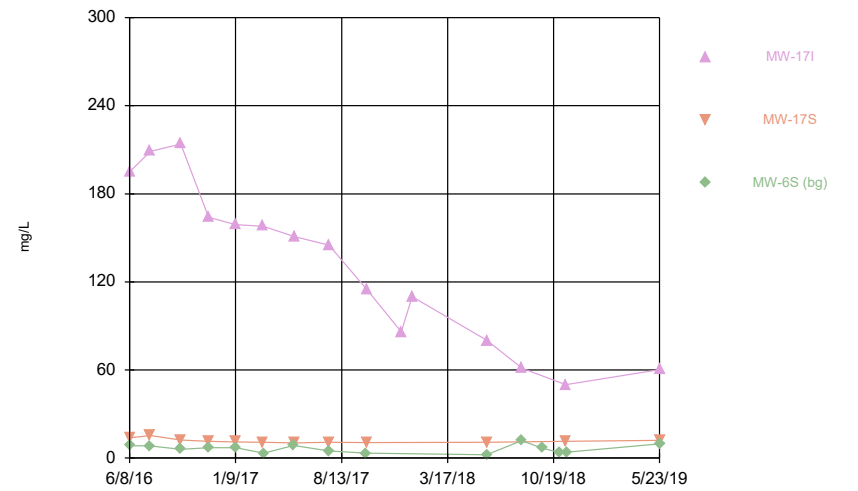
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Time Series



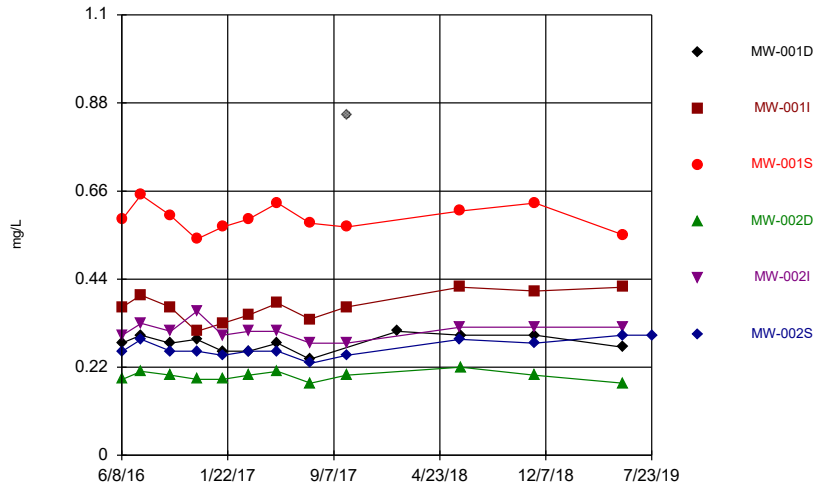
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



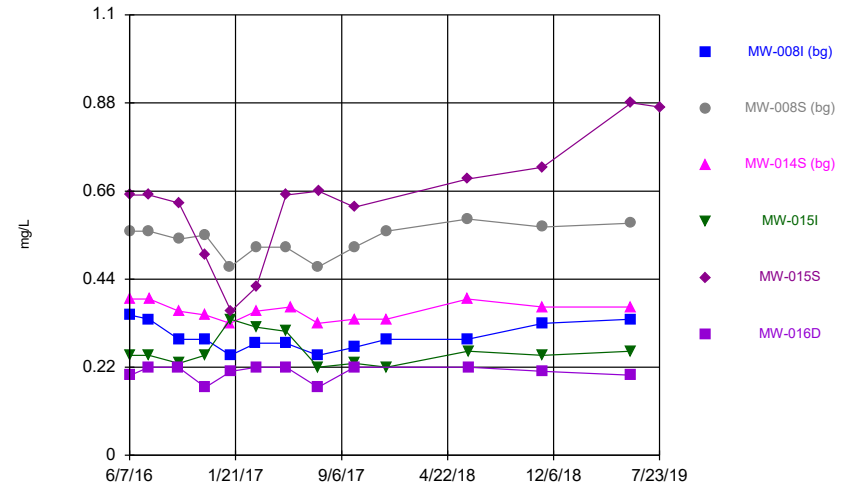
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Time Series



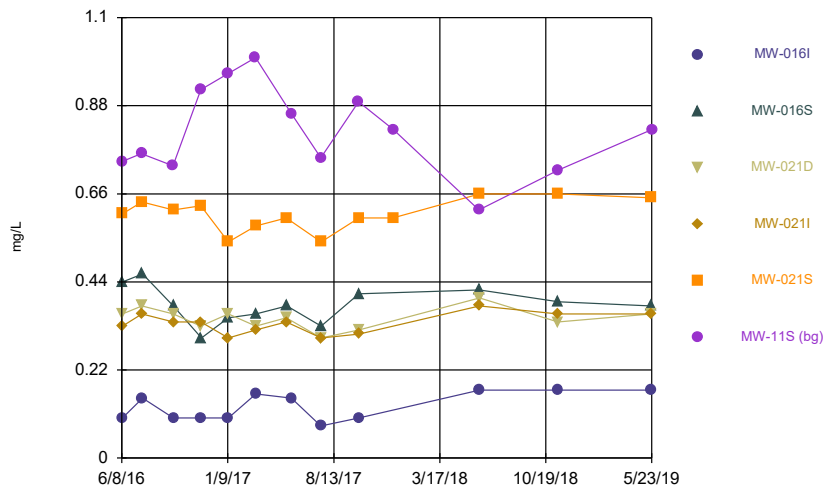
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



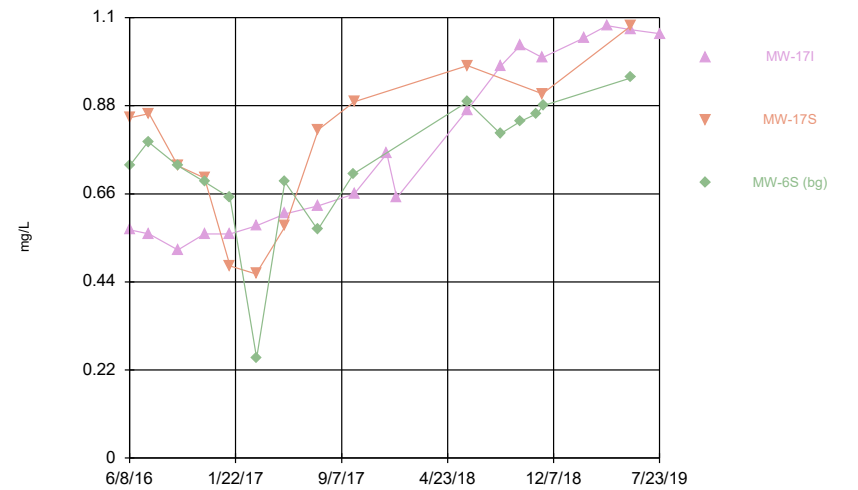
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



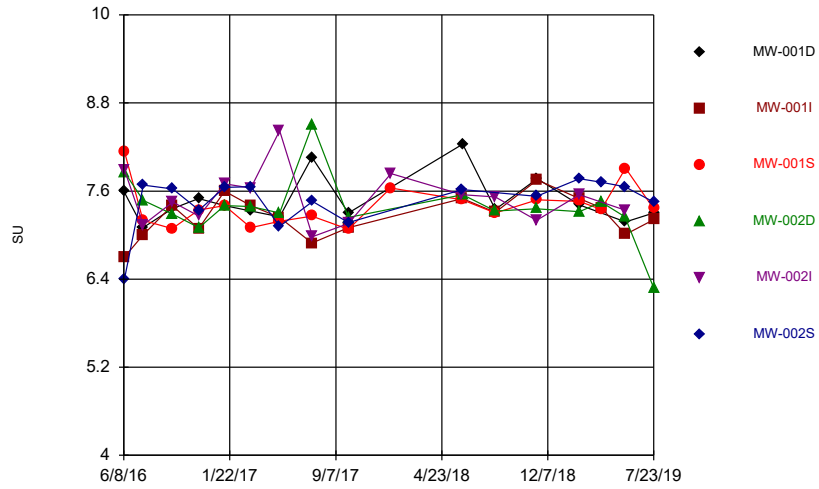
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



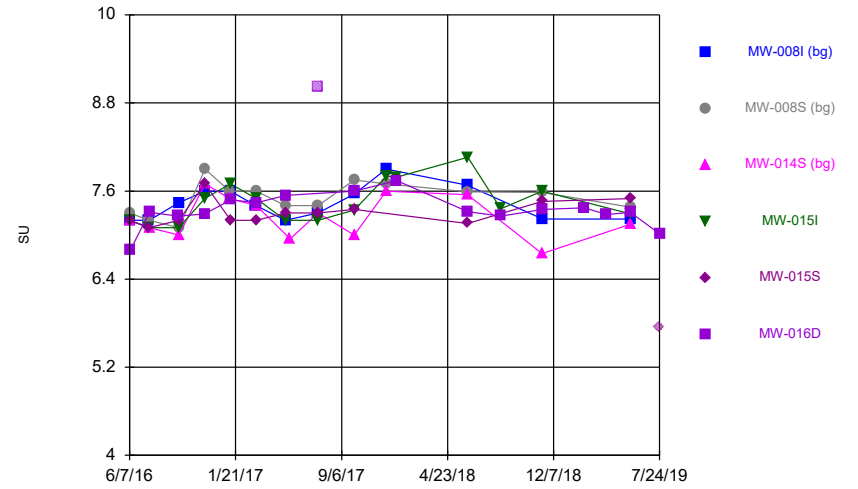
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



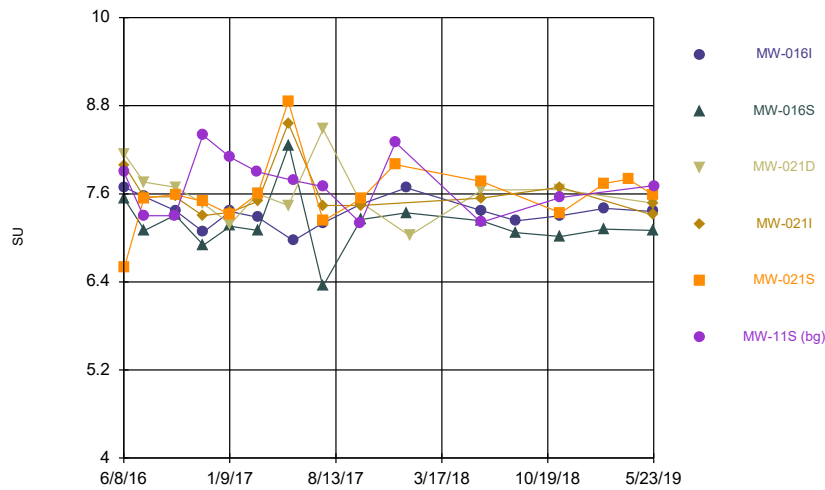
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Time Series



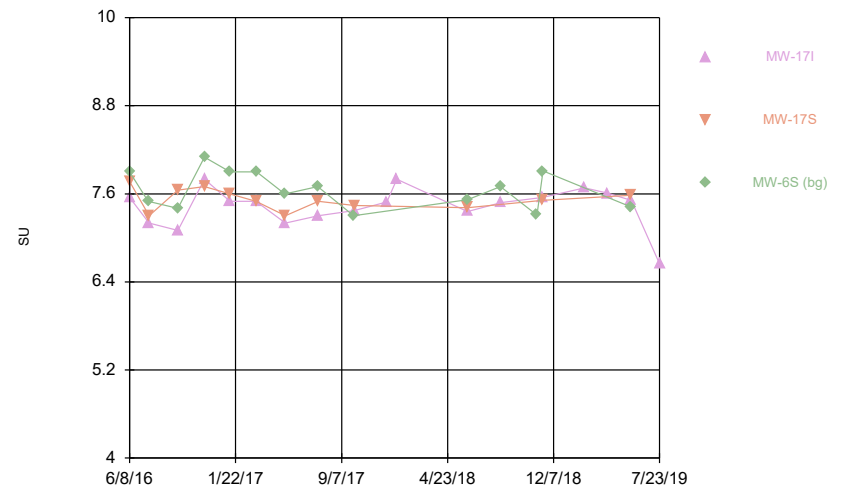
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



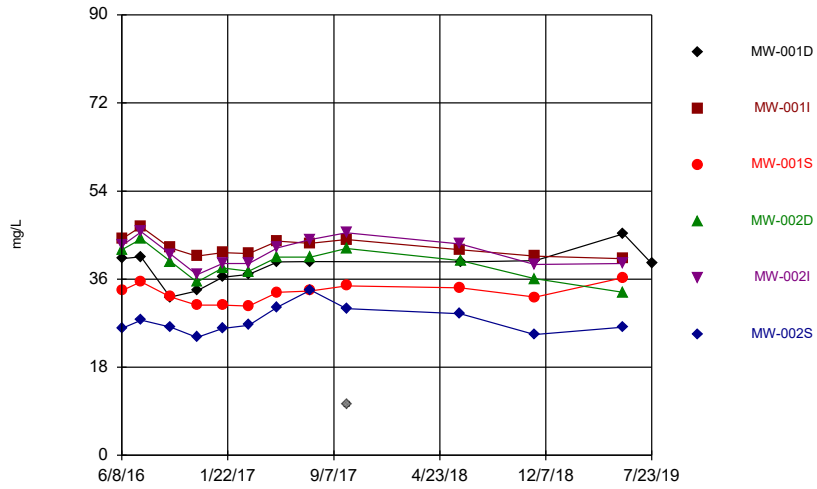
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Time Series



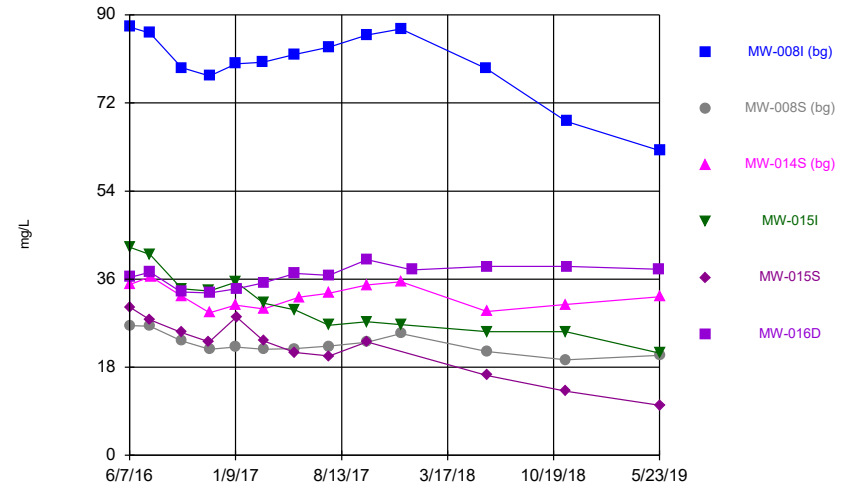
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Time Series



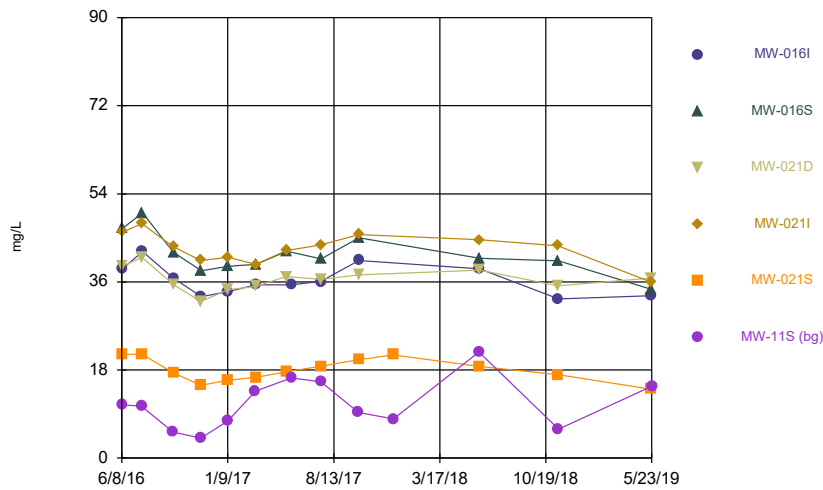
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



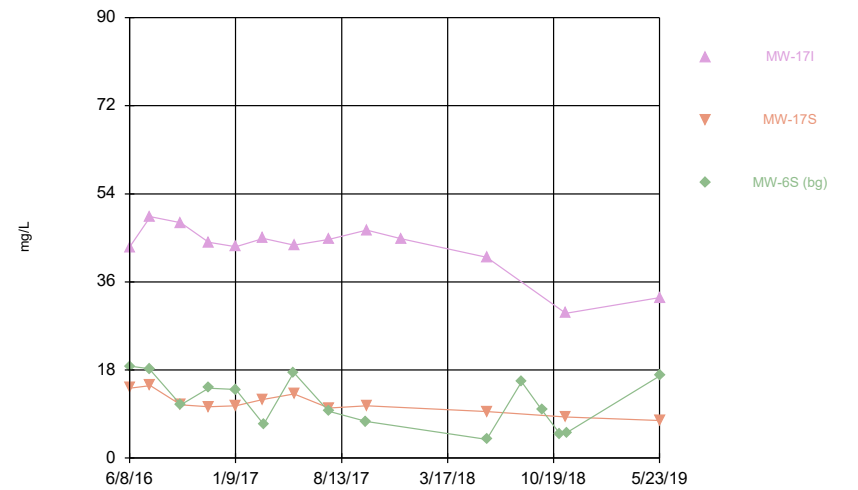
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



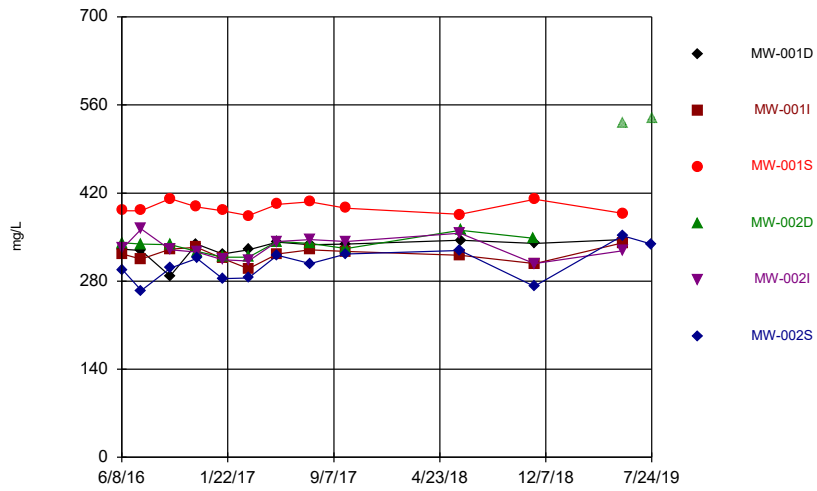
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



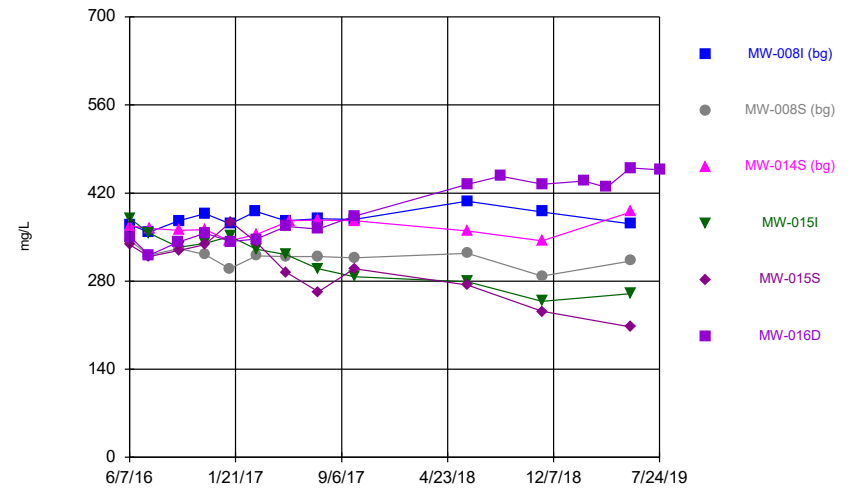
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



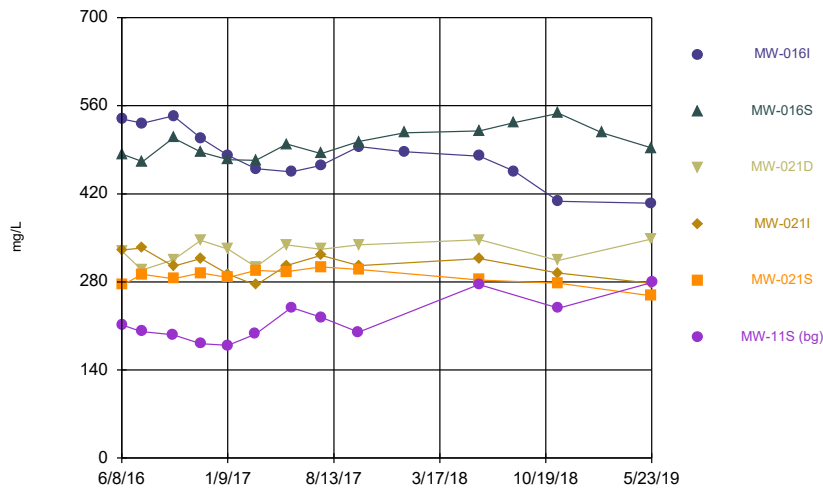
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



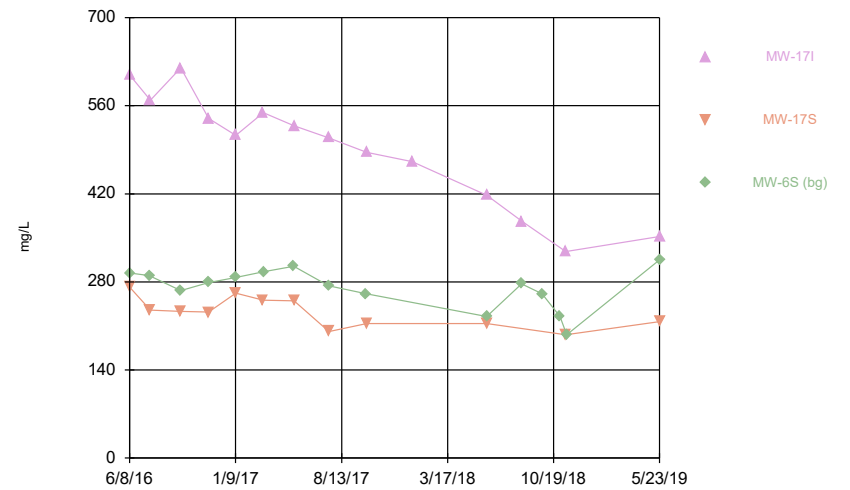
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Time Series



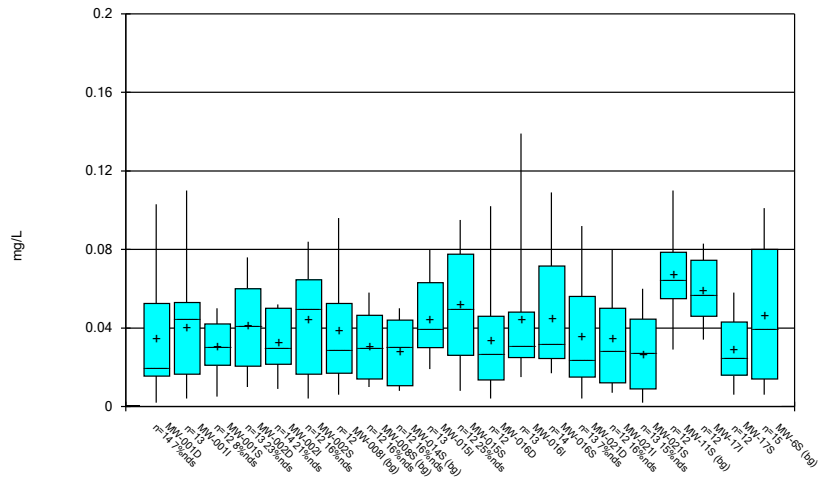
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Time Series



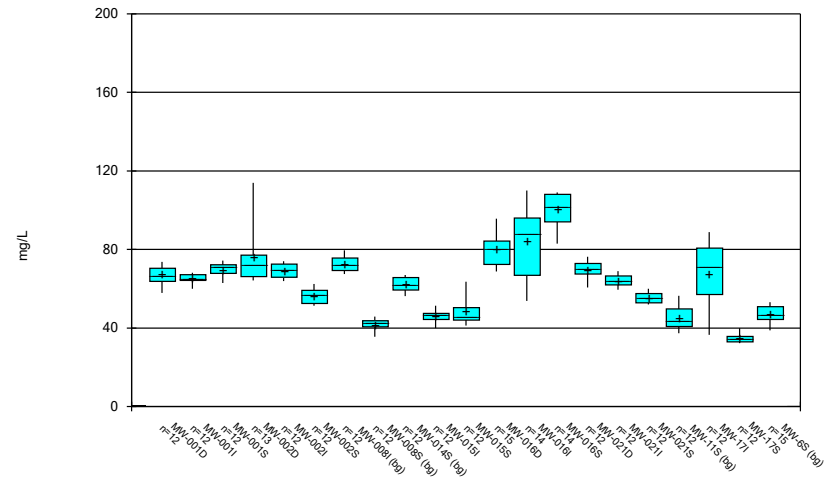
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:27 PM
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Box & Whiskers Plot



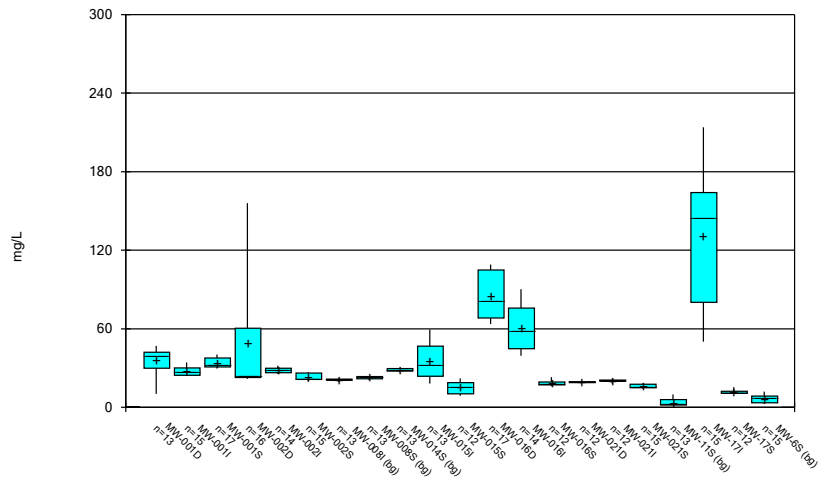
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Box & Whiskers Plot



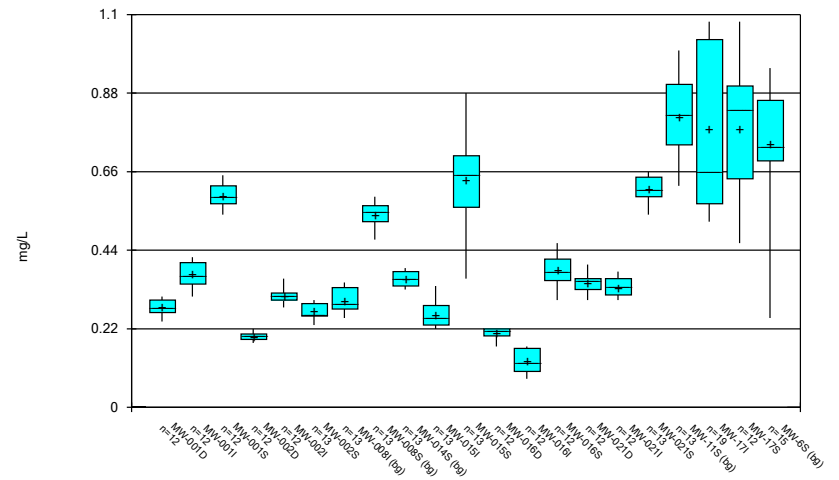
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Box & Whiskers Plot



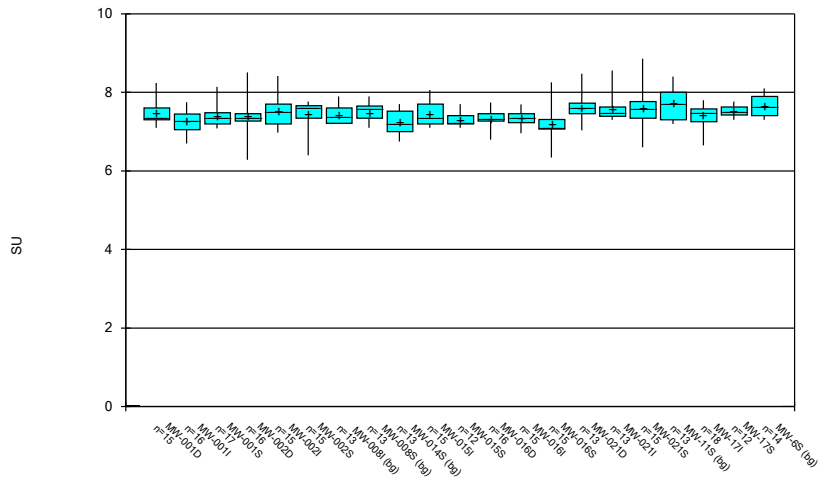
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Box & Whiskers Plot



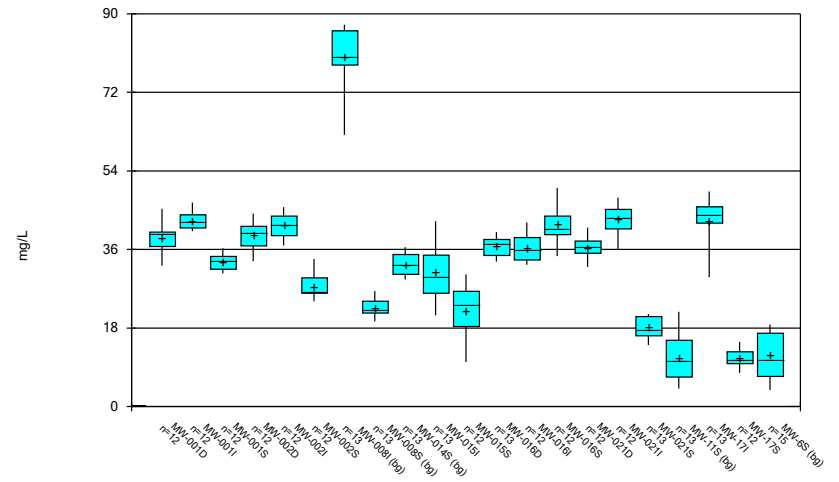
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Box & Whiskers Plot



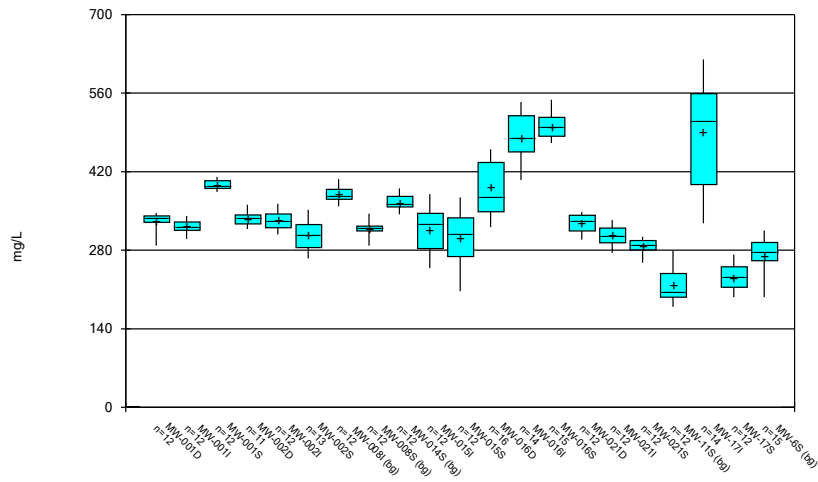
Constituent: pH, field Analysis Run 1/28/2020 12:30 PM
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Box & Whiskers Plot



Constituent: Sulfate, total Analysis Run 1/28/2020 12:30 PM
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:30 PM
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Outlier Summary

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 12:31 PM

	MW-001D Fluoride, total (mg/L)	MW-015S pH, field (SU)	MW-016D pH, field (SU)	MW-001D Sulfate, total (mg/L)	MW-002D Total Dissolved Solids [TDS] (mg/L)
7/18/2017		9.03 (o)			
10/4/2017	0.85 (o)		10.4 (o)		
5/22/2019					531 (o)
7/23/2019		5.74 (o)			
7/24/2019					540 (o)

Intrawell Outlier Analysis - Significant Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/17/2020, 10:19 AM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Fluoride, total (mg/L)	MW-001D	Yes	0.85	10/4/2017	NP	13	0.3246	0.1591	In(x)	ShapiroWilk
pH, field (SU)	MW-002D	Yes	8.51,6.28	7/19/2017,7/23/2019	NP	16	7.381	0.4394	normal	ShapiroWilk
pH, field (SU)	MW-015S	Yes	5.74	7/23/2019	NP	13	7.185	0.4646	x^6	ShapiroWilk
pH, field (SU)	MW-016D	Yes	9.03	7/18/2017	NP	17	7.435	0.462	In(x)	ShapiroWilk
pH, field (SU)	MW-016S	Yes	8.26,6.34	5/10/2017,7/18/2017	NP	15	7.189	0.3948	In(x)	ShapiroWilk
pH, field (SU)	MW-021I	Yes	8.56	5/9/2017	NP	13	7.592	0.3422	In(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-002D	Yes	531,540	5/22/2019,7/24/2019	NP	13	367.4	75.53	In(x)	ShapiroWilk

Intrawell Outlier Analysis - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/17/2020, 10:19 AM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Boron, total (mg/L)	MW-001D	No	n/a	n/a	NP	14	0.03479	0.03235	x^(1/3)	ShapiroWilk
Boron, total (mg/L)	MW-001I	No	n/a	n/a	NP	13	0.04008	0.02972	x^(1/3)	ShapiroWilk
Boron, total (mg/L)	MW-001S	No	n/a	n/a	NP	12	0.03067	0.01353	normal	ShapiroWilk
Boron, total (mg/L)	MW-002D	No	n/a	n/a	NP	13	0.04169	0.0226	normal	ShapiroWilk
Boron, total (mg/L)	MW-002I	No	n/a	n/a	NP	14	0.03293	0.01498	sqrt(x)	ShapiroWilk
Boron, total (mg/L)	MW-002S	No	n/a	n/a	NP	12	0.0445	0.02606	normal	ShapiroWilk
Boron, total (mg/L)	MW-008I (bg)	No	n/a	n/a	NP	12	0.039	0.02803	x^(1/3)	ShapiroWilk
Boron, total (mg/L)	MW-008S (bg)	No	n/a	n/a	NP	12	0.031	0.01704	normal	ShapiroWilk
Boron, total (mg/L)	MW-014S (bg)	No	n/a	n/a	NP	12	0.02858	0.01699	normal	ShapiroWilk
Boron, total (mg/L)	MW-015I	No	n/a	n/a	NP	13	0.04492	0.01924	x^(1/3)	ShapiroWilk
Boron, total (mg/L)	MW-015S	No	n/a	n/a	NP	12	0.05233	0.03013	x^2	ShapiroWilk
Boron, total (mg/L)	MW-016D	No	n/a	n/a	NP	12	0.03417	0.02892	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-016I	No	n/a	n/a	NP	13	0.04492	0.03551	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-016S	No	n/a	n/a	NP	14	0.0455	0.03157	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-021D	No	n/a	n/a	NP	13	0.03615	0.02884	x^(1/3)	ShapiroWilk
Boron, total (mg/L)	MW-021I	No	n/a	n/a	NP	12	0.035	0.02535	ln(x)	ShapiroWilk
Boron, total (mg/L)	MW-021S	No	n/a	n/a	NP	13	0.02677	0.01938	sqrt(x)	ShapiroWilk
Boron, total (mg/L)	MW-11S (bg)	No	n/a	n/a	NP	12	0.0675	0.02114	normal	ShapiroWilk
Boron, total (mg/L)	MW-17I	No	n/a	n/a	NP	12	0.05883	0.01656	x^(1/3)	ShapiroWilk
Boron, total (mg/L)	MW-17S	No	n/a	n/a	NP	12	0.02892	0.01648	sqrt(x)	ShapiroWilk
Boron, total (mg/L)	MW-6S (bg)	No	n/a	n/a	NP	15	0.04653	0.03346	x^(1/3)	ShapiroWilk
Calcium, total (mg/L)	MW-001D	No	n/a	n/a	NP	12	66.93	4.467	x^4	ShapiroWilk
Calcium, total (mg/L)	MW-001I	No	n/a	n/a	NP	12	65.15	2.559	x^6	ShapiroWilk
Calcium, total (mg/L)	MW-001S	No	n/a	n/a	NP	12	69.94	3.505	x^6	ShapiroWilk
Calcium, total (mg/L)	MW-002D	No	n/a	n/a	NP	13	75.93	14.52	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-002I	No	n/a	n/a	NP	12	69.32	3.776	x^6	ShapiroWilk
Calcium, total (mg/L)	MW-002S	No	n/a	n/a	NP	12	56.36	3.795	x^4	ShapiroWilk
Calcium, total (mg/L)	MW-008I (bg)	No	n/a	n/a	NP	12	72.74	3.986	normal	ShapiroWilk
Calcium, total (mg/L)	MW-008S (bg)	No	n/a	n/a	NP	12	41.78	3.211	x^6	ShapiroWilk
Calcium, total (mg/L)	MW-014S (bg)	No	n/a	n/a	NP	12	62.43	3.657	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-015I	No	n/a	n/a	NP	12	46.13	3.147	sqrt(x)	ShapiroWilk
Calcium, total (mg/L)	MW-015S	No	n/a	n/a	NP	12	48.51	7.482	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-016D	No	n/a	n/a	NP	15	80.21	7.728	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-016I	No	n/a	n/a	NP	14	83.89	17.08	x^3	ShapiroWilk
Calcium, total (mg/L)	MW-016S	No	n/a	n/a	NP	14	100.3	7.95	x^4	ShapiroWilk
Calcium, total (mg/L)	MW-021D	No	n/a	n/a	NP	12	69.64	4.707	x^6	ShapiroWilk
Calcium, total (mg/L)	MW-021I	No	n/a	n/a	NP	12	64.21	3.068	sqrt(x)	ShapiroWilk
Calcium, total (mg/L)	MW-021S	No	n/a	n/a	NP	12	55.44	2.841	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-11S (bg)	No	n/a	n/a	NP	12	45.13	6.64	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-17I	No	n/a	n/a	NP	12	67.43	16.17	x^3	ShapiroWilk
Calcium, total (mg/L)	MW-17S	No	n/a	n/a	NP	12	34.74	2.196	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW-6S (bg)	No	n/a	n/a	NP	15	47.09	4.158	normal	ShapiroWilk
Chloride, total (mg/L)	MW-001D	No	n/a	n/a	NP	13	35.65	9.756	x^3	ShapiroWilk
Chloride, total (mg/L)	MW-001I	No	n/a	n/a	NP	15	27.49	3.308	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-001S	No	n/a	n/a	NP	17	33.78	3.663	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-002D	No	n/a	n/a	NP	16	49.66	42.77	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-002I	No	n/a	n/a	NP	14	28.46	1.987	normal	ShapiroWilk
Chloride, total (mg/L)	MW-002S	No	n/a	n/a	NP	15	23.24	2.51	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-008I (bg)	No	n/a	n/a	NP	13	20.93	0.6945	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-008S (bg)	No	n/a	n/a	NP	13	22.56	0.9921	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-014S (bg)	No	n/a	n/a	NP	13	28.58	1.096	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-015I	No	n/a	n/a	NP	13	35.48	13.41	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-015S	No	n/a	n/a	NP	12	15.07	4.815	x^2	ShapiroWilk
Chloride, total (mg/L)	MW-016D	No	n/a	n/a	NP	17	85.03	18.23	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-016I	No	n/a	n/a	NP	14	60.32	17.21	ln(x)	ShapiroWilk

Intrawell Outlier Analysis - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/17/2020, 10:19 AM

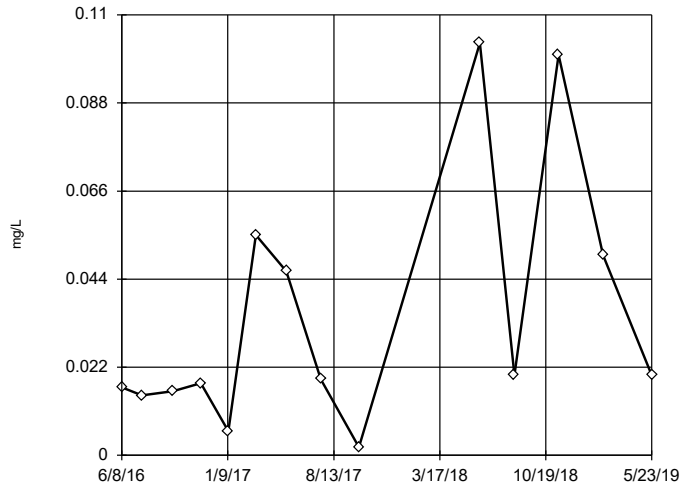
Constituent	Well	Outlier	Value(s)	Date(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Chloride, total (mg/L)	MW-016S	No	n/a	n/a	NP	12	18.46	1.833	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-021D	No	n/a	n/a	NP	12	19.23	0.4376	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-021I	No	n/a	n/a	NP	12	20.29	0.8959	x^6	ShapiroWilk
Chloride, total (mg/L)	MW-021S	No	n/a	n/a	NP	15	16.19	1.398	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-11S (bg)	No	n/a	n/a	NP	13	3.699	2.858	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-17I	No	n/a	n/a	NP	15	130.5	54.78	normal	ShapiroWilk
Chloride, total (mg/L)	MW-17S	No	n/a	n/a	NP	12	11.73	1.518	ln(x)	ShapiroWilk
Chloride, total (mg/L)	MW-6S (bg)	No	n/a	n/a	NP	15	6.349	2.767	sqrt(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-001D	Yes	0.85	10/4/2017	NP	13	0.3246	0.1591	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-001I	No	n/a	n/a	NP	12	0.3725	0.03571	normal	ShapiroWilk
Fluoride, total (mg/L)	MW-001S	No	n/a	n/a	NP	12	0.5925	0.03334	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-002D	No	n/a	n/a	NP	12	0.1975	0.01215	x^(1/3)	ShapiroWilk
Fluoride, total (mg/L)	MW-002I	No	n/a	n/a	NP	12	0.3117	0.02167	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-002S	No	n/a	n/a	NP	13	0.2685	0.02154	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-008I (bg)	No	n/a	n/a	NP	13	0.2962	0.03355	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-008S (bg)	No	n/a	n/a	NP	13	0.5392	0.03796	x^6	ShapiroWilk
Fluoride, total (mg/L)	MW-014S (bg)	No	n/a	n/a	NP	13	0.3608	0.02178	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-015I	No	n/a	n/a	NP	13	0.2608	0.03861	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-015S	No	n/a	n/a	NP	13	0.6385	0.1492	normal	ShapiroWilk
Fluoride, total (mg/L)	MW-016D	No	n/a	n/a	NP	12	0.2067	0.01875	x^6	ShapiroWilk
Fluoride, total (mg/L)	MW-016I	No	n/a	n/a	NP	12	0.1292	0.03502	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-016S	No	n/a	n/a	NP	12	0.3833	0.04539	normal	ShapiroWilk
Fluoride, total (mg/L)	MW-021D	No	n/a	n/a	NP	12	0.3492	0.02712	sqrt(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-021I	No	n/a	n/a	NP	12	0.3367	0.0257	x^2	ShapiroWilk
Fluoride, total (mg/L)	MW-021S	No	n/a	n/a	NP	13	0.61	0.03979	x^6	ShapiroWilk
Fluoride, total (mg/L)	MW-11S (bg)	No	n/a	n/a	NP	13	0.8146	0.1084	sqrt(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-17I	No	n/a	n/a	NP	19	0.7789	0.2191	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-17S	No	n/a	n/a	NP	12	0.7783	0.1938	x^2	ShapiroWilk
Fluoride, total (mg/L)	MW-6S (bg)	No	n/a	n/a	NP	15	0.736	0.1692	x^3	ShapiroWilk
pH, field (SU)	MW-001D	No	n/a	n/a	NP	15	7.477	0.3196	ln(x)	ShapiroWilk
pH, field (SU)	MW-001I	No	n/a	n/a	NP	16	7.254	0.2784	x^3	ShapiroWilk
pH, field (SU)	MW-001S	No	n/a	n/a	NP	17	7.399	0.2841	ln(x)	ShapiroWilk
pH, field (SU)	MW-002D	Yes	8.51,6.28	7/19/2017,7/23/2019	NP	16	7.381	0.4394	normal	ShapiroWilk
pH, field (SU)	MW-002I	No	n/a	n/a	NP	15	7.509	0.3654	ln(x)	ShapiroWilk
pH, field (SU)	MW-002S	No	n/a	n/a	NP	15	7.457	0.351	x^6	ShapiroWilk
pH, field (SU)	MW-008I (bg)	No	n/a	n/a	NP	13	7.425	0.2278	ln(x)	ShapiroWilk
pH, field (SU)	MW-008S (bg)	No	n/a	n/a	NP	13	7.5	0.2276	x^3	ShapiroWilk
pH, field (SU)	MW-014S (bg)	No	n/a	n/a	NP	13	7.246	0.289	ln(x)	ShapiroWilk
pH, field (SU)	MW-015I	No	n/a	n/a	NP	15	7.449	0.2901	ln(x)	ShapiroWilk
pH, field (SU)	MW-015S	Yes	5.74	7/23/2019	NP	13	7.185	0.4646	x^6	ShapiroWilk
pH, field (SU)	MW-016D	Yes	9.03	7/18/2017	NP	17	7.435	0.462	ln(x)	ShapiroWilk
pH, field (SU)	MW-016I	No	n/a	n/a	NP	15	7.353	0.1988	sqrt(x)	ShapiroWilk
pH, field (SU)	MW-016S	Yes	8.26,6.34	5/10/2017,7/18/2017	NP	15	7.189	0.3948	ln(x)	ShapiroWilk
pH, field (SU)	MW-021D	No	n/a	n/a	NP	13	7.62	0.3728	ln(x)	ShapiroWilk
pH, field (SU)	MW-021I	Yes	8.56	5/9/2017	NP	13	7.592	0.3422	ln(x)	ShapiroWilk
pH, field (SU)	MW-021S	No	n/a	n/a	NP	15	7.601	0.4734	ln(x)	ShapiroWilk
pH, field (SU)	MW-11S (bg)	No	n/a	n/a	NP	13	7.719	0.4004	ln(x)	ShapiroWilk
pH, field (SU)	MW-17I	No	n/a	n/a	NP	18	7.425	0.2731	x^6	ShapiroWilk
pH, field (SU)	MW-17S	No	n/a	n/a	NP	12	7.522	0.1471	x^4	ShapiroWilk
pH, field (SU)	MW-6S (bg)	No	n/a	n/a	NP	14	7.654	0.2569	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-001D	No	n/a	n/a	NP	13	36.42	8.471	x^4	ShapiroWilk
Sulfate, total (mg/L)	MW-001I	No	n/a	n/a	NP	12	42.57	1.922	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-001S	No	n/a	n/a	NP	12	33.15	1.895	x^3	ShapiroWilk
Sulfate, total (mg/L)	MW-002D	No	n/a	n/a	NP	12	39.14	3.149	x^3	ShapiroWilk
Sulfate, total (mg/L)	MW-002I	No	n/a	n/a	NP	12	41.53	2.852	sqrt(x)	ShapiroWilk

Intrawell Outlier Analysis - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/17/2020, 10:19 AM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	N	Mean	Std. Dev.	Distribution	Normality Test
Sulfate, total (mg/L)	MW-002S	No	n/a	n/a	NP	12	27.53	2.766	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-008I (bg)	No	n/a	n/a	NP	13	79.89	7.398	x^6	ShapiroWilk
Sulfate, total (mg/L)	MW-008S (bg)	No	n/a	n/a	NP	13	22.69	2.136	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-014S (bg)	No	n/a	n/a	NP	13	32.45	2.424	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-015I	No	n/a	n/a	NP	13	30.72	6.368	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-015S	No	n/a	n/a	NP	12	21.84	6.106	x^2	ShapiroWilk
Sulfate, total (mg/L)	MW-016D	No	n/a	n/a	NP	13	36.68	2.13	x^6	ShapiroWilk
Sulfate, total (mg/L)	MW-016I	No	n/a	n/a	NP	12	36.37	3.093	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-016S	No	n/a	n/a	NP	12	41.65	4.121	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-021D	No	n/a	n/a	NP	12	36.55	2.368	normal	ShapiroWilk
Sulfate, total (mg/L)	MW-021I	No	n/a	n/a	NP	12	42.83	3.247	x^4	ShapiroWilk
Sulfate, total (mg/L)	MW-021S	No	n/a	n/a	NP	13	18.04	2.391	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-11S (bg)	No	n/a	n/a	NP	13	11.06	5.127	x^(1/3)	ShapiroWilk
Sulfate, total (mg/L)	MW-17I	No	n/a	n/a	NP	13	42.75	5.603	x^6	ShapiroWilk
Sulfate, total (mg/L)	MW-17S	No	n/a	n/a	NP	12	11.07	2.167	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-6S (bg)	No	n/a	n/a	NP	15	11.59	5.216	normal	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-001D	No	n/a	n/a	NP	12	332.5	15.64	x^6	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-001I	No	n/a	n/a	NP	12	322.4	11.45	x^6	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-001S	No	n/a	n/a	NP	12	396.4	9.12	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-002D	Yes	531,540	5/22/2019,7/24/2019	NP	13	367.4	75.53	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-002I	No	n/a	n/a	NP	12	333.4	17.34	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-002S	No	n/a	n/a	NP	13	307.2	26.12	normal	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-008I (bg)	No	n/a	n/a	NP	12	379.5	12.72	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-008S (bg)	No	n/a	n/a	NP	12	318.3	14.31	x^3	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-014S (bg)	No	n/a	n/a	NP	12	364.7	13.73	normal	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-015I	No	n/a	n/a	NP	12	315.7	40.8	x^2	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-015S	No	n/a	n/a	NP	12	300.8	49.24	x^3	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-016D	No	n/a	n/a	NP	16	392	48.69	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-016I	No	n/a	n/a	NP	14	479.6	42.94	x^2	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-016S	No	n/a	n/a	NP	15	500.7	23.13	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-021D	No	n/a	n/a	NP	12	328.6	16.89	x^6	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-021I	No	n/a	n/a	NP	12	306.4	19.05	x^4	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-021S	No	n/a	n/a	NP	12	287.5	12.85	x^6	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-11S (bg)	No	n/a	n/a	NP	12	218.6	33.51	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-17I	No	n/a	n/a	NP	14	490.6	91.76	x^3	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-17S	No	n/a	n/a	NP	12	231.4	23.97	ln(x)	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	MW-6S (bg)	No	n/a	n/a	NP	15	270.1	32.78	x^5	ShapiroWilk

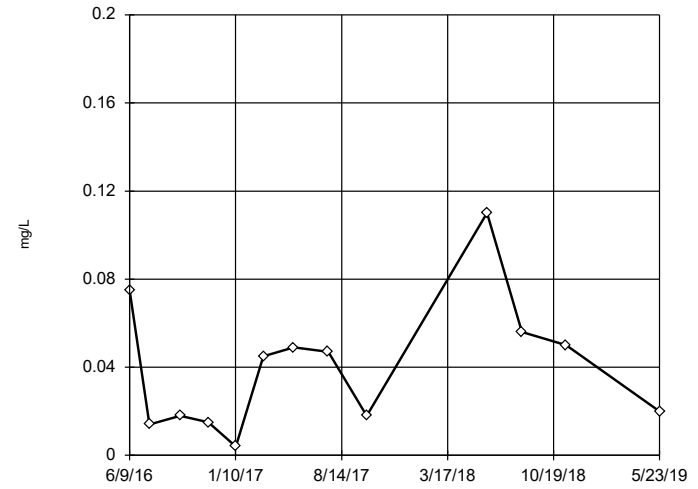
Tukey's Outlier Screening MW-001D



n = 14
 No outliers found.
 Tukey's method selected by user.
 Data were cube root transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.421, low cutoff = -0.001993, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

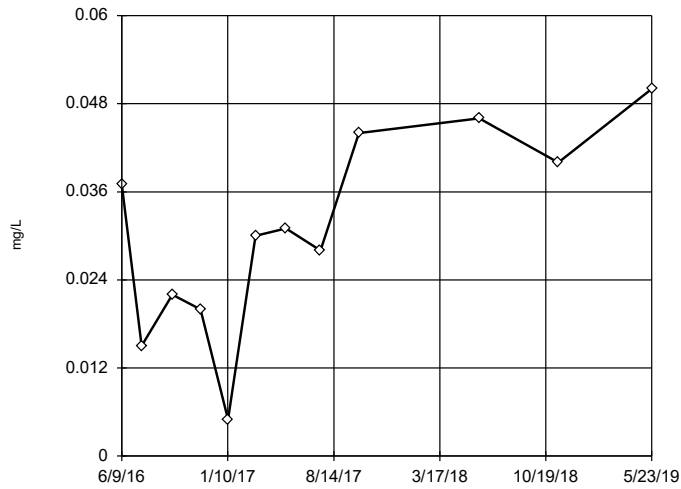
Tukey's Outlier Screening MW-001I



n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were cube root transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.4035, low cutoff = -0.001298, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

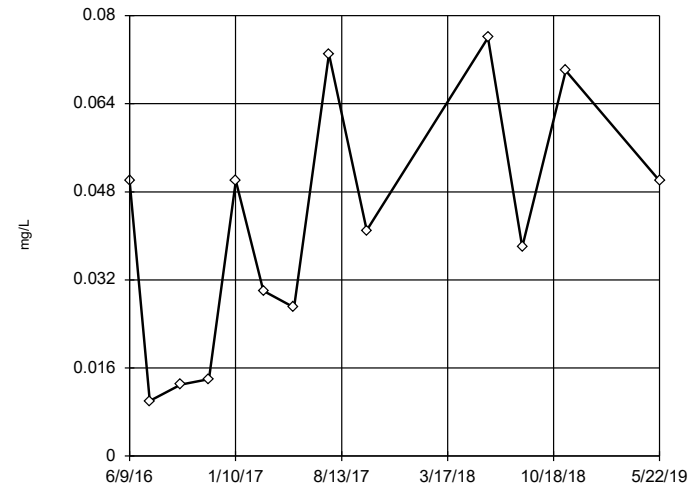
Tukey's Outlier Screening MW-001S



n = 12
 No outliers found.
 Tukey's method selected by user.
 Ladder of Powers transformations did not improve normality; analysis run on raw data.
 High cutoff = 0.105, low cutoff = -0.042, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

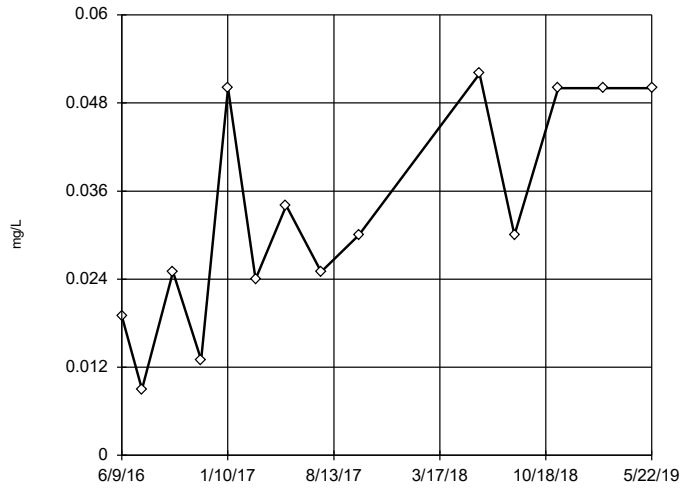
Tukey's Outlier Screening MW-002D



n = 13
 No outliers found.
 Tukey's method selected by user.
 Ladder of Powers transformations did not improve normality; analysis run on raw data.
 High cutoff = 0.1785, low cutoff = -0.098, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

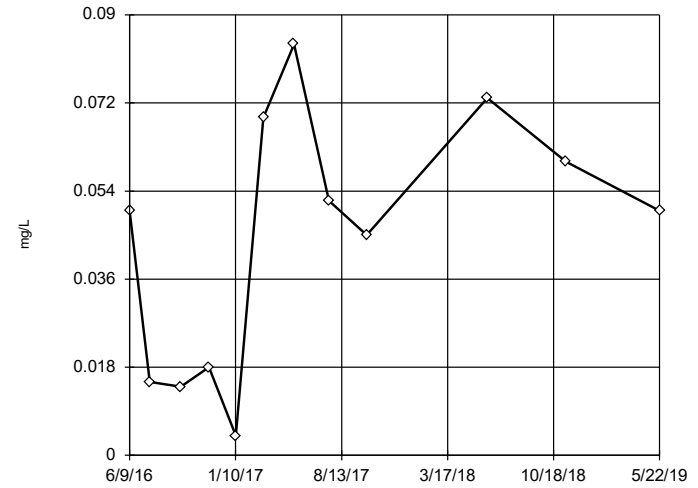
Tukey's Outlier Screening
MW-002I



n = 14
No outliers found.
Tukey's method selected by user.
Data were square root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.2073,
low cutoff = -0.007276,
based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

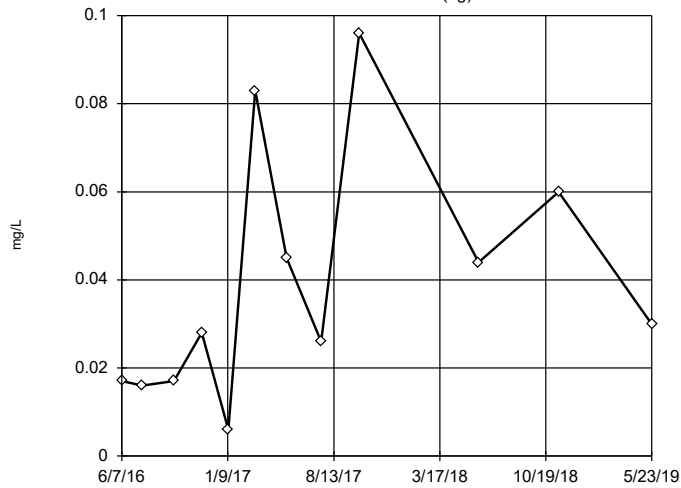
Tukey's Outlier Screening
MW-002S



n = 12
No outliers found.
Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 0.2085,
low cutoff = -0.1275,
based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

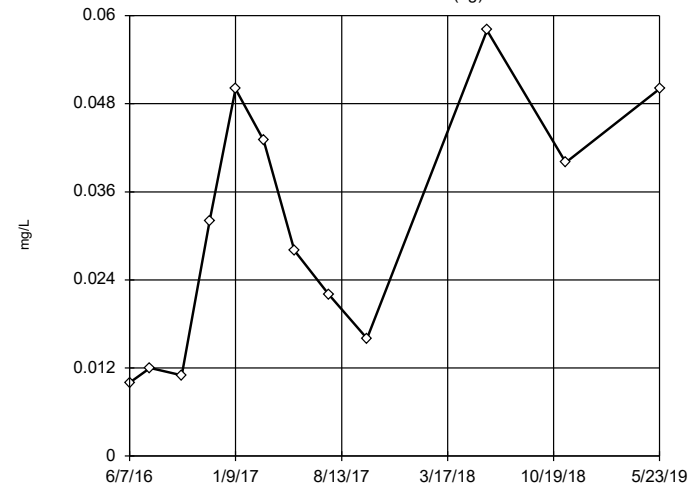
Tukey's Outlier Screening
MW-008I (bg)



n = 12
No outliers found.
Tukey's method selected by user.
Data were cube root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.3779,
low cutoff = -0.0007851,
based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

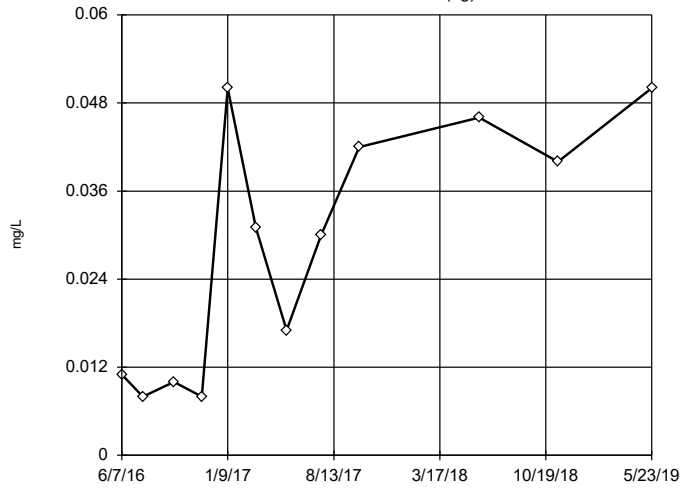
Tukey's Outlier Screening
MW-008S (bg)



n = 12
No outliers found.
Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 0.144,
low cutoff = -0.0835,
based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

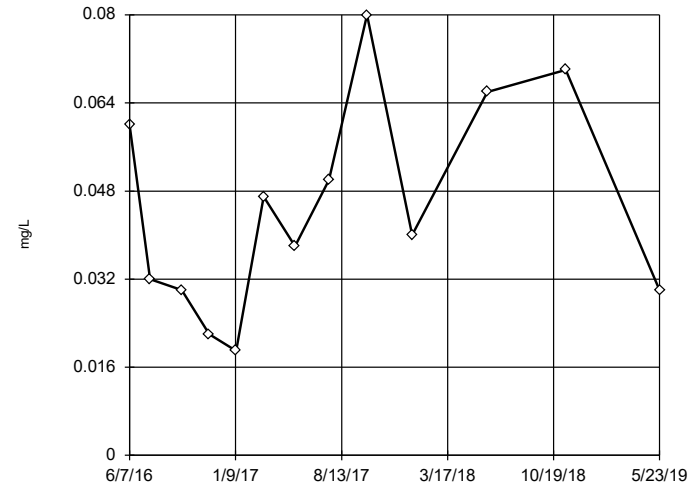
Tukey's Outlier Screening
MW-014S (bg)



n = 12
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 0.1445, low cutoff = -0.09, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

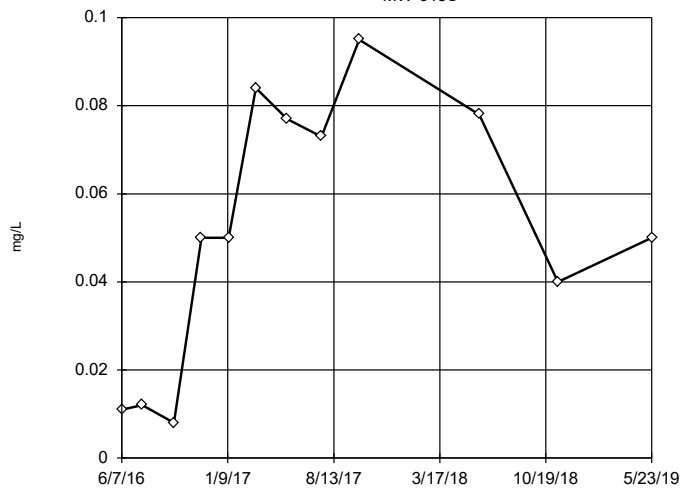
Tukey's Outlier Screening
MW-015I



n = 13
No outliers found. Tukey's method selected by user.
Data were cube root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.2863, low cutoff = 0.0001211, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

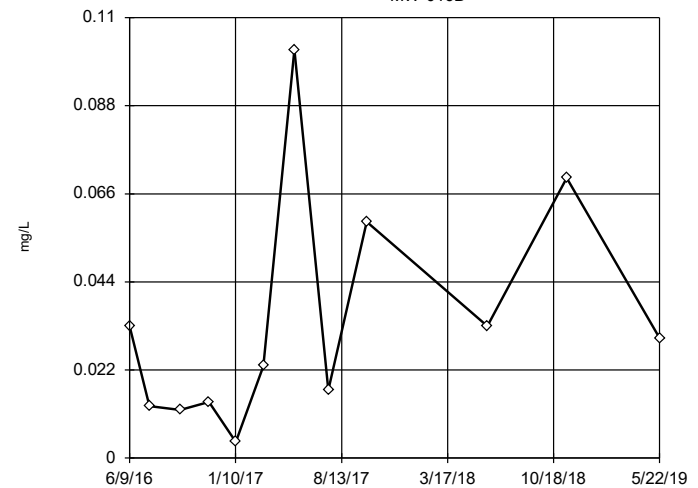
Tukey's Outlier Screening
MW-015S



n = 12
No outliers found. Tukey's method selected by user.
Data were square transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.1463, low cutoff = -0.1205, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

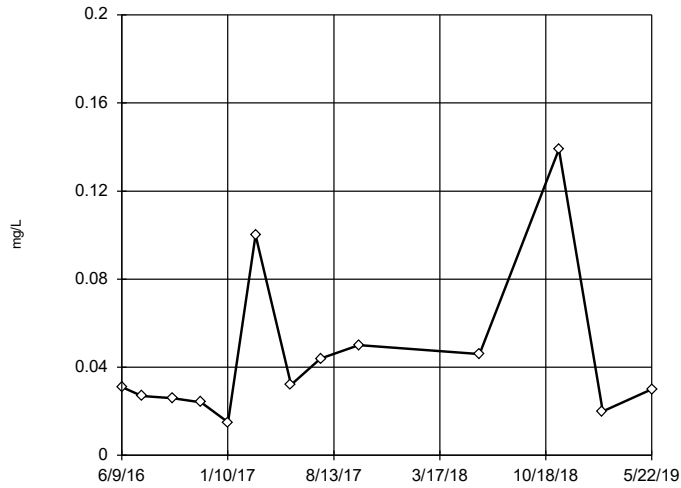
Tukey's Outlier Screening
MW-016D



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 1.544, low cutoff = 0.0003856, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

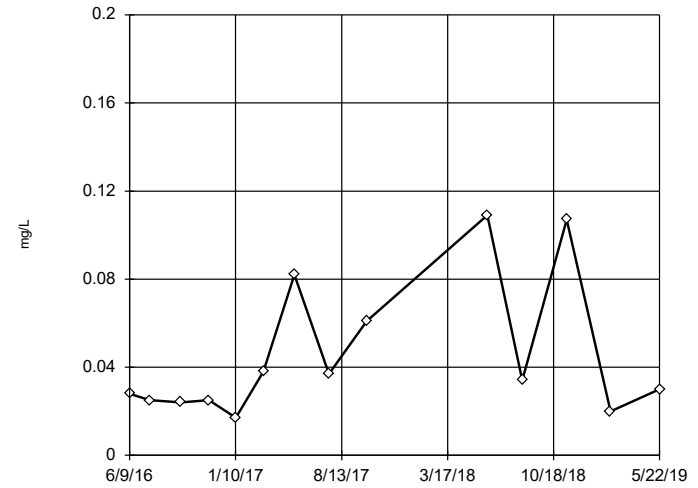
Tukey's Outlier Screening
MW-016I



n = 13
No outliers found.
Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.3394, low cutoff = 0.00353, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

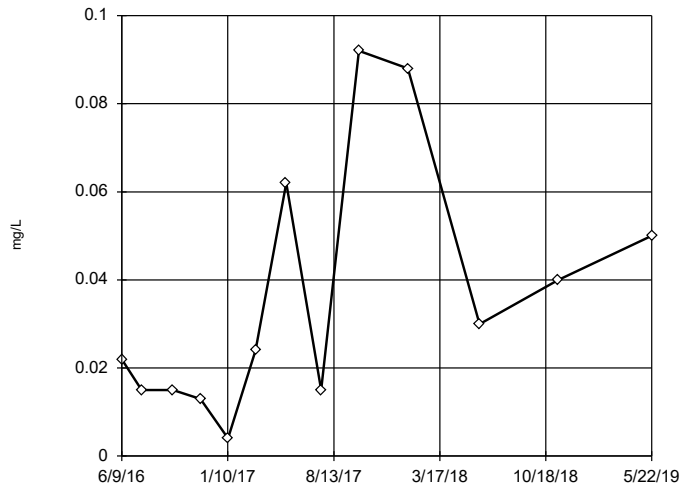
Tukey's Outlier Screening
MW-016S



n = 14
No outliers found.
Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 1.702, low cutoff = 0.001018, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

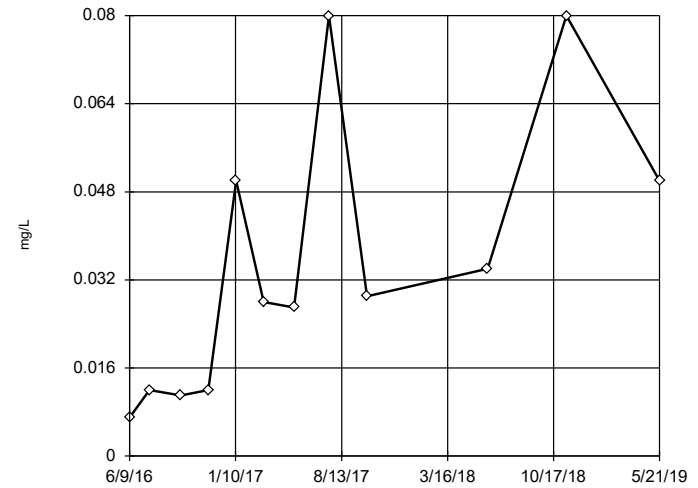
Tukey's Outlier Screening
MW-021D



n = 13
No outliers found.
Tukey's method selected by user.
Data were cube root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.4903, low cutoff = -0.004081, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

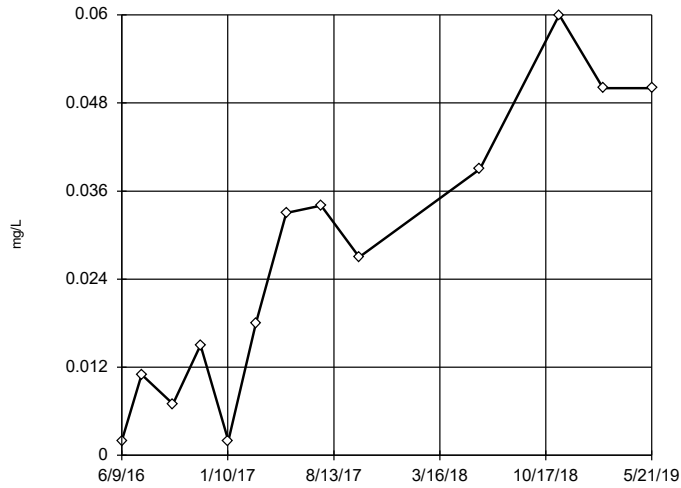
Tukey's Outlier Screening
MW-021I



n = 12
No outliers found.
Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 3.617, low cutoff = 0.0001659, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

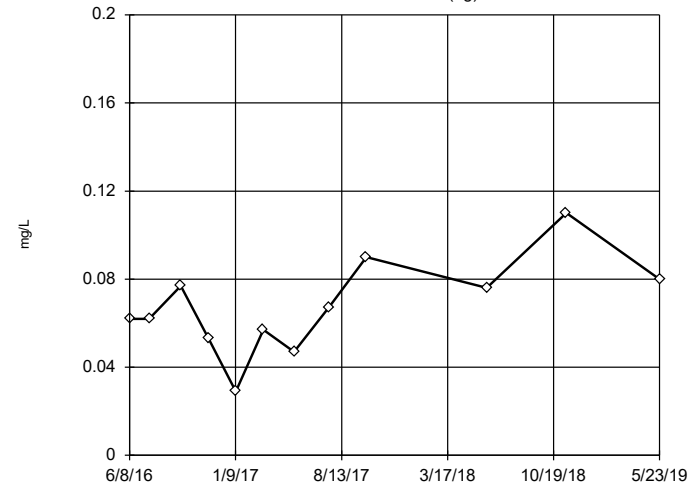
Tukey's Outlier Screening
MW-021S



n = 13
No outliers found. Tukey's method selected by user.
Data were square root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.3129, low cutoff = -0.06479, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

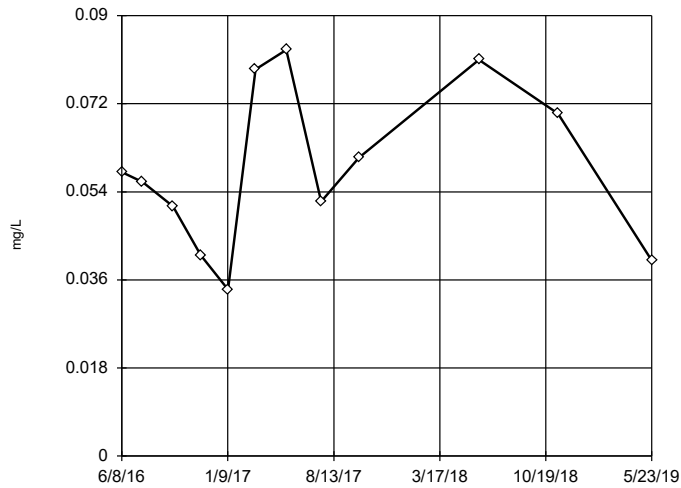
Tukey's Outlier Screening
MW-11S (bg)



n = 12
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 0.149, low cutoff = -0.0155, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

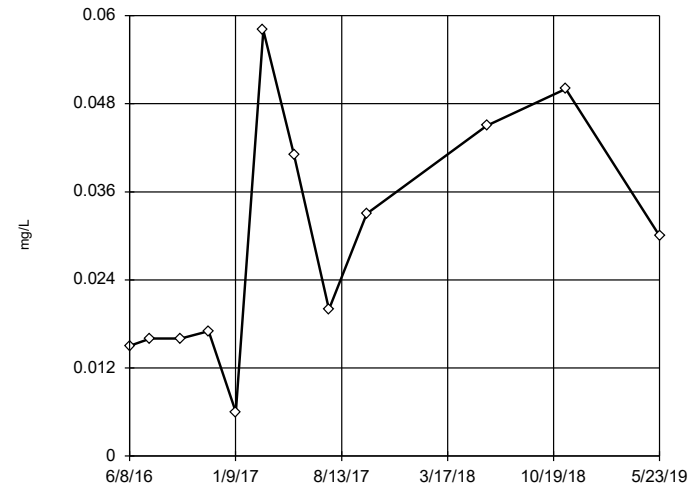
Tukey's Outlier Screening
MW-17I



n = 12
No outliers found. Tukey's method selected by user.
Data were cube root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.2258, low cutoff = 0.004871, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

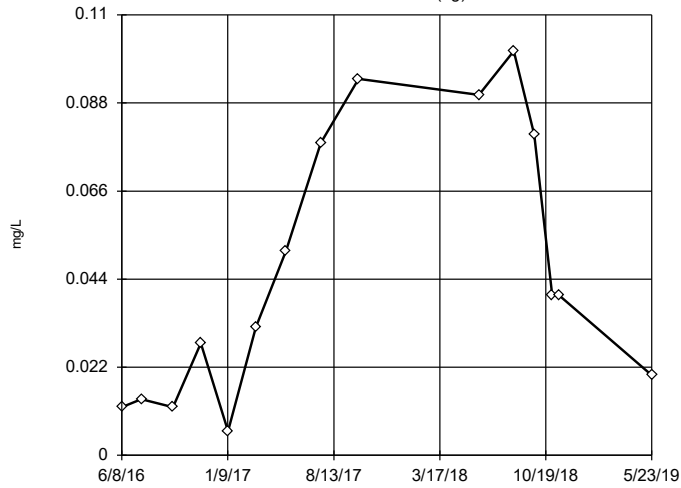
Tukey's Outlier Screening
MW-17S



n = 12
No outliers found. Tukey's method selected by user.
Data were square root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.2023, low cutoff = -0.01345, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

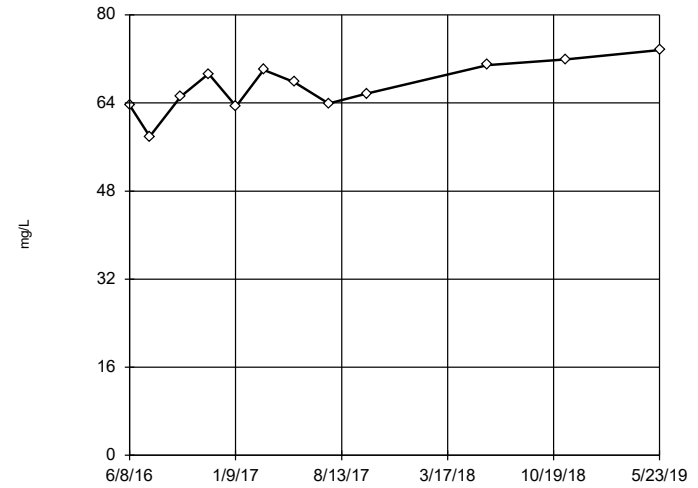
Tukey's Outlier Screening
MW-6S (bg)



n = 15
No outliers found. Tukey's method selected by user.
Data were cube root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 1.002, low cutoff = -0.03548, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

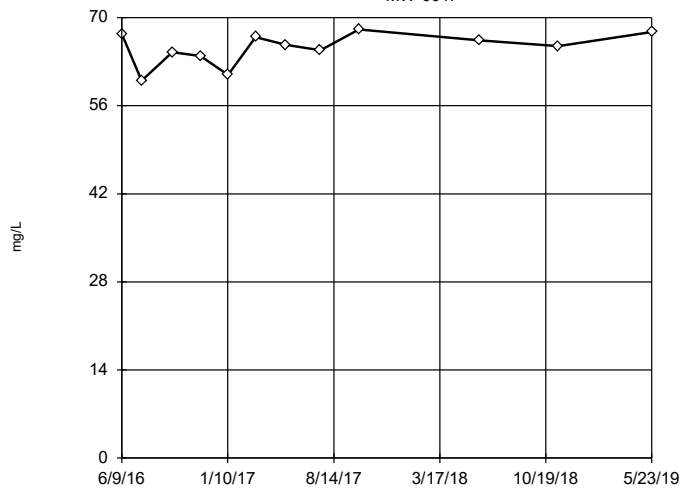
Tukey's Outlier Screening
MW-001D



n = 12
No outliers found. Tukey's method selected by user.
Data were x⁴ transformed to achieve best W statistic (graph shown in original units).
High cutoff = 83.67, low cutoff = -52.93, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

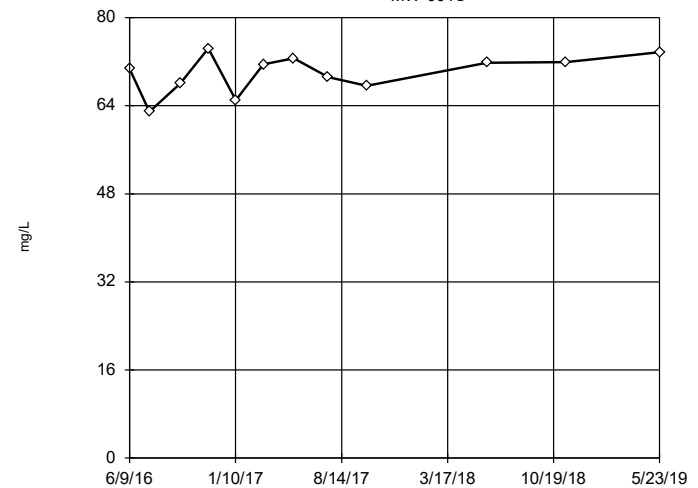
Tukey's Outlier Screening
MW-0011



n = 12
No outliers found. Tukey's method selected by user.
Data were x⁶ transformed to achieve best W statistic (graph shown in original units).
High cutoff = 73.42, low cutoff = 41.44, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening
MW-001S

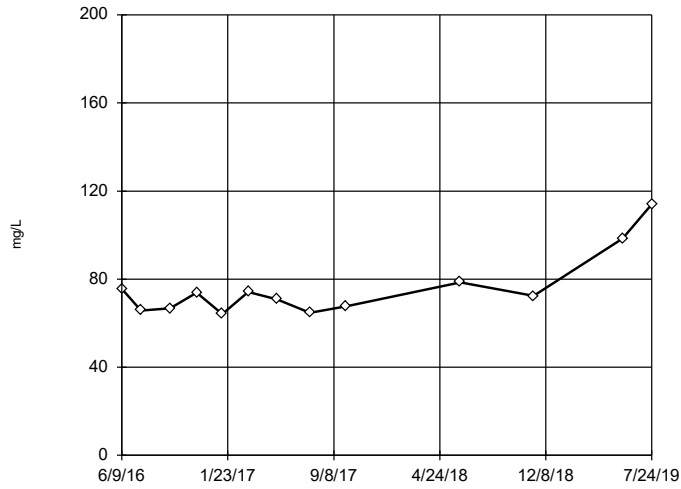


n = 12
No outliers found. Tukey's method selected by user.
Data were x⁶ transformed to achieve best W statistic (graph shown in original units).
High cutoff = 80.77, low cutoff = -58.05, based on IQR multiplier of 3.

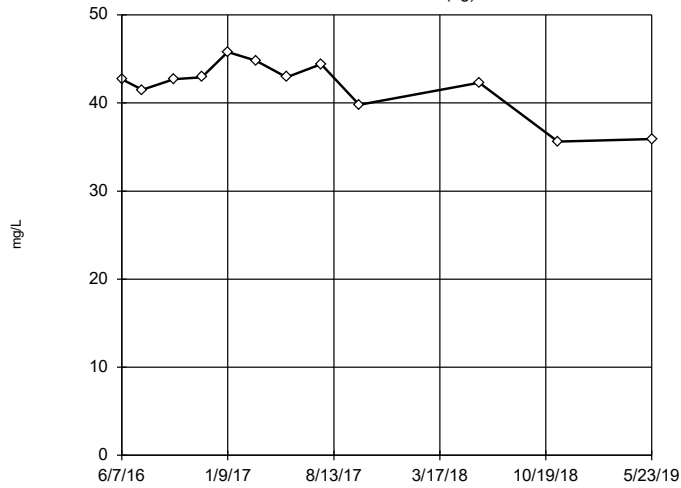
Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-002D



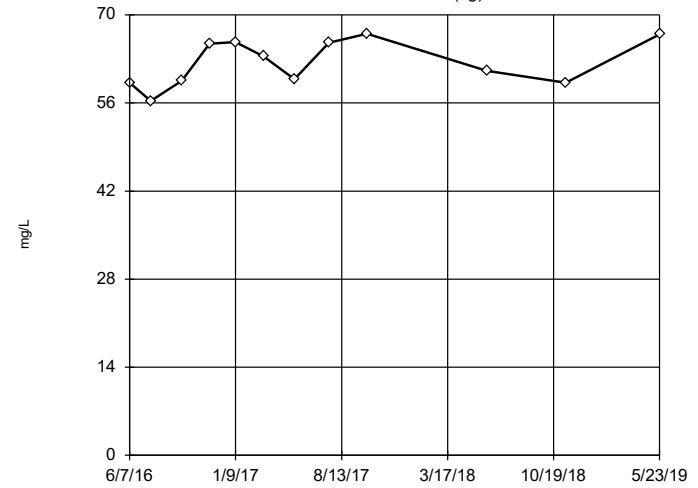
Tukey's Outlier Screening
MW-008S (bg)



n = 12
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 49.19, low cutoff = -37.26, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

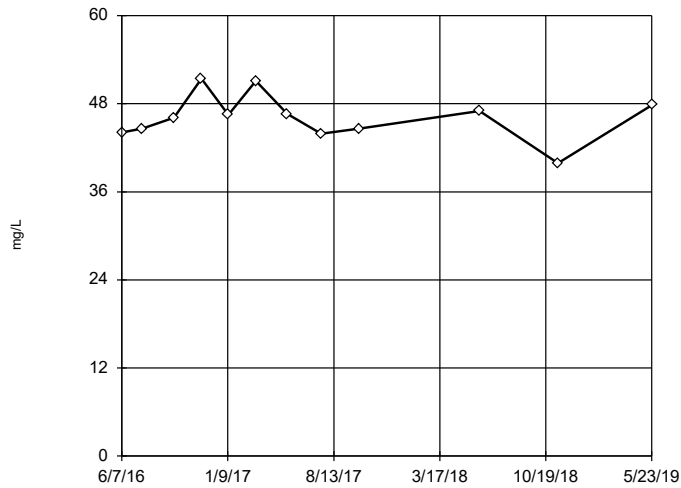
Tukey's Outlier Screening
MW-014S (bg)



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 88.85, low cutoff = 43.85, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

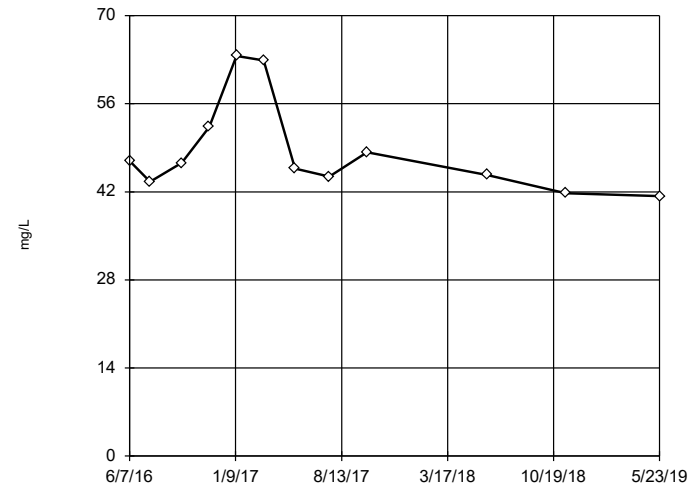
Tukey's Outlier Screening
MW-015I



n = 12
No outliers found. Tukey's method selected by user.
Data were square root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 57.16, low cutoff = 35.81, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

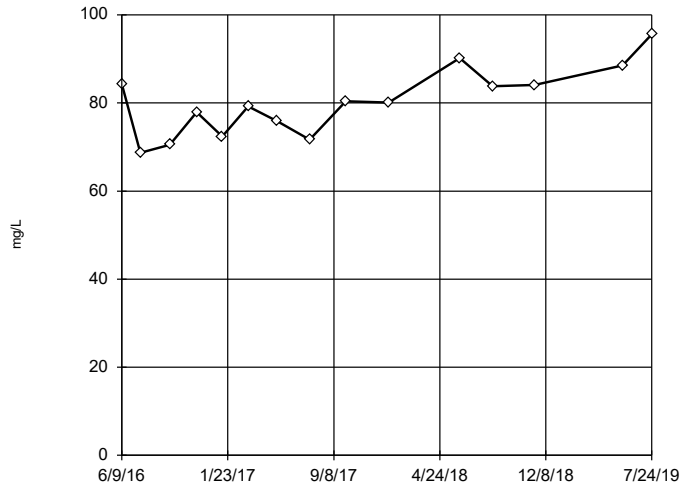
Tukey's Outlier Screening
MW-015S



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 74.92, low cutoff = 29.52, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

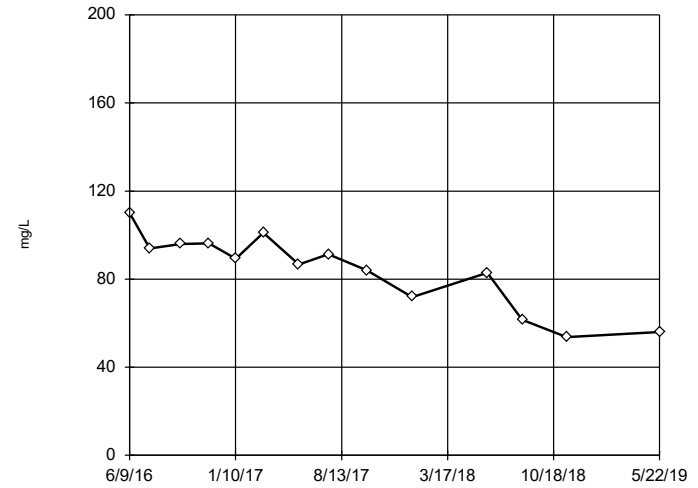
Tukey's Outlier Screening
MW-016D



n = 15
No outliers found.
Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 133.1, low cutoff = 45.86, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

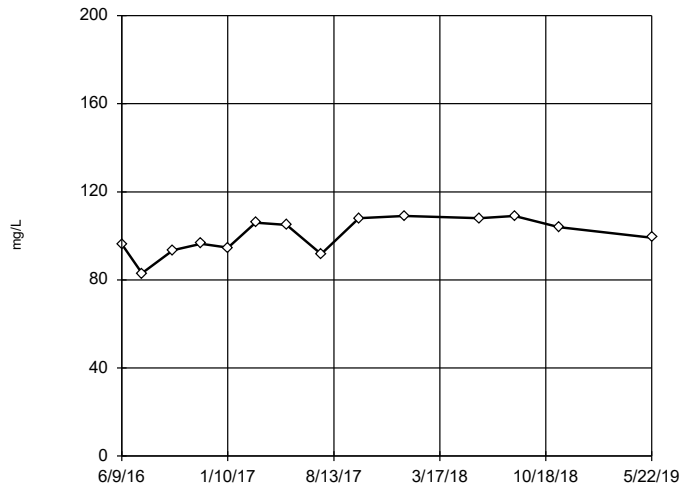
Tukey's Outlier Screening
MW-016I



n = 14
No outliers found.
Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 138.1, low cutoff = -113.1, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

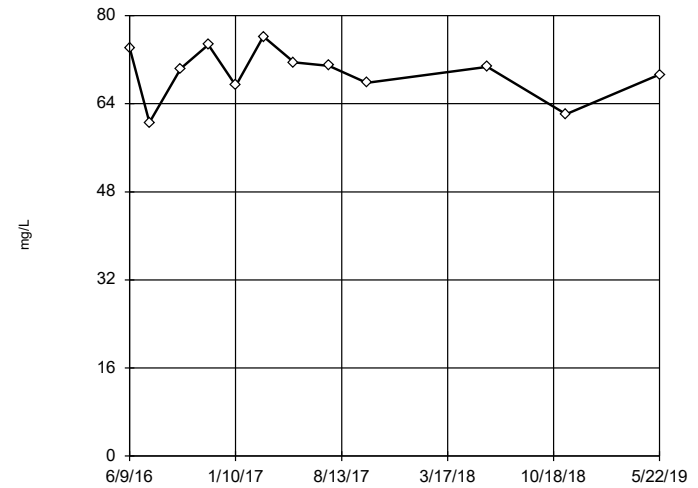
Tukey's Outlier Screening
MW-016S



n = 14
No outliers found.
Tukey's method selected by user.
Data were x^4 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 132.6, low cutoff = -98.76, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening
MW-021D

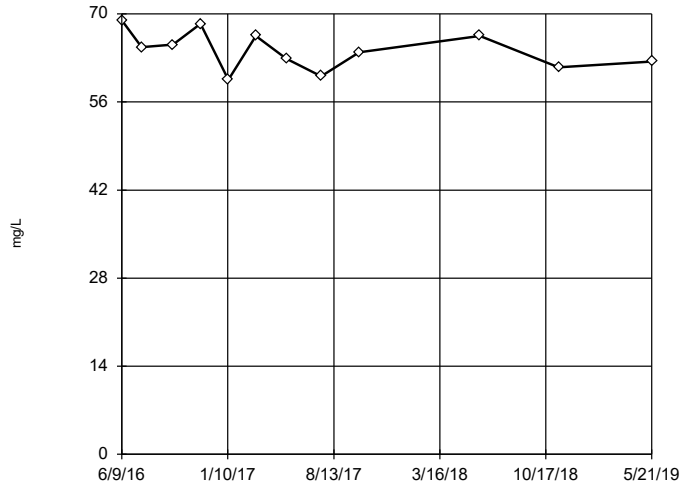


n = 12
No outliers found.
Tukey's method selected by user.
Data were x^6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 82.53, low cutoff = -64.29, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-0211

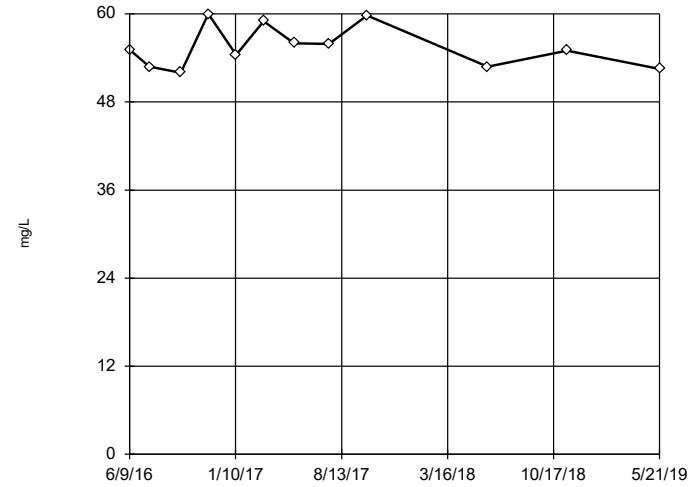


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were square root transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 81.12, low cutoff = 49.26, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-021S

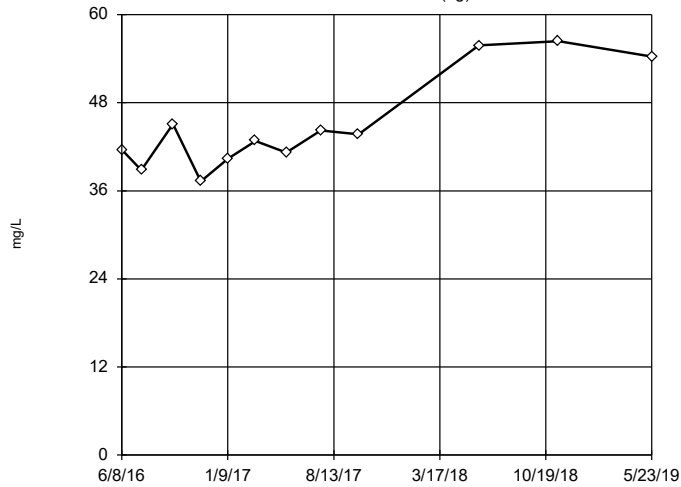


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 74.16, low cutoff = 40.92, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-11S (bg)

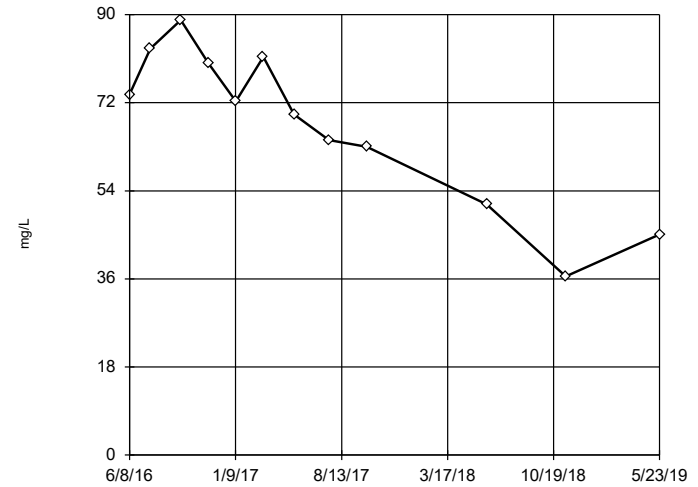


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 88.32, low cutoff = 22.86, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

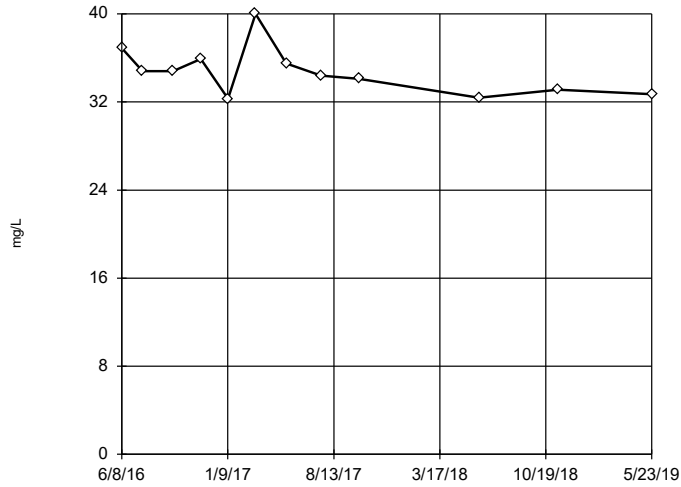
MW-171



n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were cube transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 115.1, low cutoff = -93.16, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

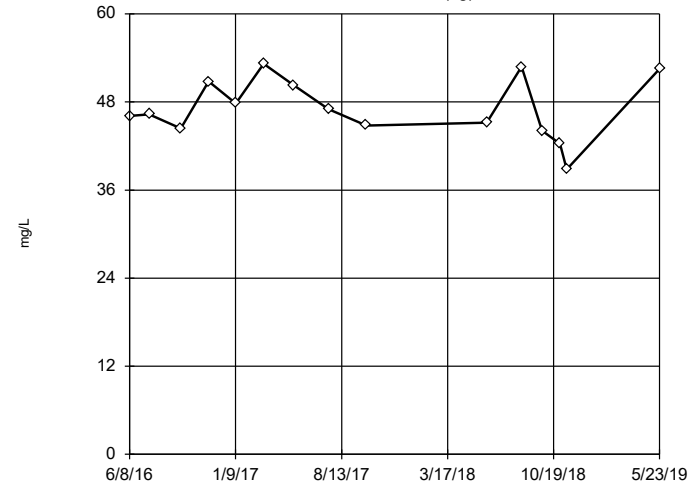
Tukey's Outlier Screening
MW-17S



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 45.61, low cutoff = 25.75, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

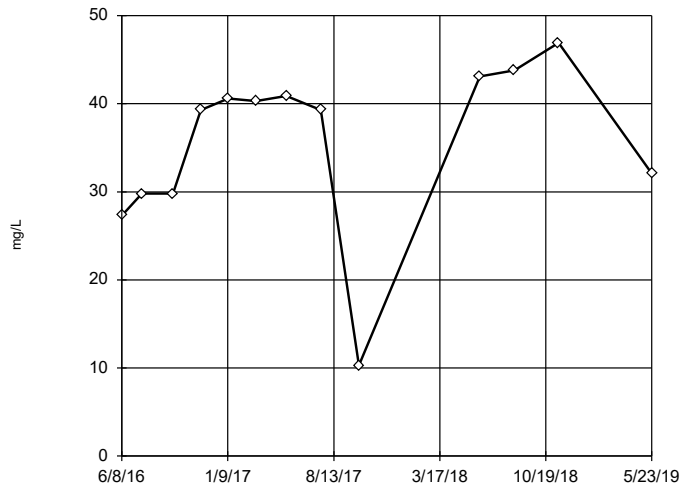
Tukey's Outlier Screening
MW-6S (bg)



n = 15
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 70, low cutoff = 25.2, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

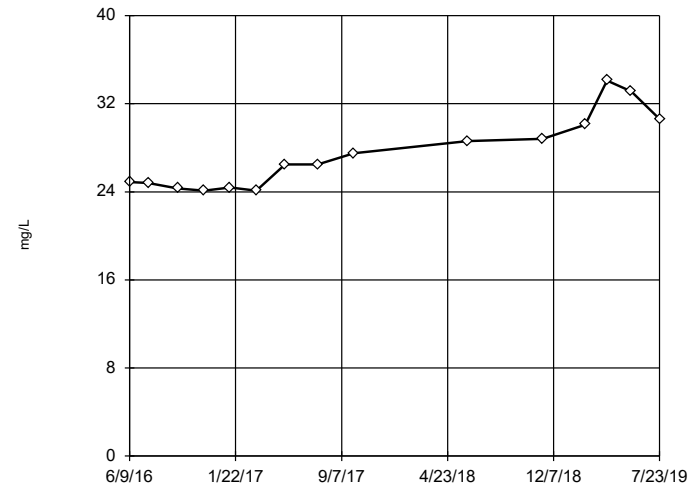
Tukey's Outlier Screening
MW-001D



n = 13
No outliers found. Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 60.15, low cutoff = -48.89, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

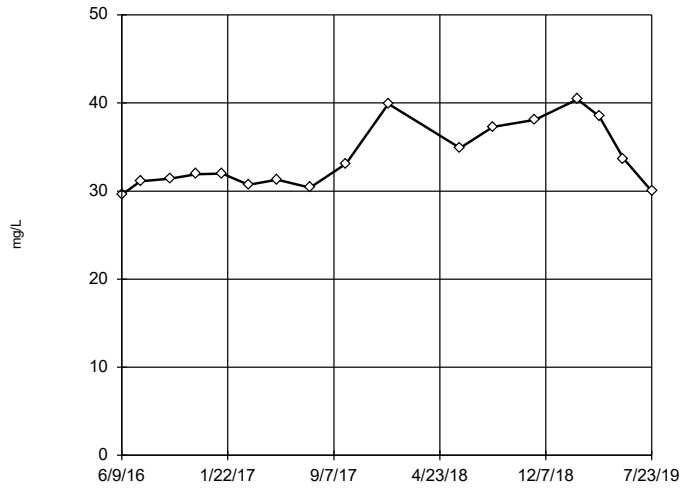
Tukey's Outlier Screening
MW-001I



n = 15
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 56.51, low cutoff = 13, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

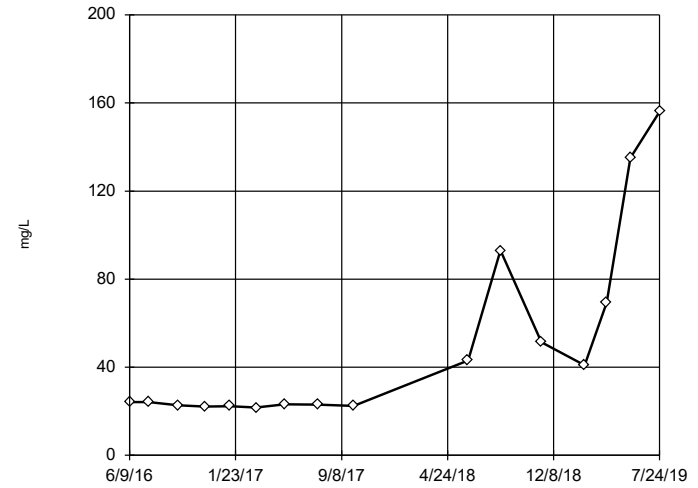
Tukey's Outlier Screening
MW-001S



n = 17
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 68.46, low cutoff = 17.02, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

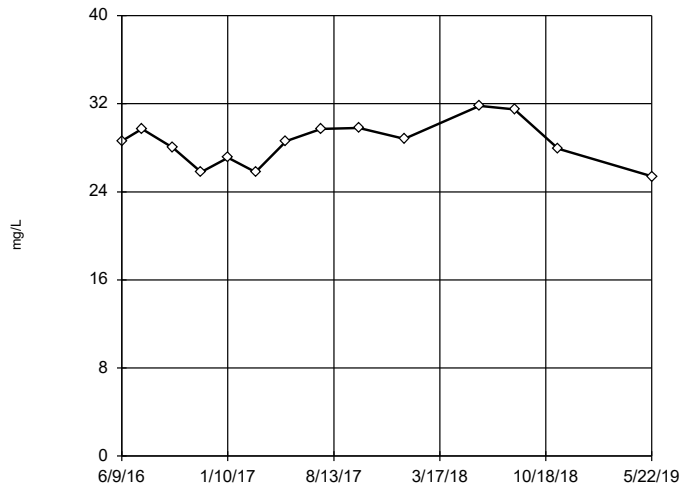
Tukey's Outlier Screening
MW-002D



n = 16
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 1098, low cutoff = 1.228, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

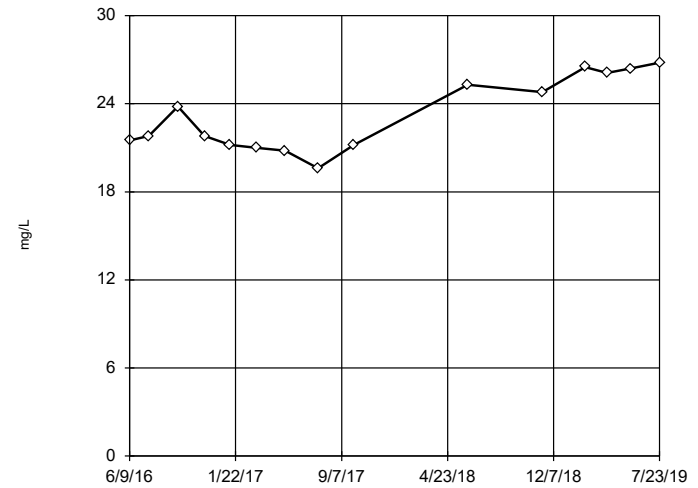
Tukey's Outlier Screening
MW-002I



n = 14
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 39.65, low cutoff = 16.55, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

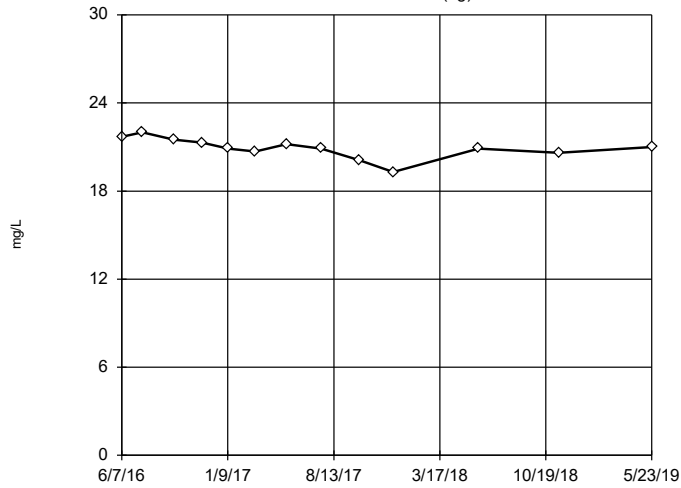
Tukey's Outlier Screening
MW-002S



n = 15
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 48.7, low cutoff = 11.36, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

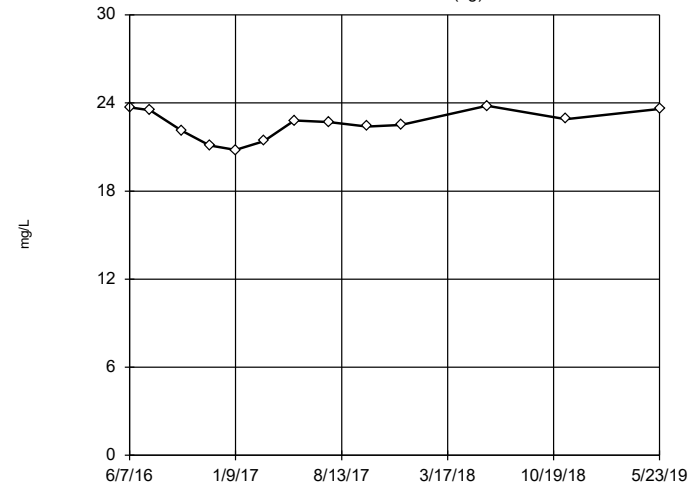
Tukey's Outlier Screening
MW-008I (bg)



n = 13
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 23.09, low cutoff = 16.73, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

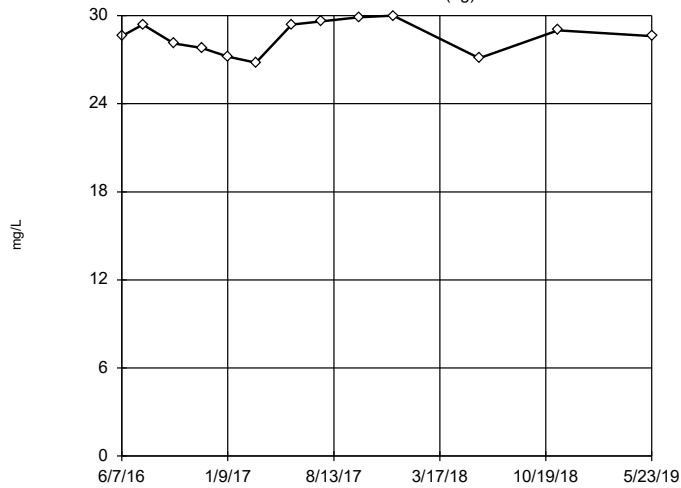
Tukey's Outlier Screening
MW-008S (bg)



n = 13
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 26.72, low cutoff = -21.04, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

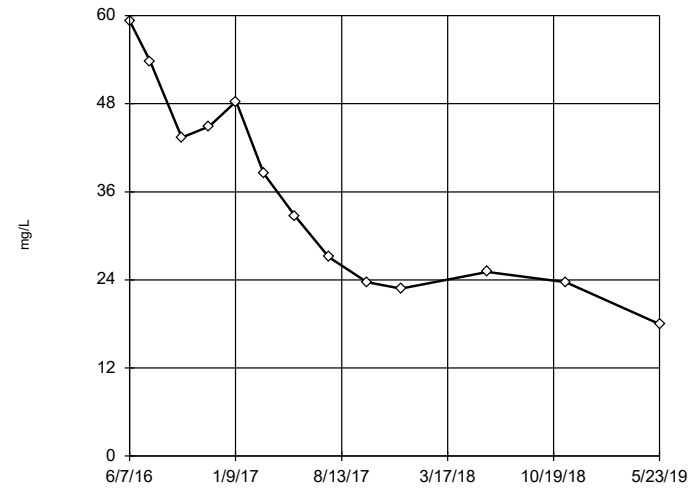
Tukey's Outlier Screening
MW-014S (bg)



n = 13
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 33.19, low cutoff = -25, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

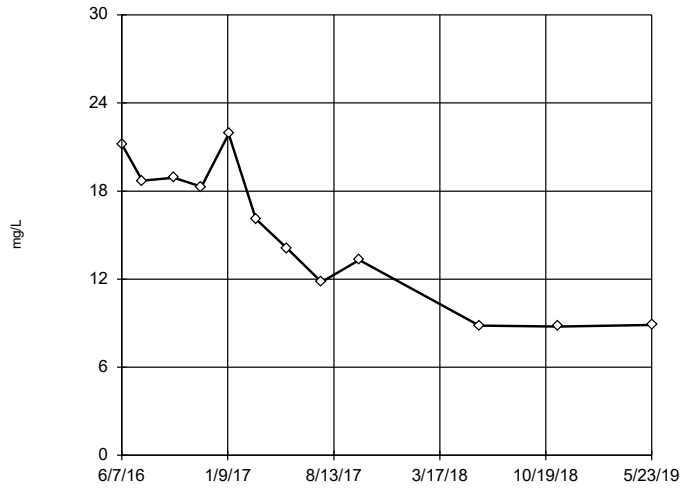
Tukey's Outlier Screening
MW-015I



n = 13
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 353.3, low cutoff = 3.124, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

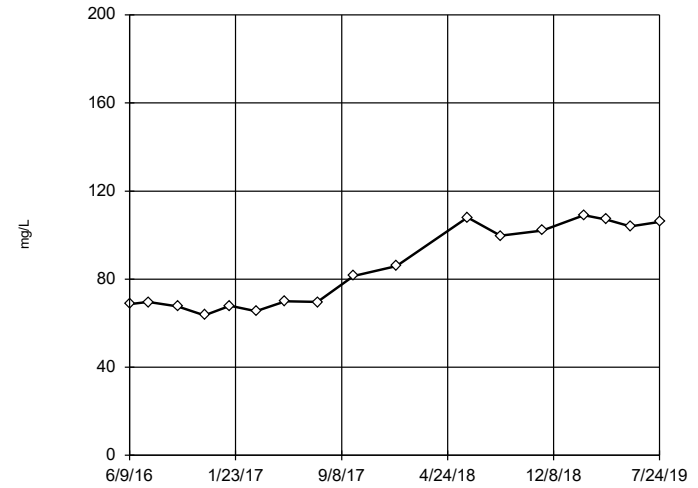
Tukey's Outlier Screening
MW-015S



n = 12
No outliers found. Tukey's method selected by user.
Data were square transformed to achieve best W statistic (graph shown in original units).
High cutoff = 32.96, low cutoff = -24.98, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

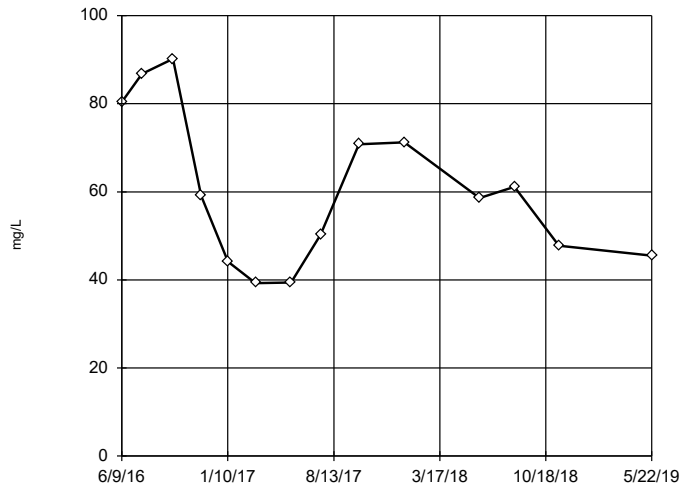
Tukey's Outlier Screening
MW-016D



n = 17
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 381.5, low cutoff = 18.8, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

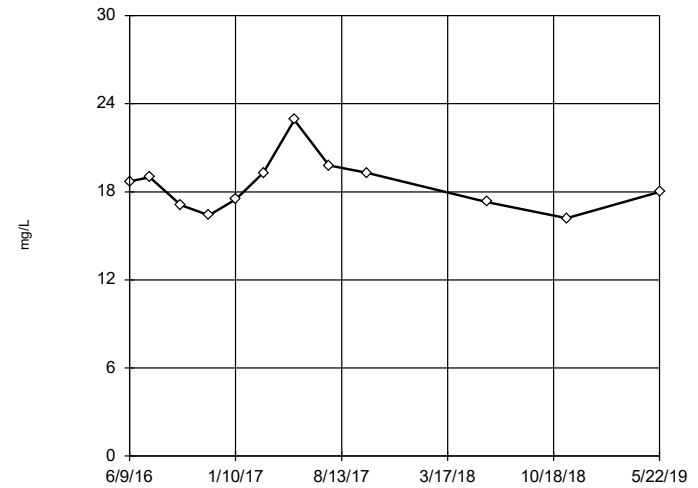
Tukey's Outlier Screening
MW-016I



n = 14
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 364.6, low cutoff = 9.296, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening
MW-016S

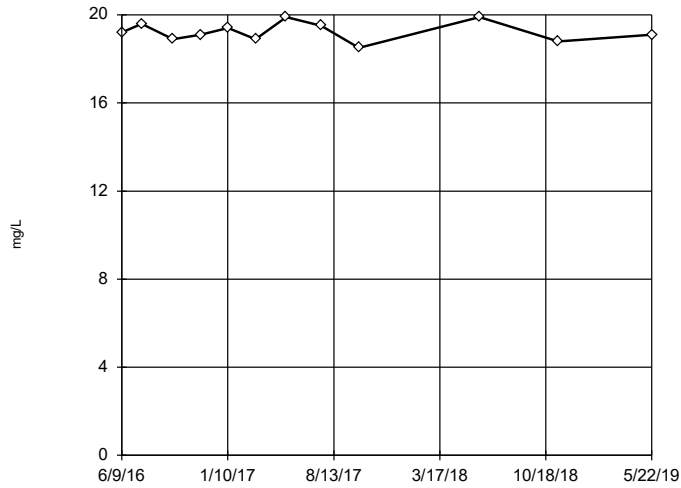


n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 27.27, low cutoff = 12.17, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-021D

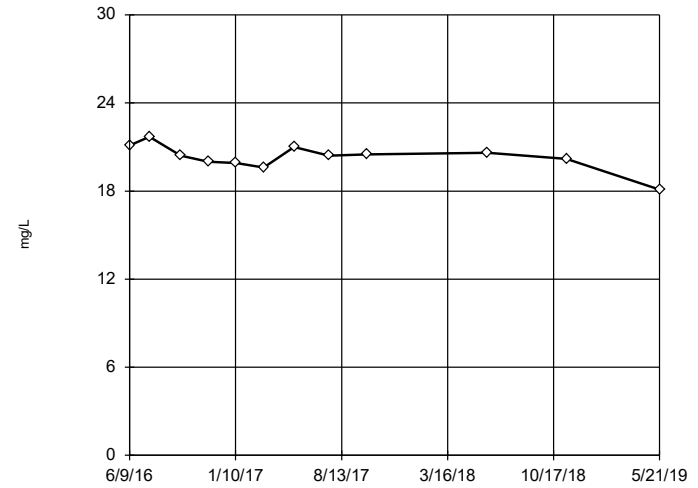


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 21.64, low cutoff = 17.08, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-0211

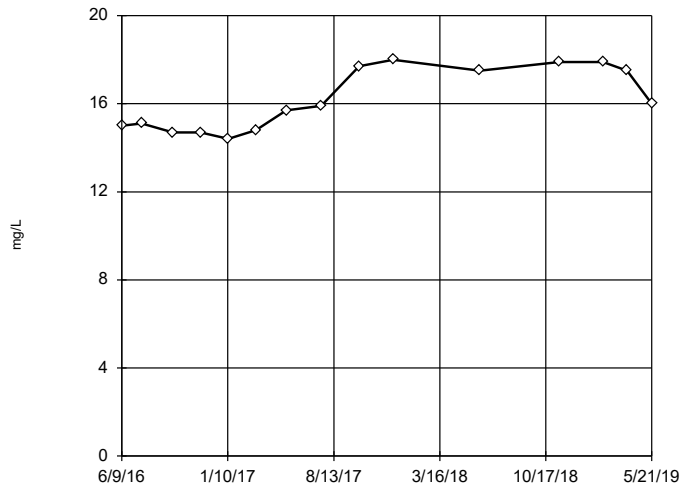


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were x^6 transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 22.66, low cutoff = 14.4, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-021S

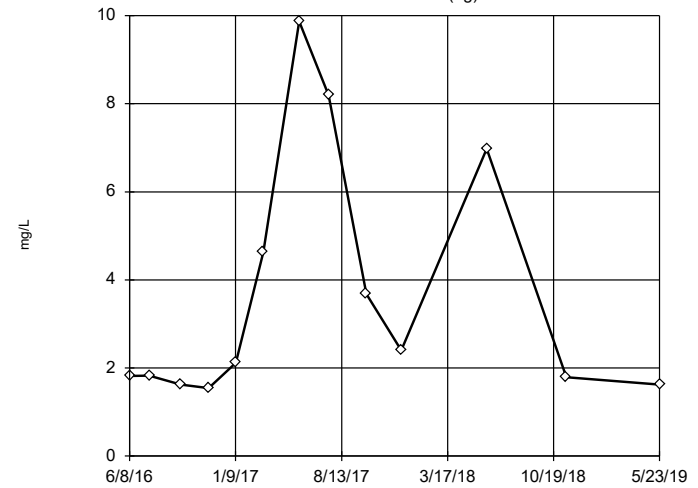


n = 15
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 30.28, low cutoff = 8.652, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-11S (bg)



n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 211.5, low cutoff = 0.04577, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-17I

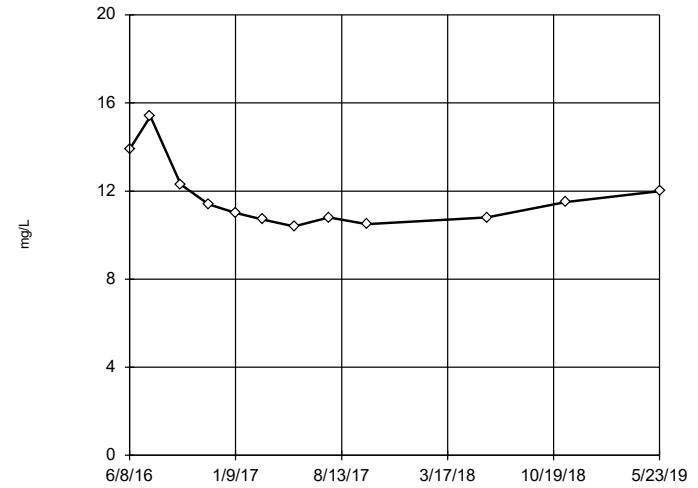


n = 15
 No outliers found.
 Tukey's method selected by user.
 Ladder of Powers transformations did not improve normality; analysis run on raw data.
 High cutoff = 415.4, low cutoff = -171.2, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-17S

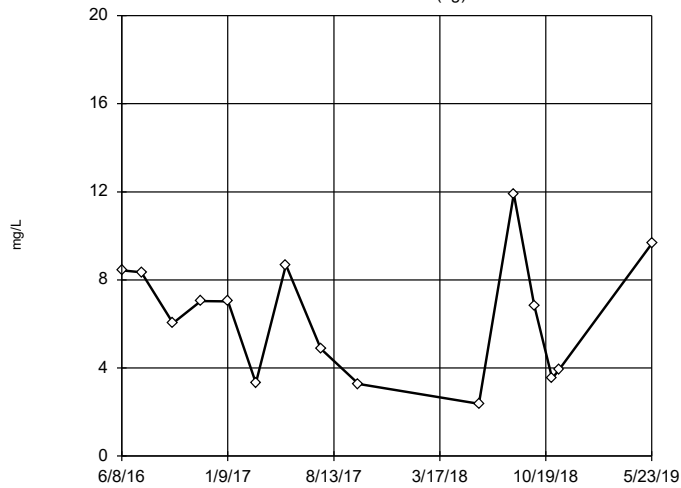


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 17.54, low cutoff = 7.447, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-6S (bg)

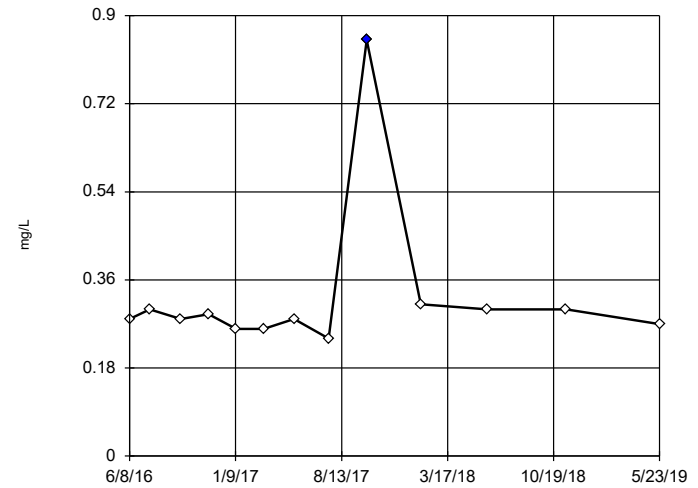


n = 15
 No outliers found.
 Tukey's method selected by user.
 Data were square root transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 35.91, low cutoff = -1.466, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

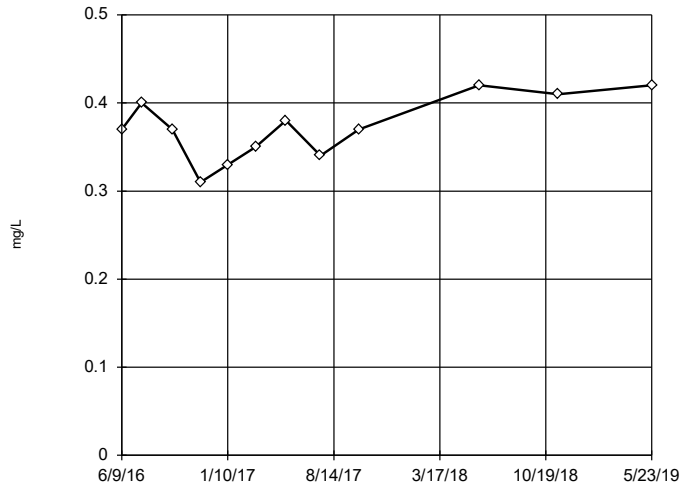
MW-001D



n = 13
 Outlier is drawn as solid.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.4355, low cutoff = 0.1825, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

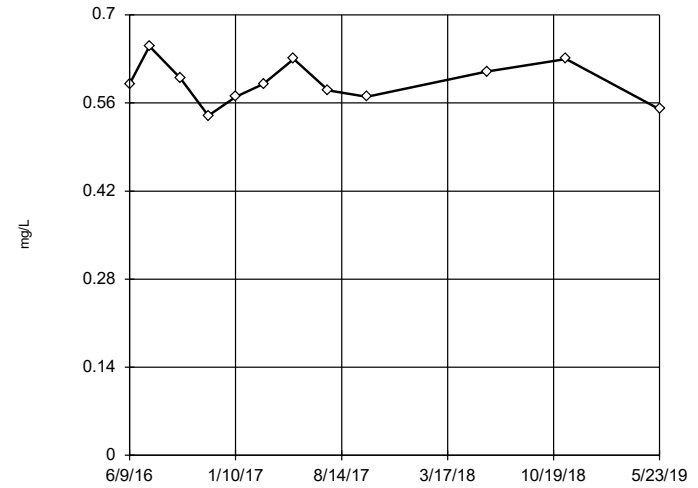
Tukey's Outlier Screening
MW-0011



n = 12
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 0.585, low cutoff = 0.165, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

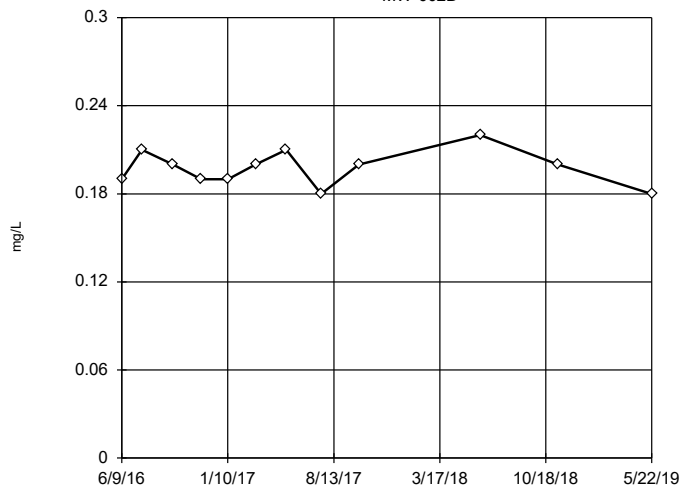
Tukey's Outlier Screening
MW-001S



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.7975, low cutoff = 0.4431, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

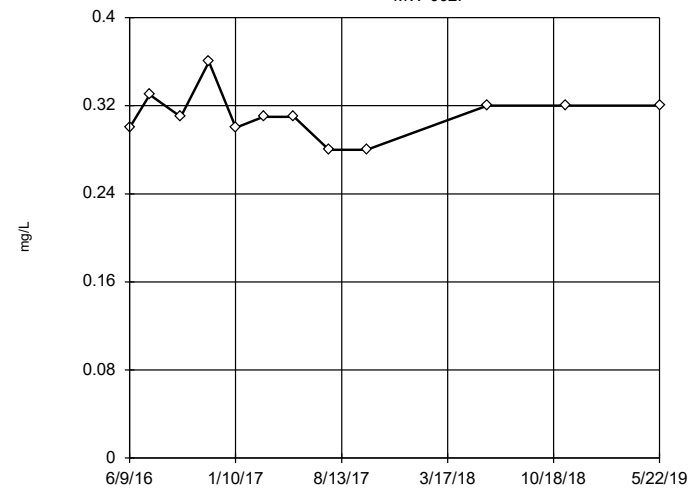
Tukey's Outlier Screening
MW-002D



n = 12
No outliers found. Tukey's method selected by user.
Data were cube root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.2545, low cutoff = 0.1495, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening
MW-002I

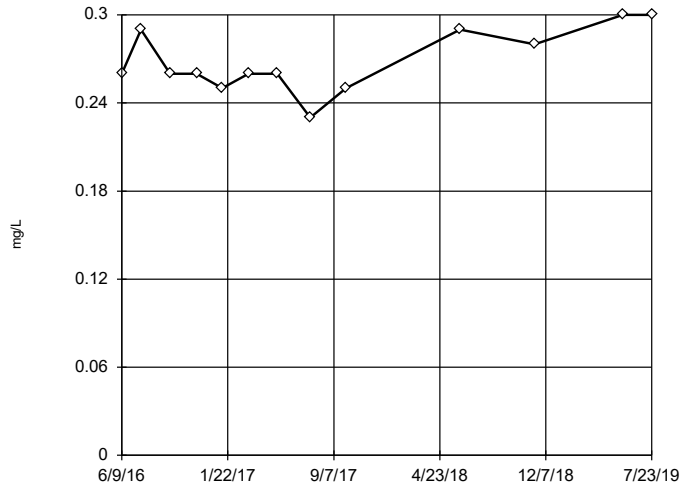


n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.3884, low cutoff = 0.2472, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:16 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-002S

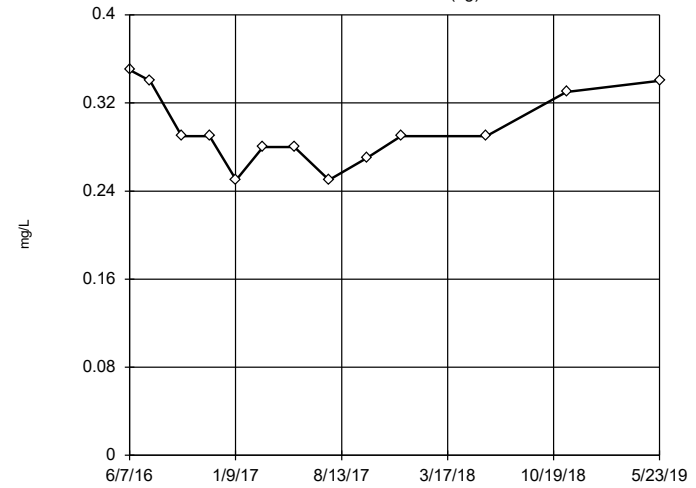


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.4268,
 low cutoff = 0.1732, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-0081 (bg)

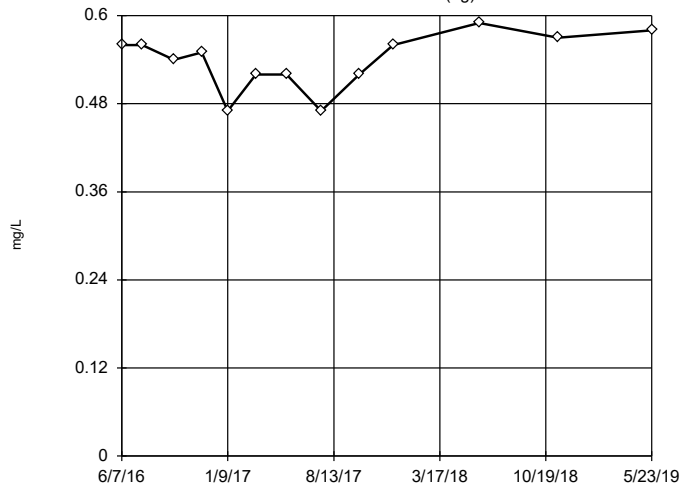


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.6056,
 low cutoff = 0.1521, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-008S (bg)

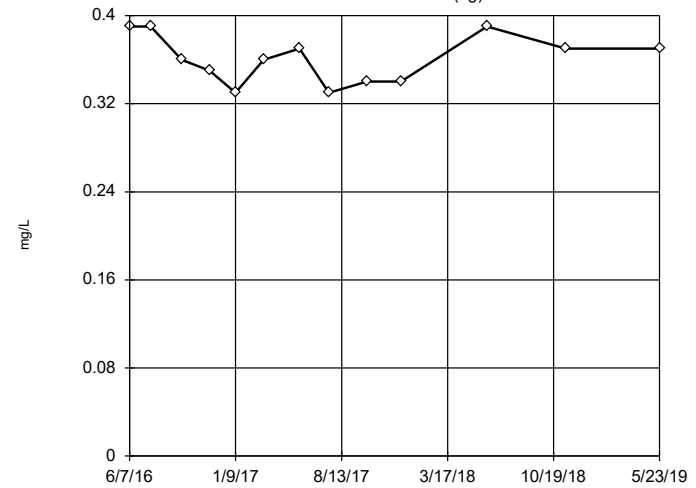


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were x*6 transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.6434,
 low cutoff = -0.5148, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

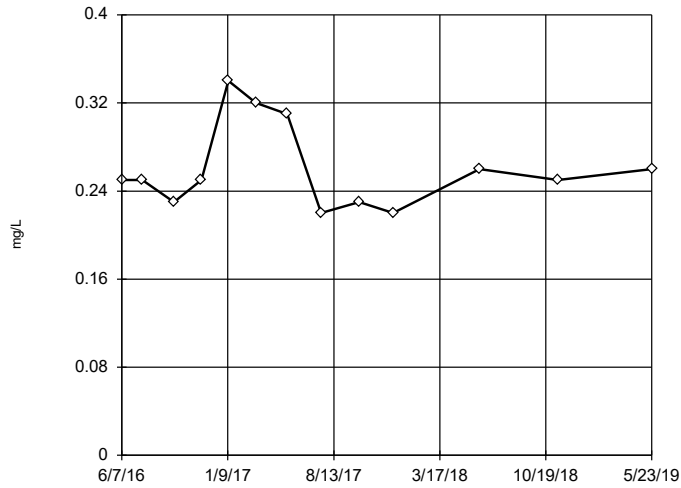
MW-014S (bg)



n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.5298,
 low cutoff = 0.2438, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

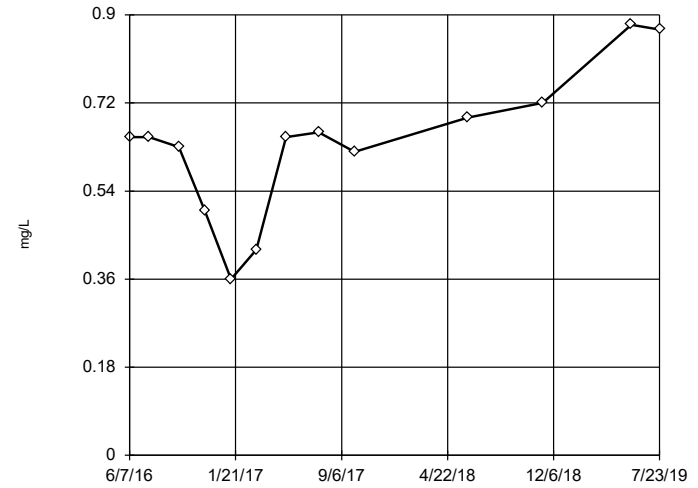
Tukey's Outlier Screening
MW-015I



n = 13
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.5339, low cutoff = 0.1223, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

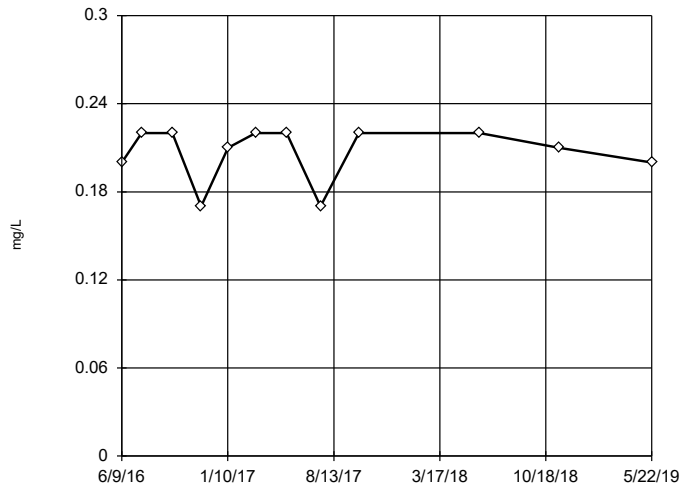
Tukey's Outlier Screening
MW-015S



n = 13
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 1.14, low cutoff = 0.125, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

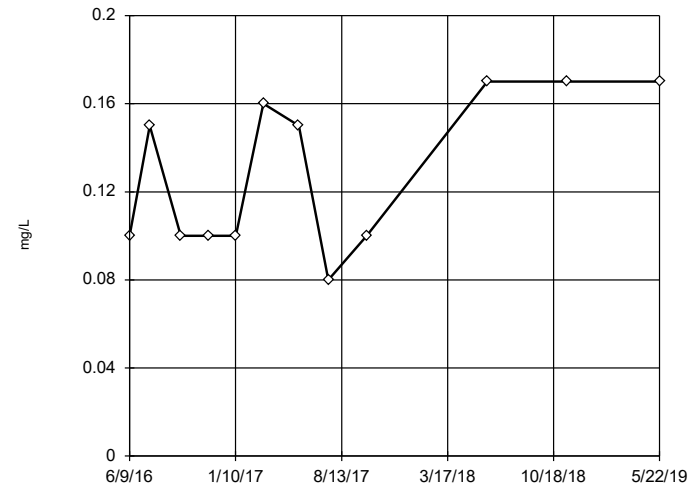
Tukey's Outlier Screening
MW-016D



n = 12
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.2529, low cutoff = -0.2093, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

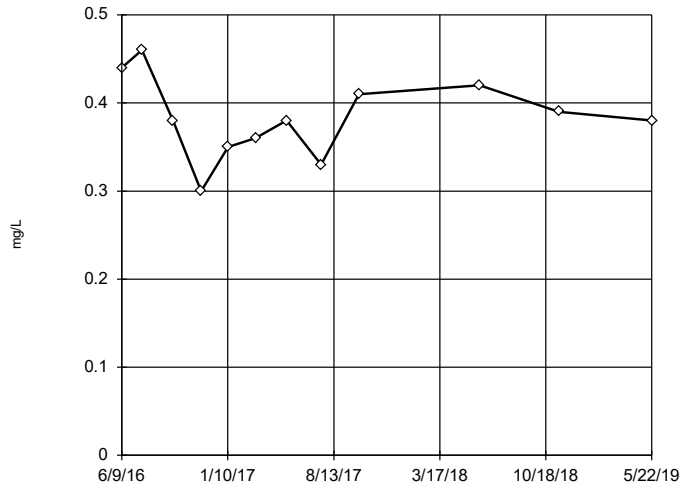
Tukey's Outlier Screening
MW-016I



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.7398, low cutoff = 0.02229, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

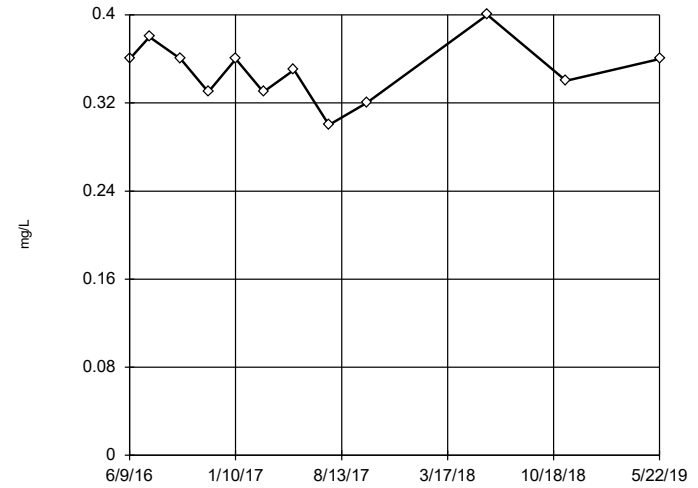
Tukey's Outlier Screening
MW-016S



n = 12
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 0.595, low cutoff = 0.175, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

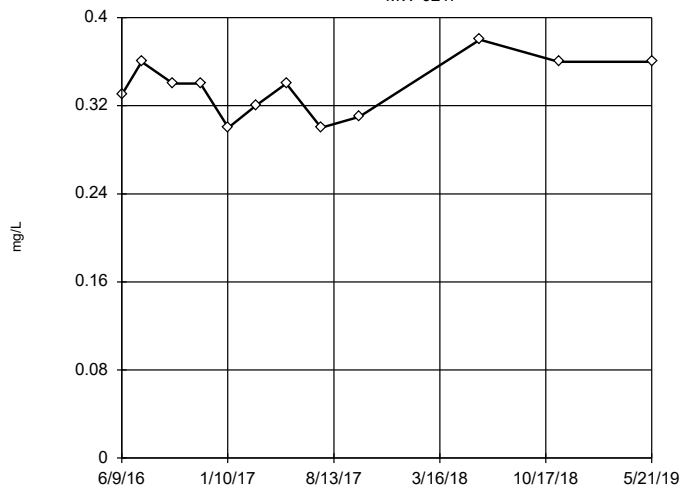
Tukey's Outlier Screening
MW-021D



n = 12
No outliers found. Tukey's method selected by user.
Data were square root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.4578, low cutoff = 0.2478, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

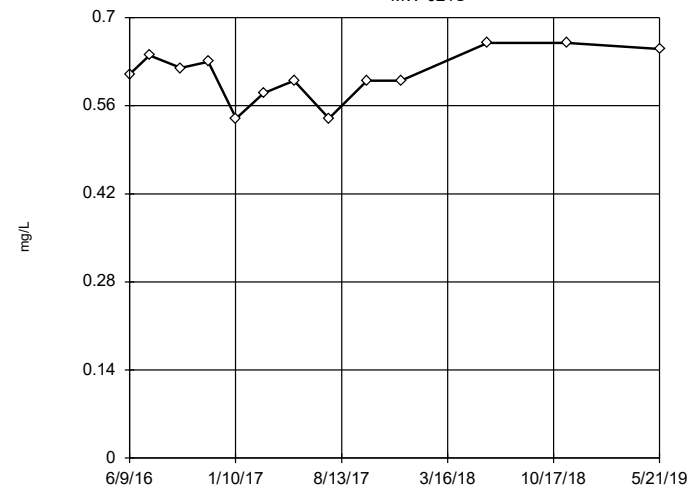
Tukey's Outlier Screening
MW-0211



n = 12
No outliers found. Tukey's method selected by user.
Data were square transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.4697, low cutoff = 0.09055, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

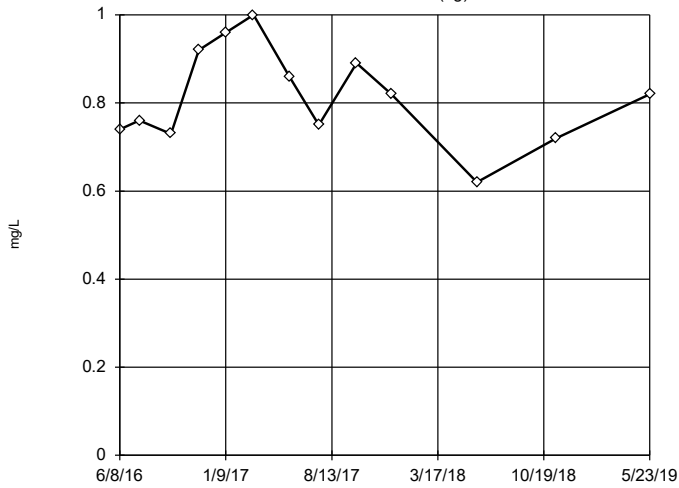
Tukey's Outlier Screening
MW-021S



n = 13
No outliers found. Tukey's method selected by user.
Data were x^6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 0.7377, low cutoff = -0.6002, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

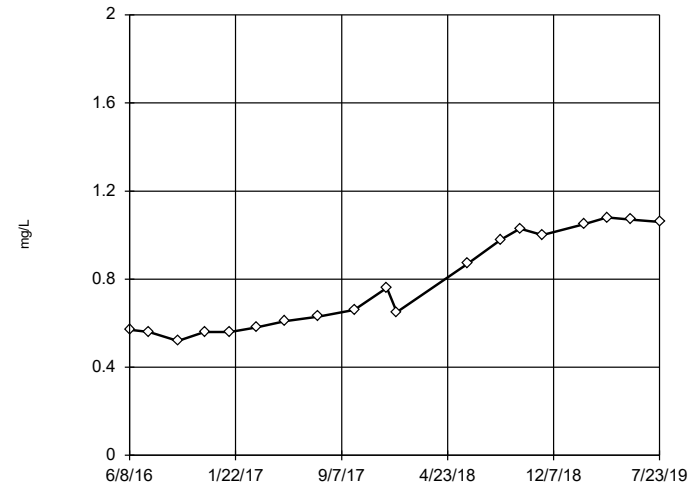
Tukey's Outlier Screening
MW-11S (bg)



n = 13
No outliers found.
Tukey's method selected by user.
Data were square root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 1.521, low cutoff = 0.3311, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

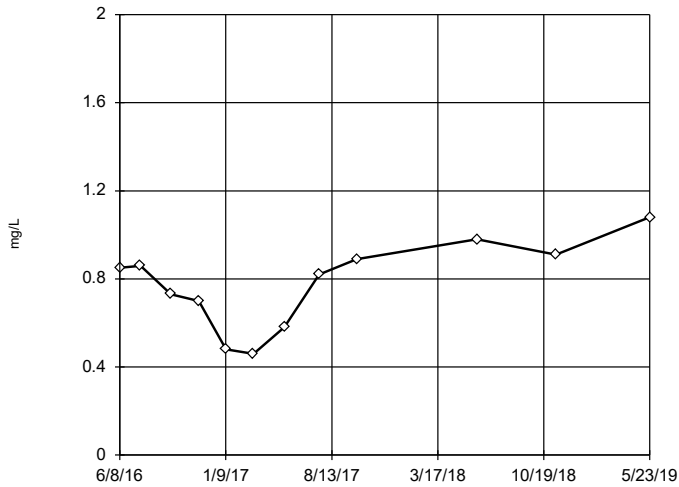
Tukey's Outlier Screening
MW-17I



n = 19
No outliers found.
Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 6.077, low cutoff = 0.0966, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

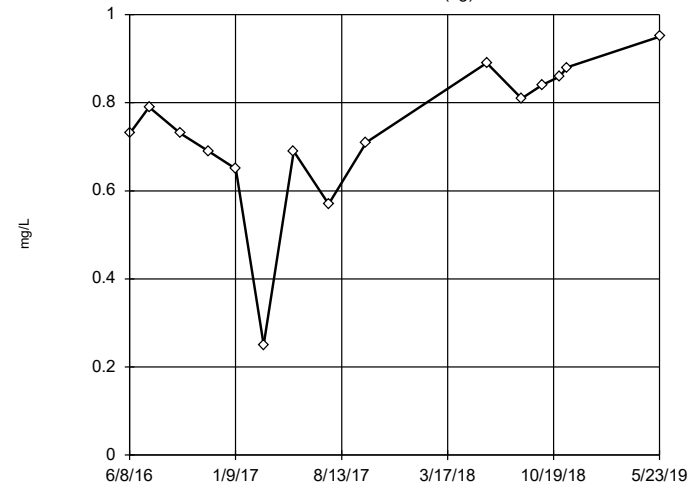
Tukey's Outlier Screening
MW-17S



n = 12
No outliers found.
Tukey's method selected by user.
Data were square transformed to achieve best W statistic (graph shown in original units).
High cutoff = 1.414, low cutoff = -0.8818, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

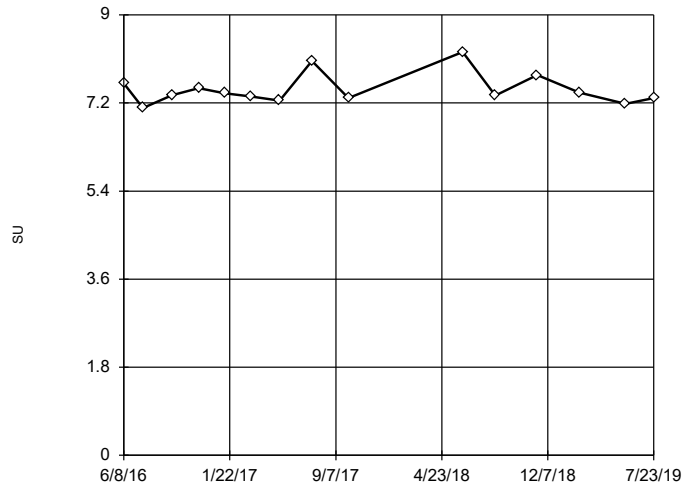
Tukey's Outlier Screening
MW-6S (bg)



n = 15
No outliers found.
Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 1.159, low cutoff = -0.8407, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

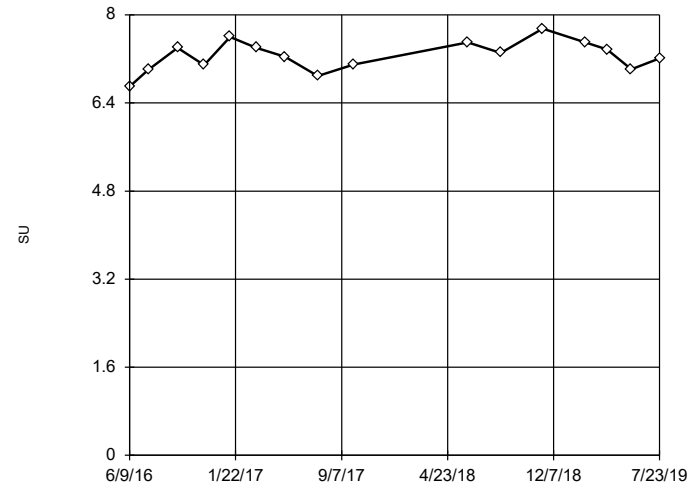
Tukey's Outlier Screening
MW-001D



n = 15
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 8.576, low cutoff = 6.469, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

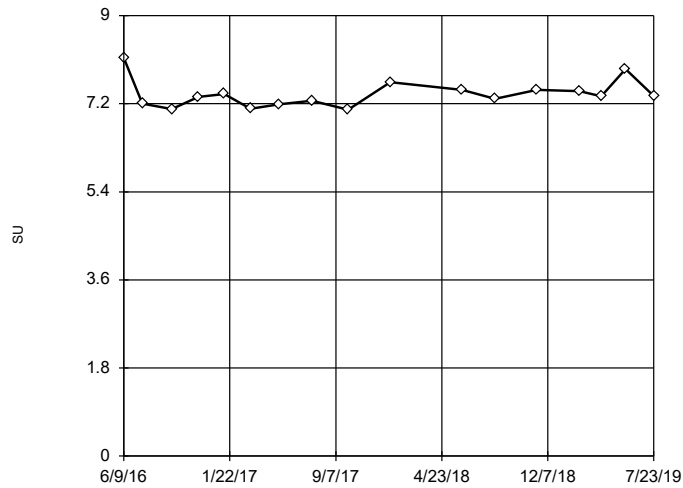
Tukey's Outlier Screening
MW-001I



n = 16
No outliers found. Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 8.448, low cutoff = 5.441, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

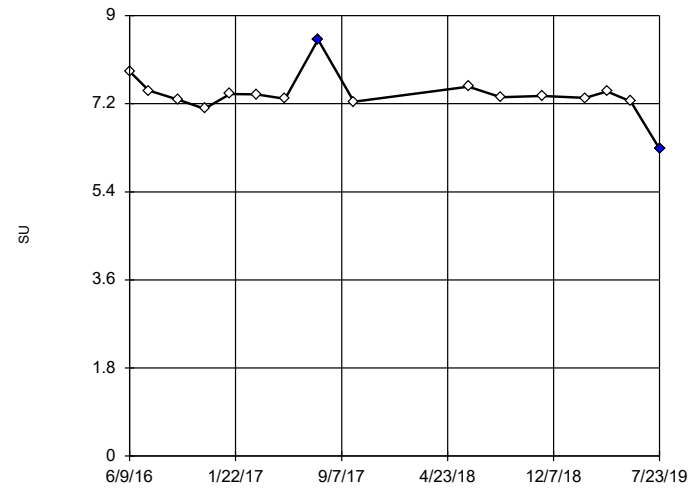
Tukey's Outlier Screening
MW-001S



n = 17
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 8.405, low cutoff = 6.404, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening
MW-002D

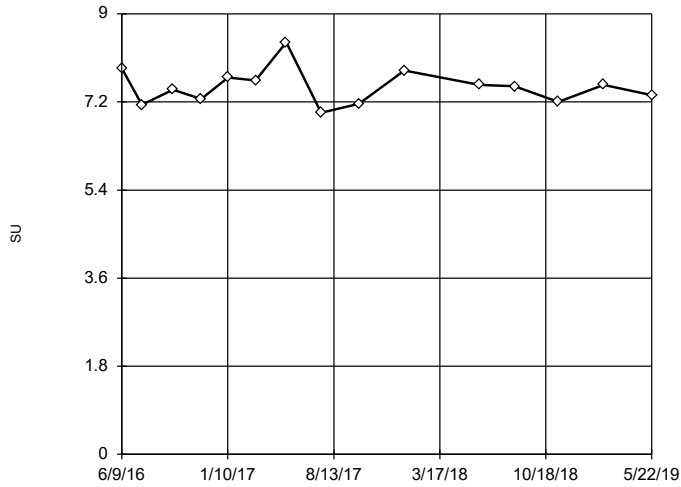


n = 16
Outliers are drawn as solid. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 8.03, low cutoff = 6.7, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-0021



n = 15

No outliers found. Tukey's method selected by user.

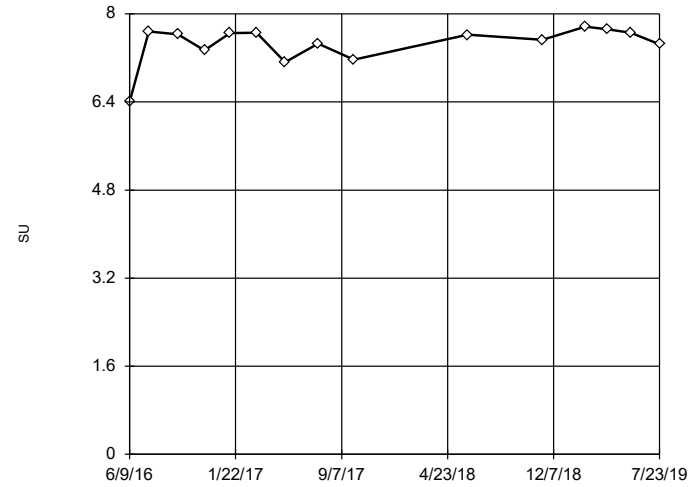
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 9.418, low cutoff = 5.887, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-002S



n = 15

No outliers found. Tukey's method selected by user.

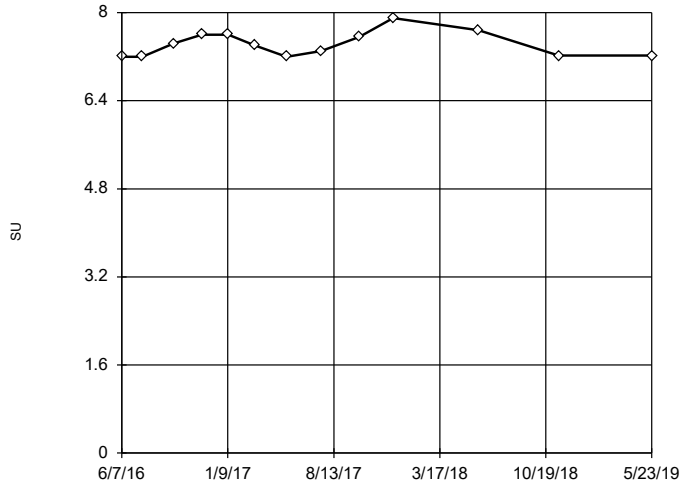
Data were x⁶ transformed to achieve best W statistic (graph shown in original units).

High cutoff = 8.35, low cutoff = 5.187, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-0081 (bg)



n = 13

No outliers found. Tukey's method selected by user.

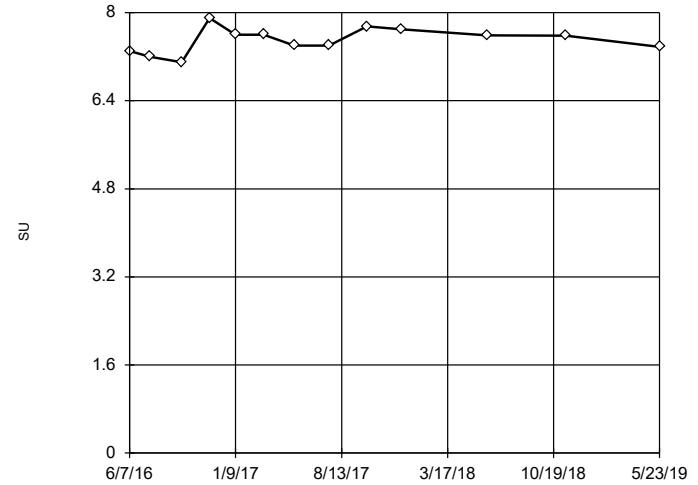
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 8.901, low cutoff = 6.156, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-008S (bg)



n = 13

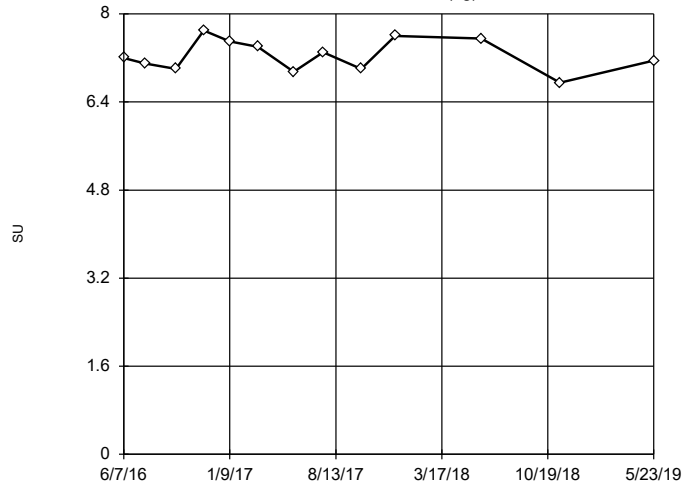
No outliers found. Tukey's method selected by user.

Data were cube transformed to achieve best W statistic (graph shown in original units).

High cutoff = 8.456, low cutoff = 6.203, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

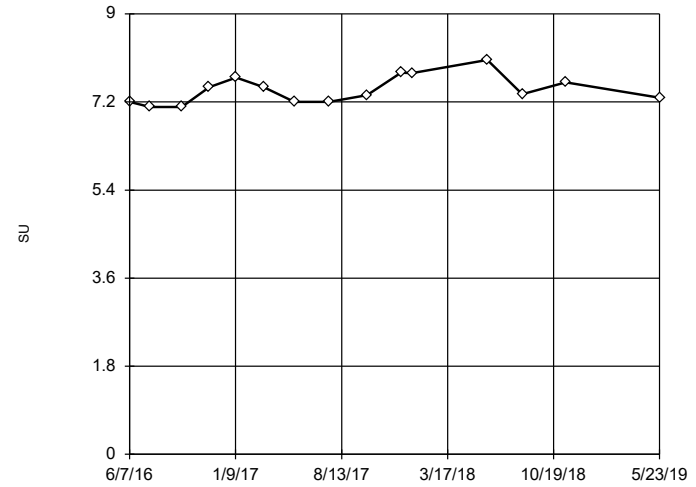
Tukey's Outlier Screening MW-014S (bg)



n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 9.348, low cutoff = 5.635, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

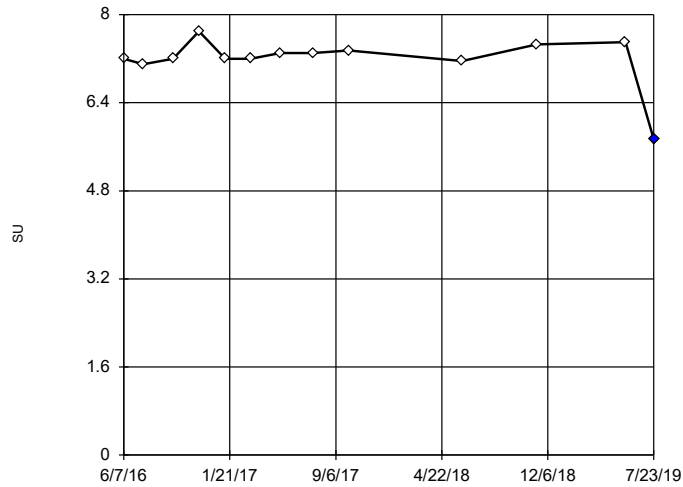
Tukey's Outlier Screening MW-015I



n = 15
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 9.418, low cutoff = 5.887, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

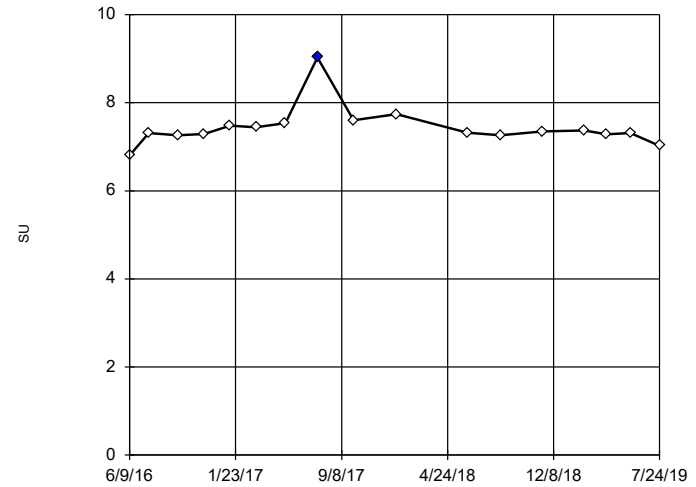
Tukey's Outlier Screening MW-015S



n = 13
 Outlier is drawn as solid.
 Tukey's method selected by user.
 Data were x*6 transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 7.932, low cutoff = 6.13, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening MW-016D

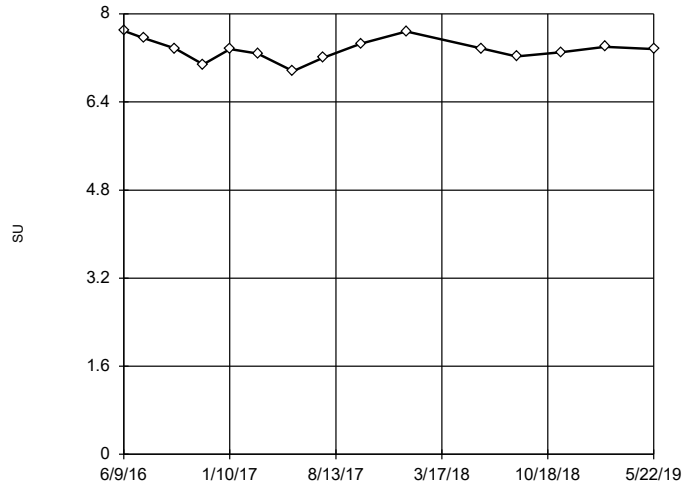


n = 17
 Outlier is drawn as solid.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 8.278, low cutoff = 6.595, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-016I

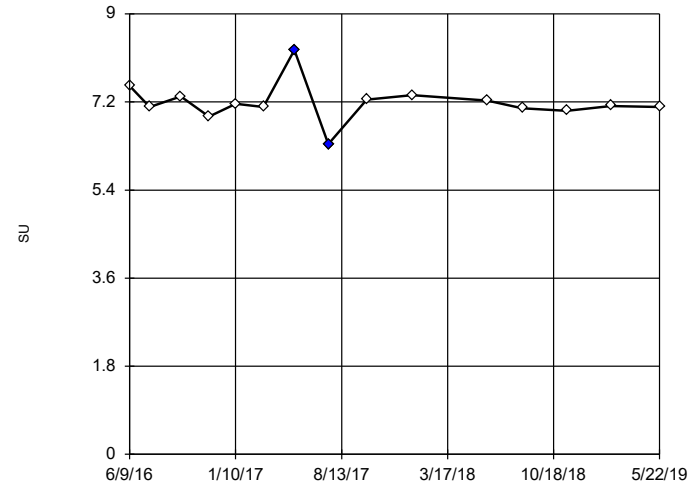


n = 15
 No outliers found.
 Tukey's method selected by user.
 Data were square root transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 8.172, low cutoff = 6.562, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-016S

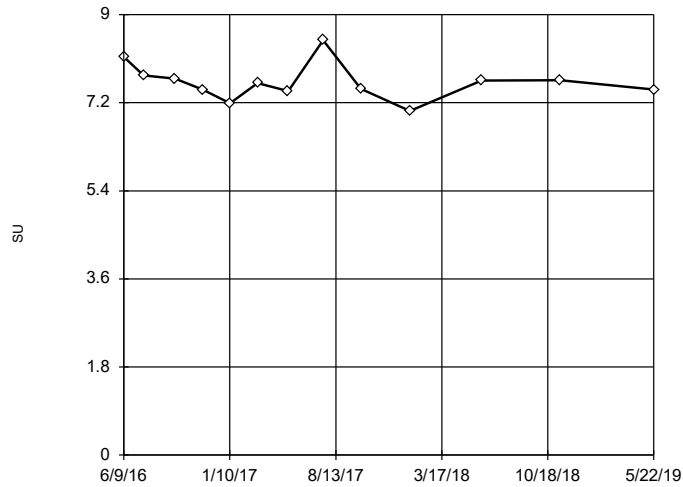


n = 15
 Outliers are drawn as solid.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 8.08, low cutoff = 6.396, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-021D

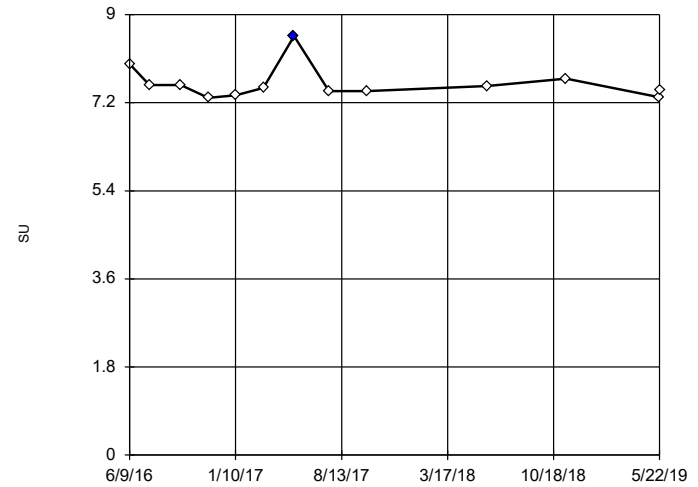


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 8.595, low cutoff = 6.7, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

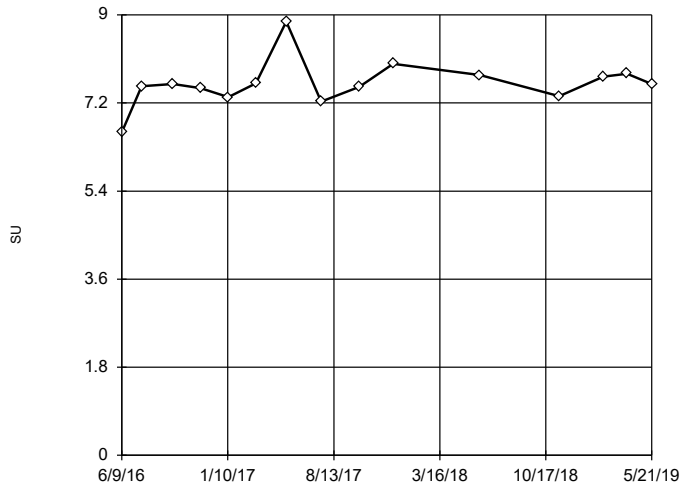
MW-021I



n = 13
 Outlier is drawn as solid.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 8.358, low cutoff = 6.746, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

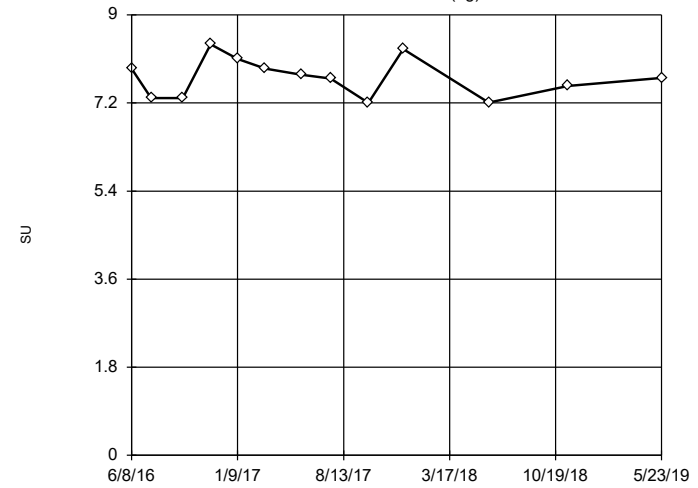
Tukey's Outlier Screening
MW-021S



n = 15
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 9.217, low cutoff = 6.188, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

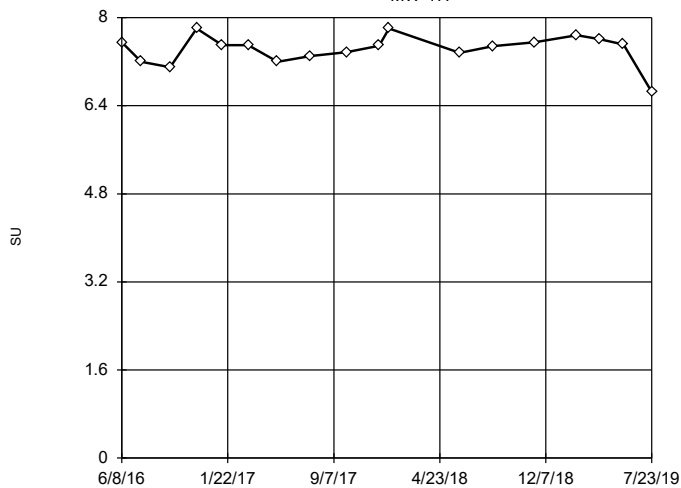
Tukey's Outlier Screening
MW-11S (bg)



n = 13
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 10.53, low cutoff = 5.548, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

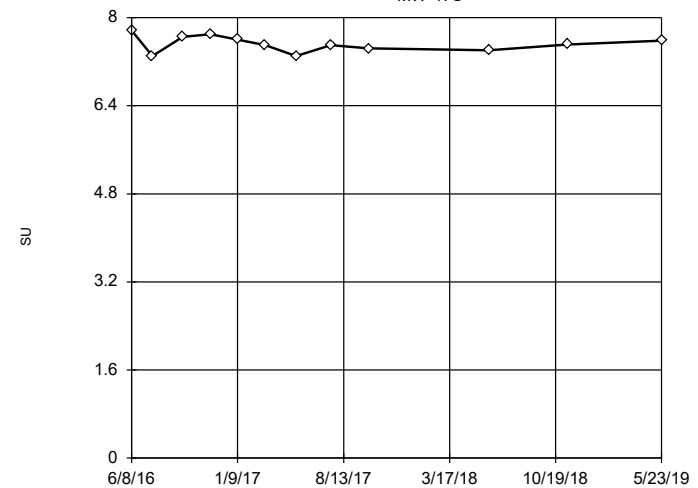
Tukey's Outlier Screening
MW-17I



n = 18
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 8.283, low cutoff = 4.793, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

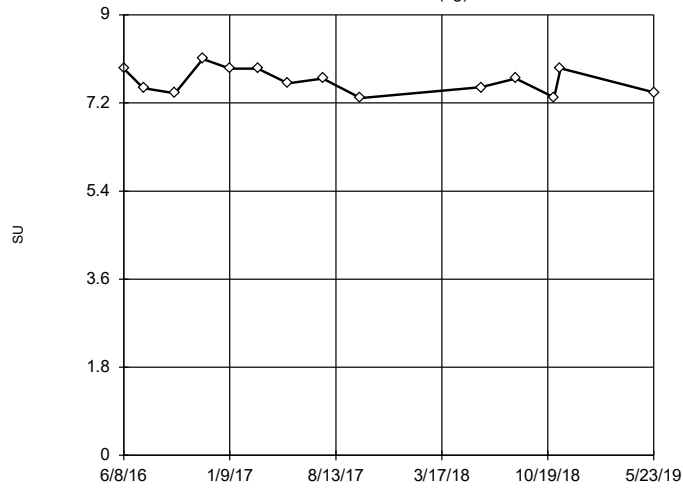
Tukey's Outlier Screening
MW-17S



n = 12
No outliers found. Tukey's method selected by user.
Data were x*4 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 8.146, low cutoff = 6.701, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

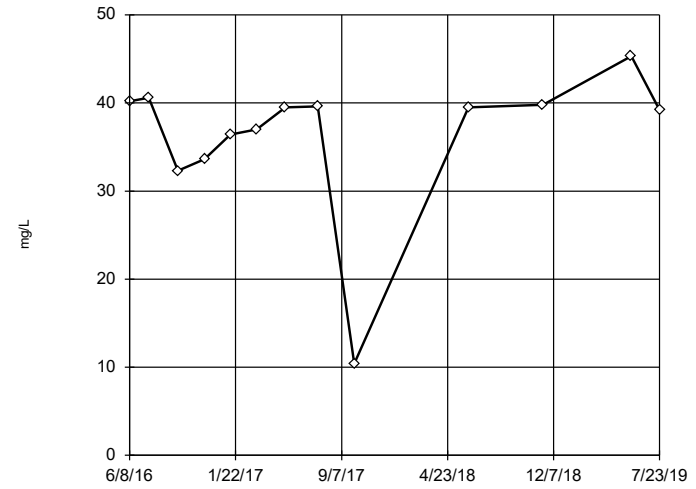
Tukey's Outlier Screening
MW-6S (bg)



n = 14
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 9.573, low cutoff = 6.115, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

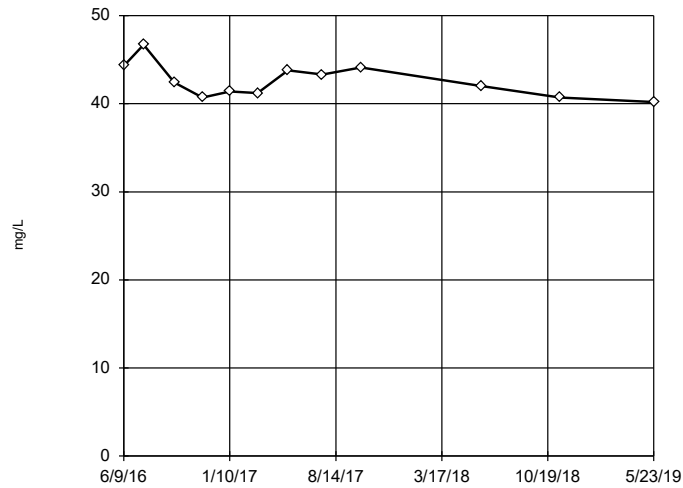
Tukey's Outlier Screening
MW-001D



n = 13
No outliers found. Tukey's method selected by user.
Data were x^4 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 48.85, low cutoff = -35.68, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

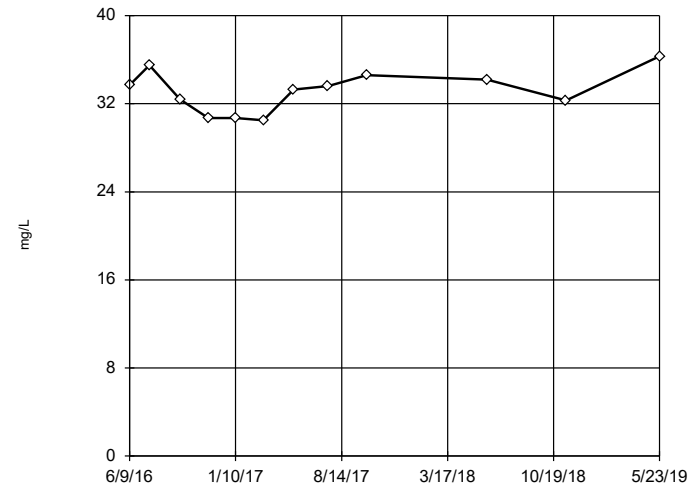
Tukey's Outlier Screening
MW-0011



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 54.34, low cutoff = 33.12, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

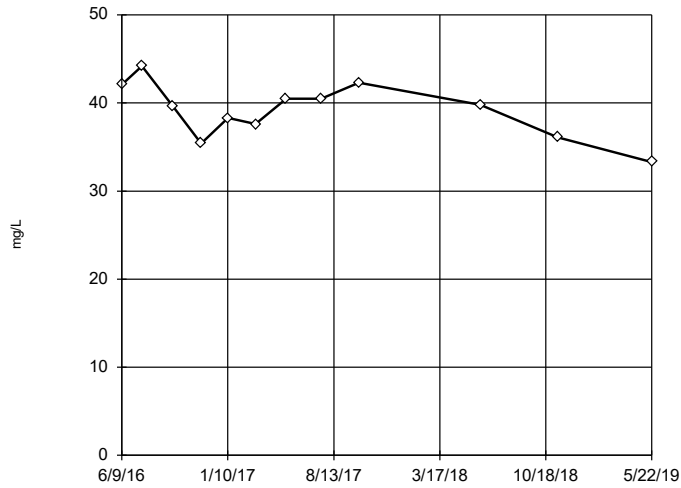
Tukey's Outlier Screening
MW-001S



n = 12
No outliers found. Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 41, low cutoff = 14.63, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

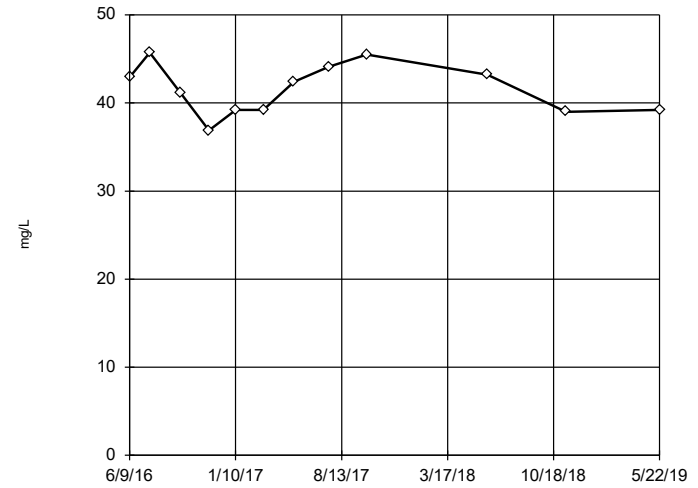
Tukey's Outlier Screening
MW-002D



n = 12
No outliers found. Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 50.89, low cutoff = -22.35, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

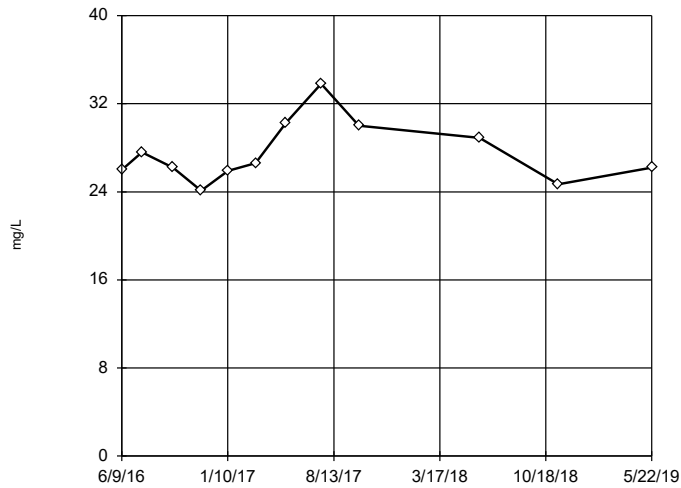
Tukey's Outlier Screening
MW-002I



n = 12
No outliers found. Tukey's method selected by user.
Data were square root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 58.43, low cutoff = 27.29, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

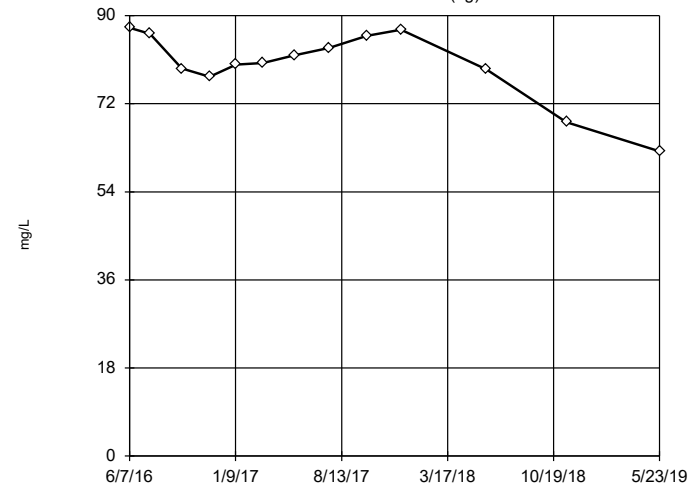
Tukey's Outlier Screening
MW-002S



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 43.02, low cutoff = 17.76, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening
MW-008I (bg)

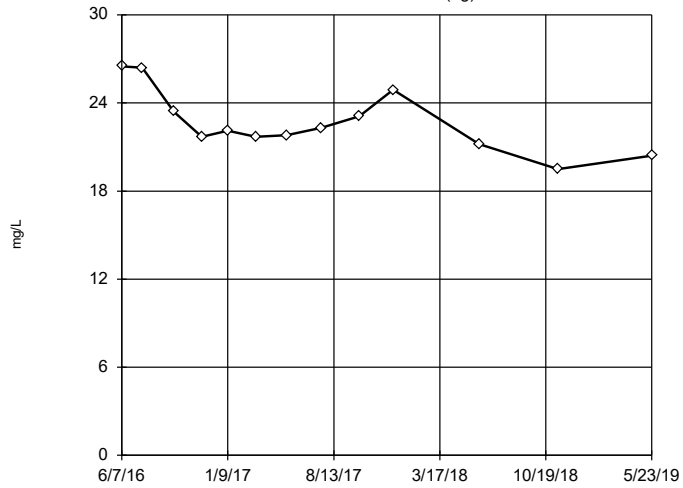


n = 13
No outliers found. Tukey's method selected by user.
Data were x^6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 98.98, low cutoff = -81.94, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-008S (bg)

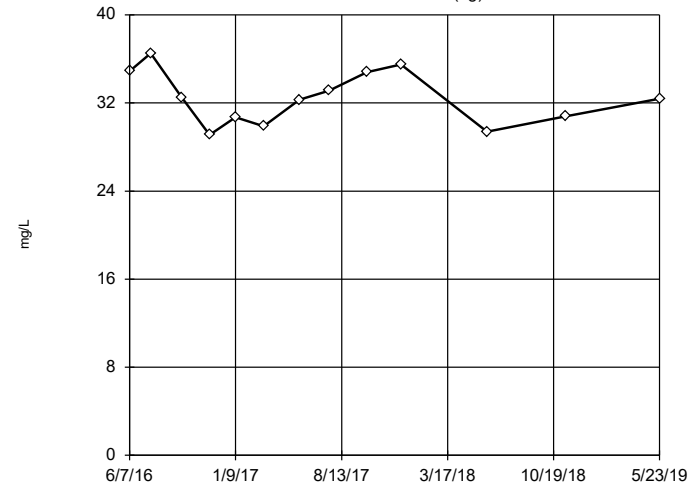


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 34.41, low cutoff = 15.05, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-014S (bg)

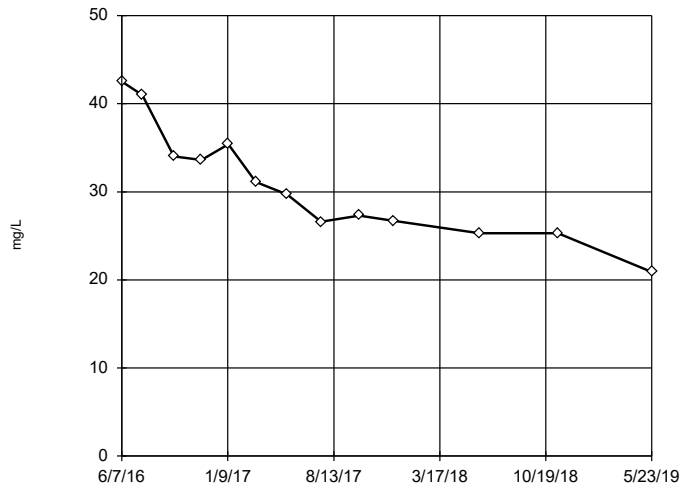


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 53.04, low cutoff = 19.91, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-015I

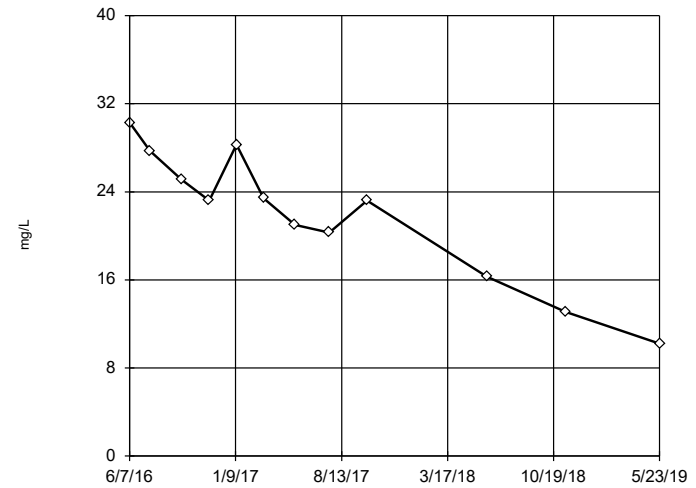


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 82.98, low cutoff = 10.85, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-015S

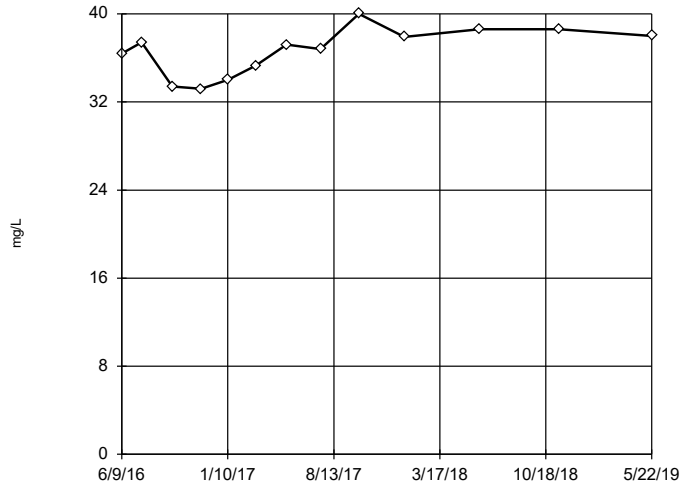


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were square transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 42.17, low cutoff = -27.21, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-016D

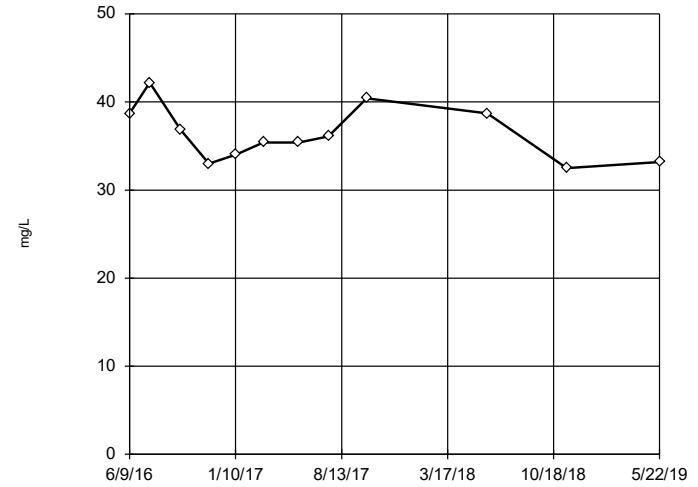


n = 13
 No outliers found.
 Tukey's method selected by user.
 Data were x*6 transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 44.16, low cutoff = -36.89, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-016I

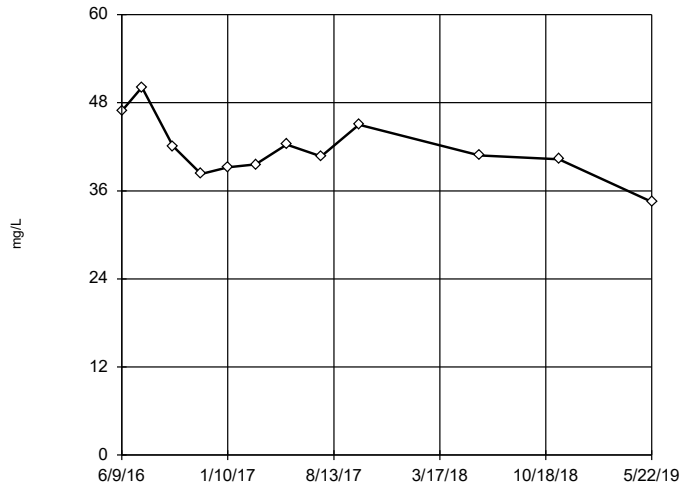


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 59.15, low cutoff = 21.98, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-016S

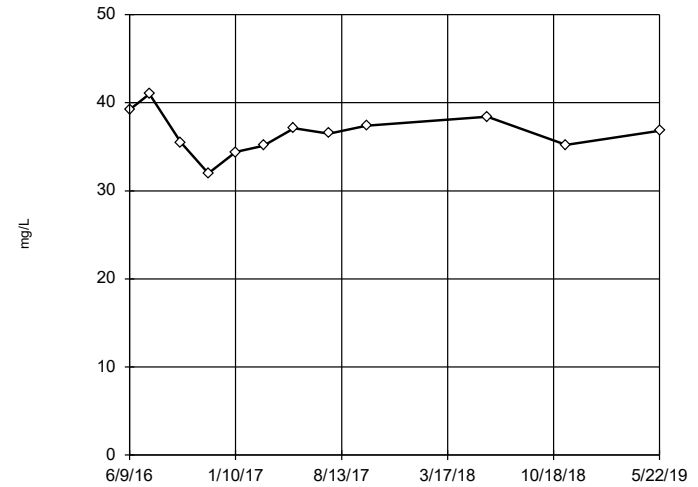


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 59.24, low cutoff = 29.02, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

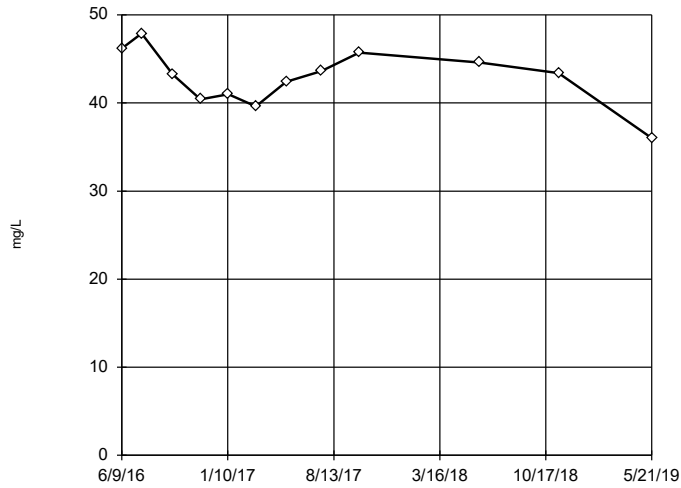
MW-021D



n = 12
 No outliers found.
 Tukey's method selected by user.
 Ladder of Powers transformations did not improve normality; analysis run on raw data.
 High cutoff = 46.15, low cutoff = 26.9, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

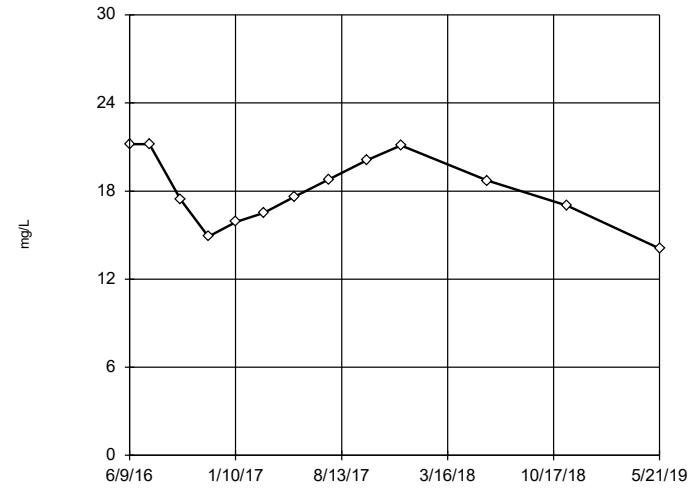
Tukey's Outlier Screening
MW-0211



n = 12
No outliers found. Tukey's method selected by user.
Data were x⁴ transformed to achieve best W statistic (graph shown in original units).
High cutoff = 53.84, low cutoff = -34.99, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

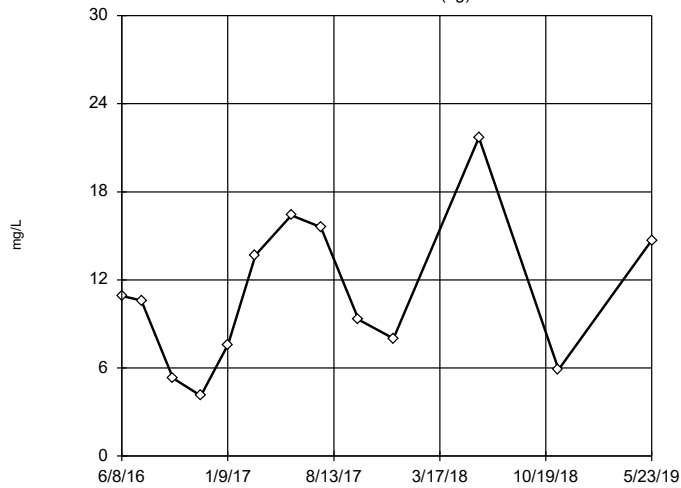
Tukey's Outlier Screening
MW-021S



n = 13
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 42.33, low cutoff = 7.88, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

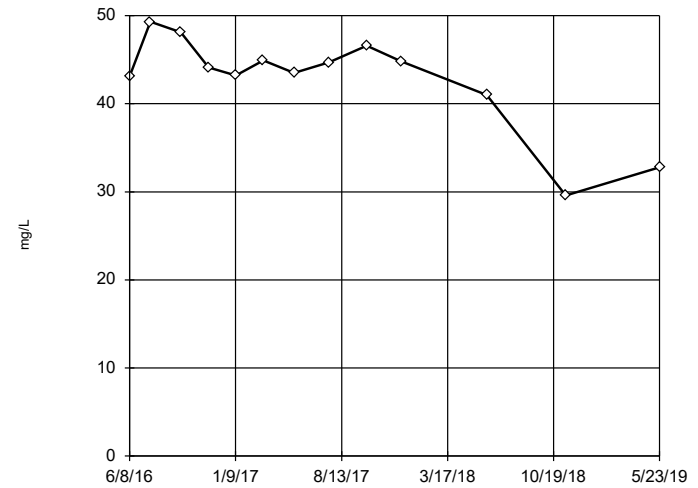
Tukey's Outlier Screening
MW-11S (bg)



n = 13
No outliers found. Tukey's method selected by user.
Data were cube root transformed to achieve best W statistic (graph shown in original units).
High cutoff = 76.07, low cutoff = 0.00189, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

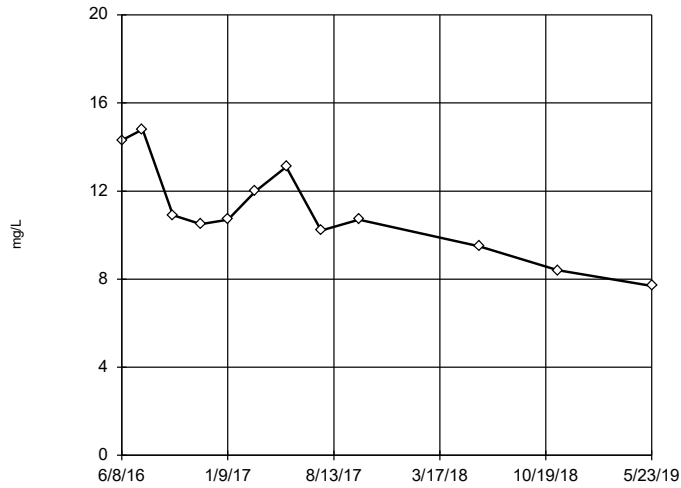
Tukey's Outlier Screening
MW-171



n = 13
No outliers found. Tukey's method selected by user.
Data were x⁶ transformed to achieve best W statistic (graph shown in original units).
High cutoff = 52.16, low cutoff = -41.8, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

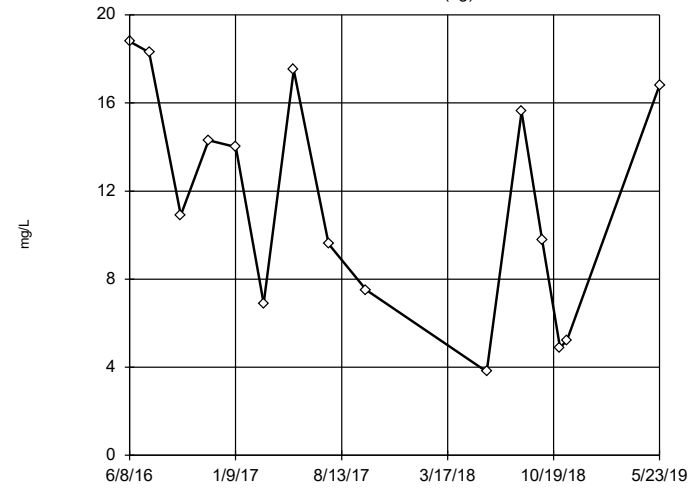
Tukey's Outlier Screening
MW-17S



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 25.91, low cutoff = 4.764, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

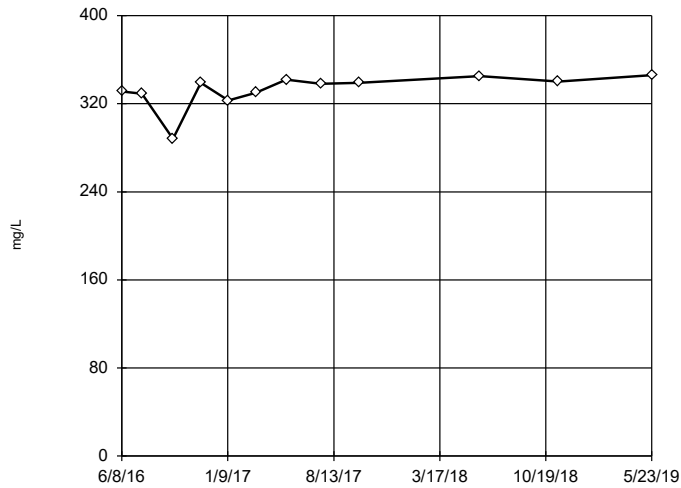
Tukey's Outlier Screening
MW-6S (bg)



n = 15
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 46.5, low cutoff = -22.8, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

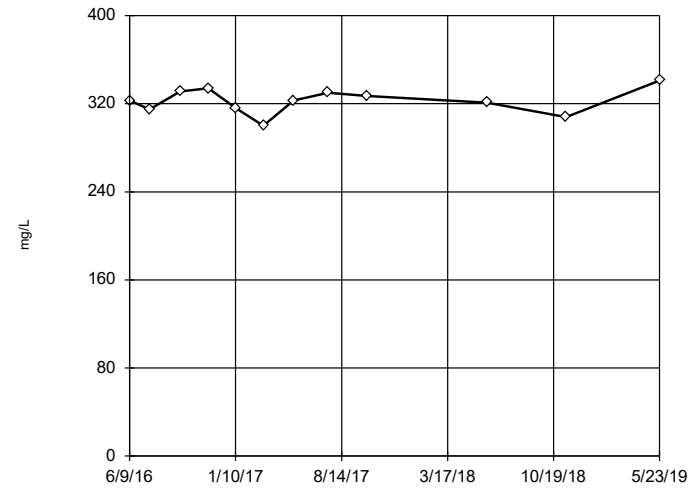
Tukey's Outlier Screening
MW-001D



n = 12
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 367.2, low cutoff = 271.7, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

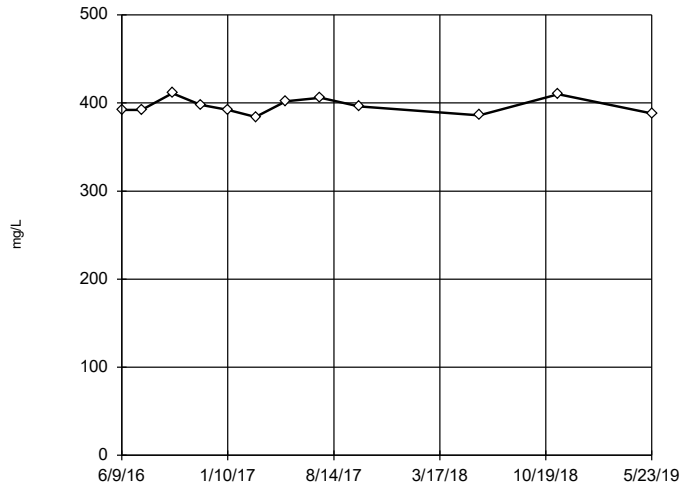
Tukey's Outlier Screening
MW-0011



n = 12
No outliers found. Tukey's method selected by user.
Data were x*6 transformed to achieve best W statistic (graph shown in original units).
High cutoff = 362.1, low cutoff = 181.2, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

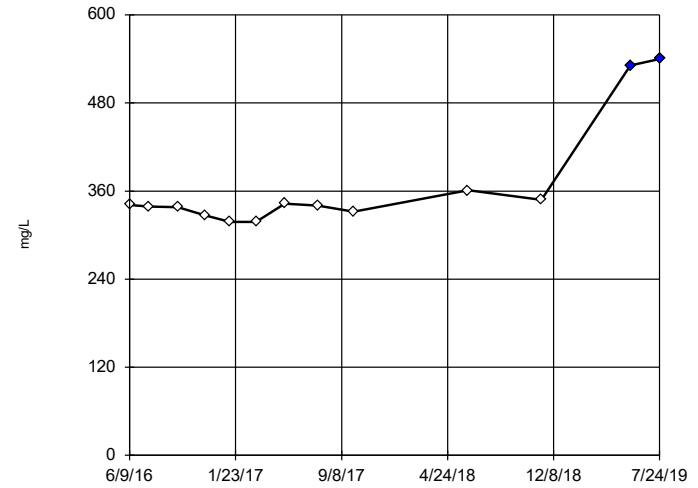
Tukey's Outlier Screening
MW-001S



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 449.1, low cutoff = 350.8, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

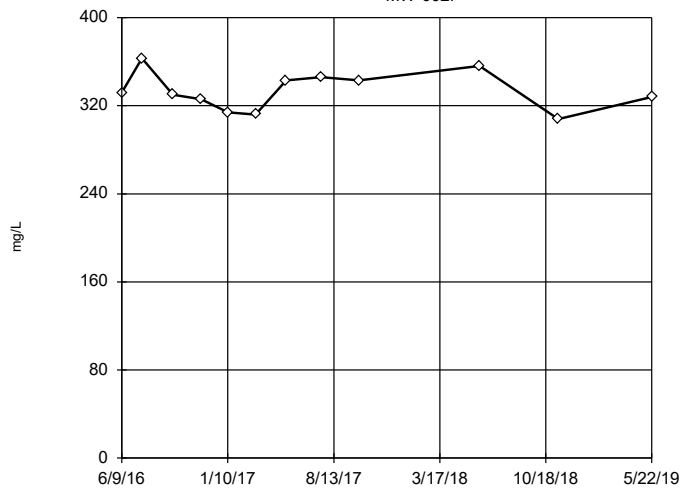
Tukey's Outlier Screening
MW-002D



n = 13
Outliers are drawn as solid. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 441.2, low cutoff = 264.7, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

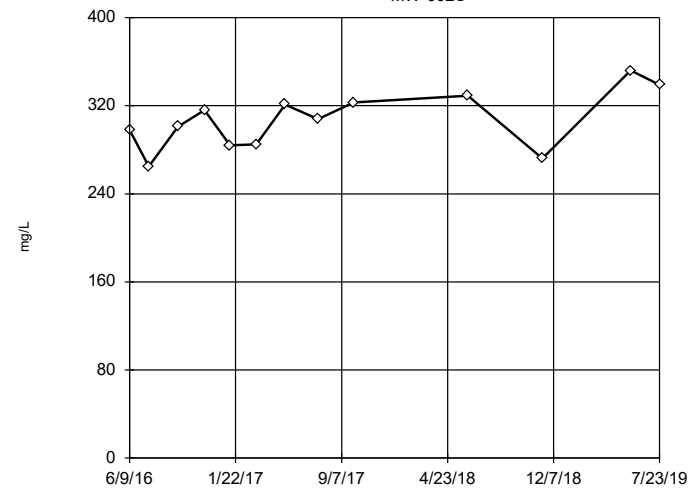
Tukey's Outlier Screening
MW-002I



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 430.1, low cutoff = 256.3, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

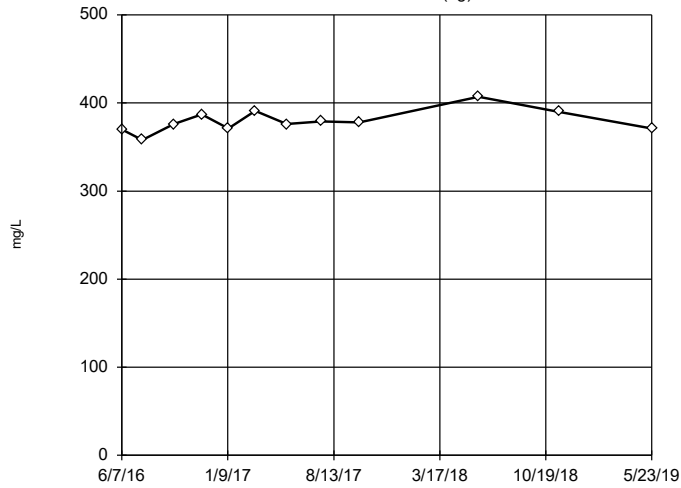
Tukey's Outlier Screening
MW-002S



n = 13
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 450.5, low cutoff = 160, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

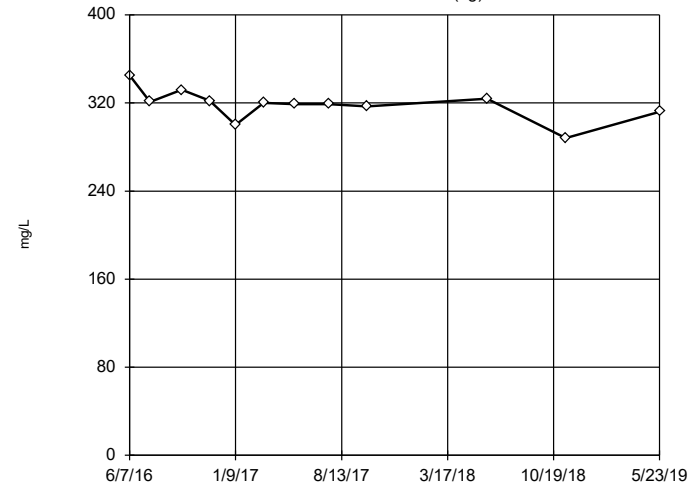
Tukey's Outlier Screening
MW-008I (bg)



n = 12
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 446.1, low cutoff = 323.1, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

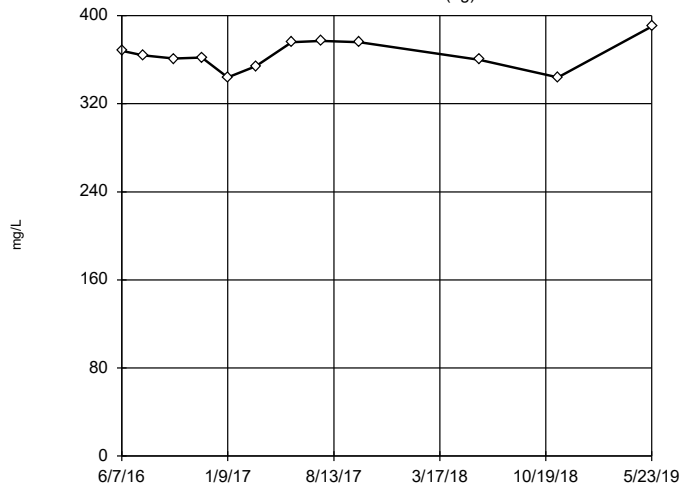
Tukey's Outlier Screening
MW-008S (bg)



n = 12
No outliers found. Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 346.1, low cutoff = 285.8, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

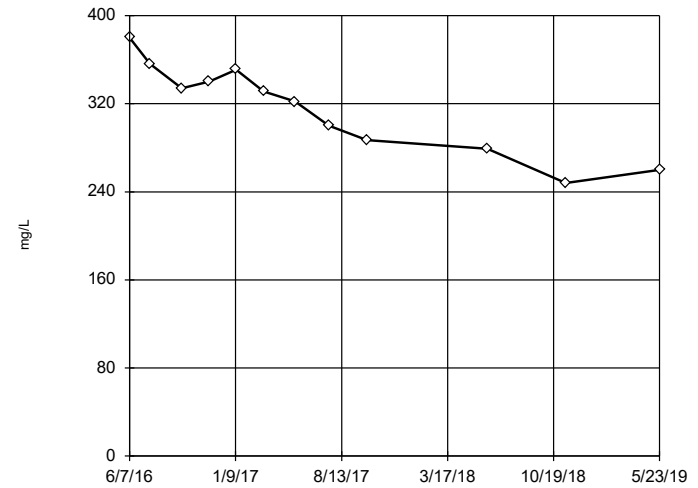
Tukey's Outlier Screening
MW-014S (bg)



n = 12
No outliers found. Tukey's method selected by user.
Ladder of Powers transformations did not improve normality; analysis run on raw data.
High cutoff = 433, low cutoff = 300, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

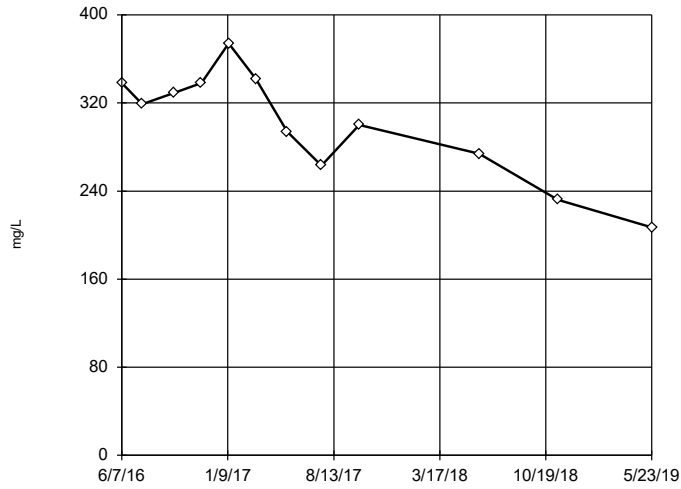
Tukey's Outlier Screening
MW-015I



n = 12
No outliers found. Tukey's method selected by user.
Data were square transformed to achieve best W statistic (graph shown in original units).
High cutoff = 487.1, low cutoff = -194.4, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

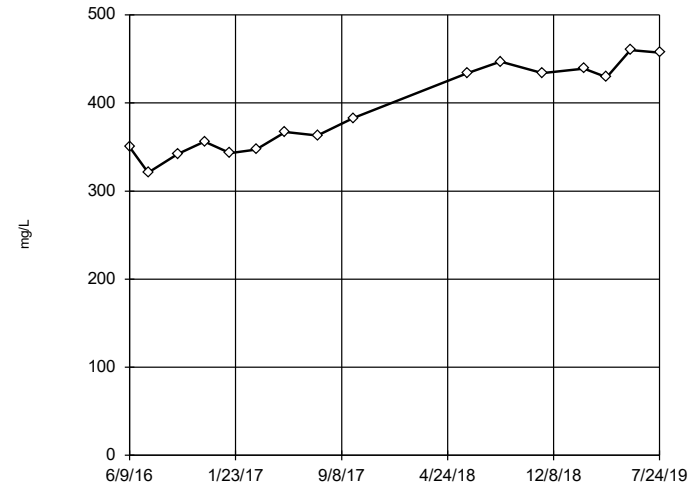
Tukey's Outlier Screening
MW-015S



n = 12
No outliers found. Tukey's method selected by user.
Data were cube transformed to achieve best W statistic (graph shown in original units).
High cutoff = 458.4, low cutoff = -337.1, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

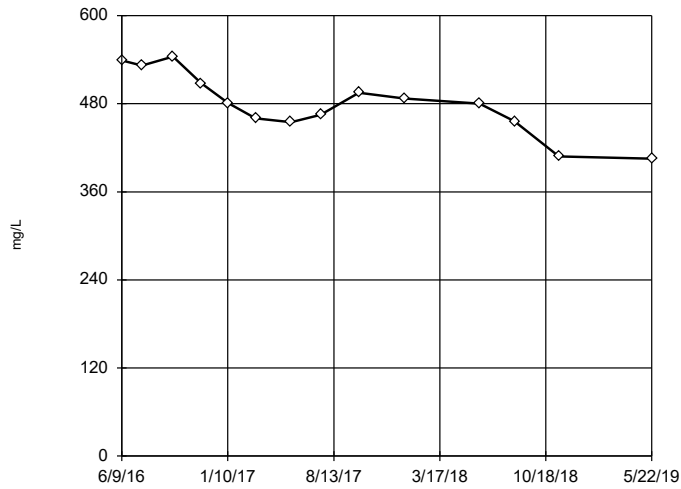
Tukey's Outlier Screening
MW-016D



n = 16
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 857.7, low cutoff = 177.4, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

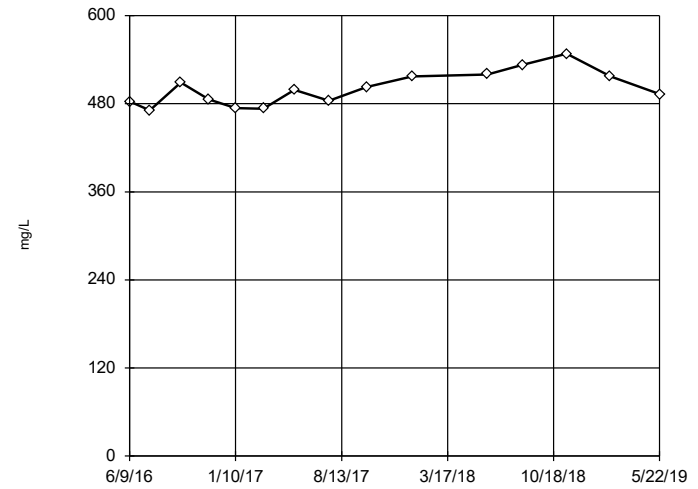
Tukey's Outlier Screening
MW-016I



n = 14
No outliers found. Tukey's method selected by user.
Data were square transformed to achieve best W statistic (graph shown in original units).
High cutoff = 678, low cutoff = 135.2, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening
MW-016S

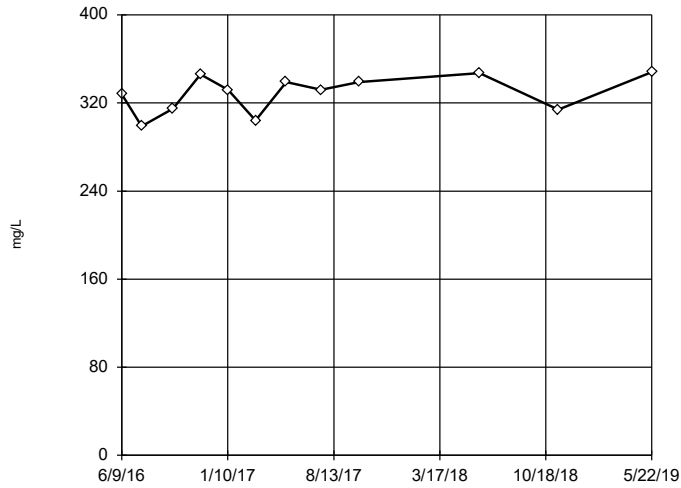


n = 15
No outliers found. Tukey's method selected by user.
Data were natural log transformed to achieve best W statistic (graph shown in original units).
High cutoff = 634, low cutoff = 393.8, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-021D

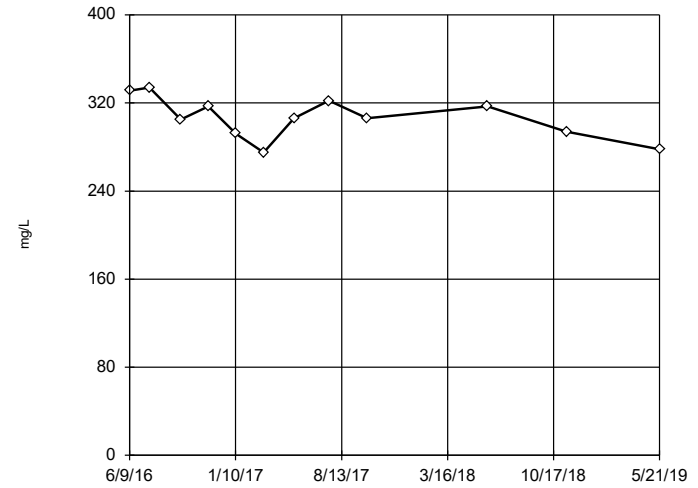


n = 12
 No outliers found. Tukey's method selected by user.
 Data were x*6 transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 390.8, low cutoff = -315.1, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-021I

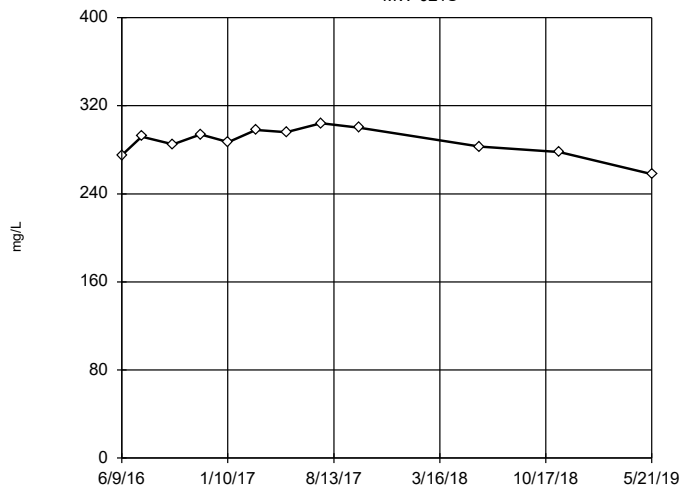


n = 12
 No outliers found. Tukey's method selected by user.
 Data were x*4 transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 374.1, low cutoff = -205.7, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-021S

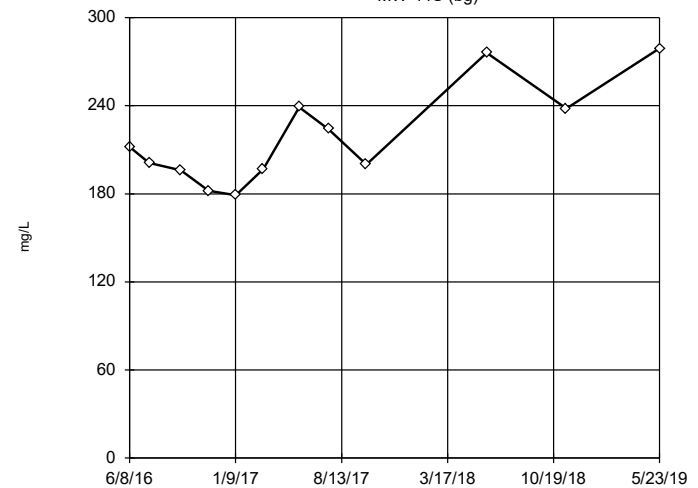


n = 12
 No outliers found. Tukey's method selected by user.
 Data were x*6 transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 329.6, low cutoff = -218.5, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:17 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-11S (bg)

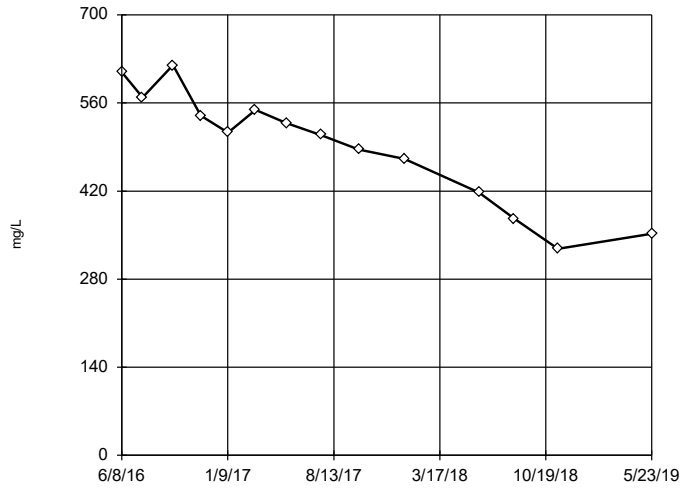


n = 12
 No outliers found. Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 426.4, low cutoff = 109.9, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:18 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-17I



n = 14

No outliers found. Tukey's method selected by user.

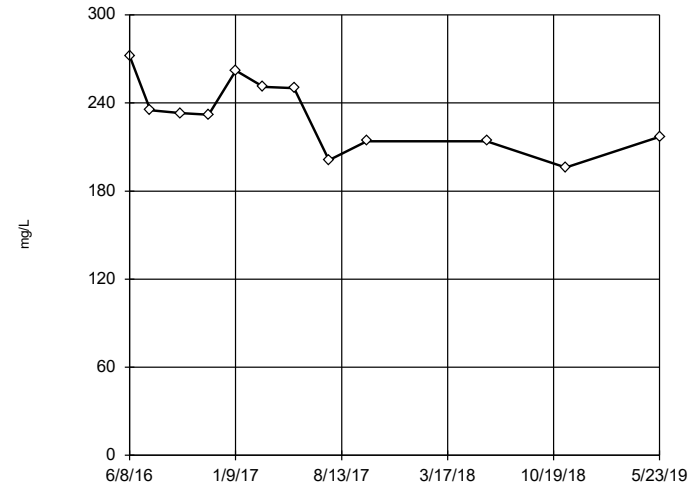
Data were cube transformed to achieve best W statistic (graph shown in original units).

High cutoff = 799, low cutoff = -648, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:18 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-17S



n = 12

No outliers found. Tukey's method selected by user.

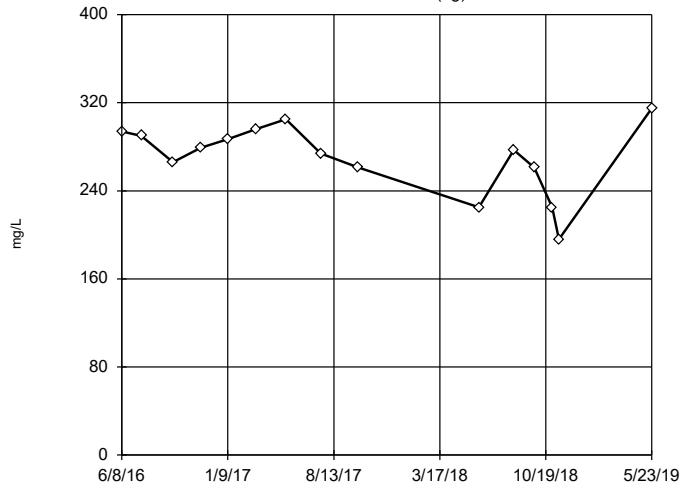
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 401.8, low cutoff = 133.4, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:18 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Tukey's Outlier Screening

MW-6S (bg)



n = 15

No outliers found. Tukey's method selected by user.

Data were x⁵ transformed to achieve best W statistic (graph shown in original units).

High cutoff = 348.7, low cutoff = -280.8, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2020 10:18 AM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Welch's t-test/Mann-Whitney - Significant Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 12:47 PM

<u>Constituent</u>	<u>Well</u>	<u>Calc.</u>	<u>0.01</u>	<u>Method</u>
Boron, total (mg/L)	MW-001S	2.633	Yes	Mann-W
Calcium, total (mg/L)	MW-008S (bg)	-2.642	Yes	Mann-W
Calcium, total (mg/L)	MW-016D	2.72	Yes	Mann-W
Calcium, total (mg/L)	MW-016I	-3.163	Yes	Mann-W
Calcium, total (mg/L)	MW-17I	-2.802	Yes	Mann-W
Chloride, total (mg/L)	MW-001I	3.188	Yes	Mann-W
Chloride, total (mg/L)	MW-001S	2.742	Yes	Mann-W
Chloride, total (mg/L)	MW-002D	2.785	Yes	Mann-W
Chloride, total (mg/L)	MW-002S	2.666	Yes	Mann-W
Chloride, total (mg/L)	MW-015I	-3.005	Yes	Mann-W
Chloride, total (mg/L)	MW-015S	-2.633	Yes	Mann-W
Chloride, total (mg/L)	MW-016D	3.418	Yes	Mann-W
Chloride, total (mg/L)	MW-021S	3.191	Yes	Mann-W
Chloride, total (mg/L)	MW-17I	-3.298	Yes	Mann-W
Fluoride, total (mg/L)	MW-17I	3.598	Yes	Mann-W
Fluoride, total (mg/L)	MW-17S	2.633	Yes	Mann-W
Fluoride, total (mg/L)	MW-6S (bg)	2.84	Yes	Mann-W
Sulfate, total (mg/L)	MW-015I	-2.712	Yes	Mann-W
Sulfate, total (mg/L)	MW-016D	2.858	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-015I	-2.802	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-016D	3.311	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-016S	2.838	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-17I	-3.163	Yes	Mann-W

Welch's t-test/Mann-Whitney - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 12:47 PM

Constituent	Well	Calc.	0.01	Method
Boron, total (mg/L)	MW-001D	1.357	No	Mann-W
Boron, total (mg/L)	MW-001I	1.319	No	Mann-W
Boron, total (mg/L)	MW-001S	2.633	Yes	Mann-W
Boron, total (mg/L)	MW-002D	1.546	No	Mann-W
Boron, total (mg/L)	MW-002I	2.274	No	Mann-W
Boron, total (mg/L)	MW-002S	0.8507	No	Mann-W
Boron, total (mg/L)	MW-008I (bg)	1.786	No	Mann-W
Boron, total (mg/L)	MW-008S (bg)	1.361	No	Mann-W
Boron, total (mg/L)	MW-014S (bg)	2.045	No	Mann-W
Boron, total (mg/L)	MW-015I	1.612	No	Mann-W
Boron, total (mg/L)	MW-015S	0.9407	No	Mann-W
Boron, total (mg/L)	MW-016D	1.701	No	Mann-W
Boron, total (mg/L)	MW-016I	0.9515	No	Mann-W
Boron, total (mg/L)	MW-016S	1.228	No	Mann-W
Boron, total (mg/L)	MW-021D	2.429	No	Mann-W
Boron, total (mg/L)	MW-021I	1.622	No	Mann-W
Boron, total (mg/L)	MW-021S	2.569	No	Mann-W
Boron, total (mg/L)	MW-11S (bg)	2.467	No	Mann-W
Boron, total (mg/L)	MW-17I	0.5944	No	Mann-W
Boron, total (mg/L)	MW-17S	1.616	No	Mann-W
Boron, total (mg/L)	MW-6S (bg)	2.261	No	Mann-W
Calcium, total (mg/L)	MW-001D	2.123	No	Mann-W
Calcium, total (mg/L)	MW-001I	1.783	No	Mann-W
Calcium, total (mg/L)	MW-001S	0.7643	No	Mann-W
Calcium, total (mg/L)	MW-002D	1.83	No	Mann-W
Calcium, total (mg/L)	MW-002I	-0.4246	No	Mann-W
Calcium, total (mg/L)	MW-002S	-0.5955	No	Mann-W
Calcium, total (mg/L)	MW-008I (bg)	-0.3403	No	Mann-W
Calcium, total (mg/L)	MW-008S (bg)	-2.642	Yes	Mann-W
Calcium, total (mg/L)	MW-014S (bg)	0.8507	No	Mann-W
Calcium, total (mg/L)	MW-015I	-0.3403	No	Mann-W
Calcium, total (mg/L)	MW-015S	-1.613	No	Mann-W
Calcium, total (mg/L)	MW-016D	2.72	Yes	Mann-W
Calcium, total (mg/L)	MW-016I	-3.163	Yes	Mann-W
Calcium, total (mg/L)	MW-016S	2.523	No	Mann-W
Calcium, total (mg/L)	MW-021D	-1.444	No	Mann-W
Calcium, total (mg/L)	MW-021I	-0.6806	No	Mann-W
Calcium, total (mg/L)	MW-021S	-0.6806	No	Mann-W
Calcium, total (mg/L)	MW-11S (bg)	2.293	No	Mann-W
Calcium, total (mg/L)	MW-17I	-2.802	Yes	Mann-W
Calcium, total (mg/L)	MW-17S	-2.127	No	Mann-W
Calcium, total (mg/L)	MW-6S (bg)	-1.447	No	Mann-W
Chloride, total (mg/L)	MW-001D	0.9541	No	Mann-W
Chloride, total (mg/L)	MW-001I	3.188	Yes	Mann-W
Chloride, total (mg/L)	MW-001S	2.742	Yes	Mann-W
Chloride, total (mg/L)	MW-002D	2.785	Yes	Mann-W
Chloride, total (mg/L)	MW-002I	1.101	No	Mann-W
Chloride, total (mg/L)	MW-002S	2.666	Yes	Mann-W
Chloride, total (mg/L)	MW-008I (bg)	-2.282	No	Mann-W
Chloride, total (mg/L)	MW-008S (bg)	1.244	No	Mann-W
Chloride, total (mg/L)	MW-014S (bg)	0.8807	No	Mann-W
Chloride, total (mg/L)	MW-015I	-3.005	Yes	Mann-W
Chloride, total (mg/L)	MW-015S	-2.633	Yes	Mann-W
Chloride, total (mg/L)	MW-016D	3.418	Yes	Mann-W
Chloride, total (mg/L)	MW-016I	0.06455	No	Mann-W

Welch's t-test/Mann-Whitney - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 12:47 PM

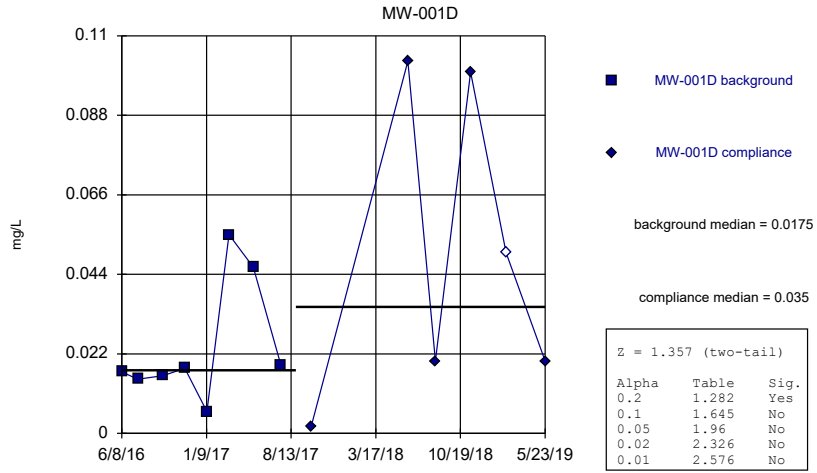
Constituent	Well	Calc.	0.01	Method
Chloride, total (mg/L)	MW-016S	-1.021	No	Mann-W
Chloride, total (mg/L)	MW-021D	-1.11	No	Mann-W
Chloride, total (mg/L)	MW-021I	-0.5955	No	Mann-W
Chloride, total (mg/L)	MW-021S	3.191	Yes	Mann-W
Chloride, total (mg/L)	MW-11S (bg)	-0.1466	No	Mann-W
Chloride, total (mg/L)	MW-17I	-3.298	Yes	Mann-W
Chloride, total (mg/L)	MW-17S	-0.5104	No	Mann-W
Chloride, total (mg/L)	MW-6S (bg)	-0.868	No	Mann-W
Fluoride, total (mg/L)	MW-001D	1.639	No	Mann-W
Fluoride, total (mg/L)	MW-001I	2.142	No	Mann-W
Fluoride, total (mg/L)	MW-001S	-0.2561	No	Mann-W
Fluoride, total (mg/L)	MW-002D	0.3496	No	Mann-W
Fluoride, total (mg/L)	MW-002I	0.3458	No	Mann-W
Fluoride, total (mg/L)	MW-002S	1.739	No	Mann-W
Fluoride, total (mg/L)	MW-008I (bg)	0.5963	No	Mann-W
Fluoride, total (mg/L)	MW-008S (bg)	2.001	No	Mann-W
Fluoride, total (mg/L)	MW-014S (bg)	0.223	No	Mann-W
Fluoride, total (mg/L)	MW-015I	-0.7454	No	Mann-W
Fluoride, total (mg/L)	MW-015S	2.134	No	Mann-W
Fluoride, total (mg/L)	MW-016D	0.2736	No	Mann-W
Fluoride, total (mg/L)	MW-016I	1.867	No	Mann-W
Fluoride, total (mg/L)	MW-016S	1.112	No	Mann-W
Fluoride, total (mg/L)	MW-021D	0.1732	No	Mann-W
Fluoride, total (mg/L)	MW-021I	1.467	No	Mann-W
Fluoride, total (mg/L)	MW-021S	1.55	No	Mann-W
Fluoride, total (mg/L)	MW-11S (bg)	-1.099	No	Mann-W
Fluoride, total (mg/L)	MW-17I	3.598	Yes	Mann-W
Fluoride, total (mg/L)	MW-17S	2.633	Yes	Mann-W
Fluoride, total (mg/L)	MW-6S (bg)	2.84	Yes	Mann-W
pH, field (SU)	MW-001D	-0.05792	No	Mann-W
pH, field (SU)	MW-001I	1.104	No	Mann-W
pH, field (SU)	MW-001S	1.492	No	Mann-W
pH, field (SU)	MW-002D	-1.103	No	Mann-W
pH, field (SU)	MW-002I	-0.4054	No	Mann-W
pH, field (SU)	MW-002S	0.8108	No	Mann-W
pH, field (SU)	MW-008I (bg)	1.107	No	Mann-W
pH, field (SU)	MW-008S (bg)	0.9541	No	Mann-W
pH, field (SU)	MW-014S (bg)	-0.2932	No	Mann-W
pH, field (SU)	MW-015I	2.036	No	Mann-W
pH, field (SU)	MW-015S	0.9526	No	Mann-W
pH, field (SU)	MW-016D	0.212	No	Mann-W
pH, field (SU)	MW-016I	0.8695	No	Mann-W
pH, field (SU)	MW-016S	-0.1742	No	Mann-W
pH, field (SU)	MW-021D	-1.026	No	Mann-W
pH, field (SU)	MW-021I	-0.5872	No	Mann-W
pH, field (SU)	MW-021S	1.39	No	Mann-W
pH, field (SU)	MW-11S (bg)	-1.248	No	Mann-W
pH, field (SU)	MW-17I	0.8458	No	Mann-W
pH, field (SU)	MW-17S	-0.767	No	Mann-W
pH, field (SU)	MW-6S (bg)	-1.428	No	Mann-W
Sulfate, total (mg/L)	MW-001D	1.021	No	Mann-W
Sulfate, total (mg/L)	MW-001I	-1.191	No	Mann-W
Sulfate, total (mg/L)	MW-001S	1.446	No	Mann-W
Sulfate, total (mg/L)	MW-002D	-0.7656	No	Mann-W
Sulfate, total (mg/L)	MW-002I	-0.08552	No	Mann-W

Welch's t-test/Mann-Whitney - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 12:47 PM

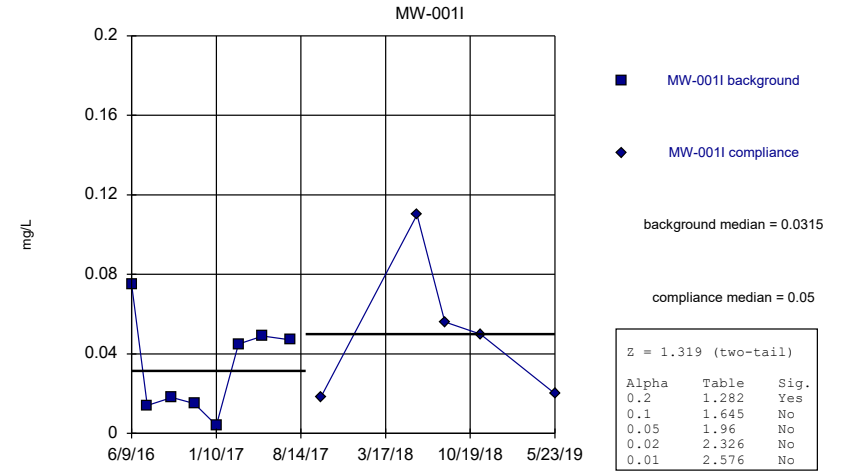
<u>Constituent</u>	<u>Well</u>	<u>Calc.</u>	<u>0.01</u>	<u>Method</u>
Sulfate, total (mg/L)	MW-002S	0	No	Mann-W
Sulfate, total (mg/L)	MW-008I (bg)	-0.9515	No	Mann-W
Sulfate, total (mg/L)	MW-008S (bg)	-1.393	No	Mann-W
Sulfate, total (mg/L)	MW-014S (bg)	0.07319	No	Mann-W
Sulfate, total (mg/L)	MW-015I	-2.712	Yes	Mann-W
Sulfate, total (mg/L)	MW-015S	-2.382	No	Mann-W
Sulfate, total (mg/L)	MW-016D	2.858	Yes	Mann-W
Sulfate, total (mg/L)	MW-016I	-0.3409	No	Mann-W
Sulfate, total (mg/L)	MW-016S	-0.5944	No	Mann-W
Sulfate, total (mg/L)	MW-021D	0.5944	No	Mann-W
Sulfate, total (mg/L)	MW-021I	0.08492	No	Mann-W
Sulfate, total (mg/L)	MW-021S	-0.07329	No	Mann-W
Sulfate, total (mg/L)	MW-11S (bg)	0.2196	No	Mann-W
Sulfate, total (mg/L)	MW-17I	-1.391	No	Mann-W
Sulfate, total (mg/L)	MW-17S	-2.382	No	Mann-W
Sulfate, total (mg/L)	MW-6S (bg)	-1.794	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-001D	2.212	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-001I	0.08507	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-001S	-0.5986	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-002D	1.33	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-002I	-0.1701	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-002S	1.83	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-008I (bg)	1.023	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-008S (bg)	-1.446	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-014S (bg)	0.08522	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-015I	-2.802	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-015S	-2.297	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-016D	3.311	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-016I	-1.614	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-016S	2.838	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-021D	1.364	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-021I	-0.9374	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-021S	-1.274	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-11S (bg)	1.783	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-17I	-3.163	Yes	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-17S	-2.297	No	Mann-W
Total Dissolved Solids [TDS] (mg/L)	MW-6S (bg)	-2.145	No	Mann-W

Mann-Whitney (Wilcoxon Rank Sum)



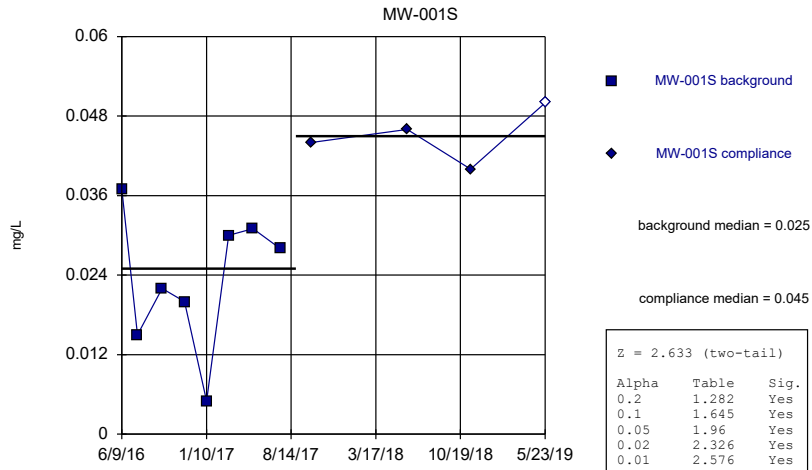
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



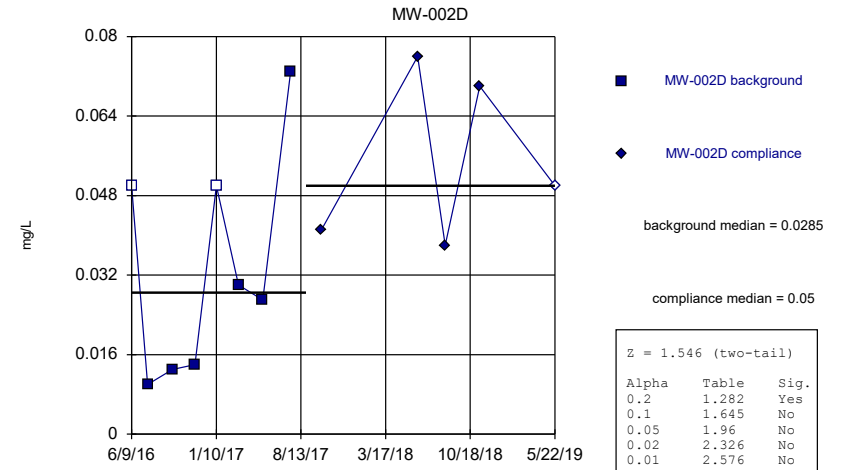
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



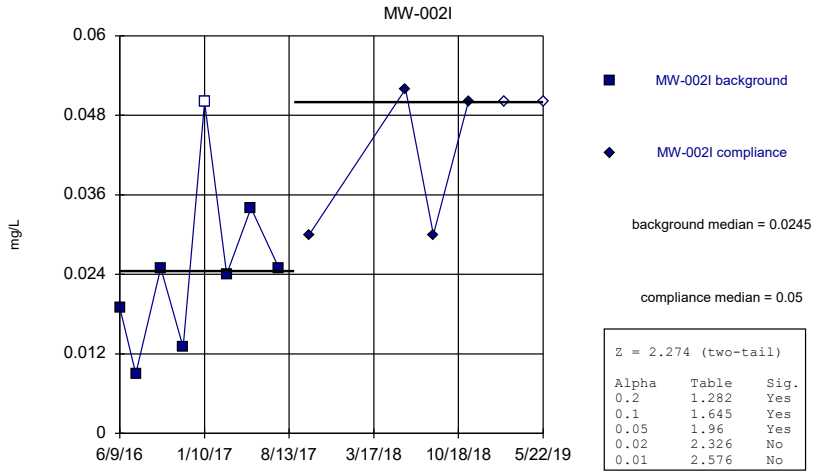
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



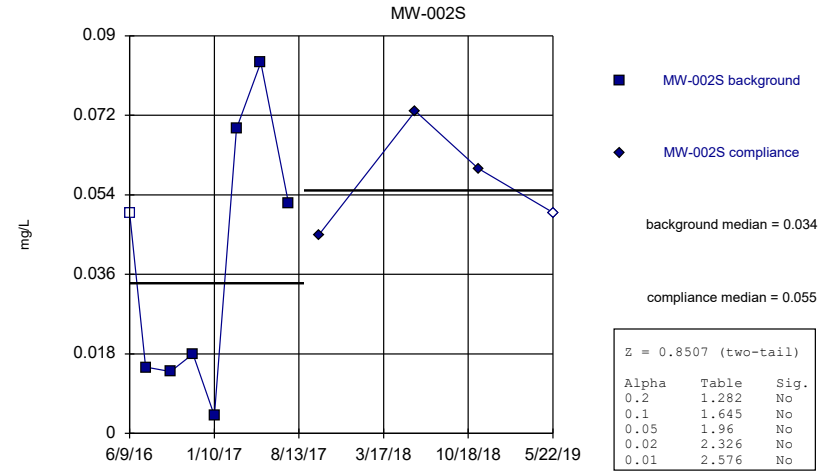
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



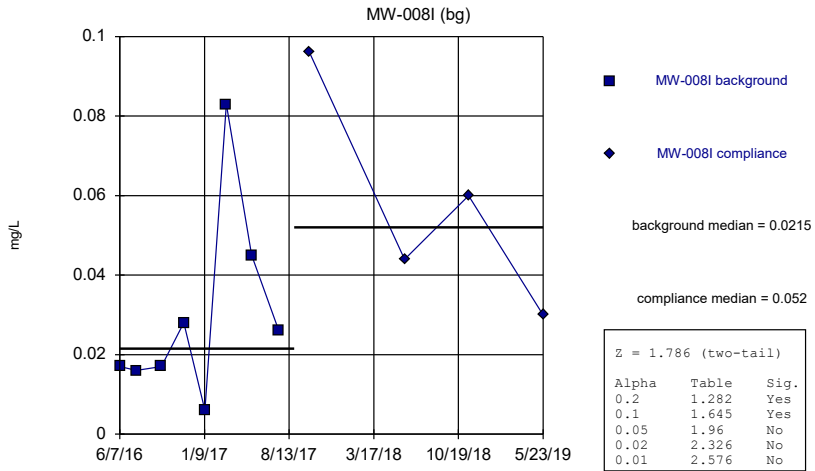
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



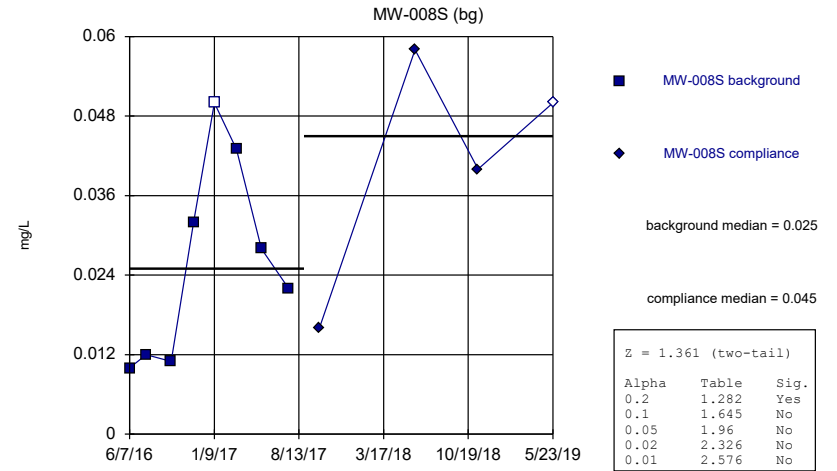
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Boron, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

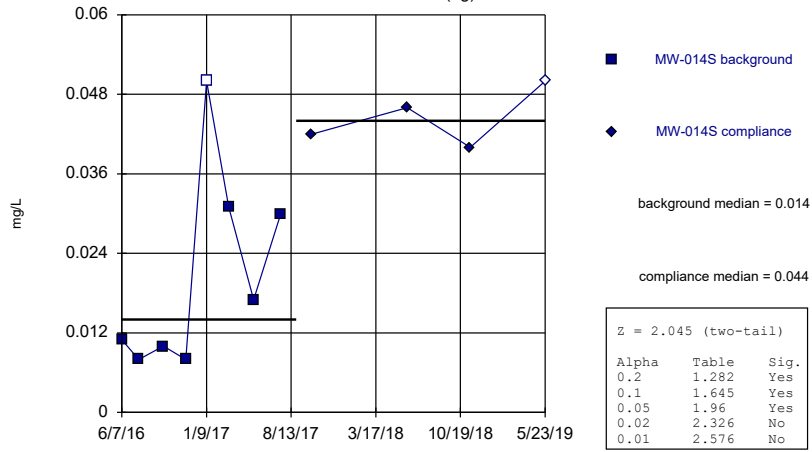
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Boron, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

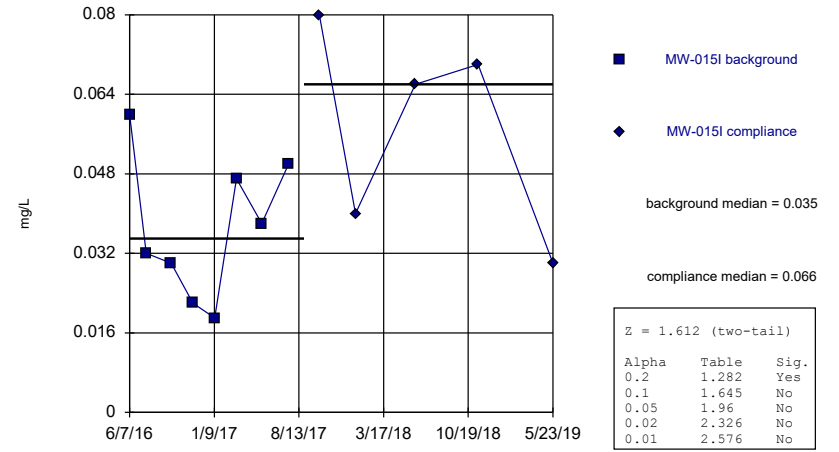
MW-014S (bg)



Constituent: Boron, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

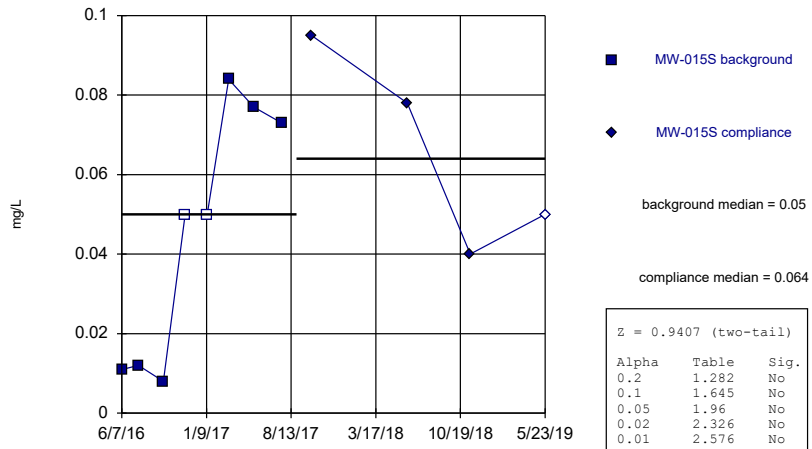
MW-015I



Constituent: Boron, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

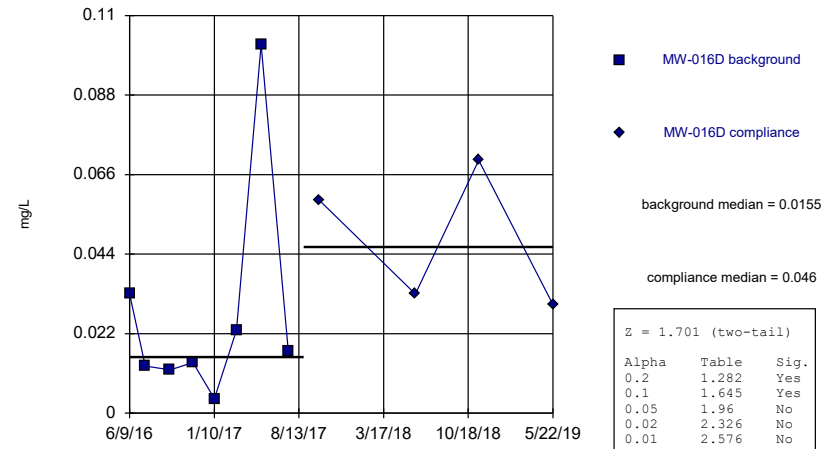
MW-015S



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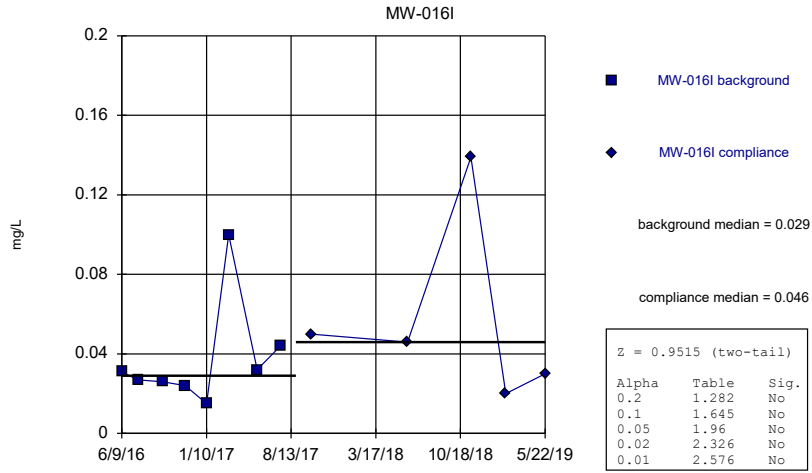
Mann-Whitney (Wilcoxon Rank Sum)

MW-016D



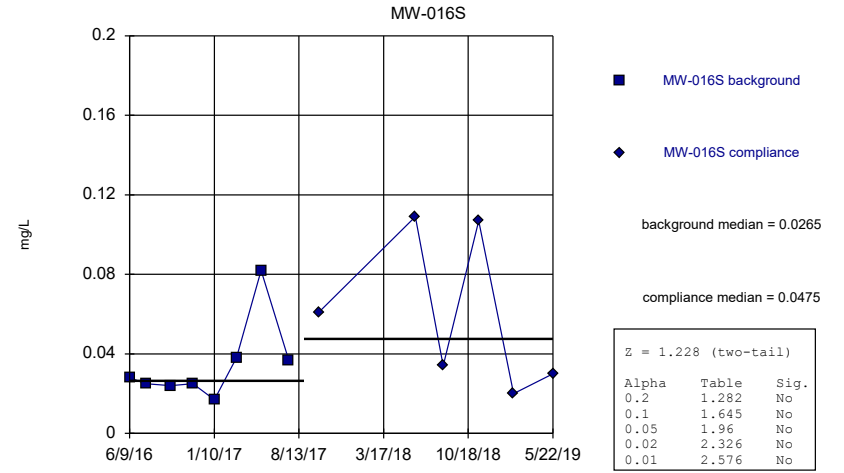
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



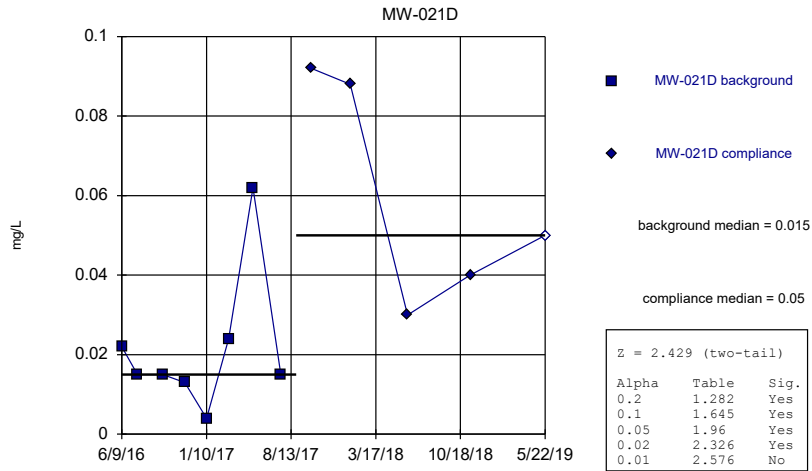
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



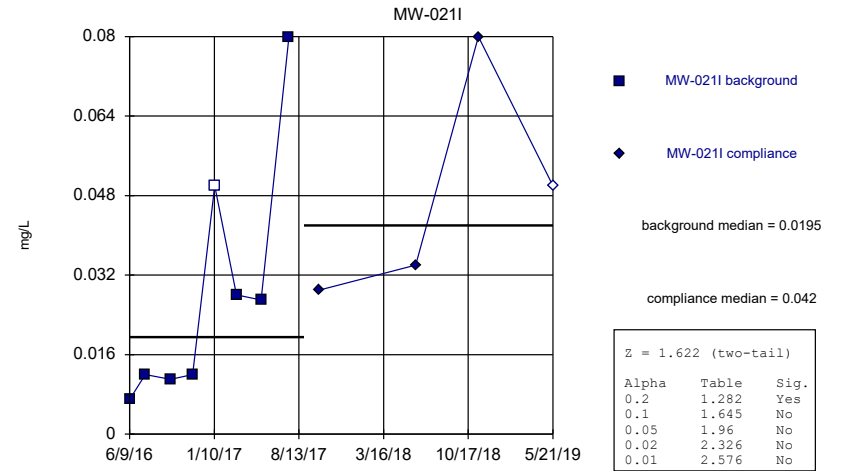
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Mann-Whitney (Wilcoxon Rank Sum)



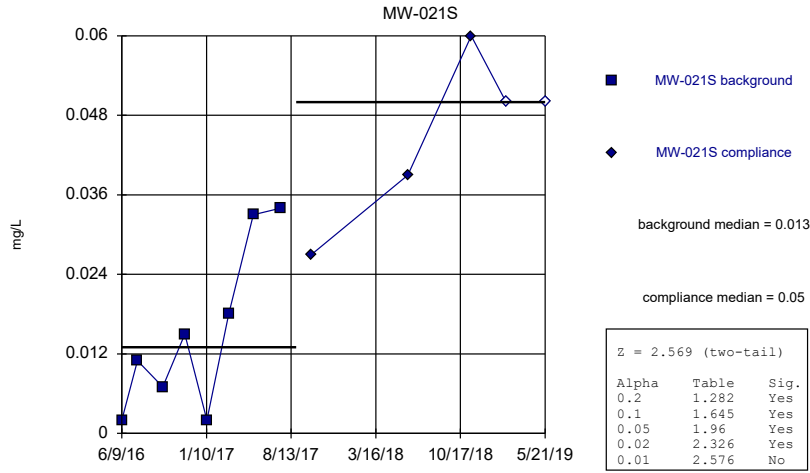
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



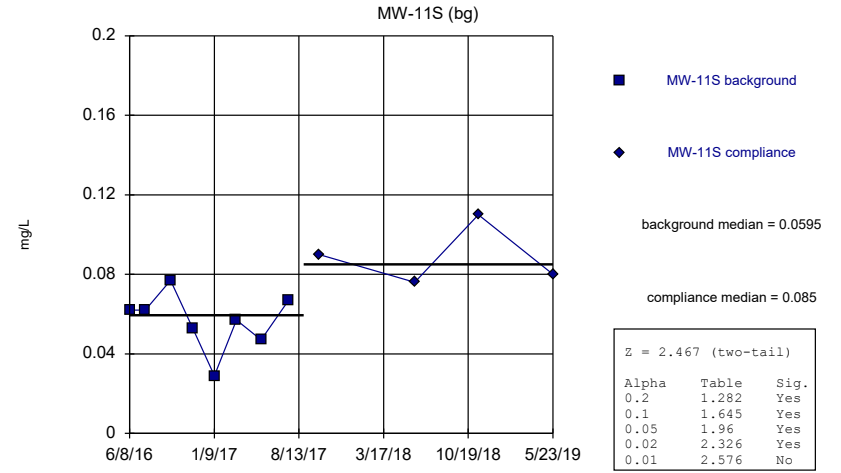
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



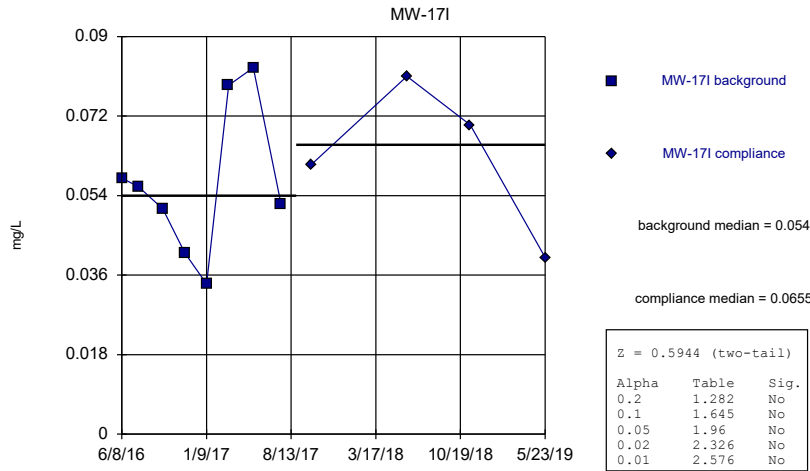
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



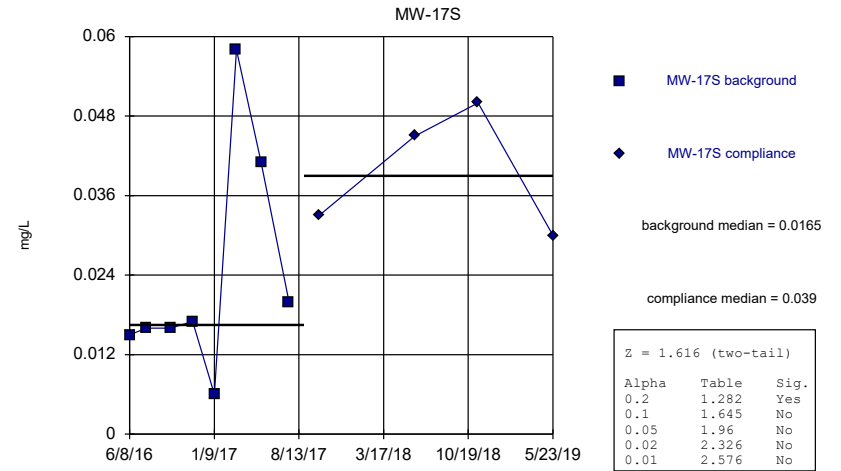
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Boron, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

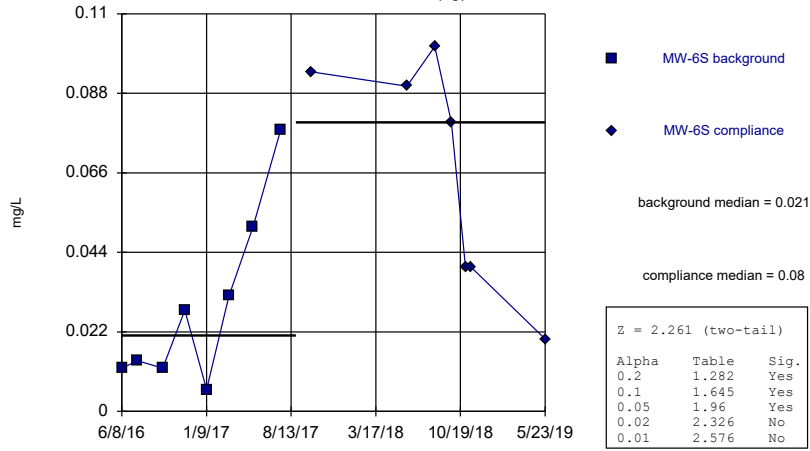
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Boron, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

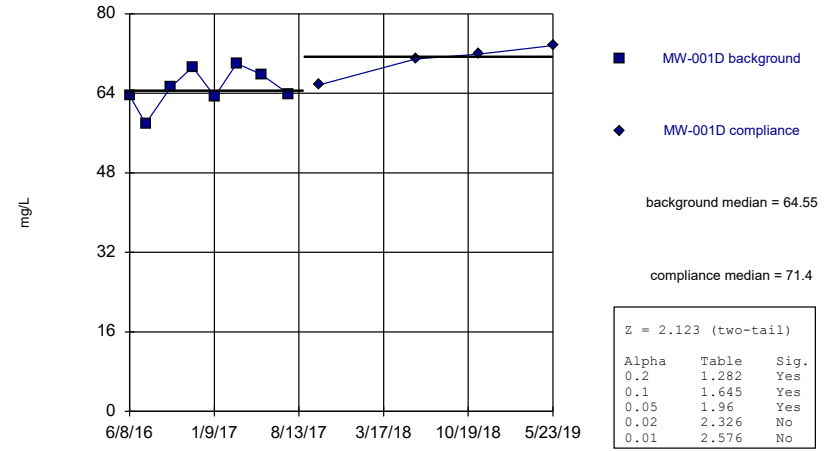
MW-6S (bg)



Constituent: Boron, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

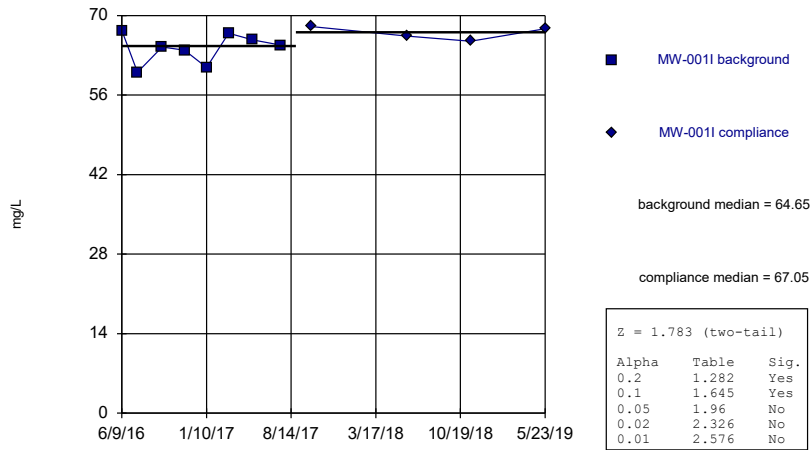
MW-001D



Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

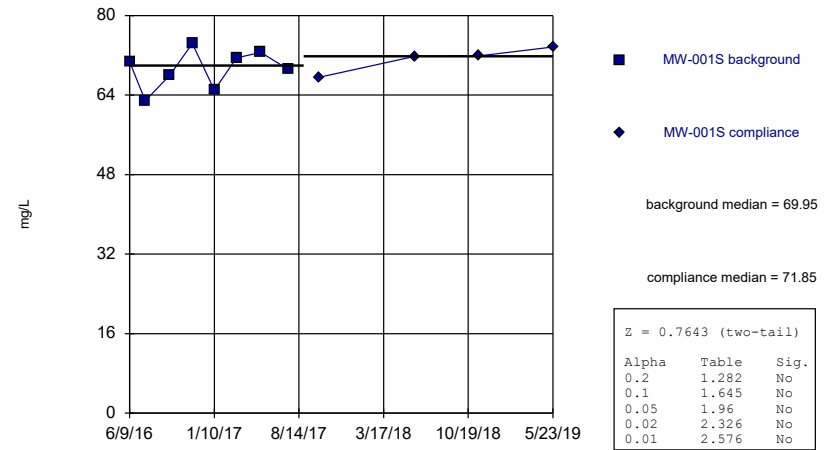
MW-001I



Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

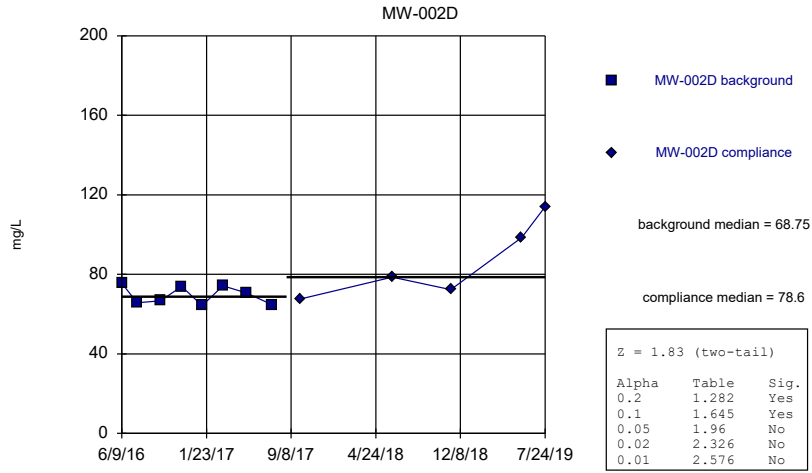
Mann-Whitney (Wilcoxon Rank Sum)

MW-001S



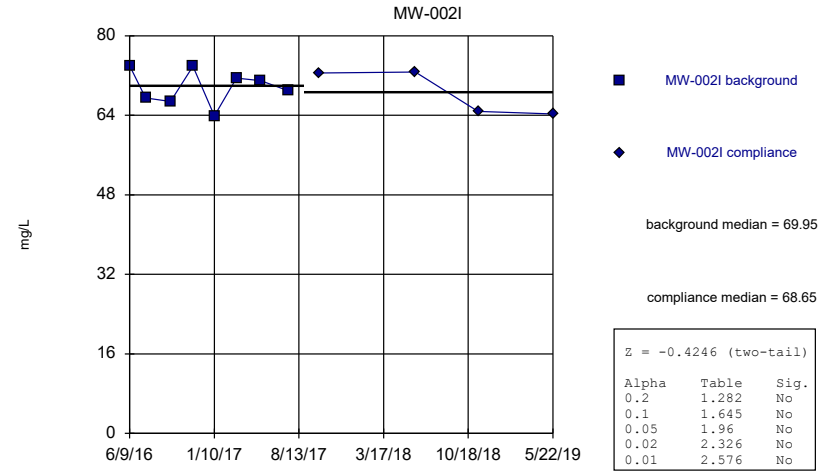
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



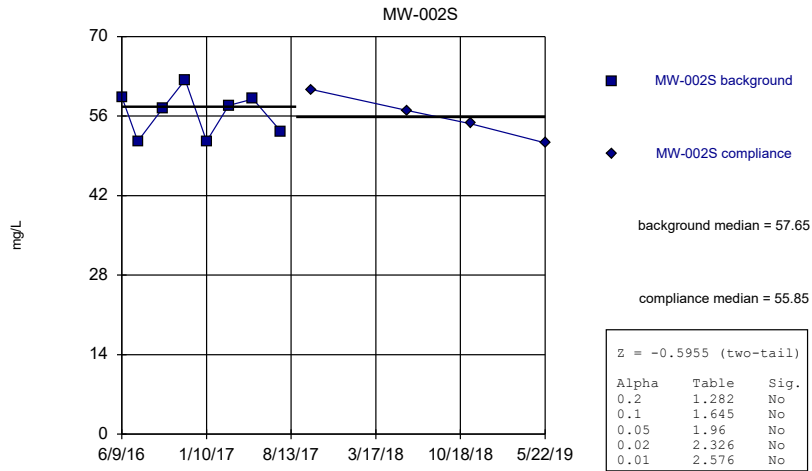
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



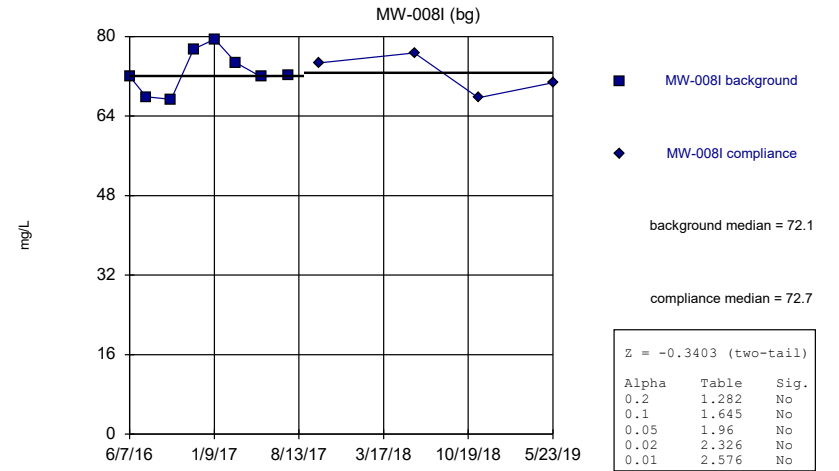
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



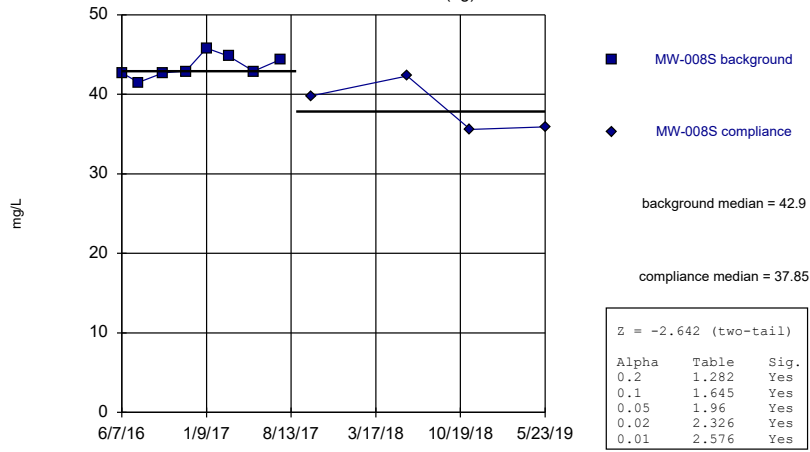
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



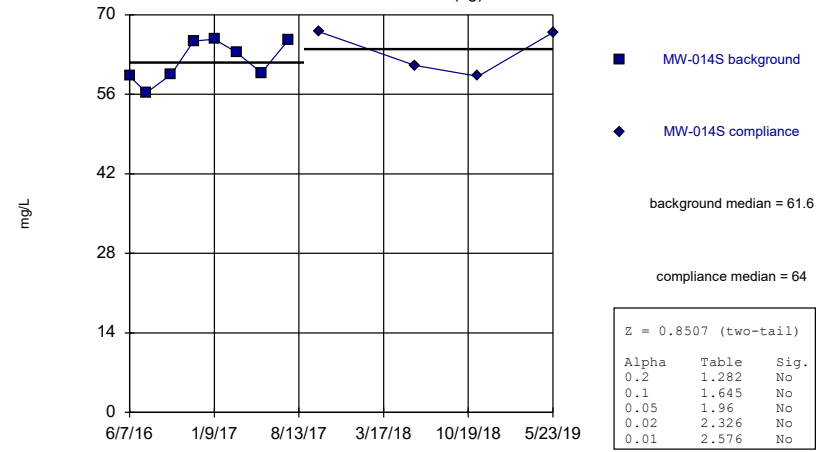
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-008S (bg)



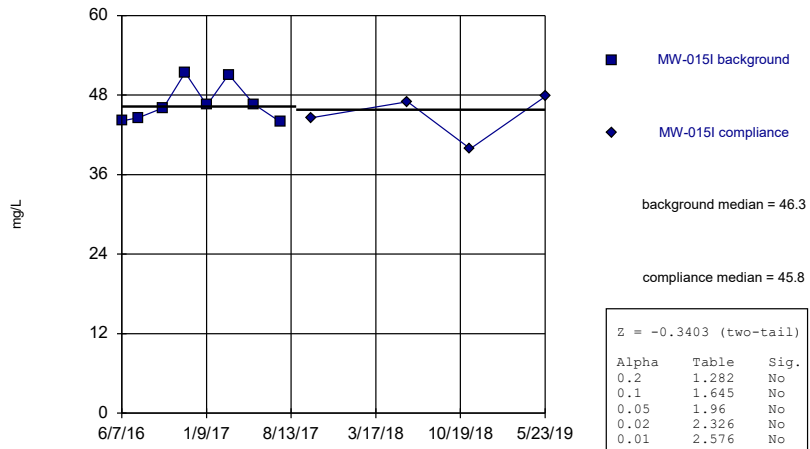
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-014S (bg)



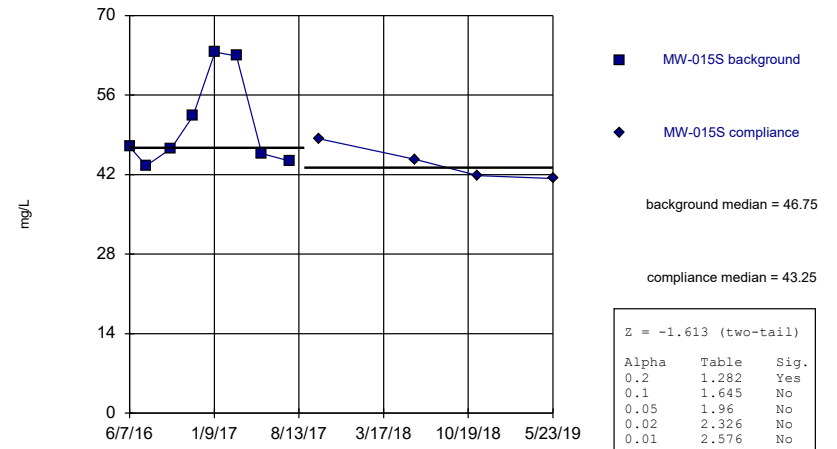
Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-015I



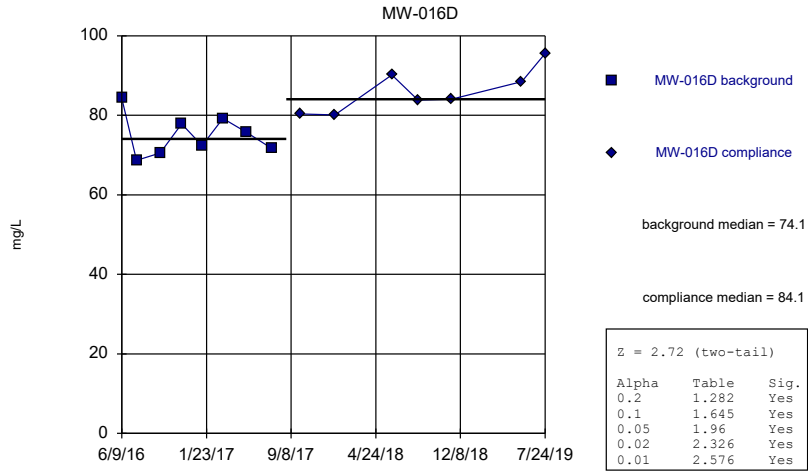
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Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-015S



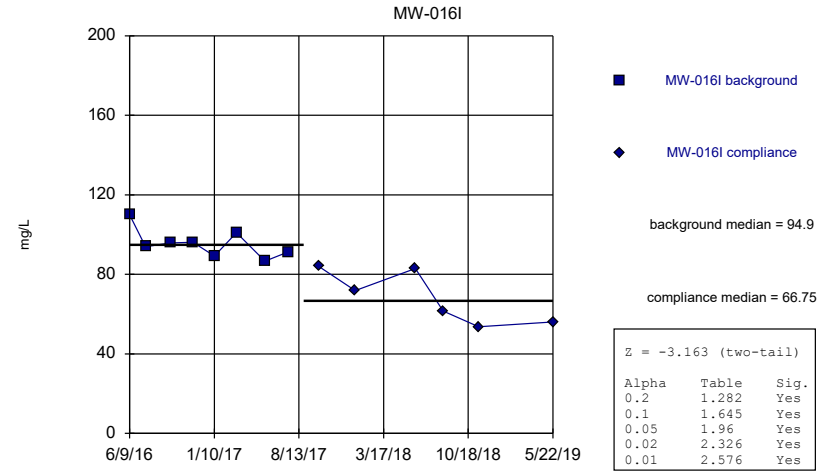
Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



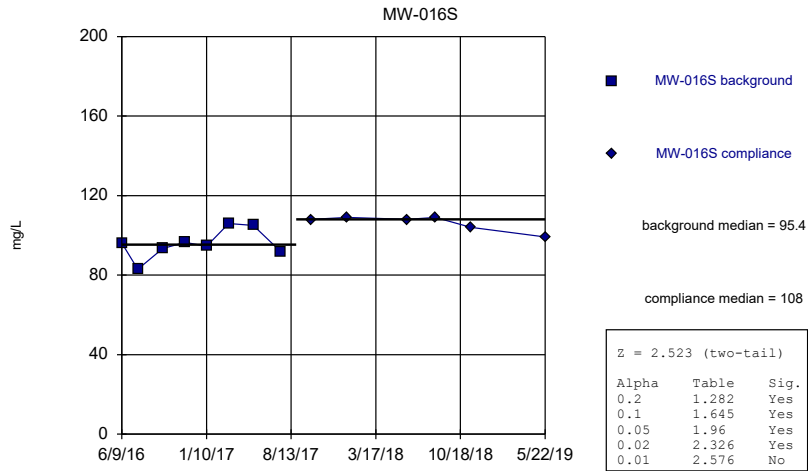
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



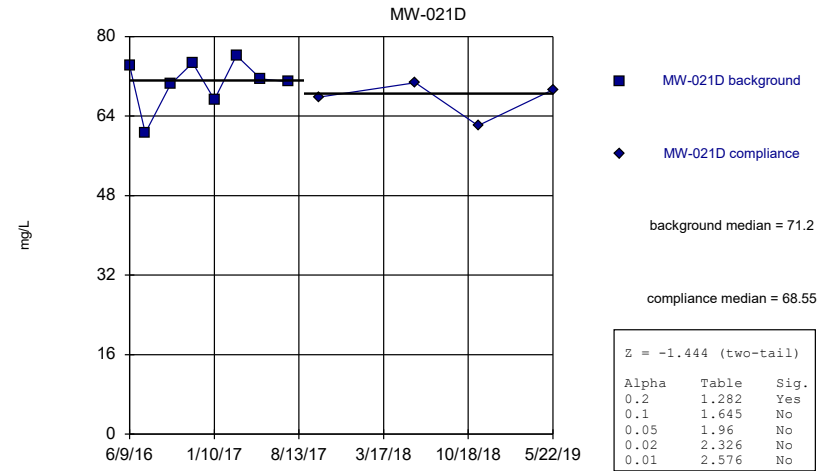
Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

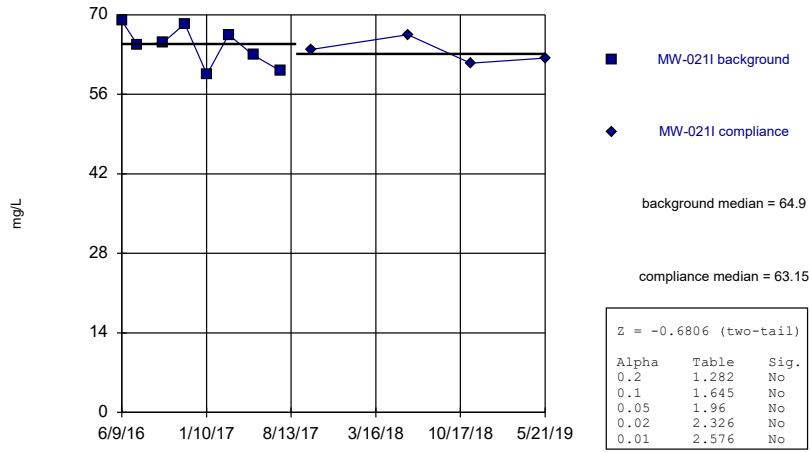
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

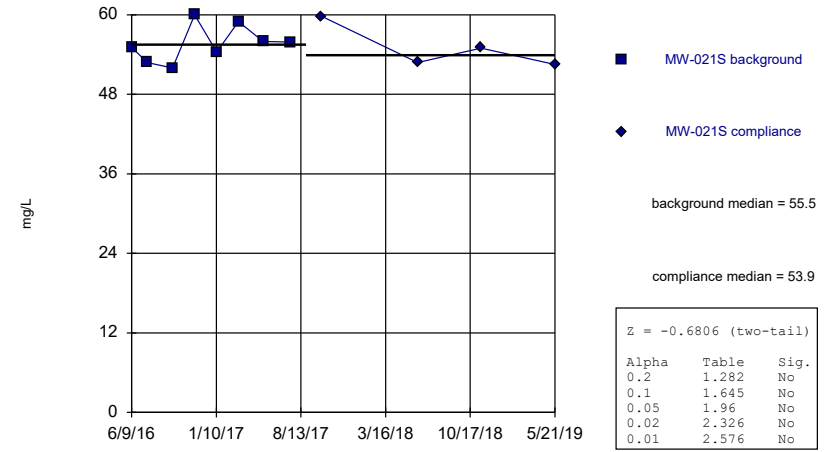
MW-0211



Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
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Mann-Whitney (Wilcoxon Rank Sum)

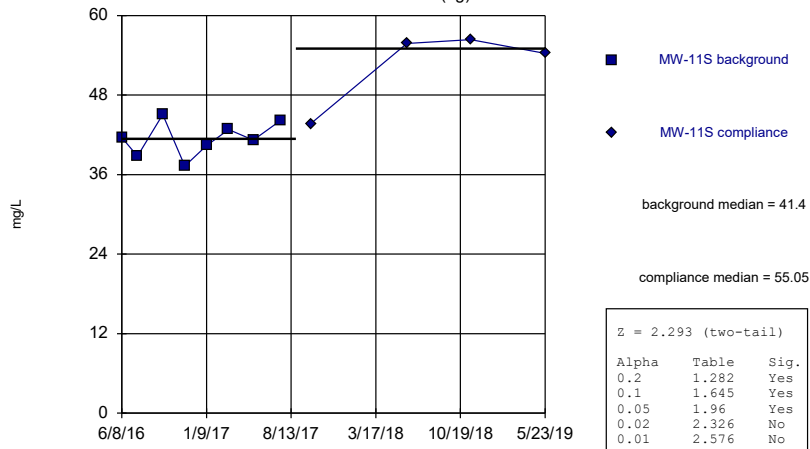
MW-021S



Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

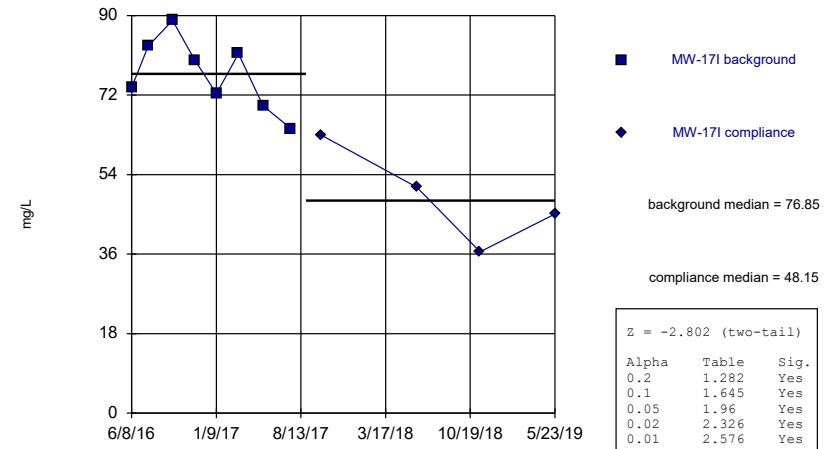
MW-11S (bg)



Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
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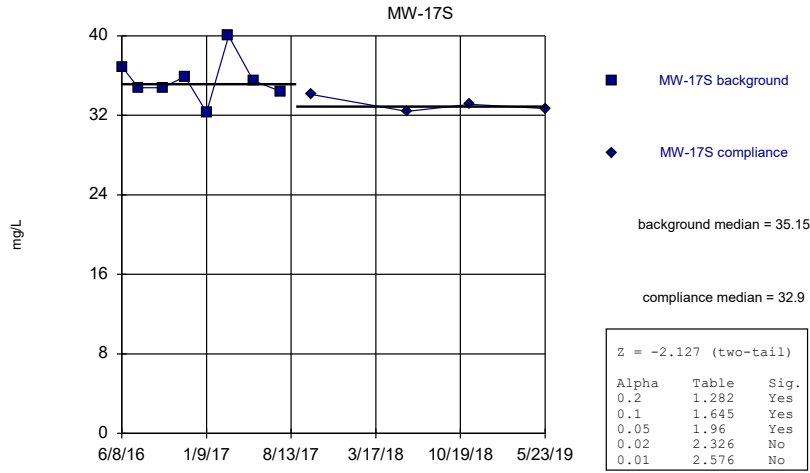
Mann-Whitney (Wilcoxon Rank Sum)

MW-171



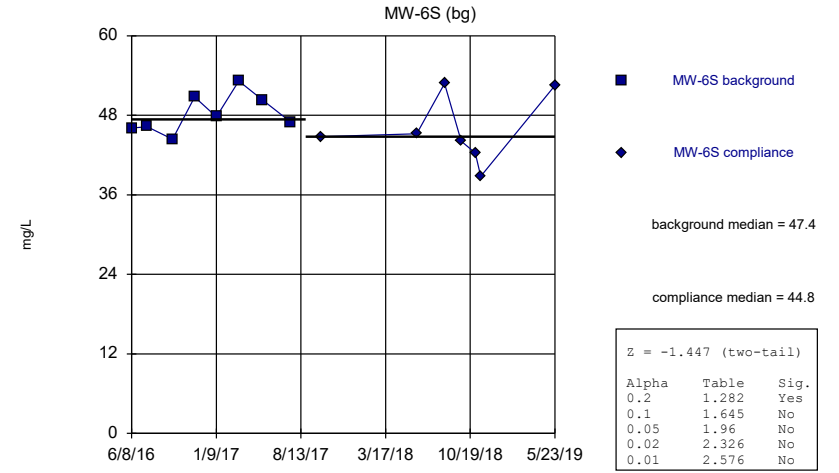
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



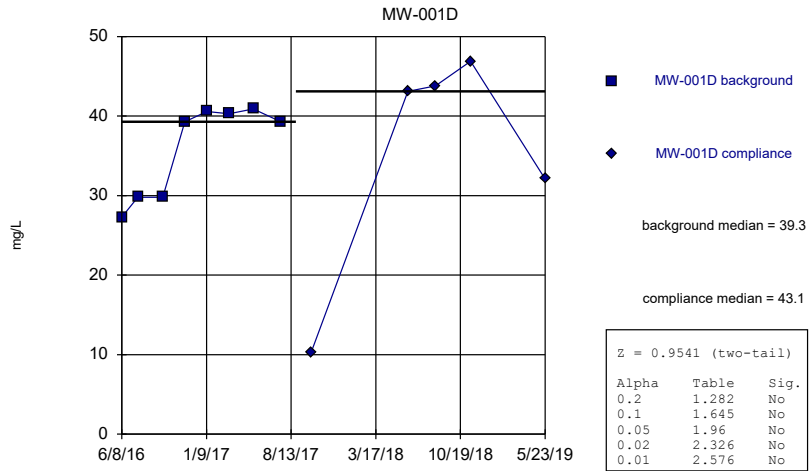
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



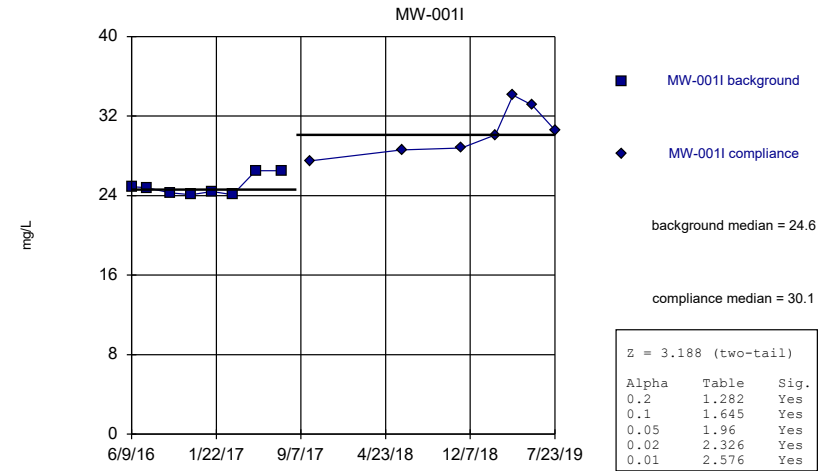
Constituent: Calcium, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

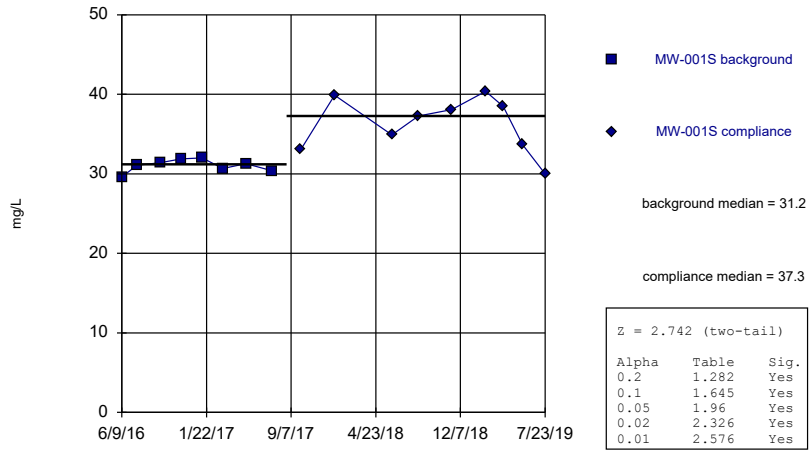
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

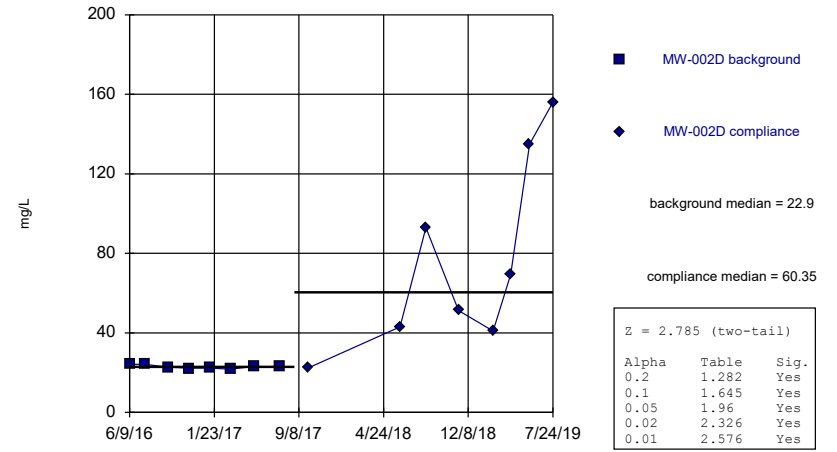
MW-001S



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

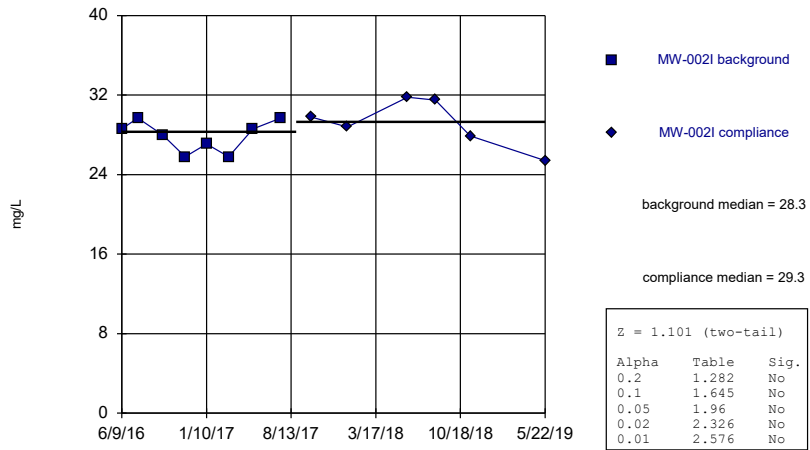
MW-002D



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Mann-Whitney (Wilcoxon Rank Sum)

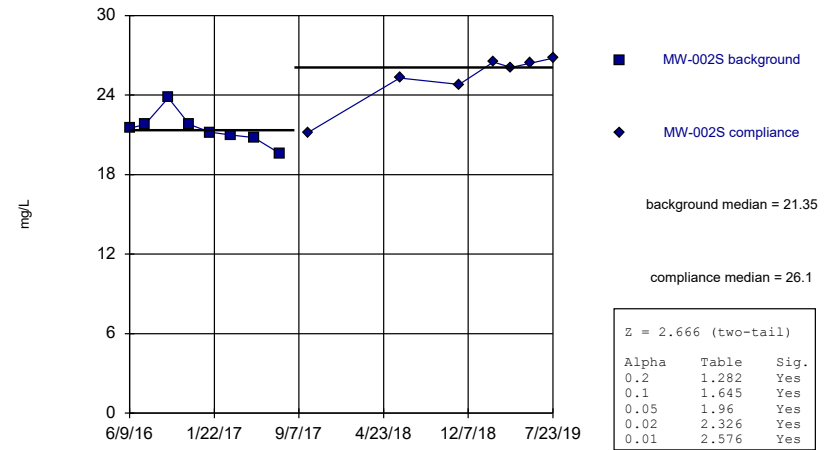
MW-002I



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

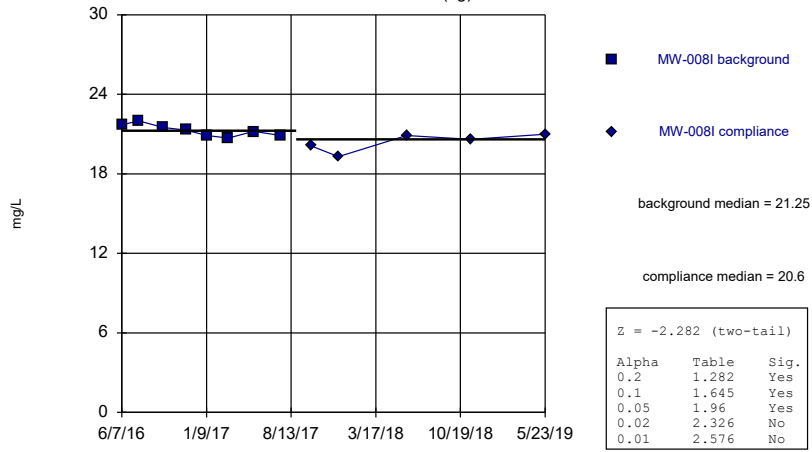
Mann-Whitney (Wilcoxon Rank Sum)

MW-002S



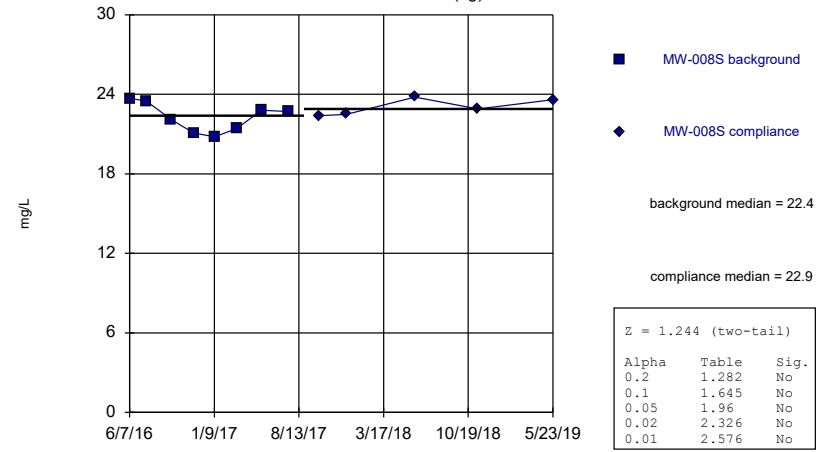
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-008I (bg)



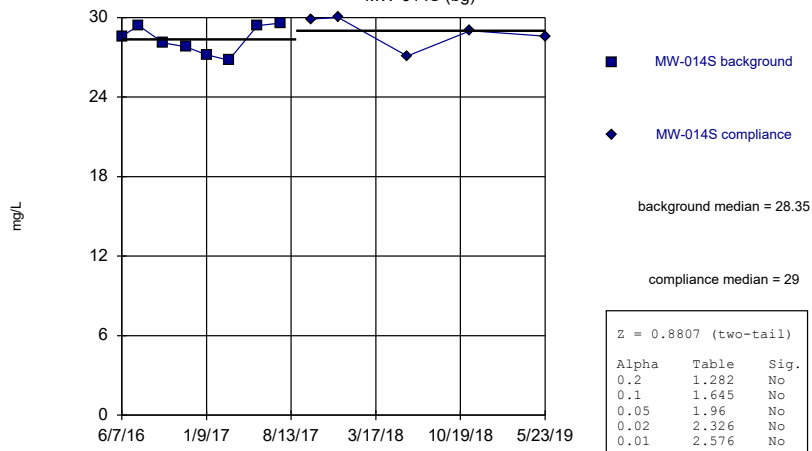
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-008S (bg)



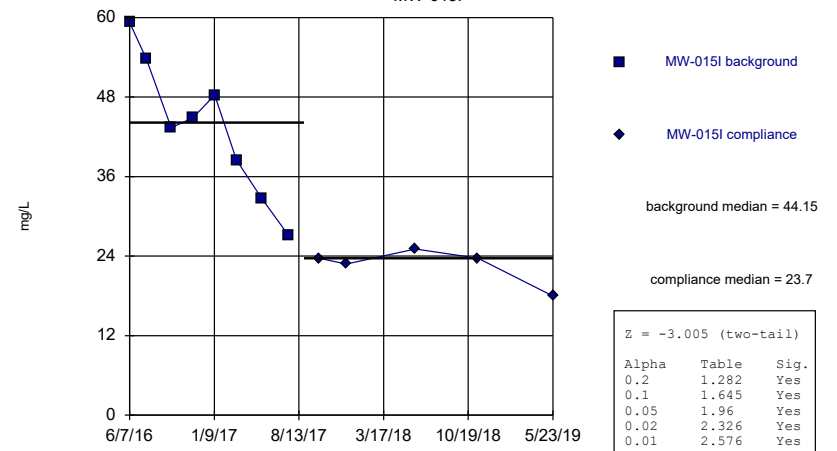
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-014S (bg)



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

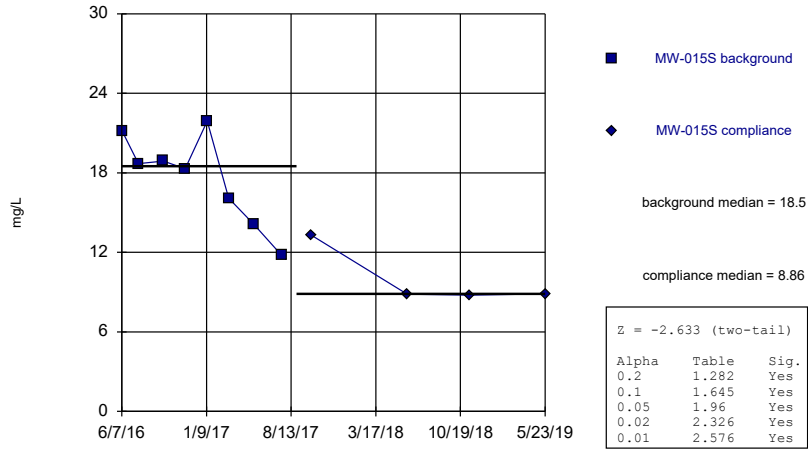
Mann-Whitney (Wilcoxon Rank Sum)
MW-015I



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

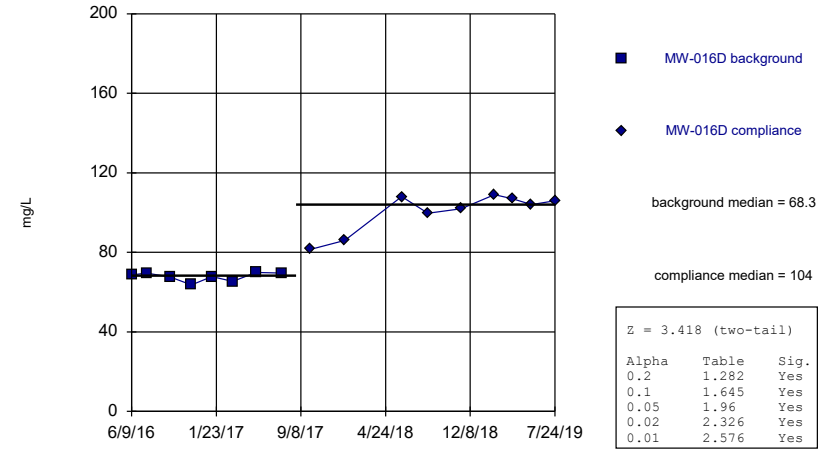
MW-015S



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

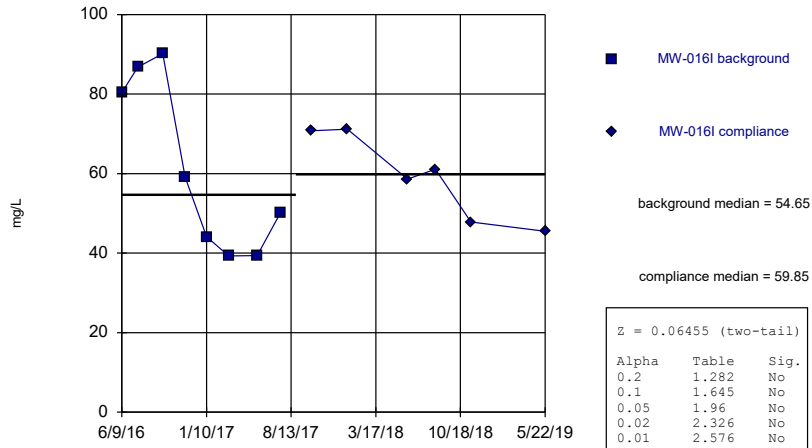
MW-016D



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

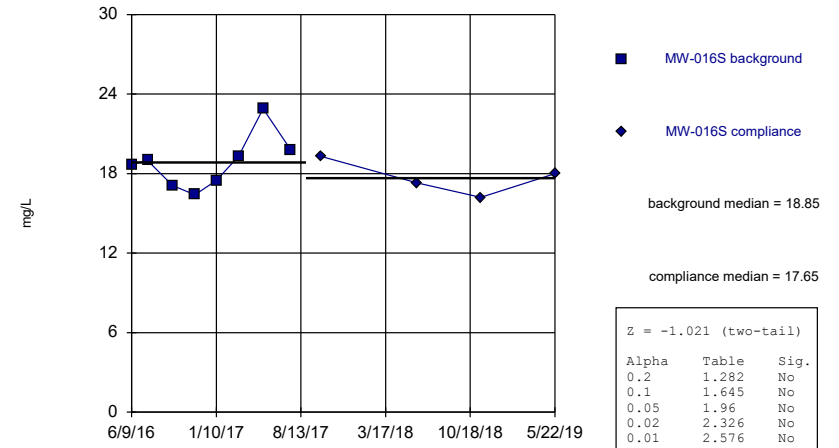
MW-016I



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

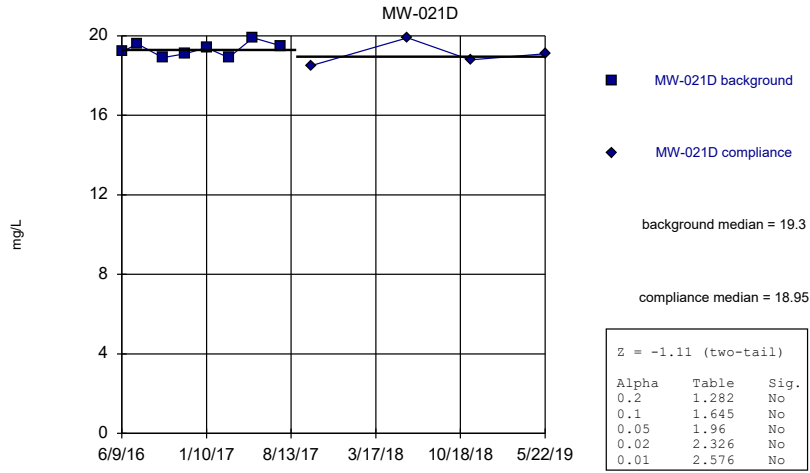
Mann-Whitney (Wilcoxon Rank Sum)

MW-016S



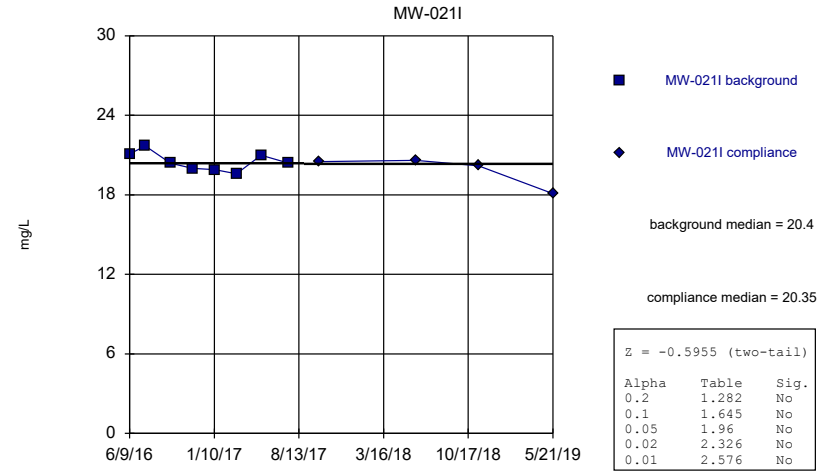
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



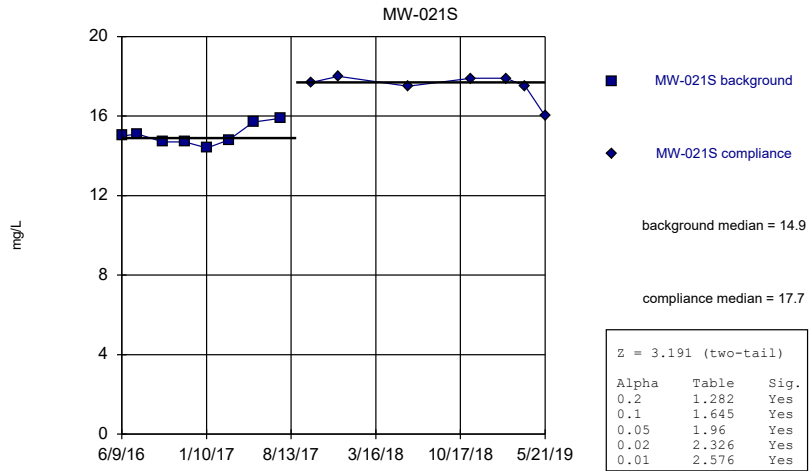
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



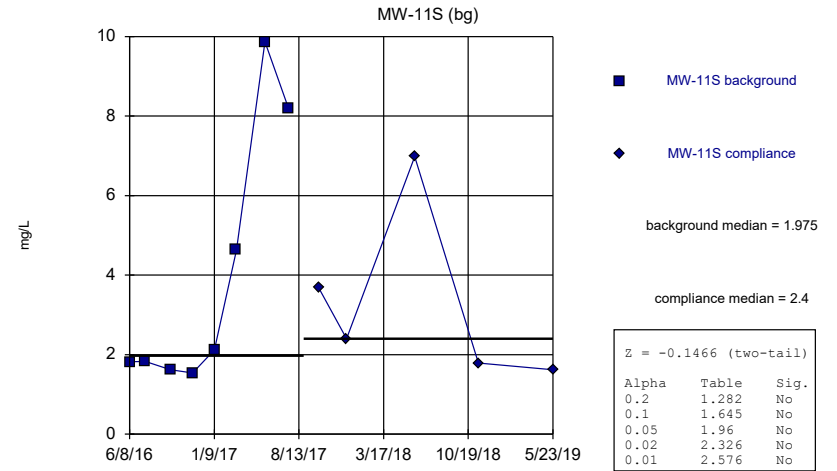
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



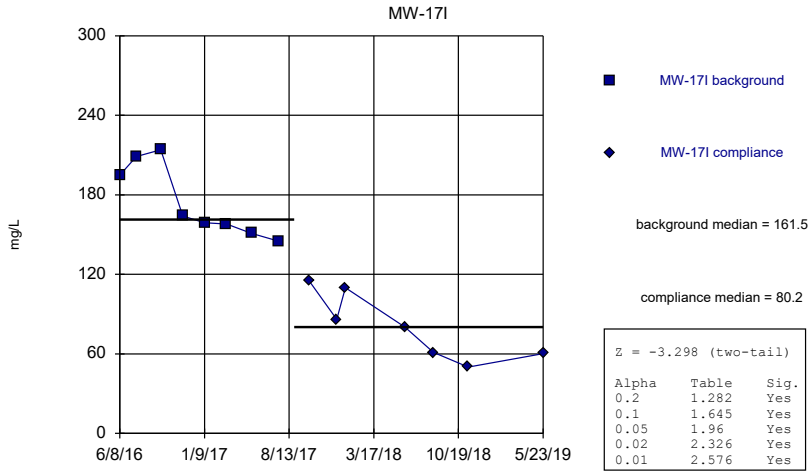
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



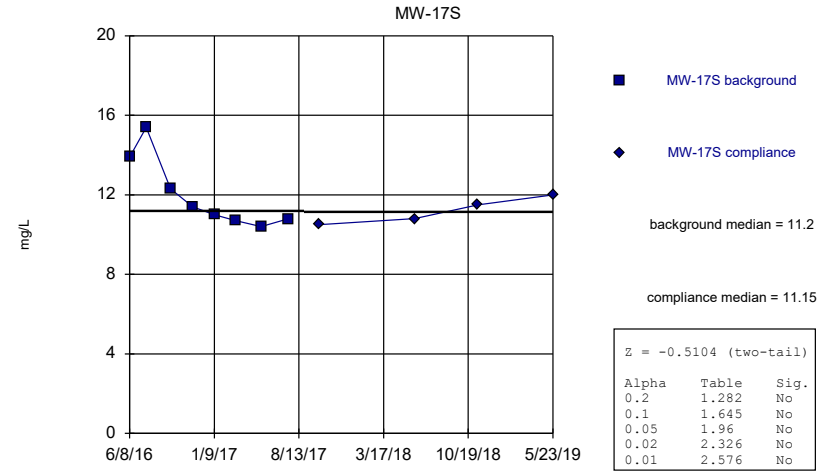
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



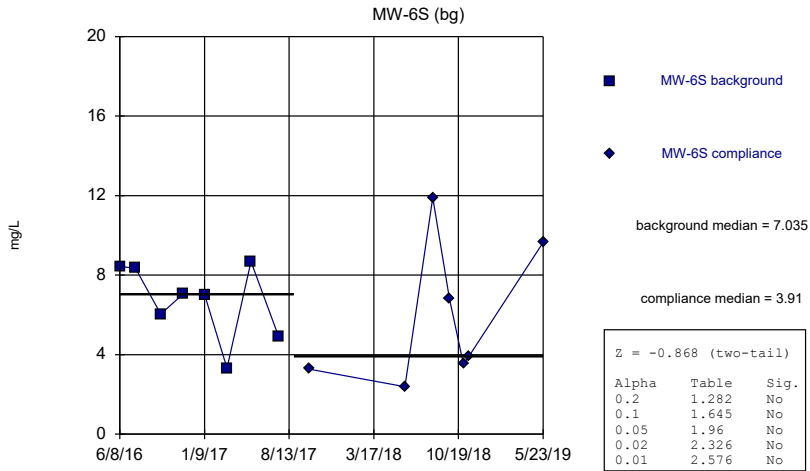
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



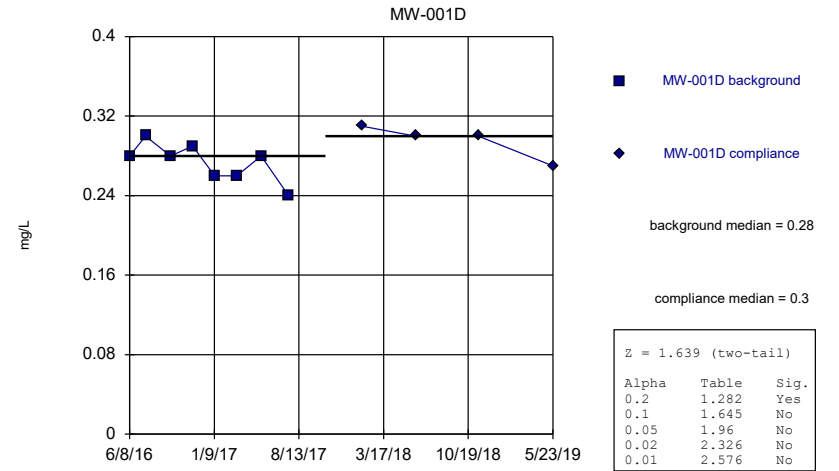
Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Chloride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

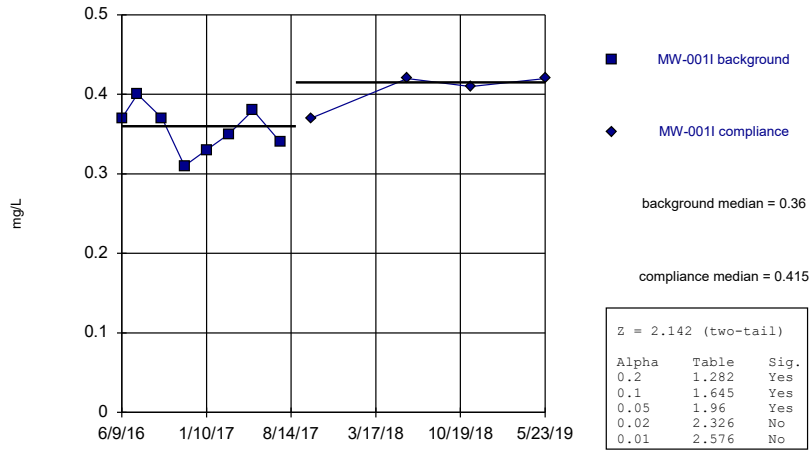
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

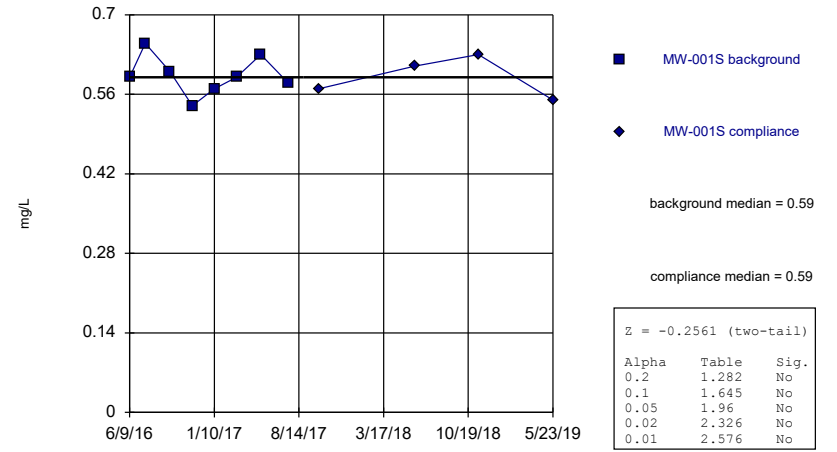
MW-001I



Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

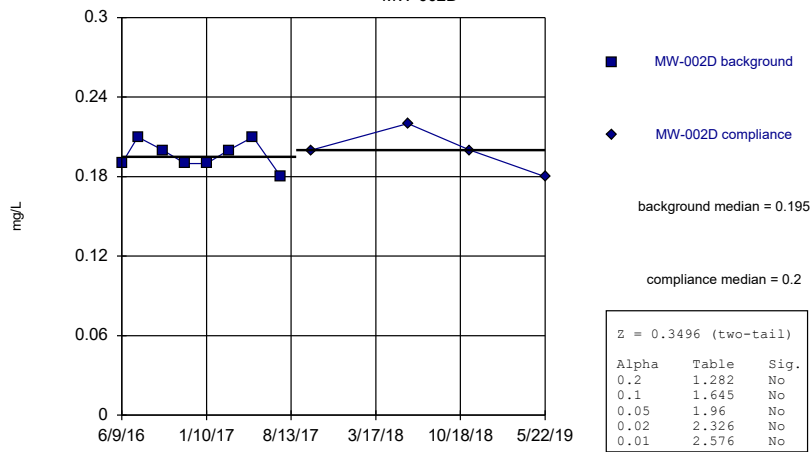
MW-001S



Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

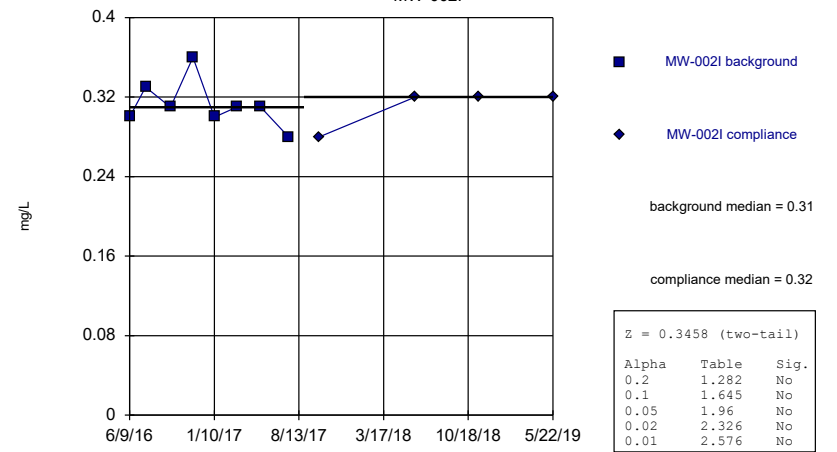
MW-002D



Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

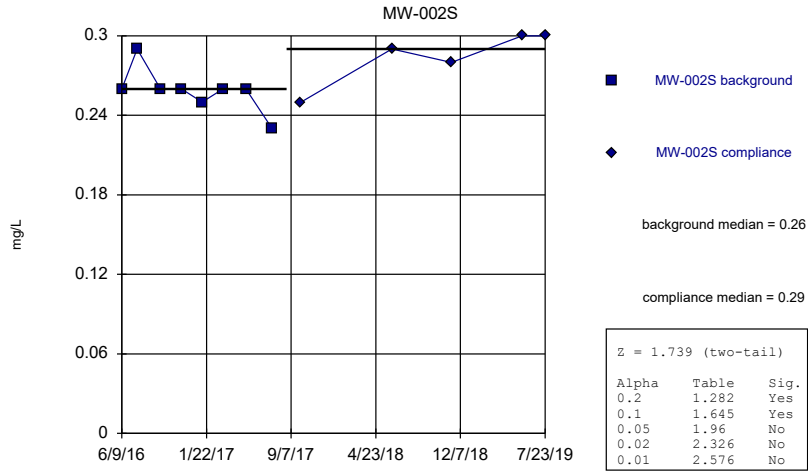
Mann-Whitney (Wilcoxon Rank Sum)

MW-002I



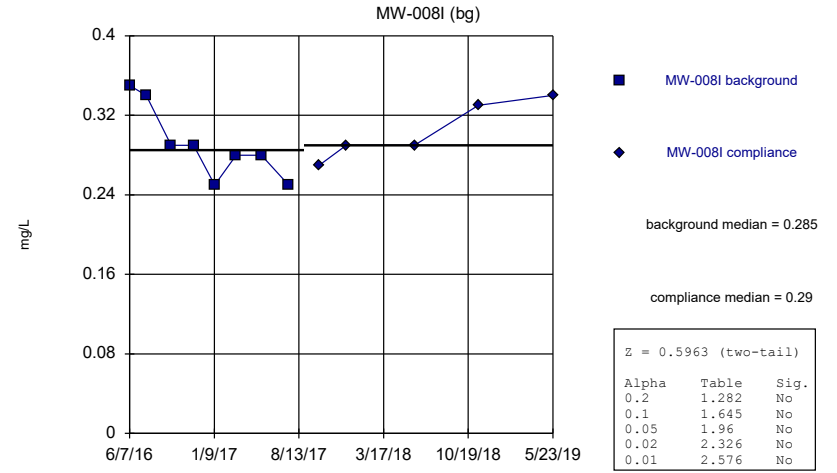
Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



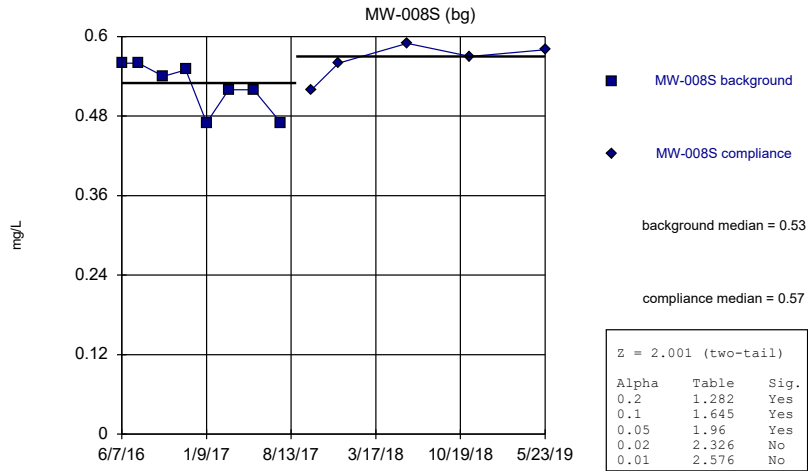
Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



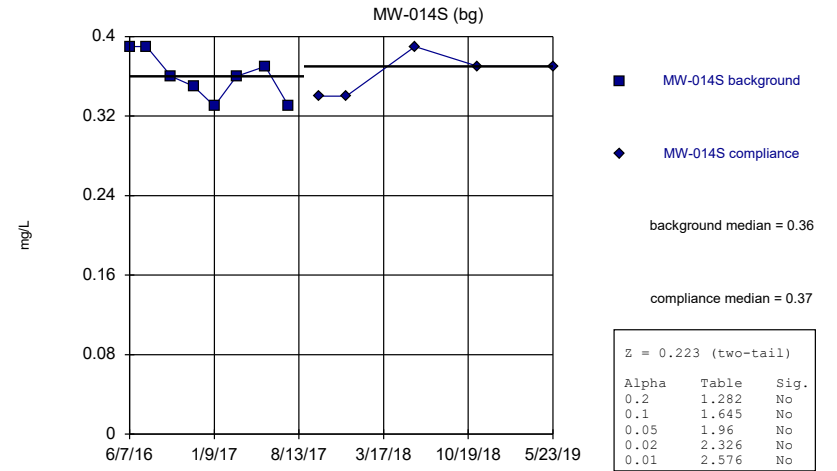
Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



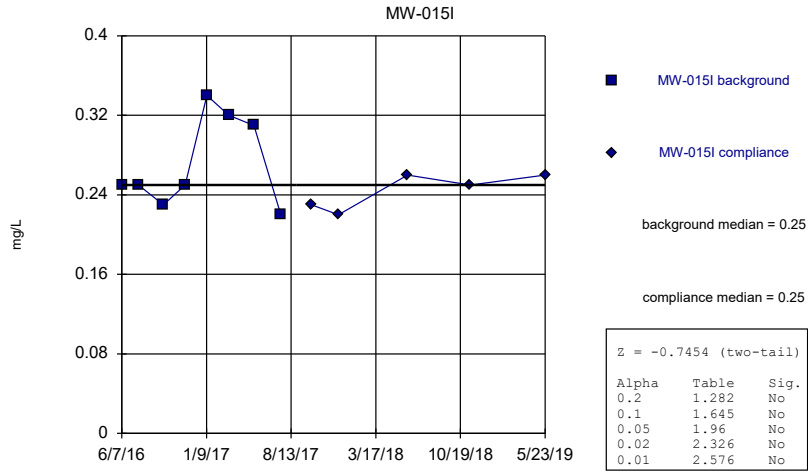
Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



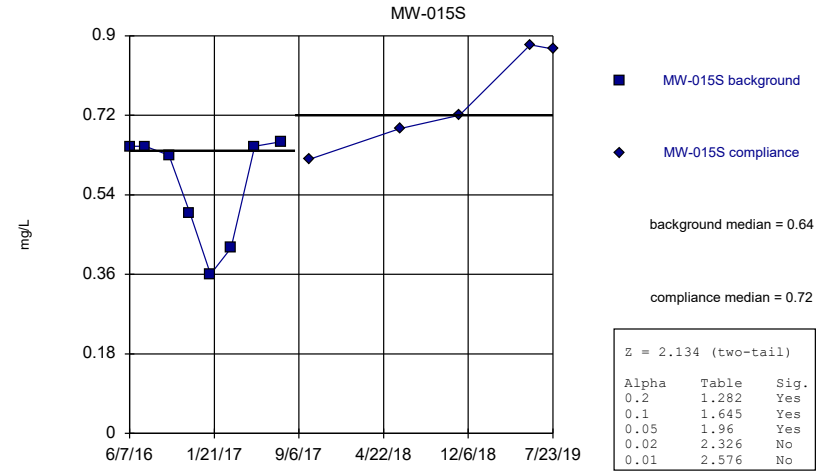
Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



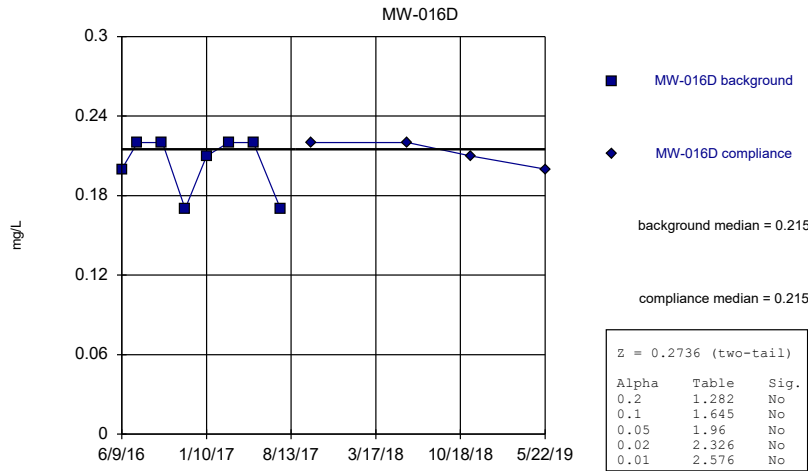
Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



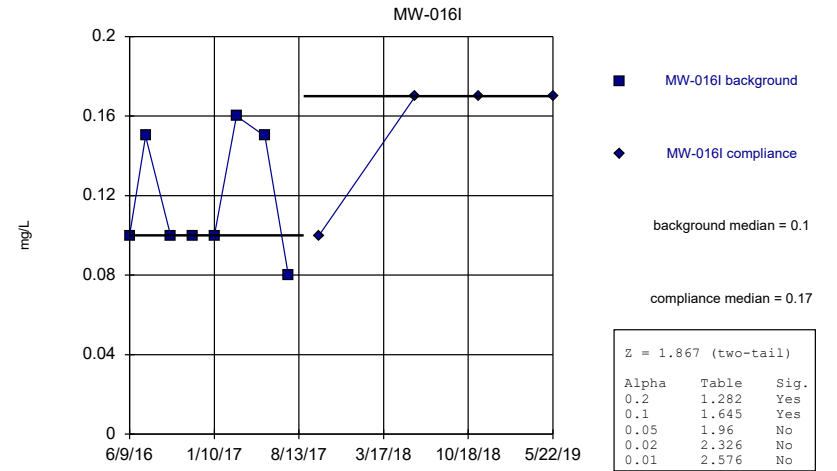
Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

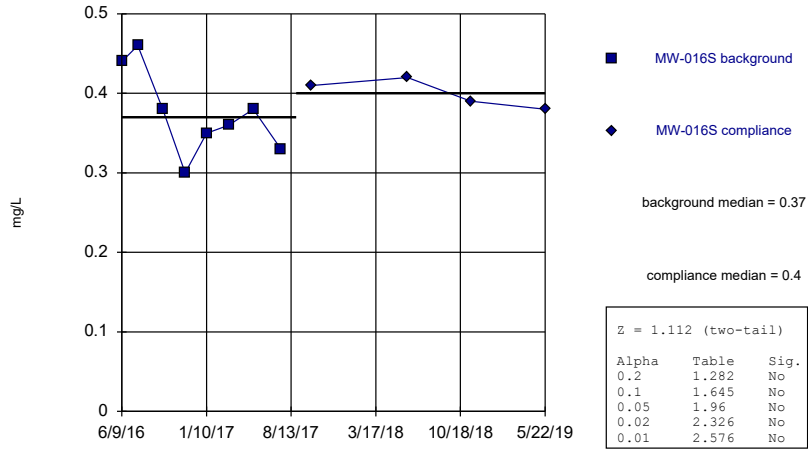
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Fluoride, total Analysis Run 1/28/2020 12:42 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

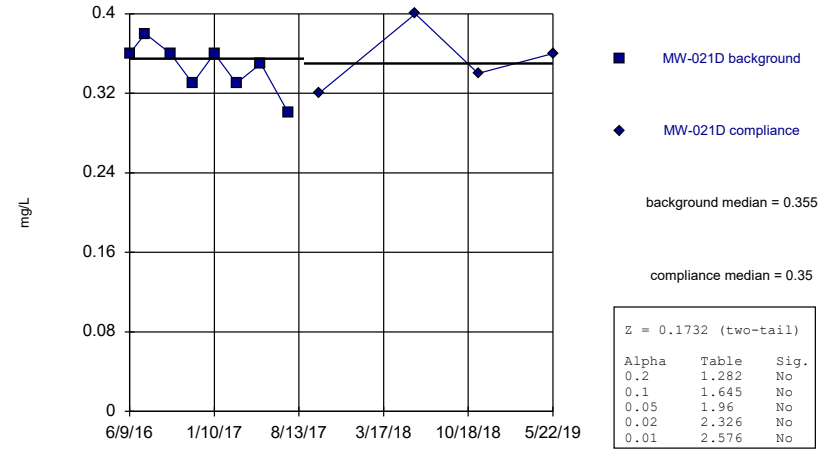
MW-016S



Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

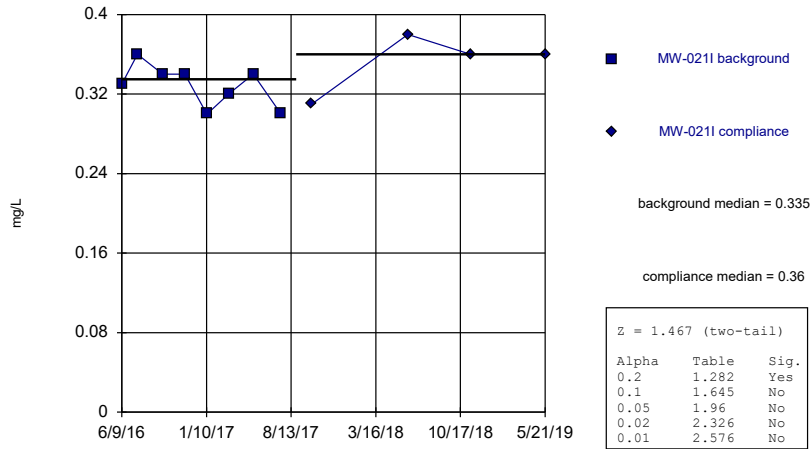
MW-021D



Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

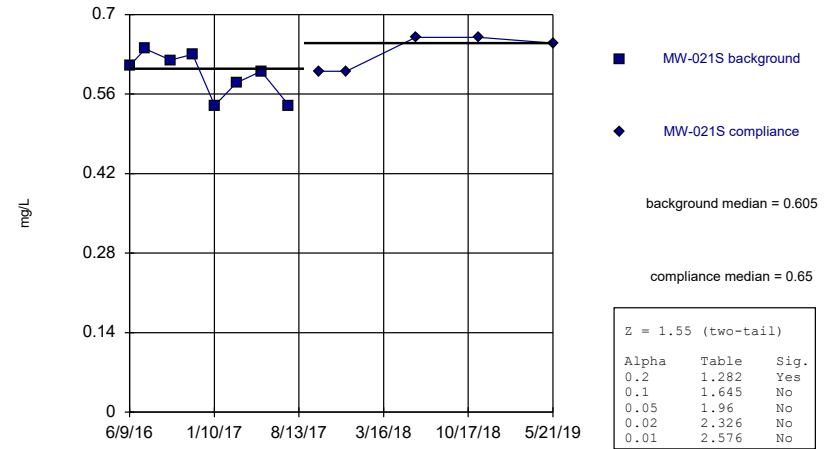
MW-021I



Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

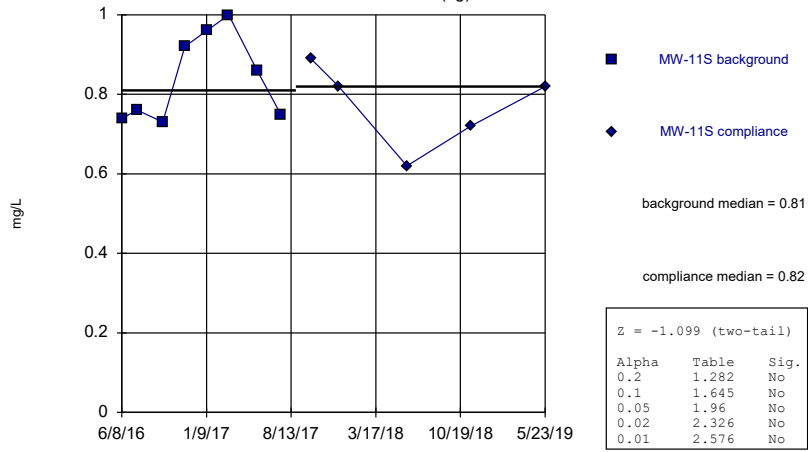
Mann-Whitney (Wilcoxon Rank Sum)

MW-021S



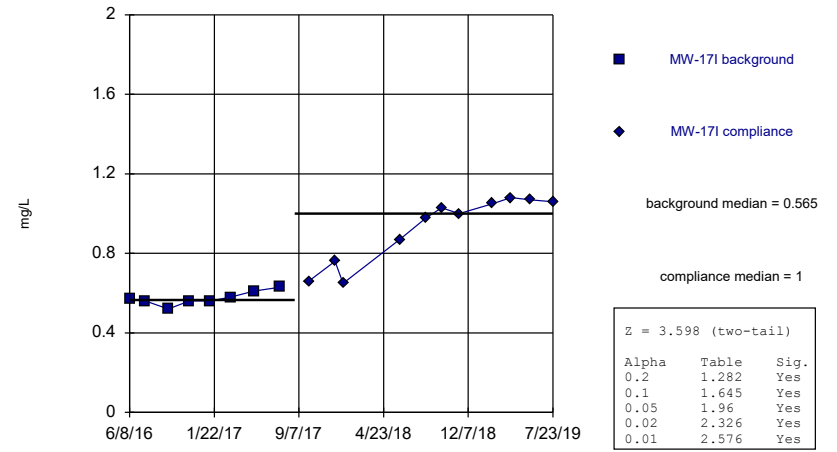
Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-11S (bg)



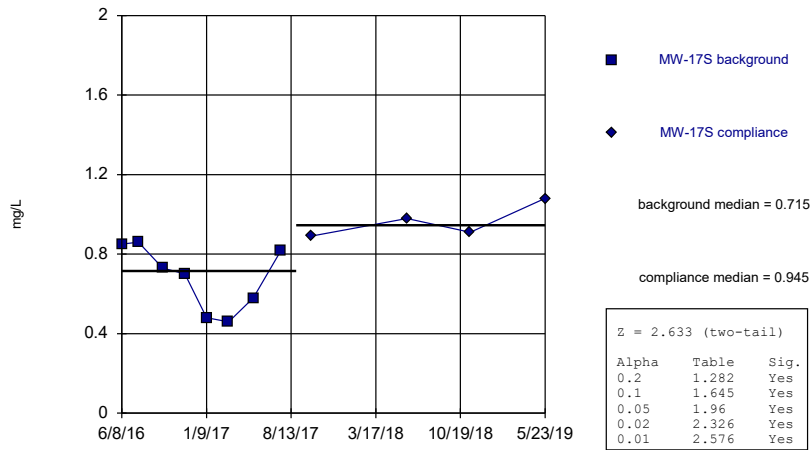
Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-171



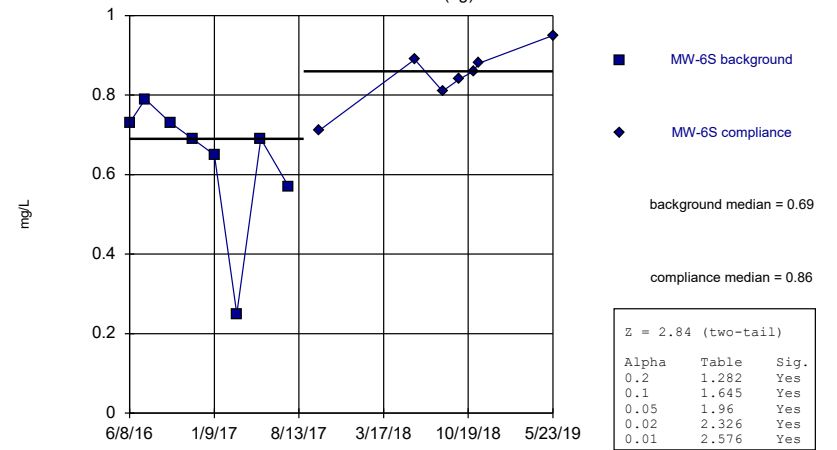
Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-17S



Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

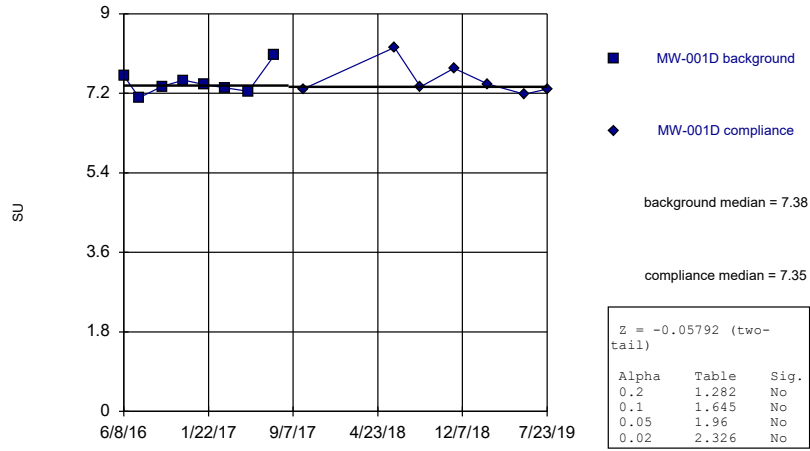
Mann-Whitney (Wilcoxon Rank Sum)
MW-6S (bg)



Constituent: Fluoride, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

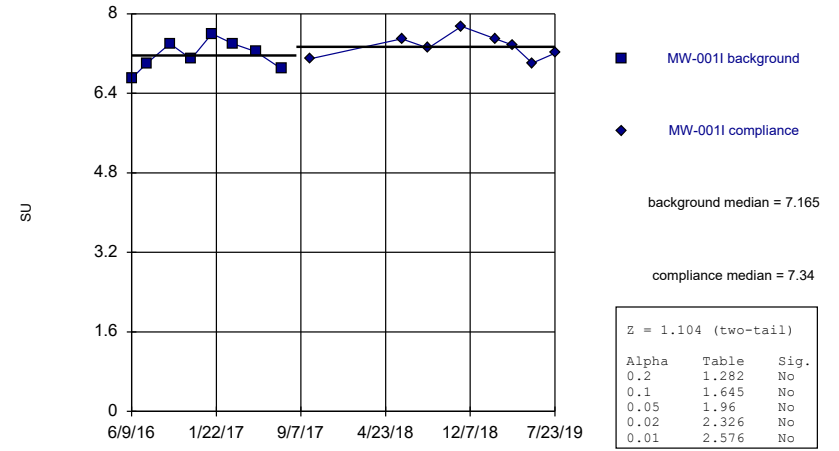
MW-001D



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

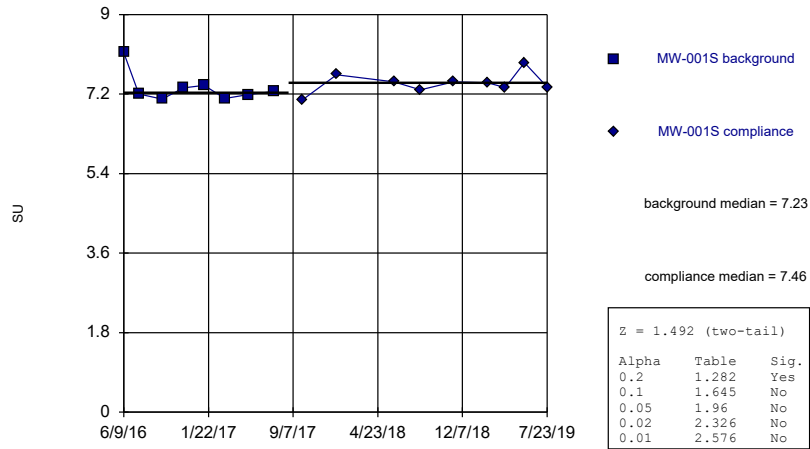
MW-0011



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

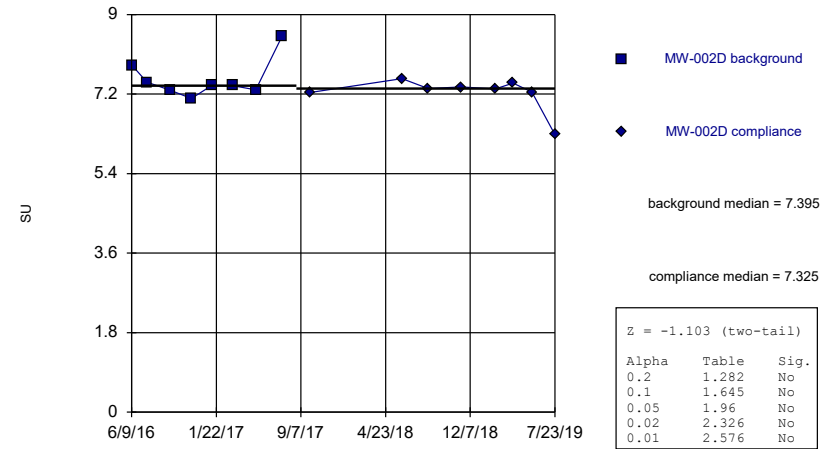
MW-001S



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

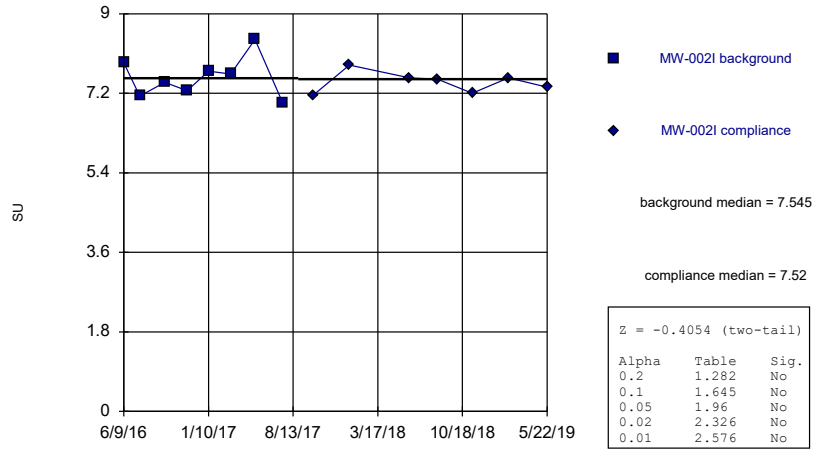
MW-002D



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

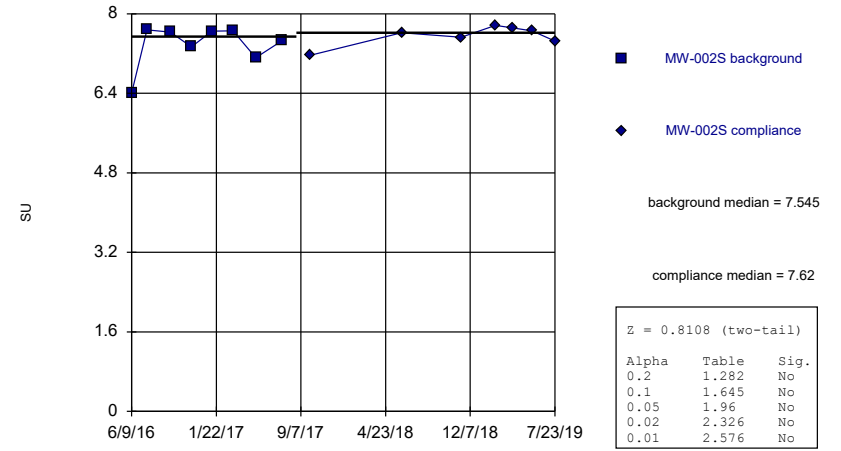
MW-002I



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

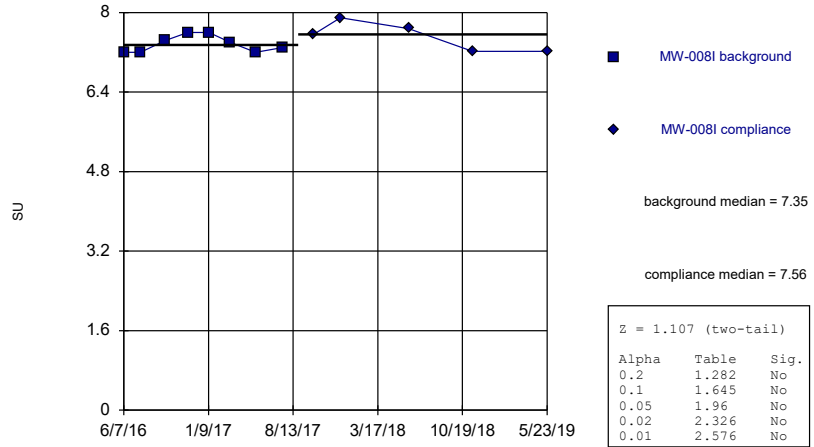
MW-002S



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

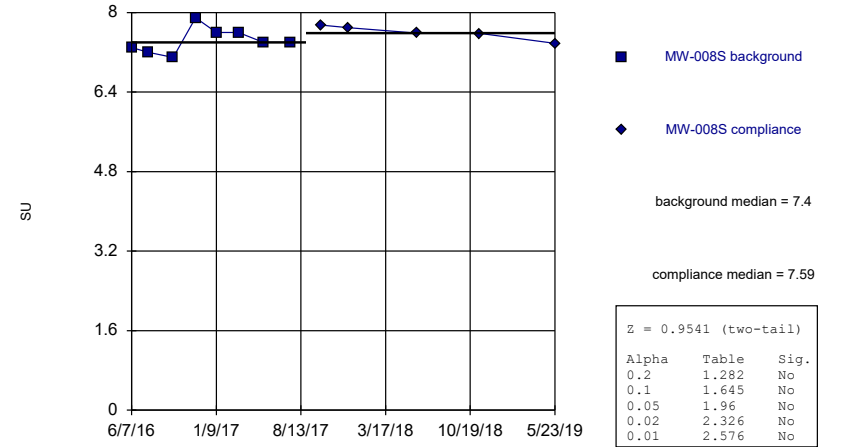
MW-008I (bg)



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

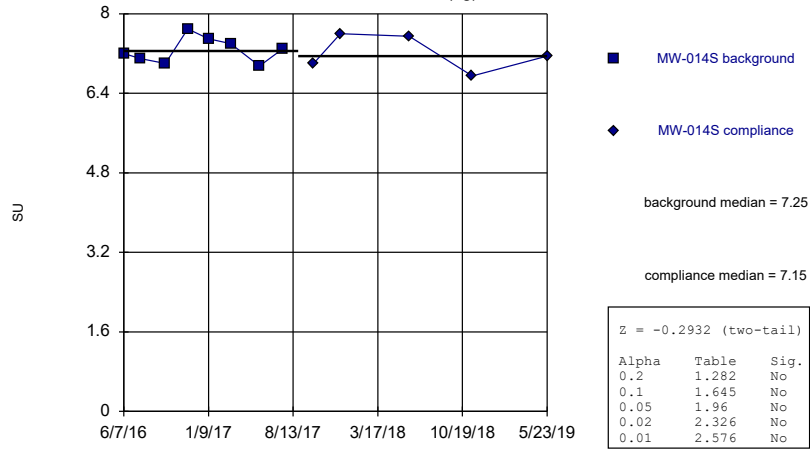
Mann-Whitney (Wilcoxon Rank Sum)

MW-008S (bg)



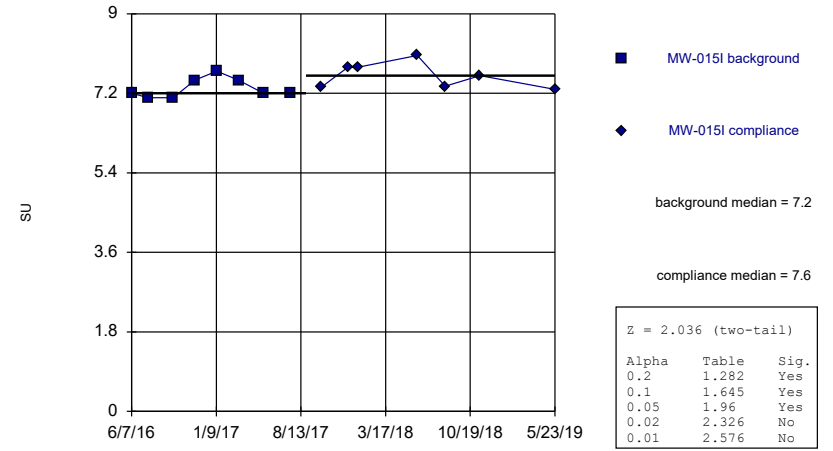
Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-014S (bg)



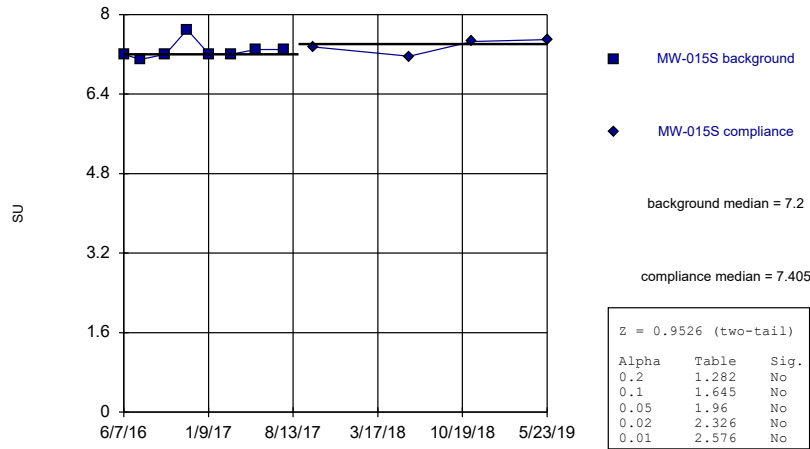
Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-015I



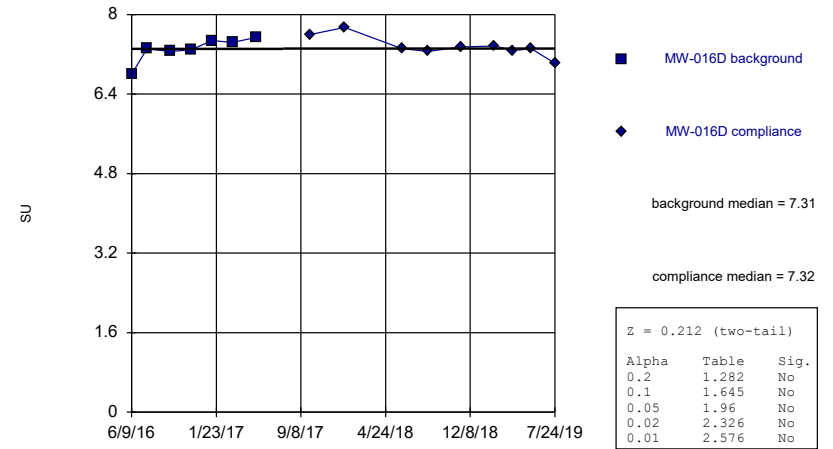
Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-015S



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

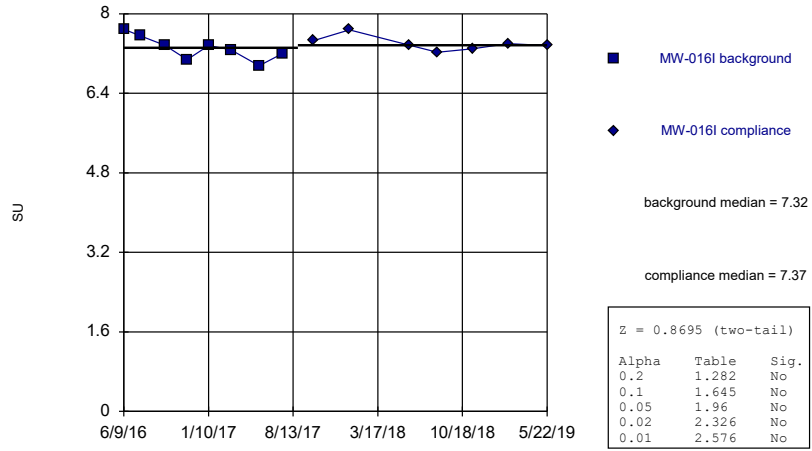
Mann-Whitney (Wilcoxon Rank Sum)
MW-016D



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

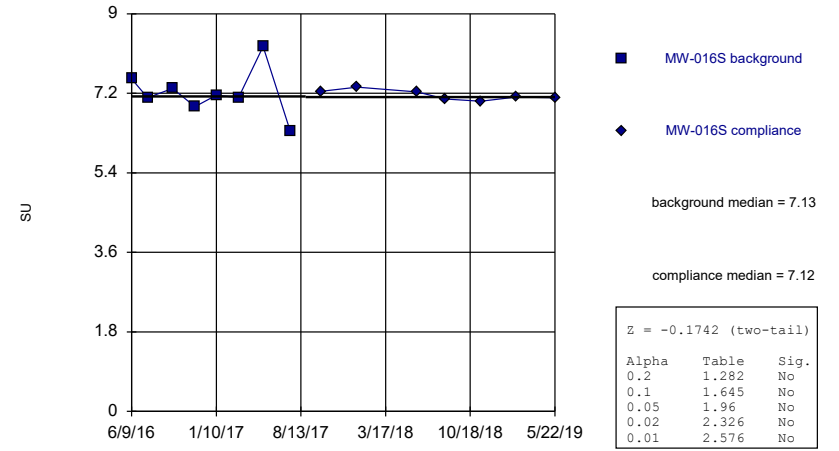
MW-016I



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

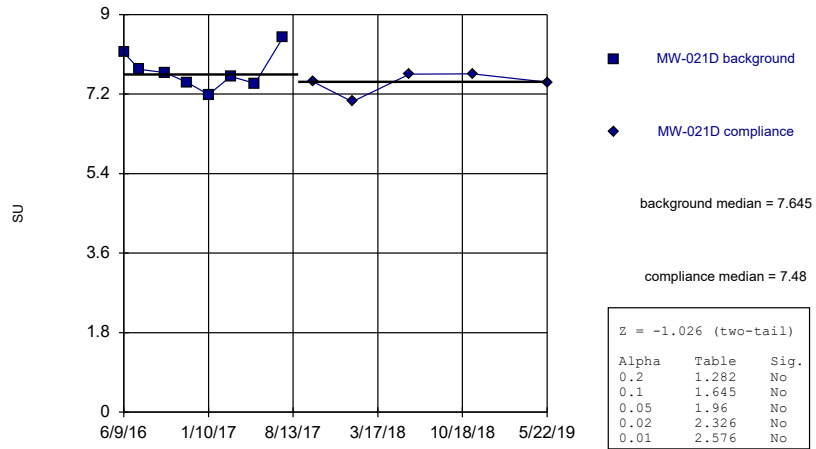
MW-016S



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

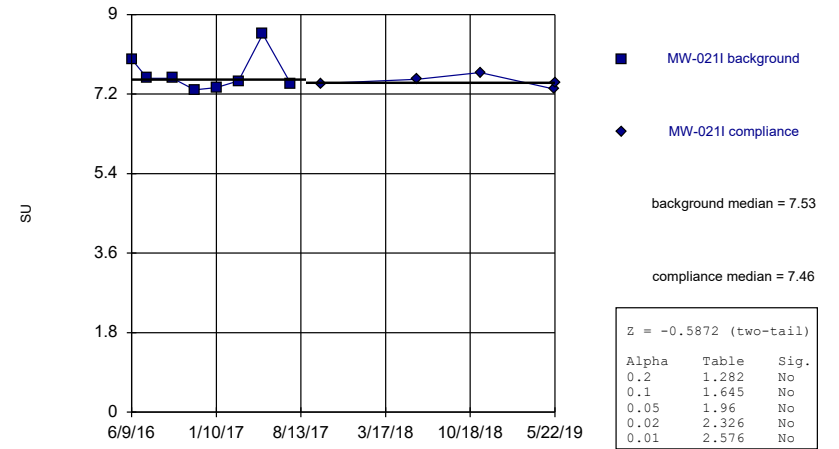
MW-021D



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

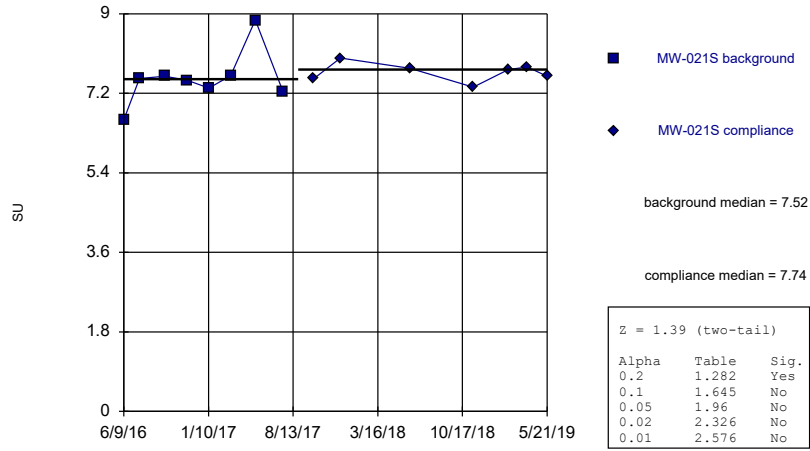
MW-021I



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

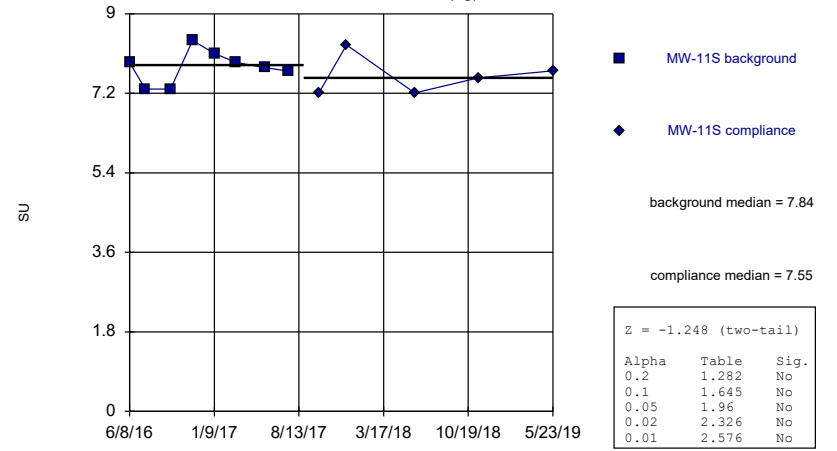
MW-021S



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

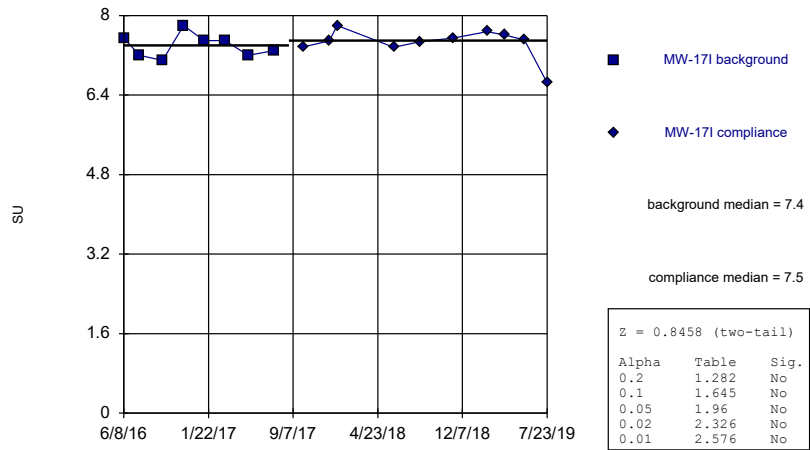
MW-11S (bg)



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

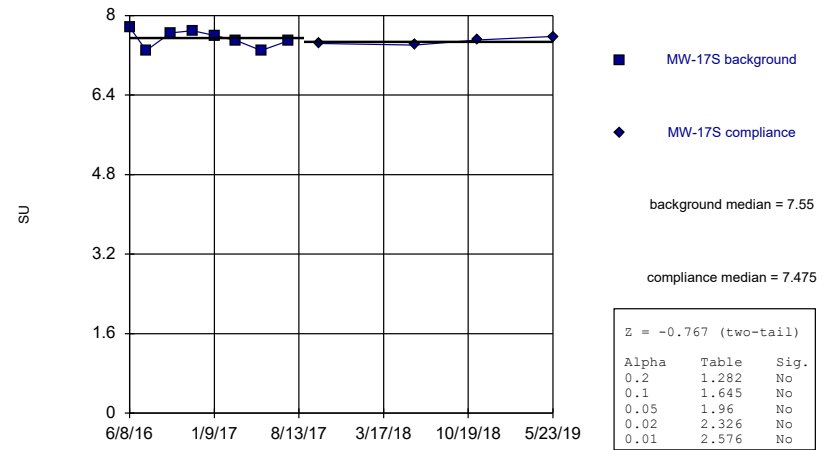
MW-17I



Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

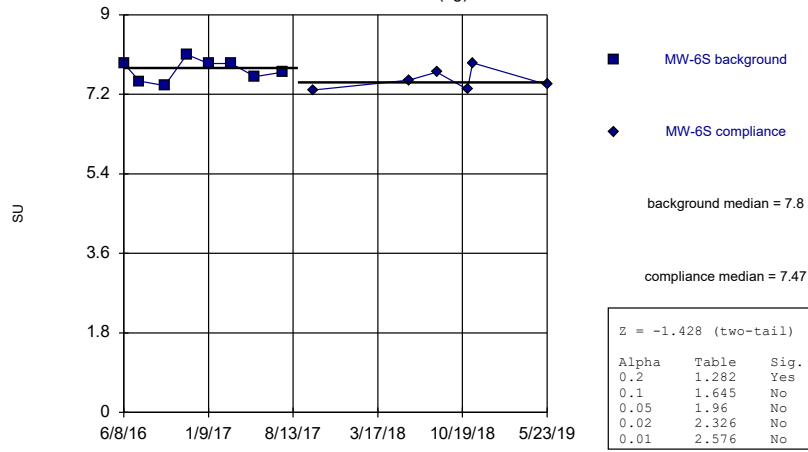
Mann-Whitney (Wilcoxon Rank Sum)

MW-17S



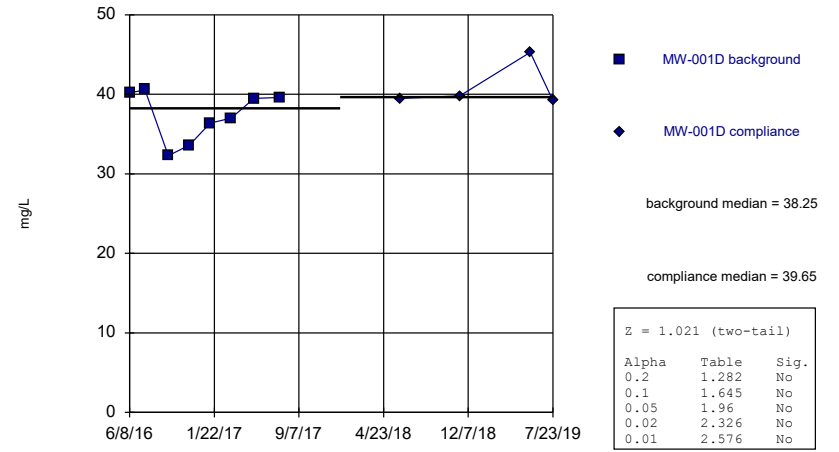
Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-6S (bg)



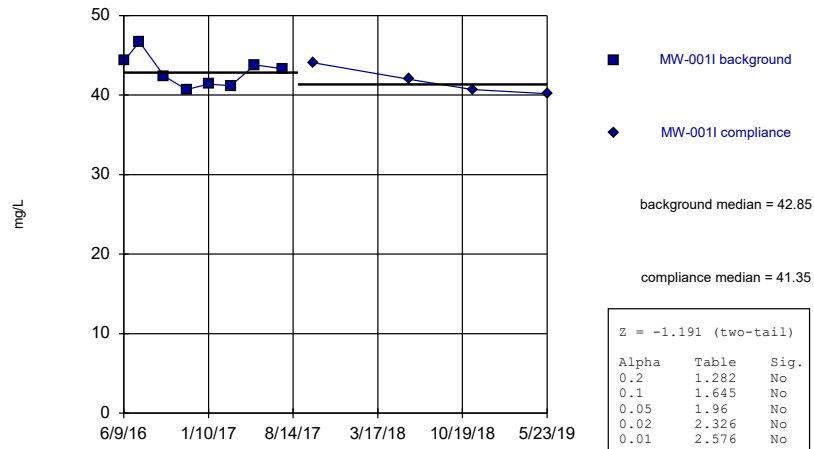
Constituent: pH, field Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-001D



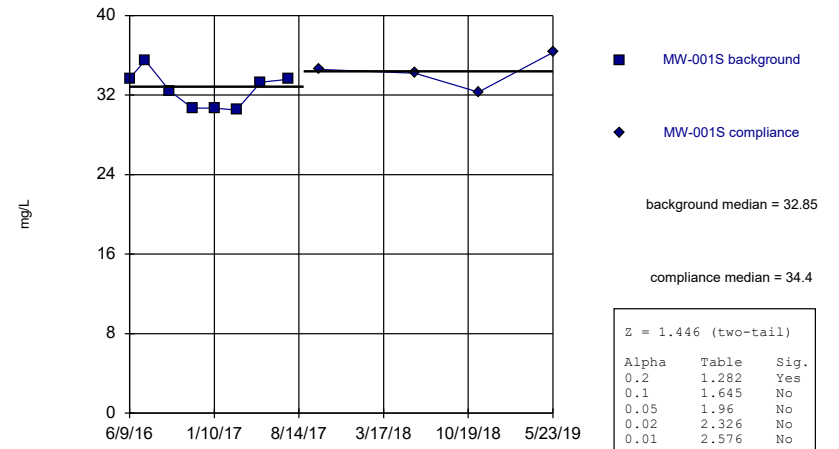
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-001I



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

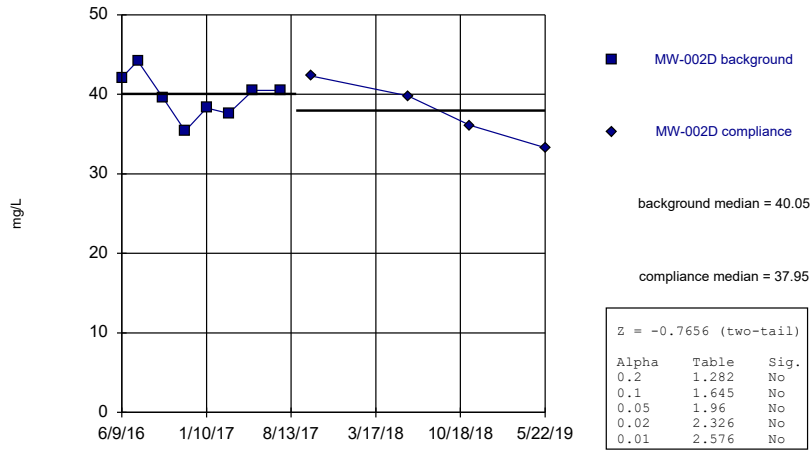
Mann-Whitney (Wilcoxon Rank Sum)
MW-001S



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

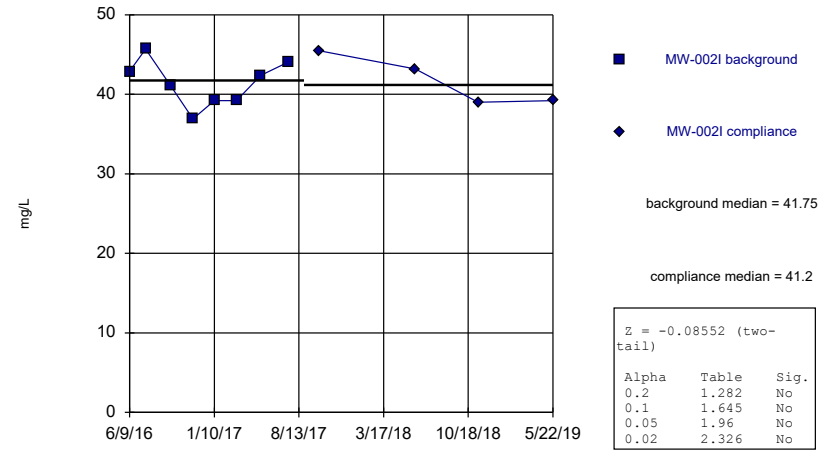
MW-002D



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

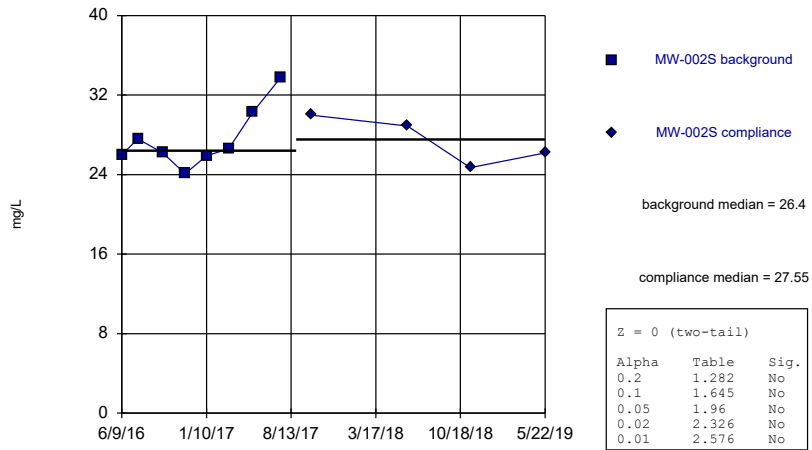
MW-002I



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

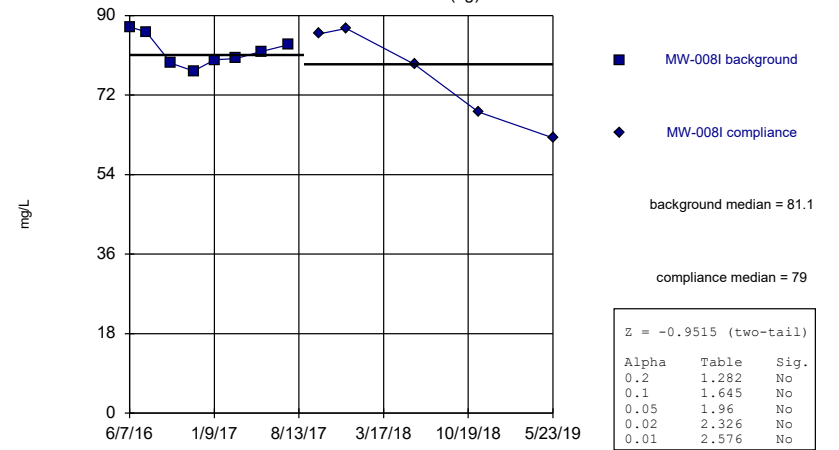
MW-002S



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

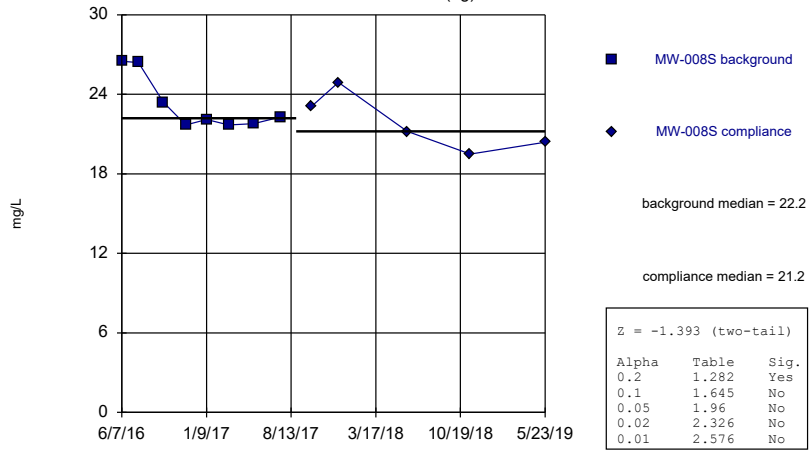
Mann-Whitney (Wilcoxon Rank Sum)

MW-008I (bg)



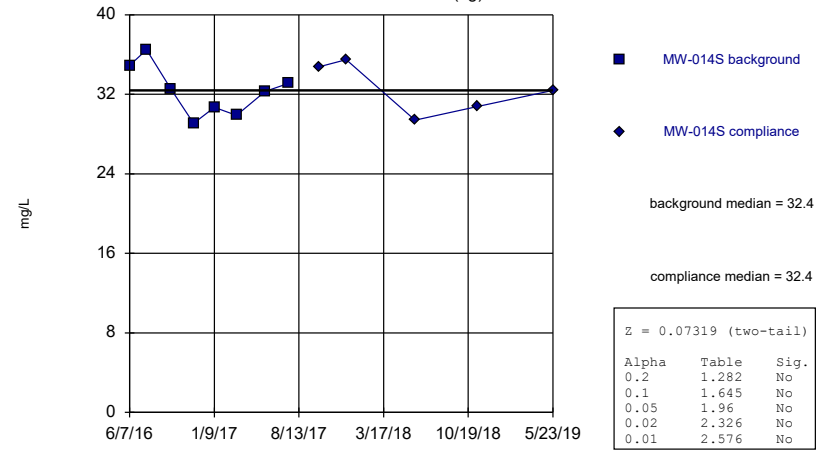
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-008S (bg)



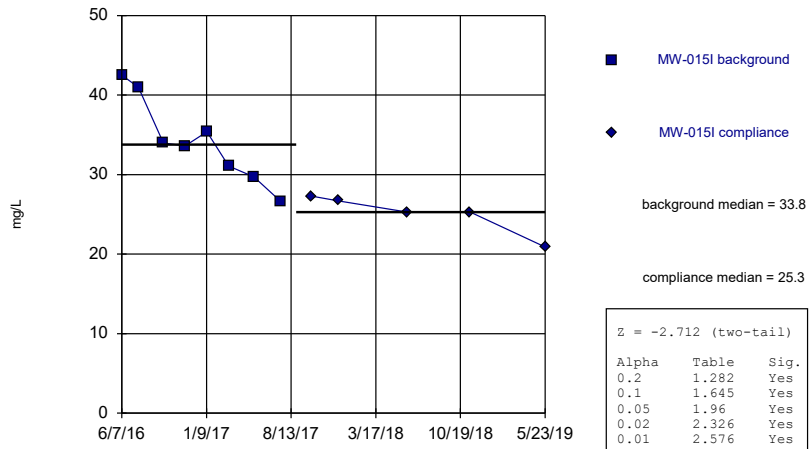
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-014S (bg)



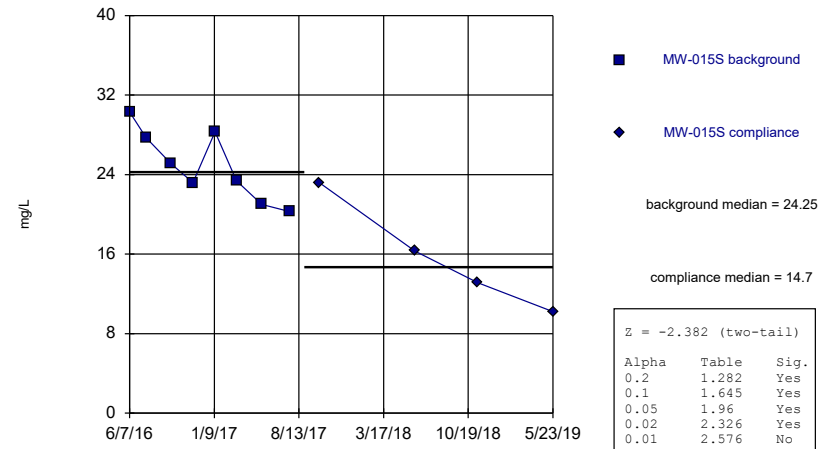
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-015I



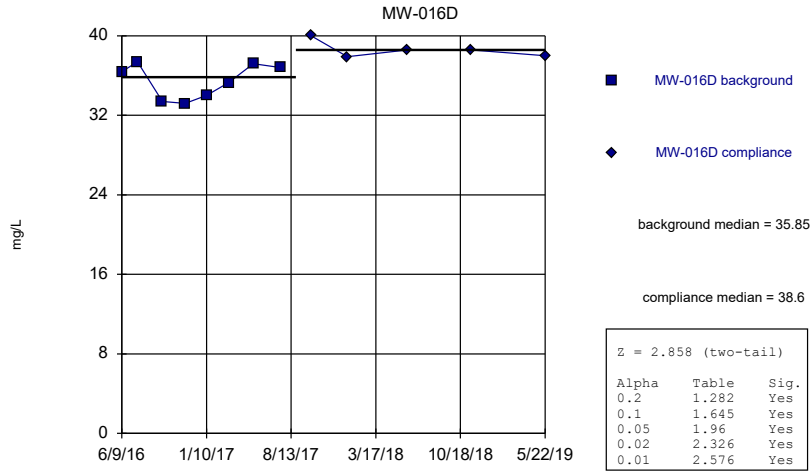
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)
MW-015S



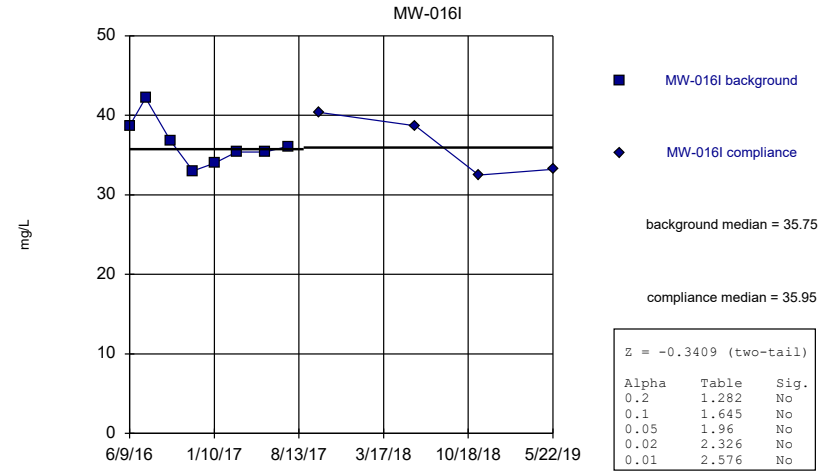
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



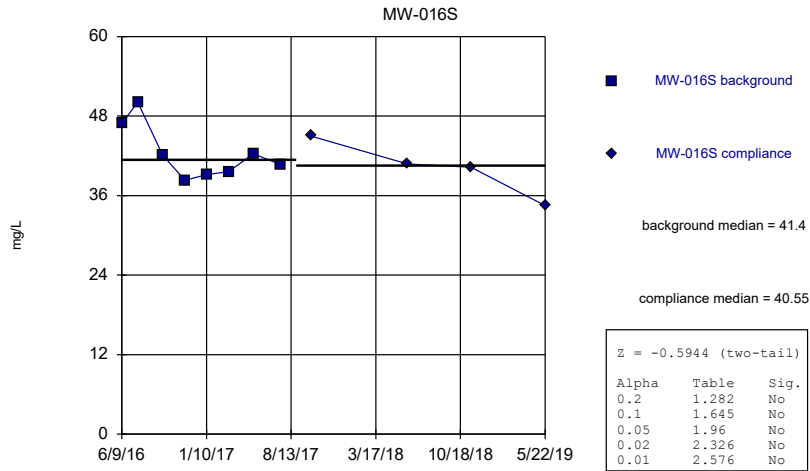
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



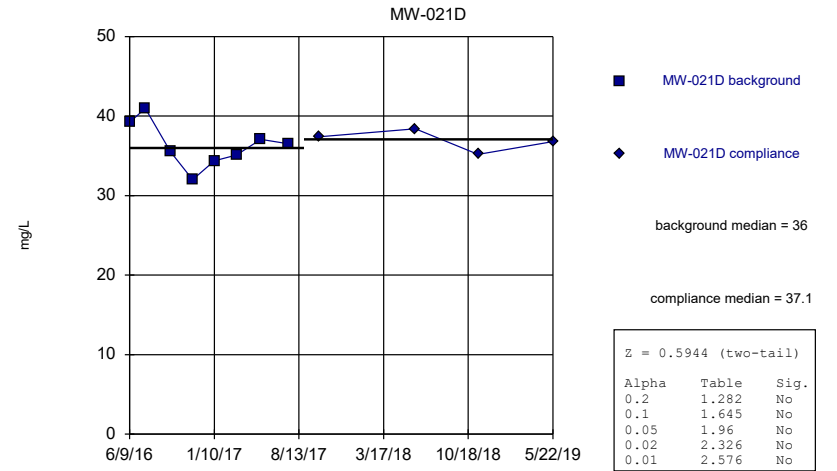
Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

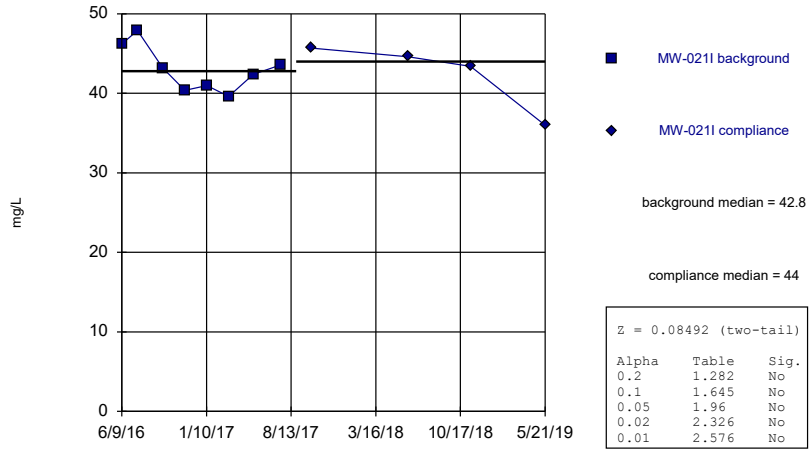
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

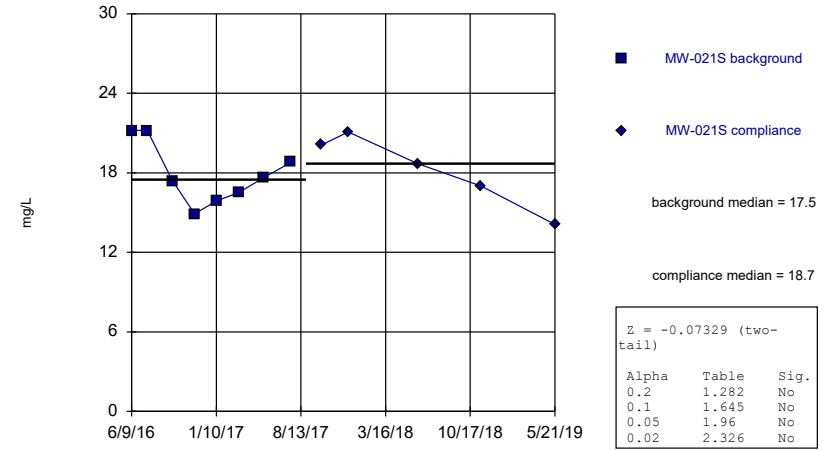
MW-0211



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

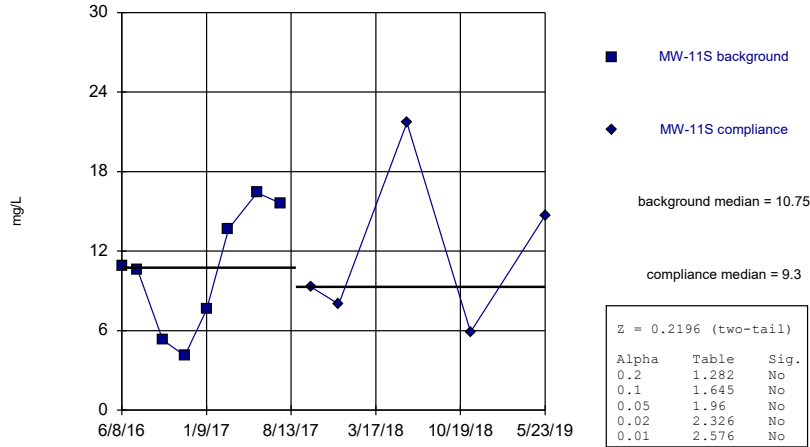
MW-021S



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

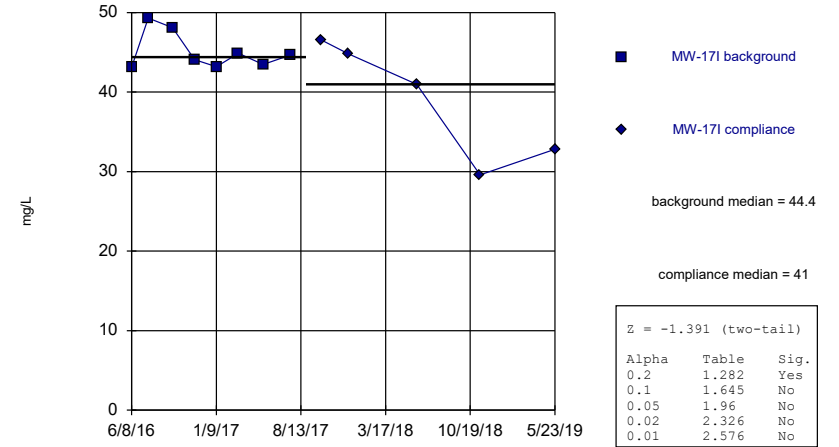
MW-11S (bg)



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

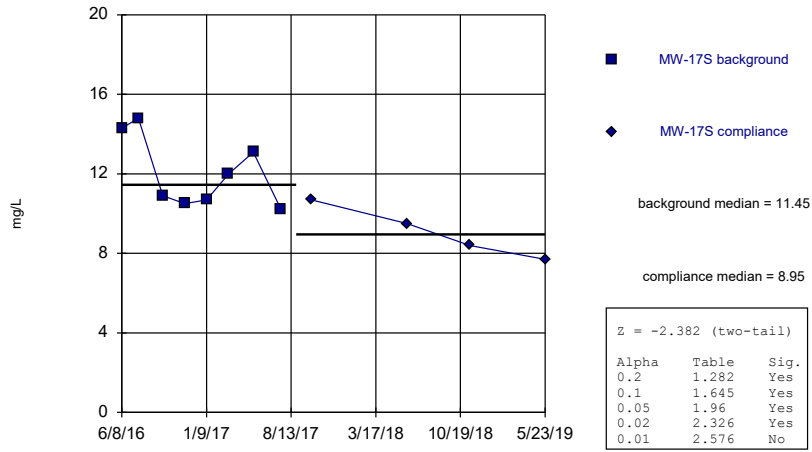
MW-171



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

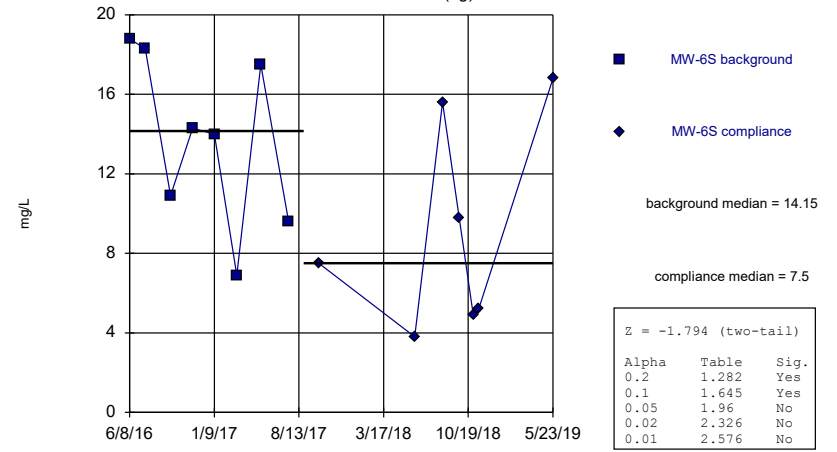
MW-17S



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

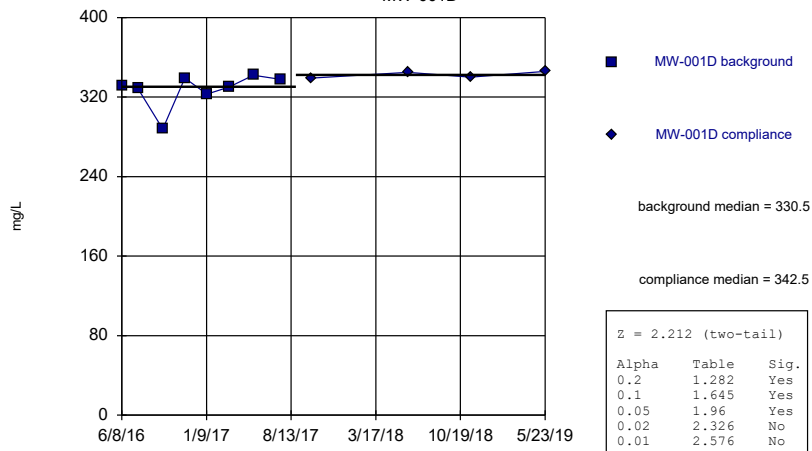
MW-6S (bg)



Constituent: Sulfate, total Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

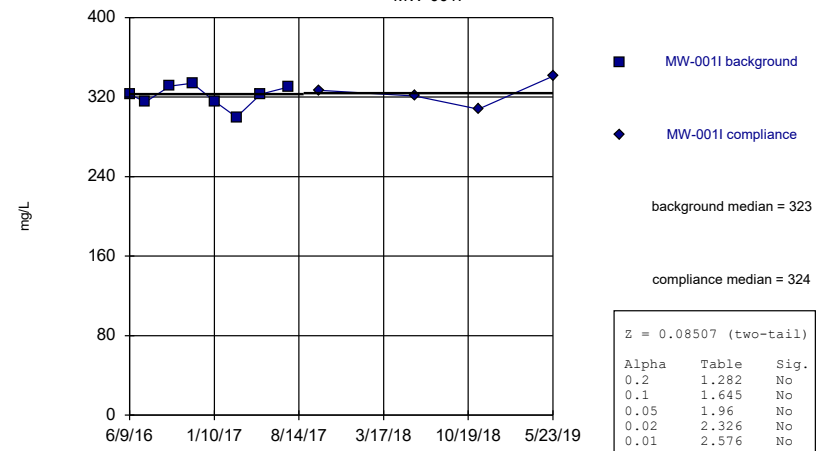
MW-001D



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

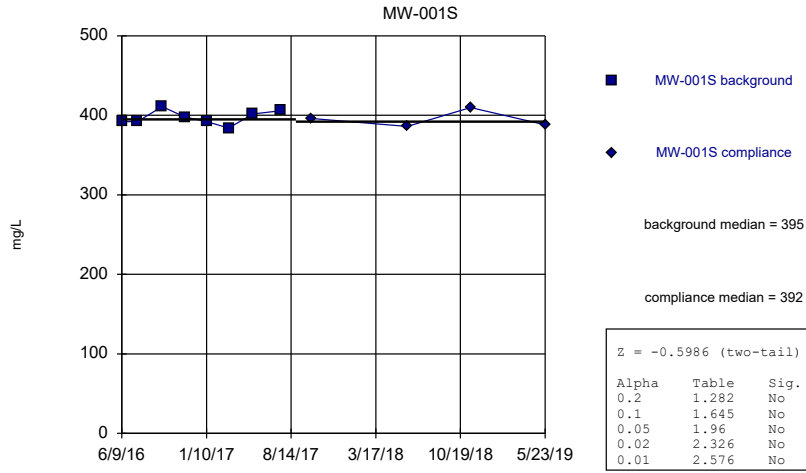
Mann-Whitney (Wilcoxon Rank Sum)

MW-001I



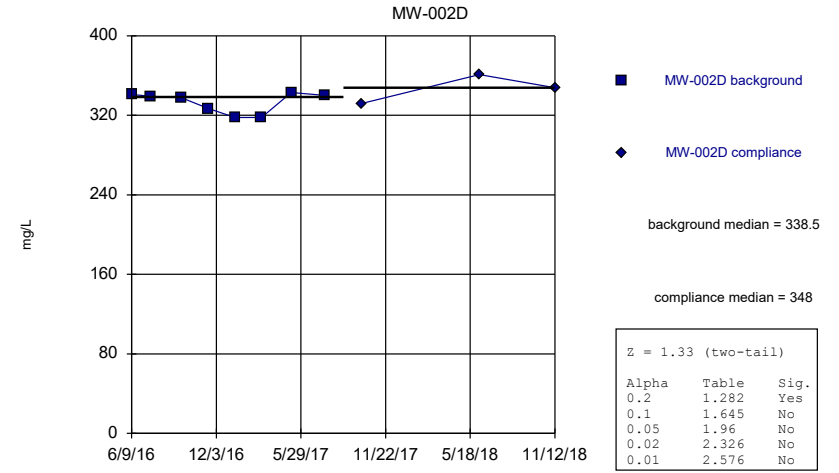
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



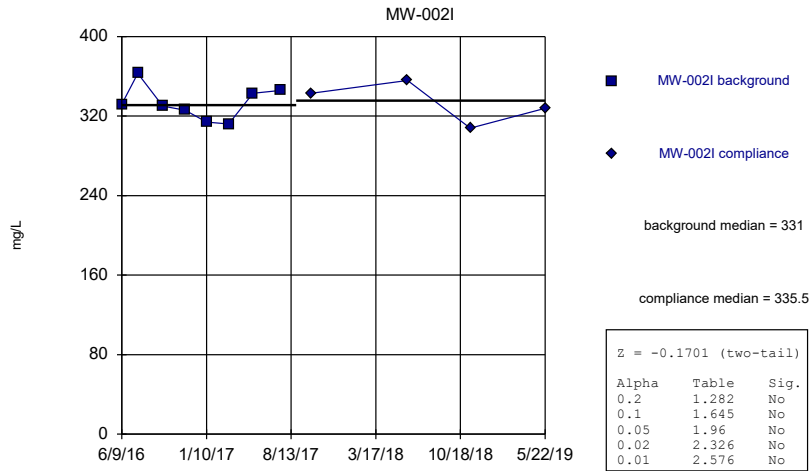
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



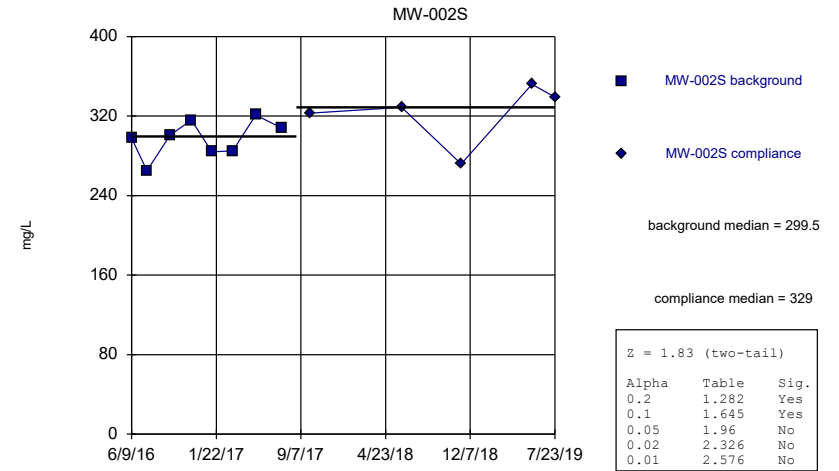
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
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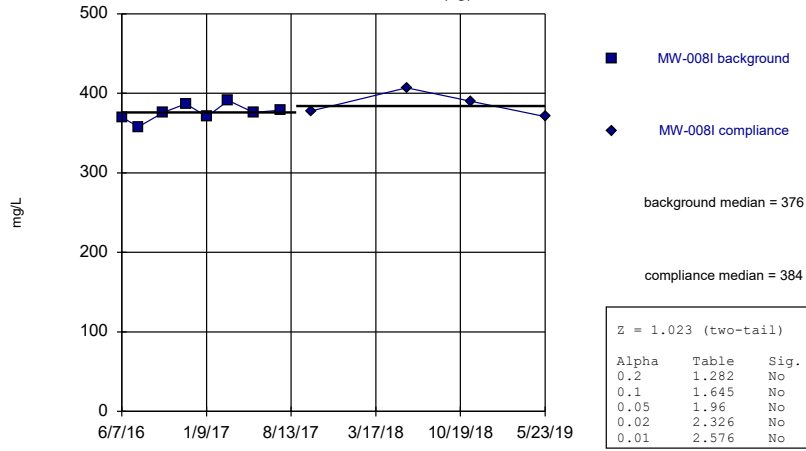
Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

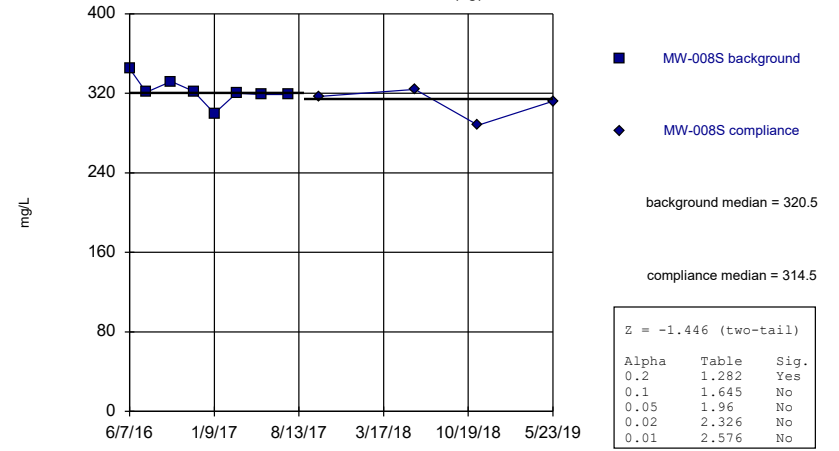
MW-008I (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

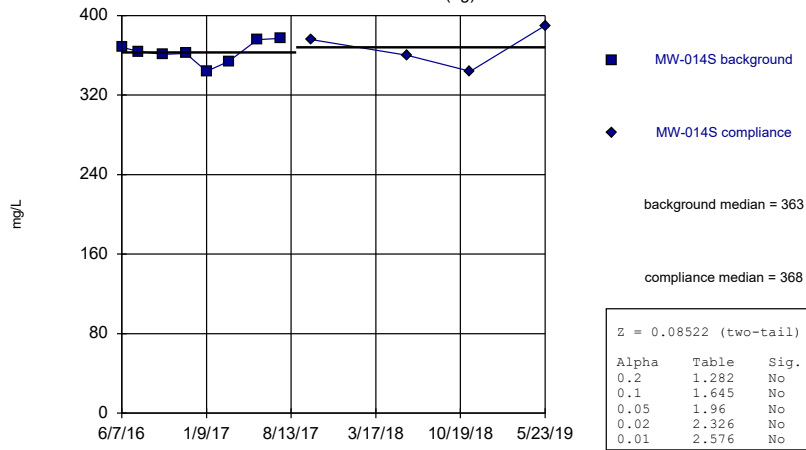
MW-008S (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)

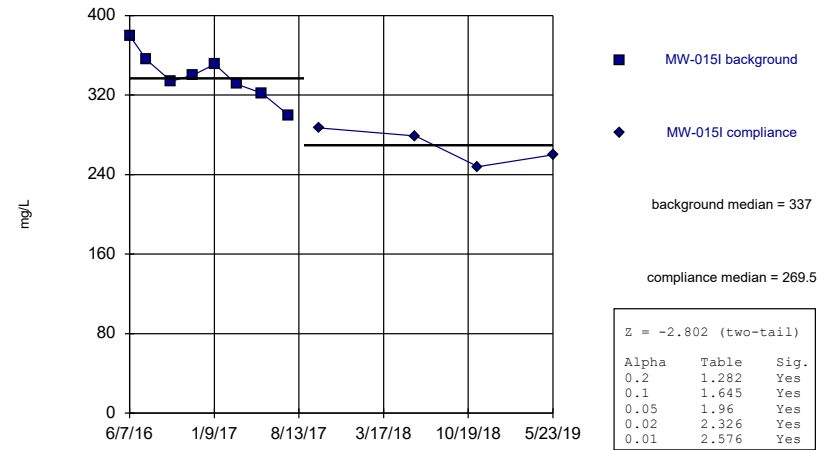
MW-014S (bg)



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

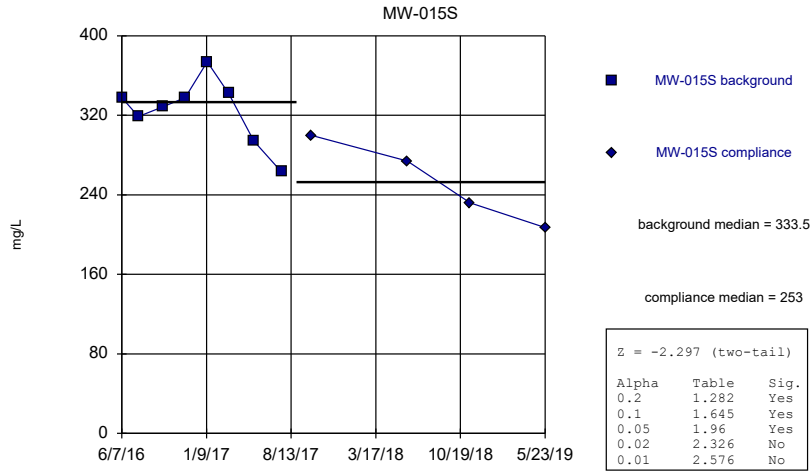
Mann-Whitney (Wilcoxon Rank Sum)

MW-015I



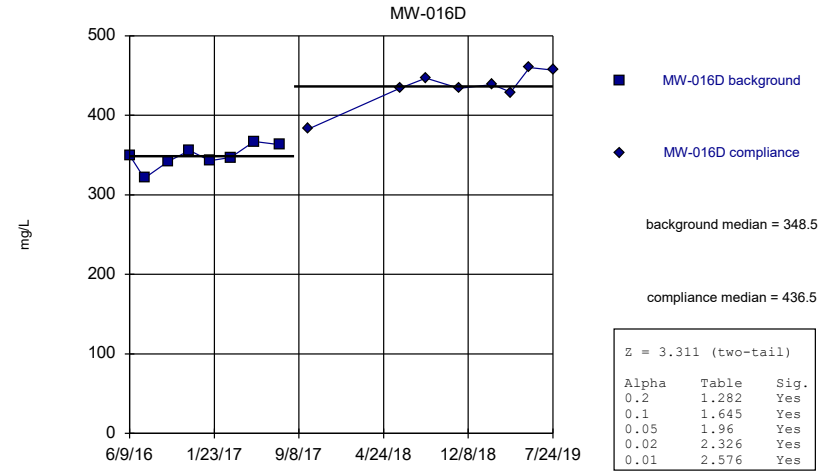
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



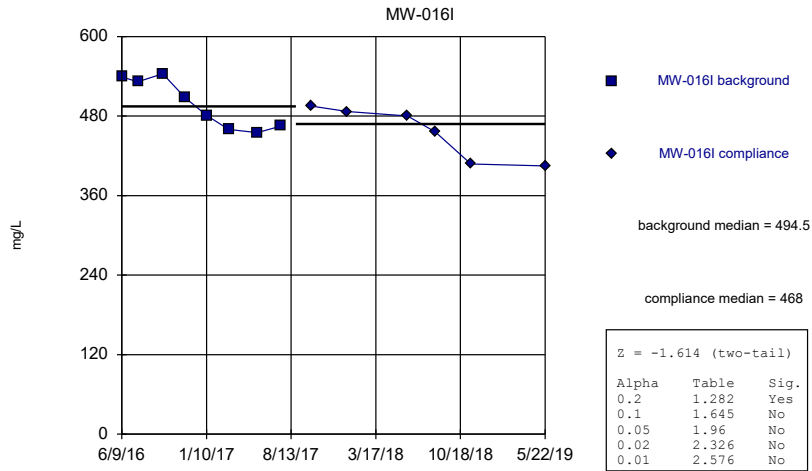
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



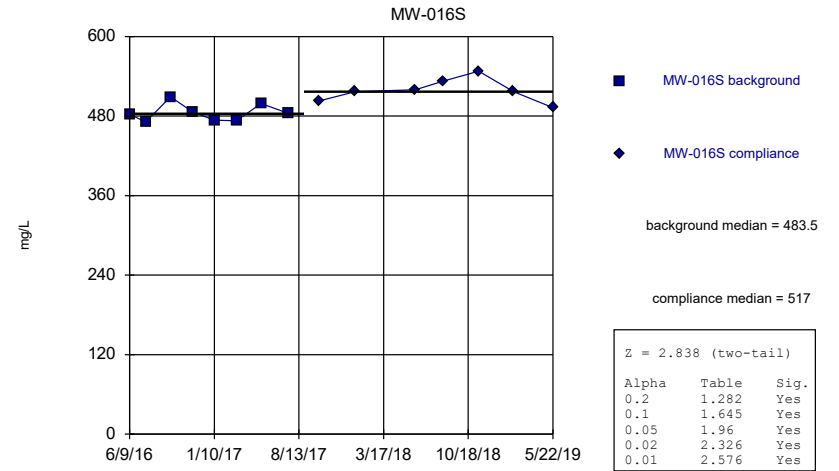
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



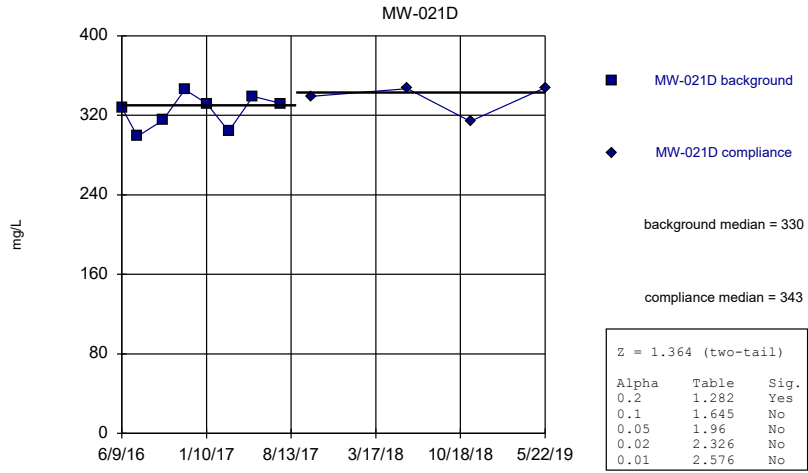
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



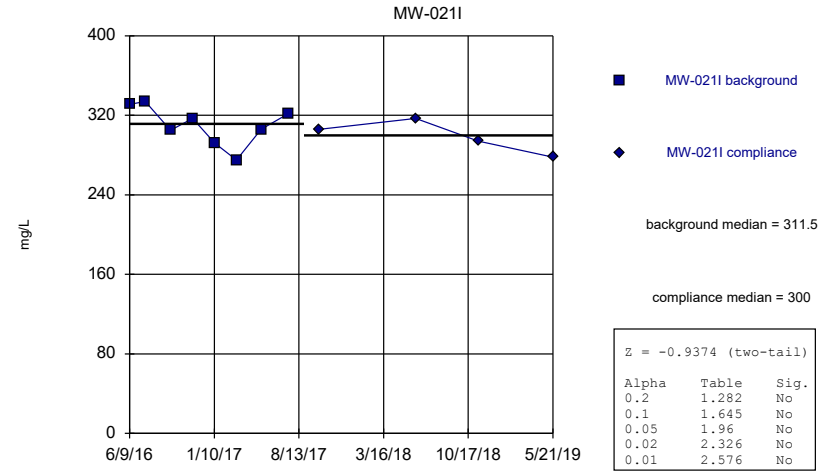
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



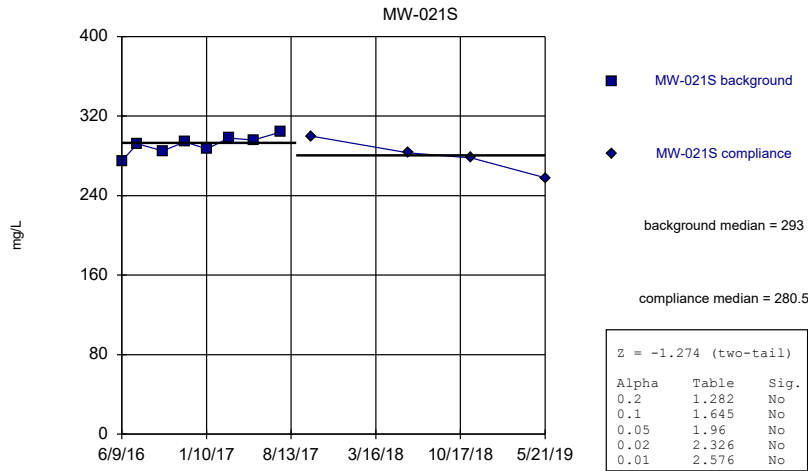
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 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



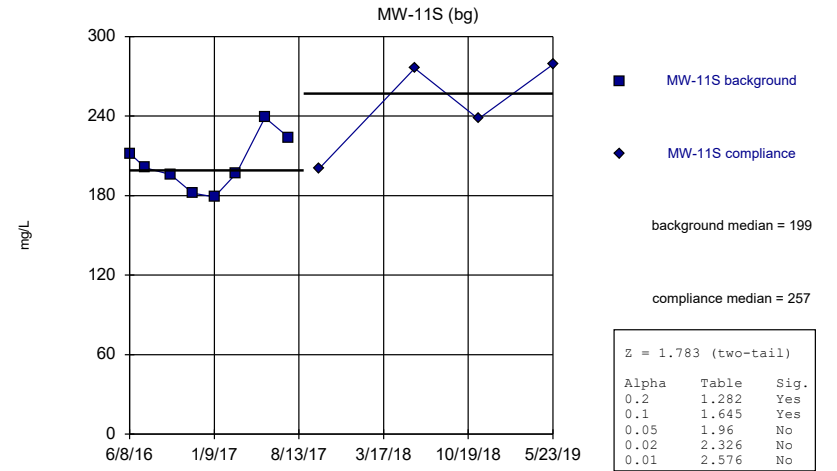
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



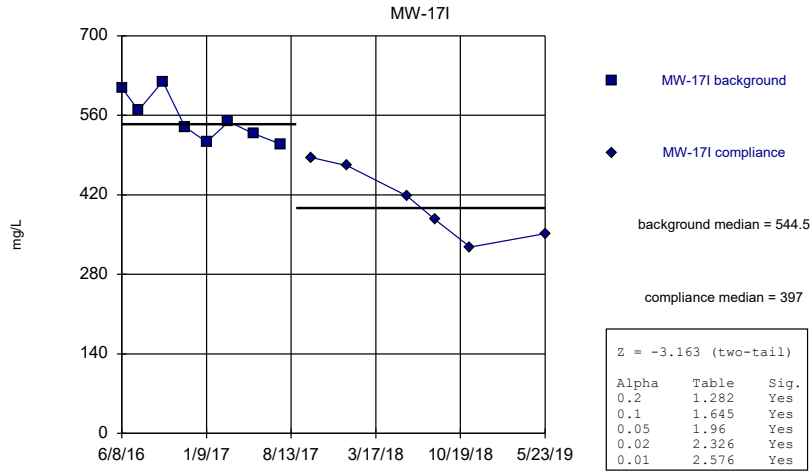
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



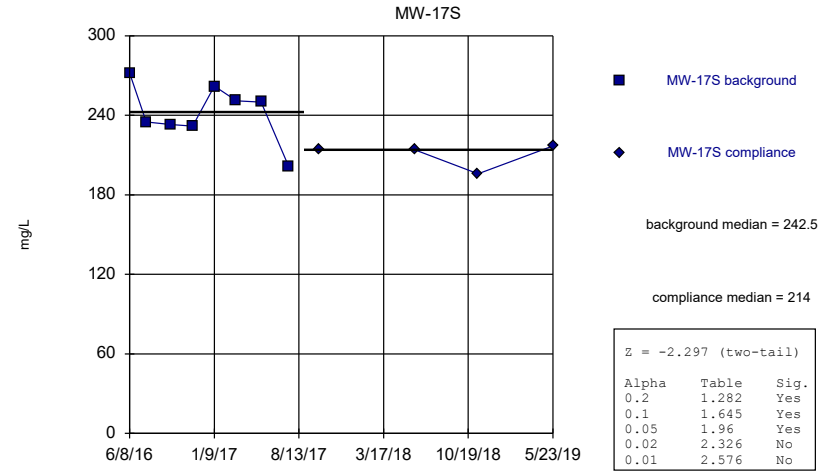
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



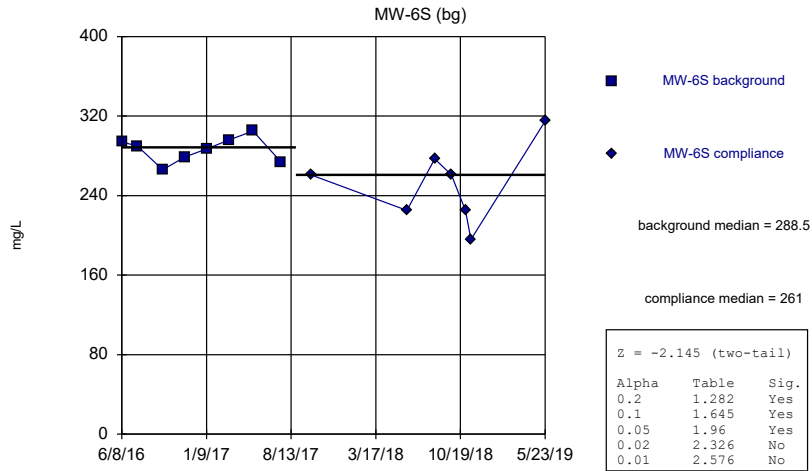
Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: IntraWell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: IntraWell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Mann-Whitney (Wilcoxon Rank Sum)



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:43 PM View: IntraWell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

Interwell Prediction Limit Summary Table - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 1:02 PM

Constituent	Well	Upper Lim	Lower Lim	Date	Observ.	Sig.	Bg	NBg	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron, total (mg/L)	MW-001D	0.1507	n/a	n/a	1 future	n/a	14	0.169	0.08185	7.143	None	sqrt(x)	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-001I	0.1215	n/a	n/a	1 future	n/a	13	0.04008	0.02972	0	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-001S	0.06856	n/a	n/a	1 future	n/a	12	0.03067	0.01353	8.333	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-002D	0.1055	n/a	n/a	1 future	n/a	13	0.0392	0.0242	23.08	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-002I	0.06316	n/a	n/a	1 future	n/a	14	0.02636	0.01374	21.43	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-002S	0.1196	n/a	n/a	1 future	n/a	12	0.0434	0.0272	16.67	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-008I	0.1175	n/a	n/a	1 future	n/a	12	0.039	0.02803	0	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-008S	0.06992	n/a	n/a	1 future	n/a	12	0.0272	0.01526	16.67	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-014S	0.06462	n/a	n/a	1 future	n/a	12	0.0243	0.0144	16.67	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-015I	0.09763	n/a	n/a	1 future	n/a	13	0.04492	0.01924	0	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-015S	0.1463	n/a	n/a	1 future	n/a	12	0.05311	0.03327	25	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-016D	0.1151	n/a	n/a	1 future	n/a	12	0.03417	0.02892	0	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-016I	0.1558	n/a	n/a	1 future	n/a	13	0.2007	0.07084	0	None	sqrt(x)	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-016S	0.1467	n/a	n/a	1 future	n/a	14	0.2033	0.06711	0	None	sqrt(x)	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-021D	0.1151	n/a	n/a	1 future	n/a	13	0.03615	0.02884	7.692	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-021I	0.08313	n/a	n/a	1 future	n/a	12	0.02566	0.02052	16.67	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-021S	0.06949	n/a	n/a	1 future	n/a	13	0.02255	0.01714	15.38	Kaplan-Meier	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-11S	0.1267	n/a	n/a	1 future	n/a	12	0.0675	0.02114	0	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-17I	0.1052	n/a	n/a	1 future	n/a	12	0.05883	0.01656	0	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-17S	0.07506	n/a	n/a	1 future	n/a	12	0.02892	0.01648	0	None	No	0.0004702	Param Intra	1 of 2
Boron, total (mg/L)	MW-6S	0.1341	n/a	n/a	1 future	n/a	15	0.04653	0.03346	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-001D	79.44	n/a	n/a	1 future	n/a	12	66.93	4.467	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-001I	72.31	n/a	n/a	1 future	n/a	12	65.15	2.559	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-001S	79.76	n/a	n/a	1 future	n/a	12	69.94	3.505	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-002D	114	n/a	n/a	1 future	n/a	13	n/a	n/a	0	n/a	n/a	0.009692	NP Intra (normality)	1 of 2
Calcium, total (mg/L)	MW-002I	79.89	n/a	n/a	1 future	n/a	12	69.32	3.776	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-002S	66.98	n/a	n/a	1 future	n/a	12	56.36	3.795	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-008I	83.9	n/a	n/a	1 future	n/a	12	72.74	3.986	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-008S	50.76	n/a	n/a	1 future	n/a	12	41.78	3.211	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-014S	72.66	n/a	n/a	1 future	n/a	12	62.43	3.657	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-015I	54.95	n/a	n/a	1 future	n/a	12	46.13	3.147	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-015S	70.45	n/a	n/a	1 future	n/a	12	6.947	0.5166	0	None	sqrt(x)	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-016D	100.4	n/a	n/a	1 future	n/a	15	80.21	7.728	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-016I	129.6	n/a	n/a	1 future	n/a	14	83.89	17.08	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-016S	121.6	n/a	n/a	1 future	n/a	14	100.3	7.95	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-021D	82.82	n/a	n/a	1 future	n/a	12	69.64	4.707	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-021I	72.8	n/a	n/a	1 future	n/a	12	64.21	3.068	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-021S	63.4	n/a	n/a	1 future	n/a	12	55.44	2.841	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-11S	63.72	n/a	n/a	1 future	n/a	12	45.13	6.64	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-17I	112.1	n/a	n/a	1 future	n/a	8	60.44	15.02	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-17S	40.89	n/a	n/a	1 future	n/a	12	34.74	2.196	0	None	No	0.0004702	Param Intra	1 of 2
Calcium, total (mg/L)	MW-6S	57.97	n/a	n/a	1 future	n/a	15	47.09	4.158	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-001D	62.38	n/a	n/a	1 future	n/a	13	35.65	9.756	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-001I	36.15	n/a	n/a	1 future	n/a	15	27.49	3.308	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-001S	43.03	n/a	n/a	1 future	n/a	17	33.78	3.663	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-002D	26.04	n/a	n/a	1 future	n/a	8	22.94	0.9039	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-002I	33.78	n/a	n/a	1 future	n/a	14	28.46	1.987	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-002S	29.81	n/a	n/a	1 future	n/a	15	23.24	2.51	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-008I	22.83	n/a	n/a	1 future	n/a	13	20.93	0.6945	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-008S	25.28	n/a	n/a	1 future	n/a	13	22.56	0.9921	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-014S	31.58	n/a	n/a	1 future	n/a	13	28.58	1.096	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-015I	72.21	n/a	n/a	1 future	n/a	13	35.48	13.41	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-015S	28.55	n/a	n/a	1 future	n/a	12	15.07	4.815	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-016D	75.49	n/a	n/a	1 future	n/a	8	67.79	2.241	0	None	No	0.0004702	Param Intra	1 of 2
Chloride, total (mg/L)	MW-016I	106.4	n/a	n/a	1 future	n/a	14	60.32	17.21	0	None	No	0.0004702	Param Intra	1 of 2

Interwell Prediction Limit Summary Table - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 1:02 PM

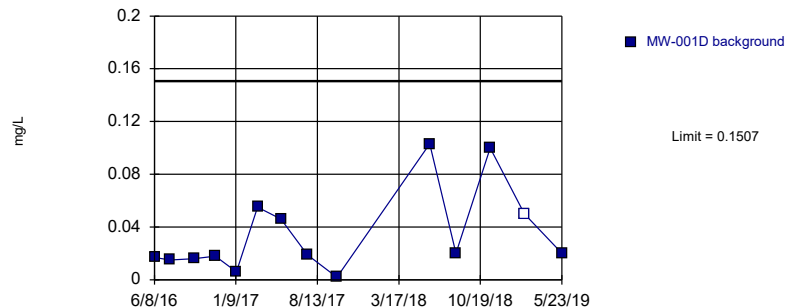
Constituent	Well	Upper Lim	Lower Lim	Date	Obsrv.	Sig.	Bg	NBg	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Chloride, total (mg/L)	MW-016S	23.59	n/a	n/a	1 future	n/a	12	18.46	1.833	0	None	None	No	0.0004702	Param Intra 1 of 2
Chloride, total (mg/L)	MW-021D	20.46	n/a	n/a	1 future	n/a	12	19.23	0.4376	0	None	None	No	0.0004702	Param Intra 1 of 2
Chloride, total (mg/L)	MW-021I	22.8	n/a	n/a	1 future	n/a	12	20.29	0.8959	0	None	None	No	0.0004702	Param Intra 1 of 2
Chloride, total (mg/L)	MW-021S	19.85	n/a	n/a	1 future	n/a	15	16.19	1.398	0	None	None	No	0.0004702	Param Intra 1 of 2
Chloride, total (mg/L)	MW-11S	18.72	n/a	n/a	1 future	n/a	13	1.075	0.6769	0	None	In(x)	0.0004702	Param Intra 1 of 2	
Chloride, total (mg/L)	MW-17I	200.6	n/a	n/a	1 future	n/a	8	88.45	32.64	0	None	None	No	0.0004702	Param Intra 1 of 2
Chloride, total (mg/L)	MW-17S	16.12	n/a	n/a	1 future	n/a	12	3.418	0.2133	0	None	sqrt(x)	0.0004702	Param Intra 1 of 2	
Chloride, total (mg/L)	MW-6S	13.59	n/a	n/a	1 future	n/a	15	6.349	2.767	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-001D	0.3387	n/a	n/a	1 future	n/a	12	0.2808	0.02065	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-001I	0.4725	n/a	n/a	1 future	n/a	12	0.3725	0.03571	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-001S	0.6858	n/a	n/a	1 future	n/a	12	0.5925	0.03334	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-002D	0.2315	n/a	n/a	1 future	n/a	12	0.1975	0.01215	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-002I	0.3723	n/a	n/a	1 future	n/a	12	0.3117	0.02167	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-002S	0.3275	n/a	n/a	1 future	n/a	13	0.2685	0.02154	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-008I	0.388	n/a	n/a	1 future	n/a	13	0.2962	0.03355	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-008S	0.6432	n/a	n/a	1 future	n/a	13	0.5392	0.03796	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-014S	0.4204	n/a	n/a	1 future	n/a	13	0.3608	0.02178	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-015I	0.3665	n/a	n/a	1 future	n/a	13	0.2608	0.03861	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-015S	1.047	n/a	n/a	1 future	n/a	13	0.6385	0.1492	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-016D	0.22	n/a	n/a	1 future	n/a	12	n/a	n/a	0	n/a	n/a	0.01077	NP Intra (normality) 1 of 2	
Fluoride, total (mg/L)	MW-016I	0.2272	n/a	n/a	1 future	n/a	12	0.1292	0.03502	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-016S	0.5104	n/a	n/a	1 future	n/a	12	0.3833	0.04539	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-021D	0.4251	n/a	n/a	1 future	n/a	12	0.3492	0.02712	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-021I	0.4086	n/a	n/a	1 future	n/a	12	0.3367	0.0257	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-021S	0.719	n/a	n/a	1 future	n/a	13	0.61	0.03979	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-11S	1.112	n/a	n/a	1 future	n/a	13	0.8146	0.1084	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-17I	1.254	n/a	n/a	1 future	n/a	8	1.018	0.06882	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-17S	1.321	n/a	n/a	1 future	n/a	12	0.7783	0.1938	0	None	None	No	0.0004702	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-6S	1.179	n/a	n/a	1 future	n/a	15	0.736	0.1692	0	None	None	No	0.0004702	Param Intra 1 of 2
pH, field (SU)	MW-001D	8.313	6.64	n/a	1 future	n/a	15	7.477	0.3196	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-001I	7.966	6.543	n/a	1 future	n/a	16	7.254	0.2784	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-001S	8.116	6.682	n/a	1 future	n/a	17	7.399	0.2841	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-002D	8.51	6.28	n/a	1 future	n/a	16	n/a	n/a	0	n/a	n/a	0.01291	NP Intra (normality) 1 of 2	
pH, field (SU)	MW-002I	8.466	6.553	n/a	1 future	n/a	15	7.509	0.3654	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-002S	8.097	6.447	n/a	1 future	n/a	15	176756	40112	0	None	x^6	0.0002351	Param Intra 1 of 2	
pH, field (SU)	MW-008I	8.048	6.801	n/a	1 future	n/a	13	7.425	0.2278	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-008S	8.123	6.877	n/a	1 future	n/a	13	7.5	0.2276	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-014S	8.038	6.455	n/a	1 future	n/a	13	7.246	0.289	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-015I	8.209	6.69	n/a	1 future	n/a	15	7.449	0.2901	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-015S	7.789	6.823	n/a	1 future	n/a	12	7.306	0.1725	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-016D	7.893	6.778	n/a	1 future	n/a	16	7.336	0.218	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-016I	7.874	6.833	n/a	1 future	n/a	15	7.353	0.1988	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-016S	8.222	6.155	n/a	1 future	n/a	15	7.189	0.3948	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-021D	8.641	6.599	n/a	1 future	n/a	13	7.62	0.3728	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-021I	8.56	7.3	n/a	1 future	n/a	13	n/a	n/a	0	n/a	n/a	0.01938	NP Intra (normality) 1 of 2	
pH, field (SU)	MW-021S	8.84	6.362	n/a	1 future	n/a	15	7.601	0.4734	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-11S	8.816	6.622	n/a	1 future	n/a	13	7.719	0.4004	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-17I	8.106	6.744	n/a	1 future	n/a	18	7.425	0.2731	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-17S	7.933	7.11	n/a	1 future	n/a	12	7.522	0.1471	0	None	None	No	0.0002351	Param Intra 1 of 2
pH, field (SU)	MW-6S	8.342	6.966	n/a	1 future	n/a	14	7.654	0.2569	0	None	None	No	0.0002351	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-001D	48.13	n/a	n/a	1 future	n/a	12	38.58	3.411	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-001I	47.95	n/a	n/a	1 future	n/a	12	42.57	1.922	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-001S	38.46	n/a	n/a	1 future	n/a	12	33.15	1.895	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-002D	47.96	n/a	n/a	1 future	n/a	12	39.14	3.149	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-002I	49.52	n/a	n/a	1 future	n/a	12	41.53	2.852	0	None	None	No	0.0004702	Param Intra 1 of 2

Interwell Prediction Limit Summary Table - All Results

Rockport Landfill Client: Geosyntec Data: Rockport_LF Printed 1/28/2020, 1:02 PM

Constituent	Well	Upper Lim	Lower Lim	Date	Observ.	Sig.	Bg	N Bg	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Sulfate, total (mg/L)	MW-002S	35.27	n/a	n/a	1 future	n/a	12	27.53	2.766	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-008I	100.2	n/a	n/a	1 future	n/a	13	79.89	7.398	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-008S	28.54	n/a	n/a	1 future	n/a	13	22.69	2.136	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-014S	39.09	n/a	n/a	1 future	n/a	13	32.45	2.424	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-015I	48.16	n/a	n/a	1 future	n/a	13	30.72	6.368	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-015S	38.94	n/a	n/a	1 future	n/a	12	21.84	6.106	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-016D	42.51	n/a	n/a	1 future	n/a	13	36.68	2.13	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-016I	45.03	n/a	n/a	1 future	n/a	12	36.37	3.093	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-016S	53.19	n/a	n/a	1 future	n/a	12	41.65	4.121	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-021D	43.18	n/a	n/a	1 future	n/a	12	36.55	2.368	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-021I	51.93	n/a	n/a	1 future	n/a	12	42.83	3.247	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-021S	24.59	n/a	n/a	1 future	n/a	13	18.04	2.391	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-11S	25.11	n/a	n/a	1 future	n/a	13	11.06	5.127	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-17I	58.09	n/a	n/a	1 future	n/a	13	42.75	5.603	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-17S	17.13	n/a	n/a	1 future	n/a	12	11.07	2.167	0	None	None	No	0.0004702	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-6S	25.24	n/a	n/a	1 future	n/a	15	11.59	5.216	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-001D	364.2	n/a	n/a	1 future	n/a	12	4.1e12	8.1e11	0	None	x^5	0.0004702	Param Intra 1 of 2	
Total Dissolved Solids [TDS] (mg/L)	MW-001I	354.5	n/a	n/a	1 future	n/a	12	322.4	11.45	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-001S	422	n/a	n/a	1 future	n/a	12	396.4	9.12	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-002D	373.8	n/a	n/a	1 future	n/a	11	336.8	12.69	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-002I	382	n/a	n/a	1 future	n/a	12	333.4	17.34	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-002S	378.7	n/a	n/a	1 future	n/a	13	307.2	26.12	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-008I	415.1	n/a	n/a	1 future	n/a	12	379.5	12.72	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-008S	358.3	n/a	n/a	1 future	n/a	12	318.3	14.31	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-014S	403.1	n/a	n/a	1 future	n/a	12	364.7	13.73	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-015I	429.9	n/a	n/a	1 future	n/a	12	315.7	40.8	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-015S	438.7	n/a	n/a	1 future	n/a	12	300.8	49.24	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-016D	397.9	n/a	n/a	1 future	n/a	8	348.6	14.35	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-016I	594.6	n/a	n/a	1 future	n/a	14	479.6	42.94	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-016S	561.2	n/a	n/a	1 future	n/a	15	500.7	23.13	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-021D	375.9	n/a	n/a	1 future	n/a	12	328.6	16.89	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-021I	359.7	n/a	n/a	1 future	n/a	12	306.4	19.05	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-021S	323.5	n/a	n/a	1 future	n/a	12	287.5	12.85	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-11S	312.4	n/a	n/a	1 future	n/a	12	218.6	33.51	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-17I	736.3	n/a	n/a	1 future	n/a	14	490.6	91.76	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-17S	298.5	n/a	n/a	1 future	n/a	12	231.4	23.97	0	None	None	No	0.0004702	Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	MW-6S	355.8	n/a	n/a	1 future	n/a	15	270.1	32.78	0	None	None	No	0.0004702	Param Intra 1 of 2

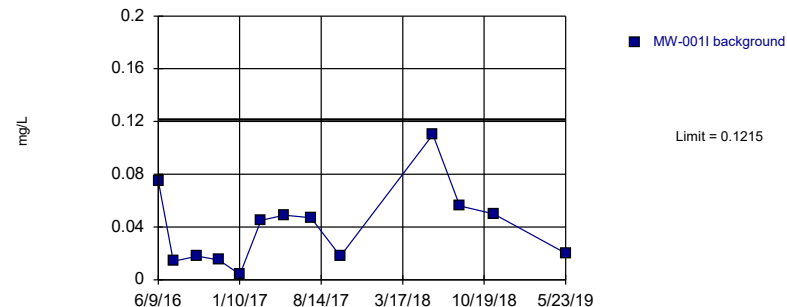
Prediction Limit
Intrawell Parametric, MW-001D



Background Data Summary (based on square root transformation): Mean=0.169, Std. Dev.=0.08185, n=14, 7.143% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9025, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

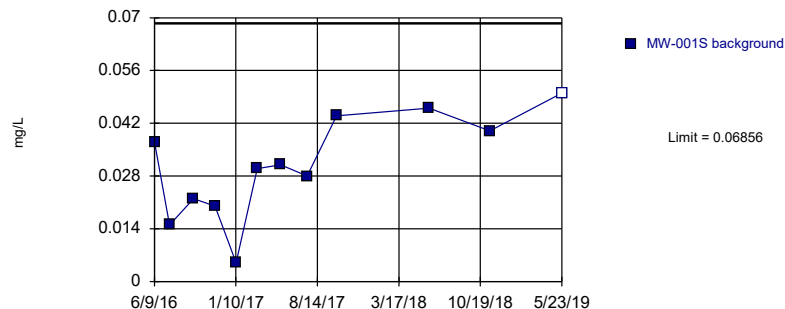
Prediction Limit
Intrawell Parametric, MW-0011



Background Data Summary: Mean=0.04008, Std. Dev.=0.02972, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8931, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

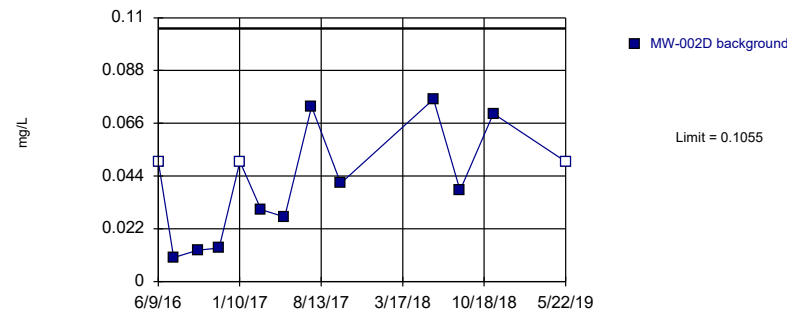
Prediction Limit
Intrawell Parametric, MW-001S



Background Data Summary: Mean=0.03067, Std. Dev.=0.01353, n=12, 8.333% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9738, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

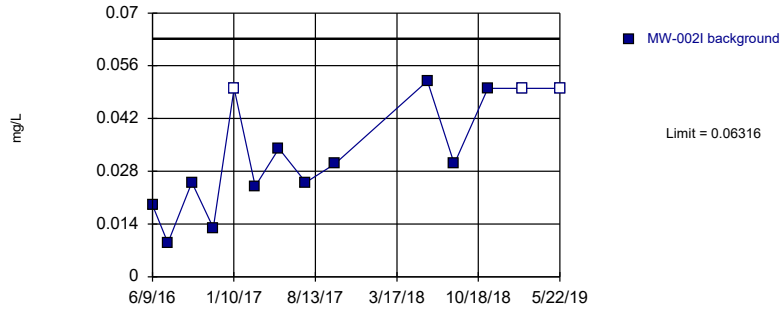
Prediction Limit
Intrawell Parametric, MW-002D



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0392, Std. Dev.=0.0242, n=13, 23.08% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9328, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

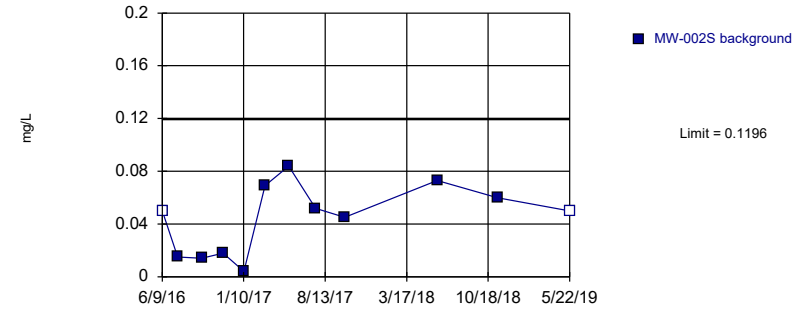
Prediction Limit
Intrawell Parametric, MW-002I



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.02636, Std. Dev.=0.01374, n=14, 21.43% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8889, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

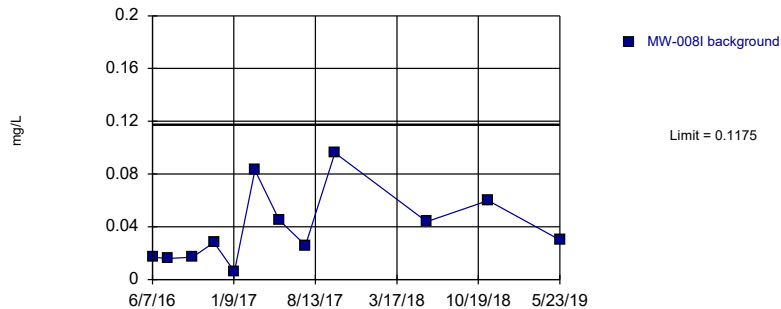
Prediction Limit
Intrawell Parametric, MW-002S



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0434, Std. Dev.=0.0272, n=12, 16.67% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9307, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

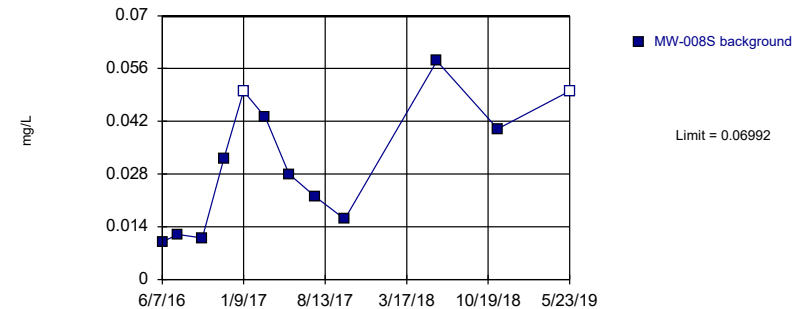
Prediction Limit
Intrawell Parametric, MW-008I (bg)



Background Data Summary: Mean=0.039, Std. Dev.=0.02803, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8919, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

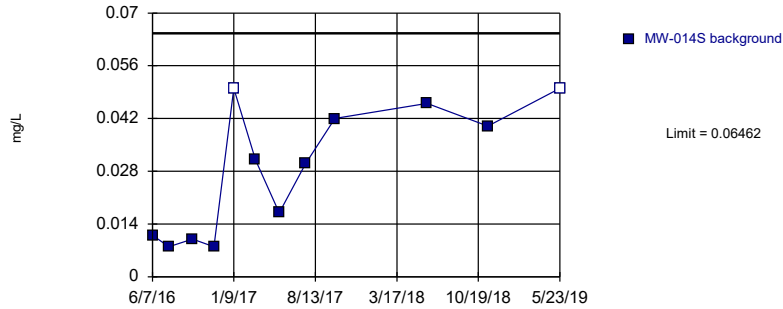
Prediction Limit
Intrawell Parametric, MW-008S (bg)



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0272, Std. Dev.=0.01526, n=12, 16.67% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9207, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

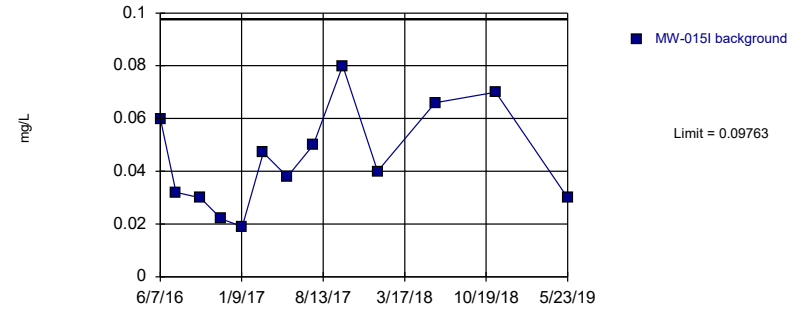
Prediction Limit
Intrawell Parametric, MW-014S (bg)



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0243, Std. Dev.=0.0144, n=12, 16.67% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8674, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

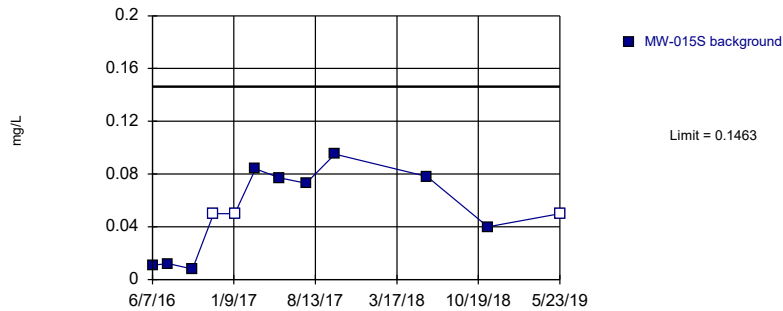
Prediction Limit
Intrawell Parametric, MW-015I



Background Data Summary: Mean=0.04492, Std. Dev.=0.01924, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9485, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

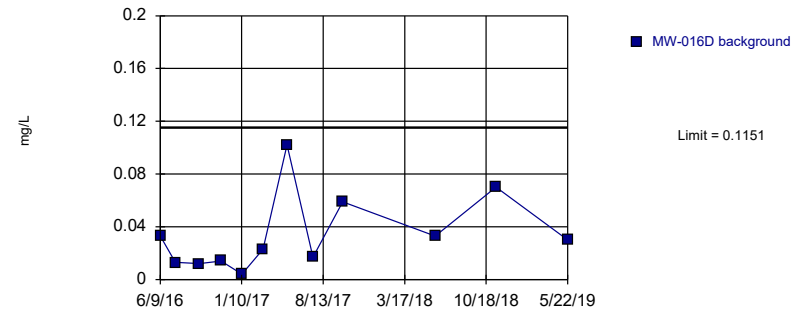
Prediction Limit
Intrawell Parametric, MW-015S



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.05311, Std. Dev.=0.03327, n=12, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.911, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

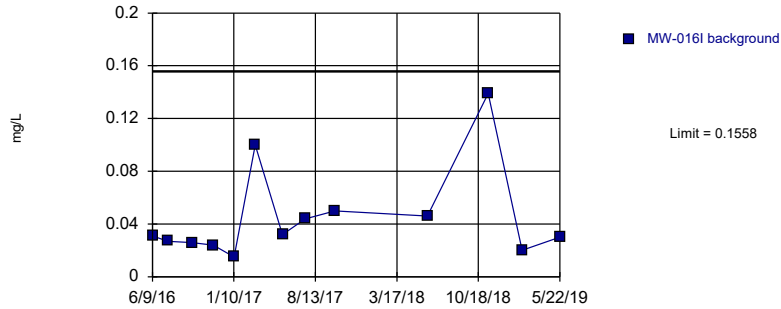
Prediction Limit
Intrawell Parametric, MW-016D



Background Data Summary: Mean=0.03417, Std. Dev.=0.02892, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8503, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

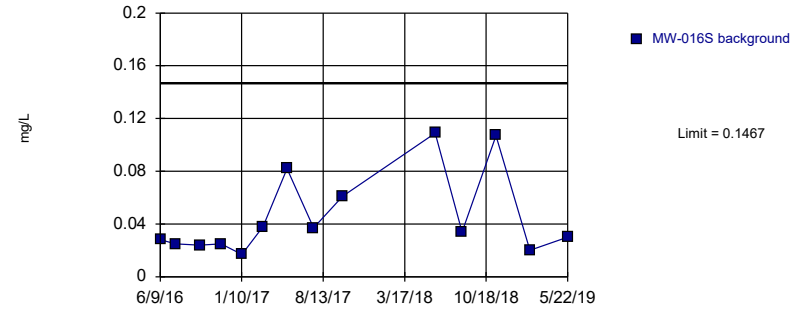
Prediction Limit
Intrawell Parametric, MW-016I



Background Data Summary (based on square root transformation): Mean=0.2007, Std. Dev.=0.07084, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8276, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

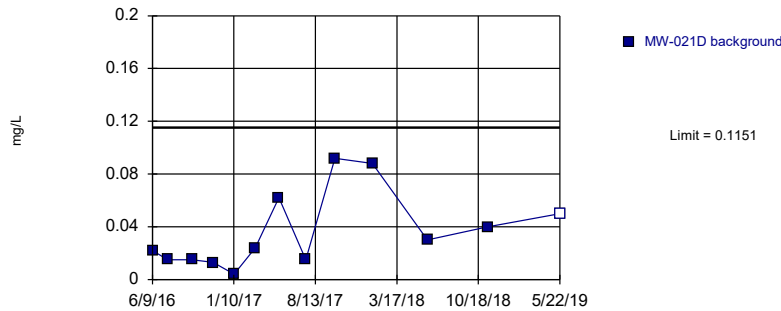
Prediction Limit
Intrawell Parametric, MW-016S



Background Data Summary (based on square root transformation): Mean=0.2033, Std. Dev.=0.06711, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8381, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

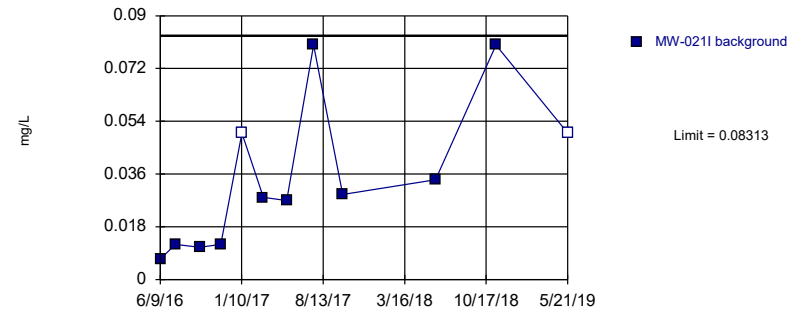
Prediction Limit
Intrawell Parametric, MW-021D



Background Data Summary: Mean=0.03615, Std. Dev.=0.02884, n=13, 7.692% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.859, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

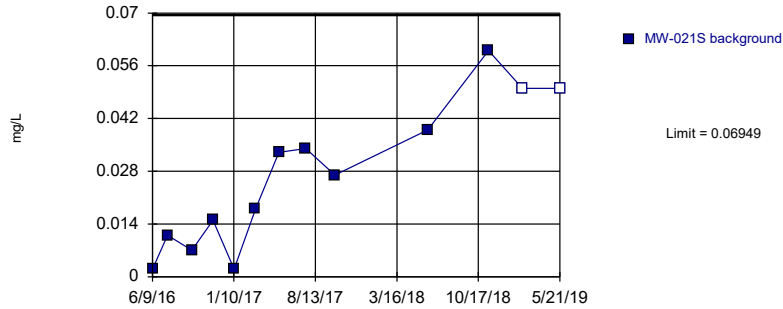
Prediction Limit
Intrawell Parametric, MW-021I



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.02566, Std. Dev.=0.02052, n=12, 16.67% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8725, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

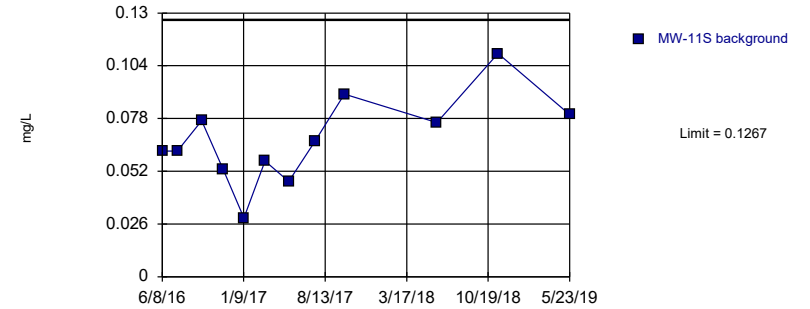
Prediction Limit
 Intrawell Parametric, MW-021S



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.02255, Std. Dev.=0.01714, n=13, 15.38% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9402, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

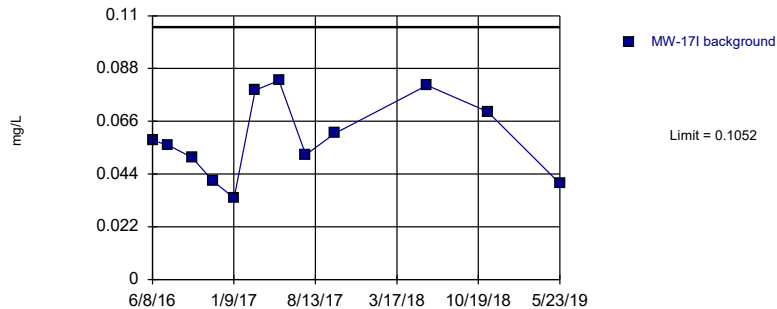
Prediction Limit
 Intrawell Parametric, MW-11S (bg)



Background Data Summary: Mean=0.0675, Std. Dev.=0.02114, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9855, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

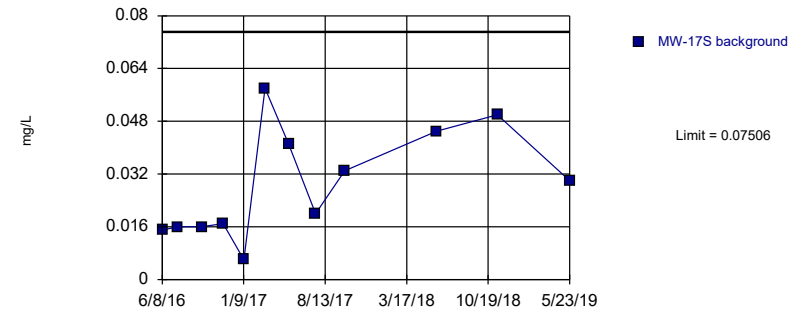
Prediction Limit
 Intrawell Parametric, MW-171



Background Data Summary: Mean=0.05883, Std. Dev.=0.01656, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9408, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

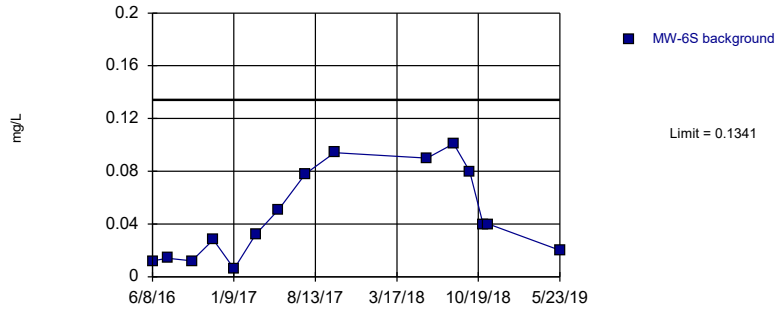
Prediction Limit
 Intrawell Parametric, MW-17S



Background Data Summary: Mean=0.02892, Std. Dev.=0.01648, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9283, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
 Rockport Landfill Client: Geosyntec Data: Rockport_LF

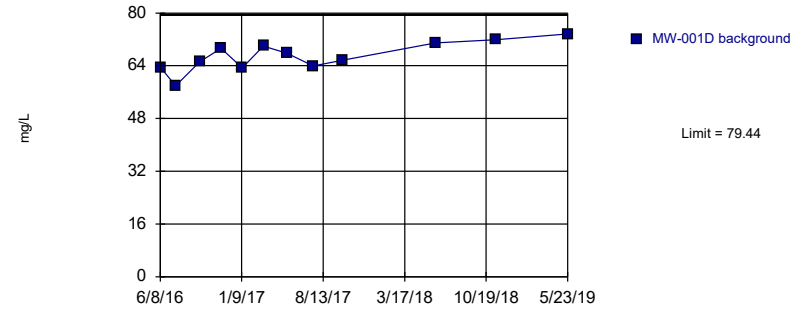
Prediction Limit
Intrawell Parametric, MW-6S (bg)



Background Data Summary: Mean=0.04653, Std. Dev.=0.03346, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8902, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Boron, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

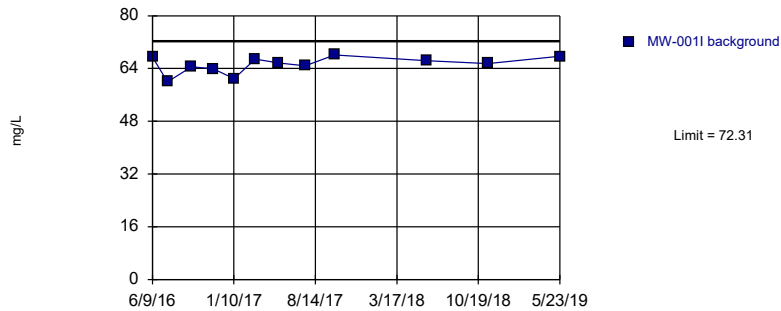
Prediction Limit
Intrawell Parametric, MW-001D



Background Data Summary: Mean=66.93, Std. Dev.=4.467, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9636, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

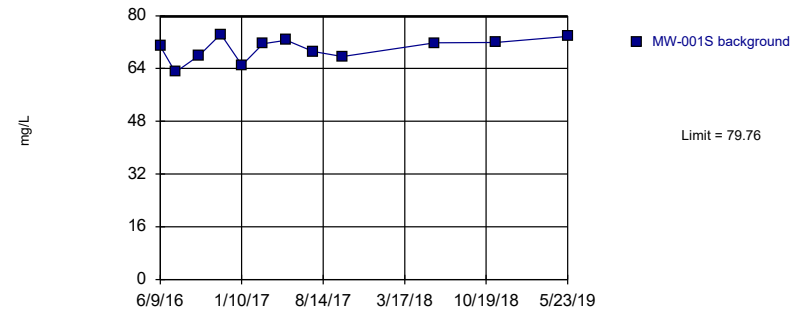
Prediction Limit
Intrawell Parametric, MW-0011



Background Data Summary: Mean=65.15, Std. Dev.=2.559, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9002, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

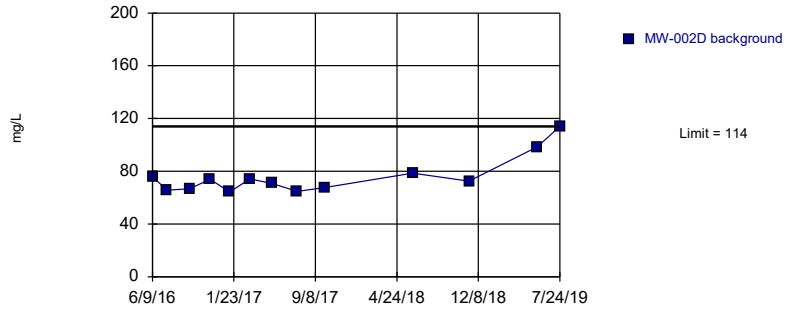
Prediction Limit
Intrawell Parametric, MW-001S



Background Data Summary: Mean=69.94, Std. Dev.=3.505, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9355, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

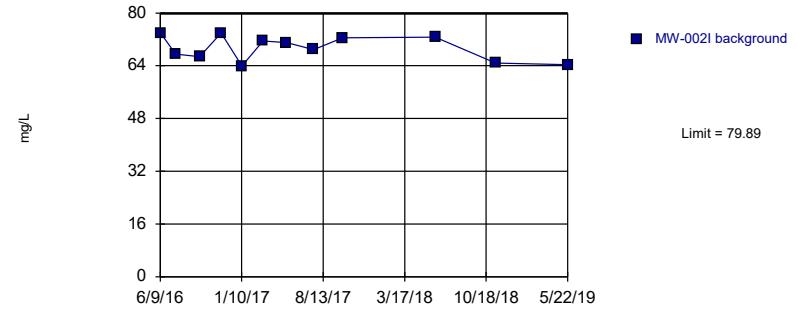
Prediction Limit
Intrawell Non-parametric, MW-002D



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 13 background values. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2). Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

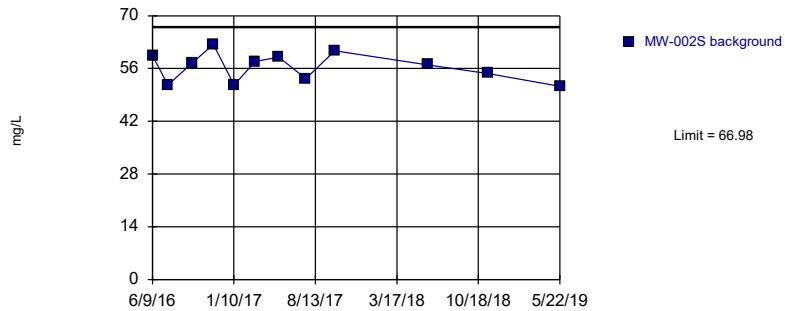
Prediction Limit
Intrawell Parametric, MW-002I



Background Data Summary: Mean=69.32, Std. Dev.=3.776, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9048, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

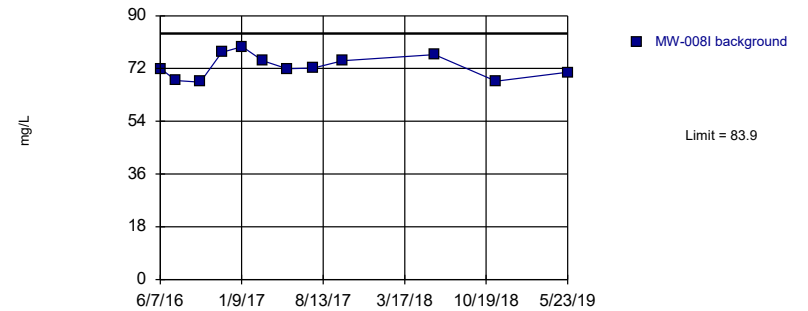
Prediction Limit
Intrawell Parametric, MW-002S



Background Data Summary: Mean=56.36, Std. Dev.=3.795, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.931, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

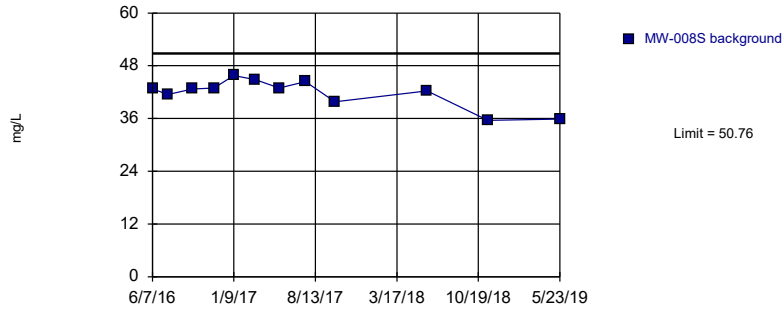
Prediction Limit
Intrawell Parametric, MW-008I (bg)



Background Data Summary: Mean=72.74, Std. Dev.=3.986, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9444, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

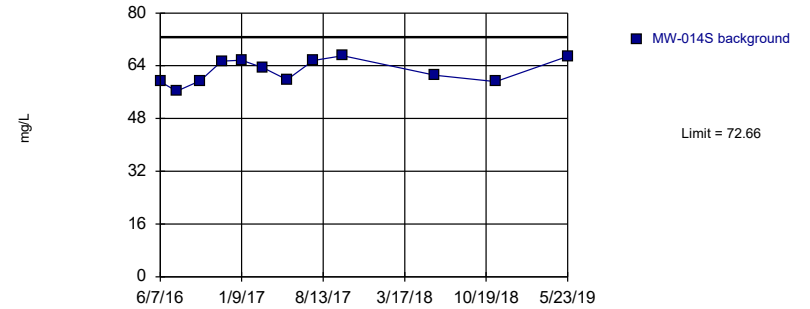
Prediction Limit
Intrawell Parametric, MW-008S (bg)



Background Data Summary: Mean=41.78, Std. Dev.=3.211, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8645, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

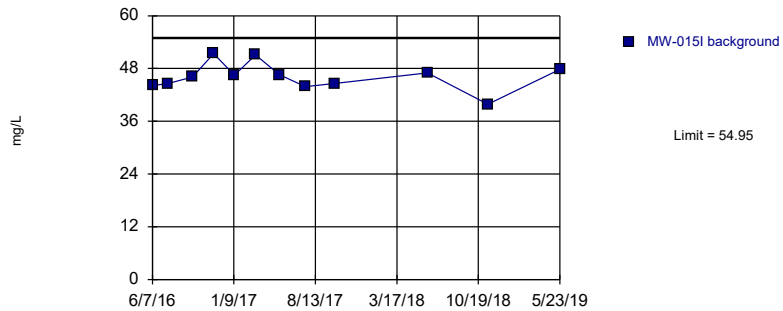
Prediction Limit
Intrawell Parametric, MW-014S (bg)



Background Data Summary: Mean=62.43, Std. Dev.=3.657, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8988, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

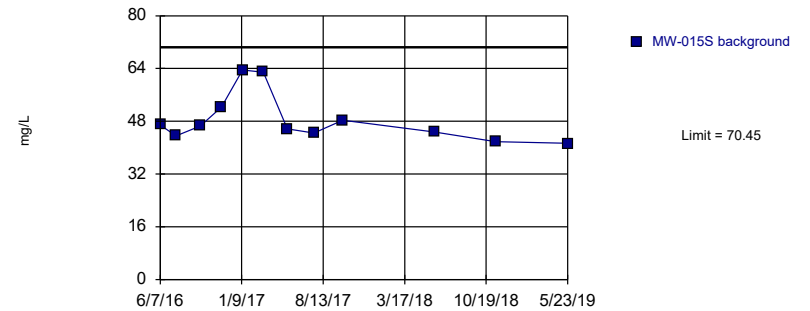
Prediction Limit
Intrawell Parametric, MW-015I



Background Data Summary: Mean=46.13, Std. Dev.=3.147, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9428, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:55 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

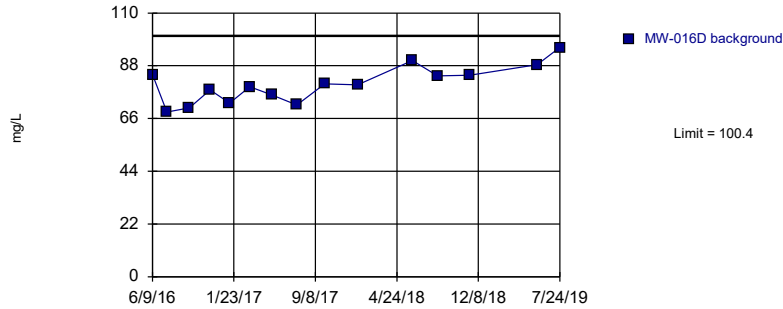
Prediction Limit
Intrawell Parametric, MW-015S



Background Data Summary (based on square root transformation): Mean=6.947, Std. Dev.=0.5166, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8134, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

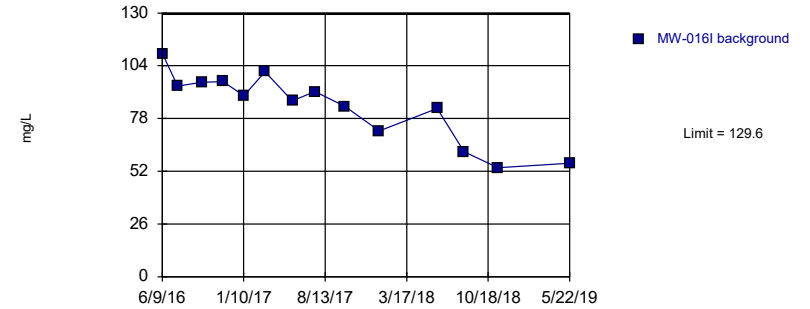
Prediction Limit
Intrawell Parametric, MW-016D



Background Data Summary: Mean=80.21, Std. Dev.=7.728, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9705, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

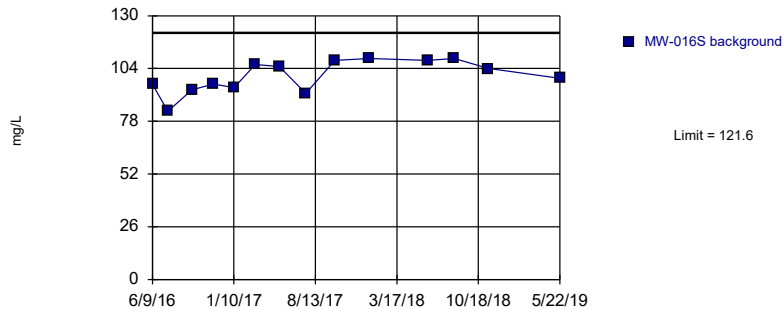
Prediction Limit
Intrawell Parametric, MW-016I



Background Data Summary: Mean=83.89, Std. Dev.=17.08, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9266, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

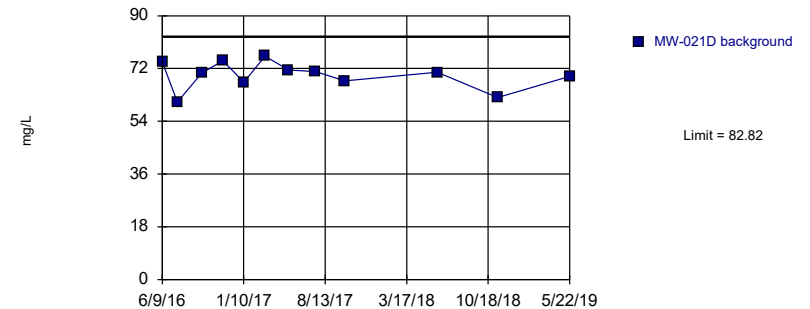
Prediction Limit
Intrawell Parametric, MW-016S



Background Data Summary: Mean=100.3, Std. Dev.=7.95, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9068, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

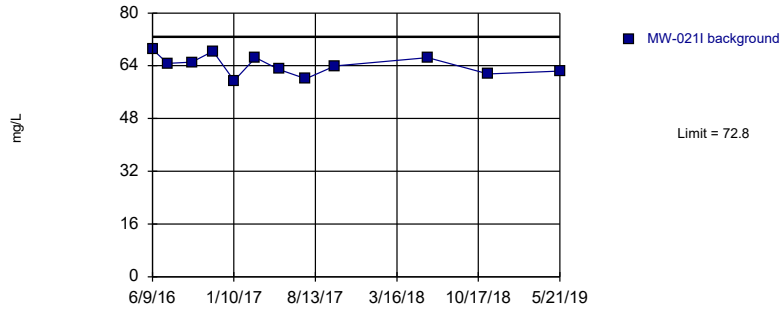
Prediction Limit
Intrawell Parametric, MW-021D



Background Data Summary: Mean=69.64, Std. Dev.=4.707, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9347, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

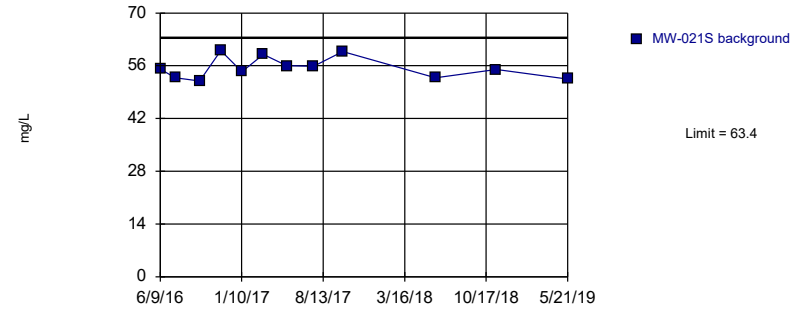
Prediction Limit
Intrawell Parametric, MW-021I



Background Data Summary: Mean=64.21, Std. Dev.=3.068, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9682, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

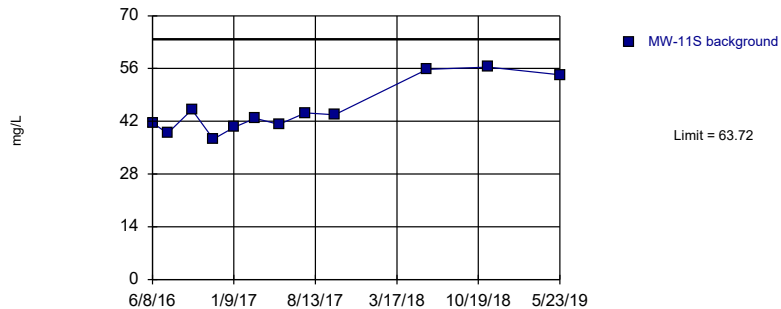
Prediction Limit
Intrawell Parametric, MW-021S



Background Data Summary: Mean=55.44, Std. Dev.=2.841, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8942, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

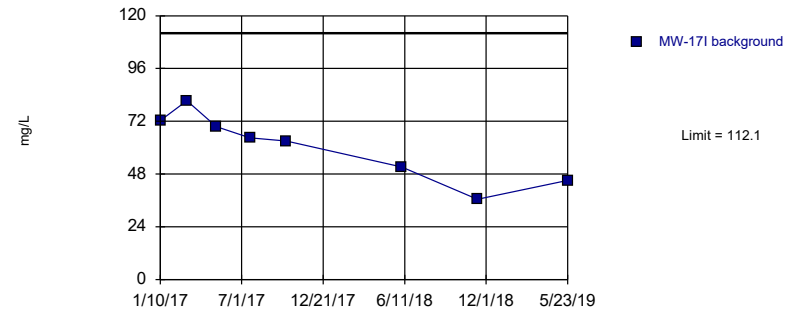
Prediction Limit
Intrawell Parametric, MW-11S (bg)



Background Data Summary: Mean=45.13, Std. Dev.=6.64, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8462, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

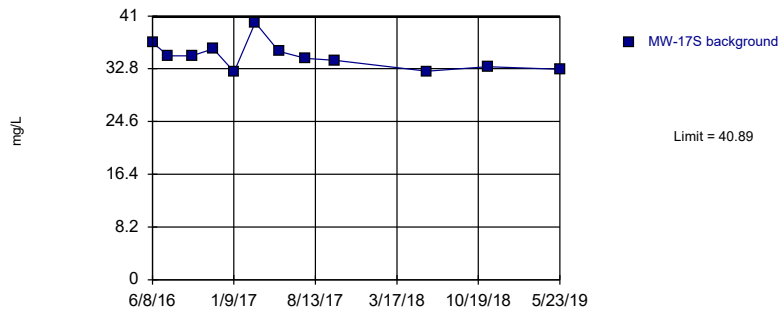
Prediction Limit
Intrawell Parametric, MW-17I



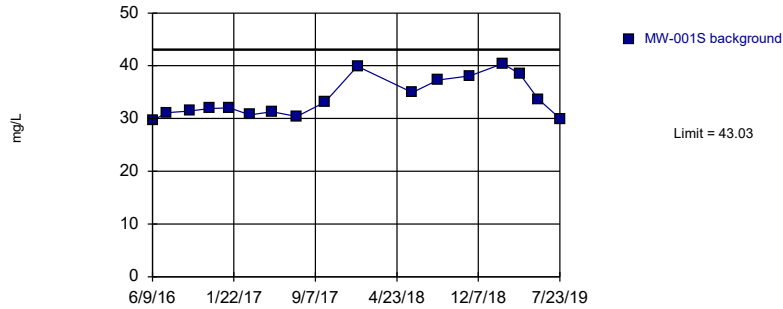
Background Data Summary: Mean=60.44, Std. Dev.=15.02, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9659, critical = 0.749. Kappa = 3.436 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Calcium, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Prediction Limit
Intrawell Parametric, MW-17S



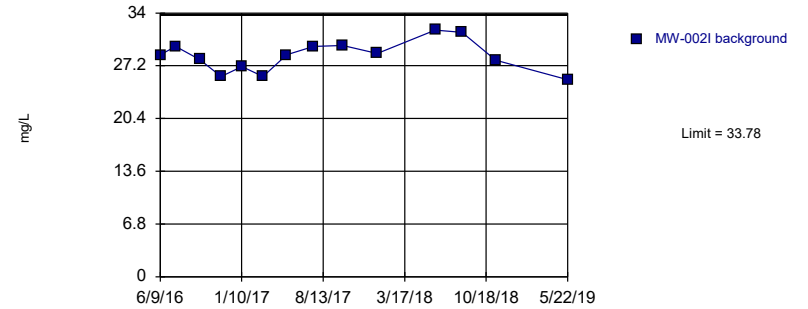
Prediction Limit
Intrawell Parametric, MW-001S



Background Data Summary: Mean=33.78, Std. Dev.=3.663, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8727, critical = 0.851. Kappa = 2.524 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

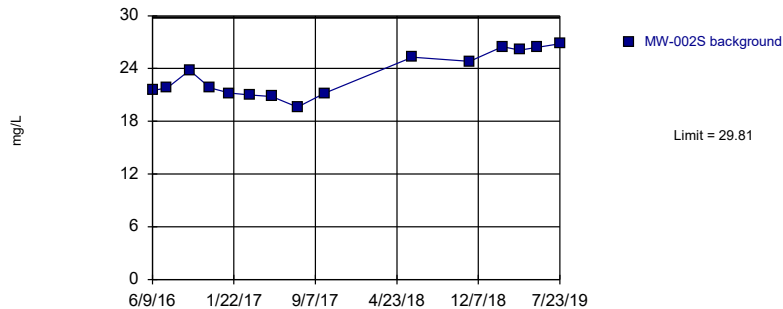
Prediction Limit
Intrawell Parametric, MW-002I



Background Data Summary: Mean=28.46, Std. Dev.=1.987, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9511, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

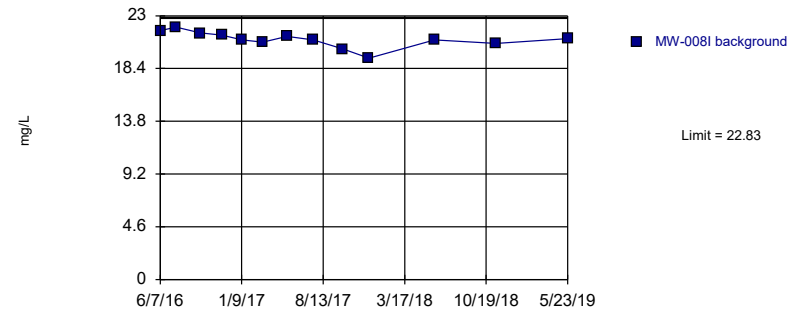
Prediction Limit
Intrawell Parametric, MW-002S



Background Data Summary: Mean=23.24, Std. Dev.=2.51, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8766, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

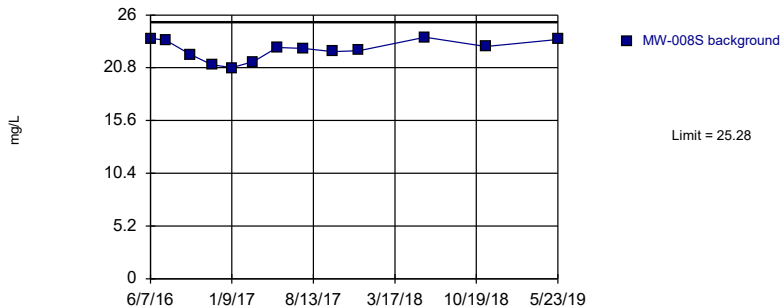
Prediction Limit
Intrawell Parametric, MW-008I (bg)



Background Data Summary: Mean=20.93, Std. Dev.=0.6945, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9435, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

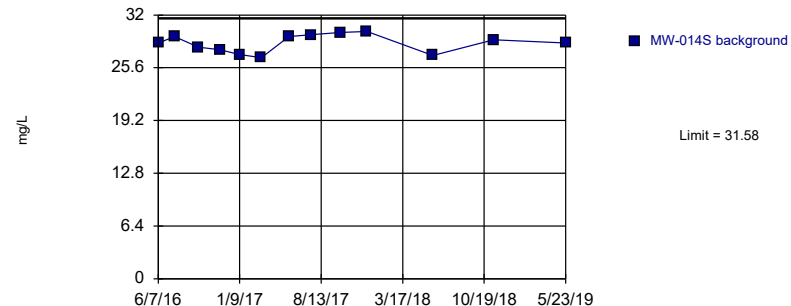
Prediction Limit Intrawell Parametric, MW-008S (bg)



Background Data Summary: Mean=22.56, Std. Dev.=0.9921, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9293, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

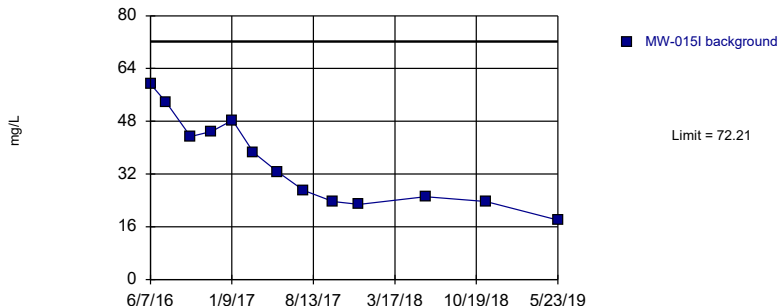
Prediction Limit Intrawell Parametric, MW-014S (bg)



Background Data Summary: Mean=28.58, Std. Dev.=1.096, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9299, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

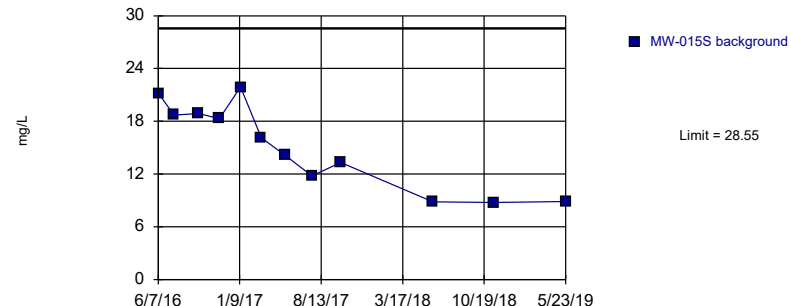
Prediction Limit Intrawell Parametric, MW-015I



Background Data Summary: Mean=35.48, Std. Dev.=13.41, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9227, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

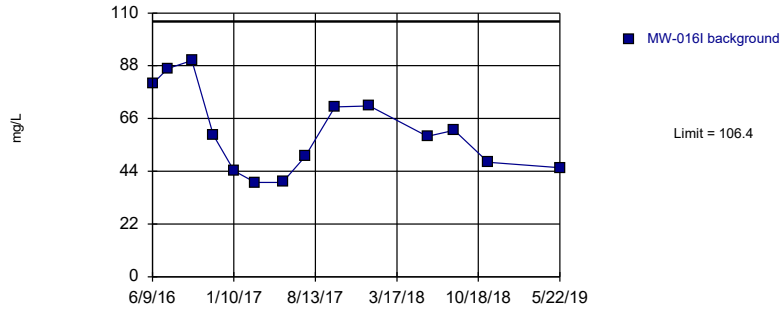
Prediction Limit Intrawell Parametric, MW-015S



Background Data Summary: Mean=15.07, Std. Dev.=4.815, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9132, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

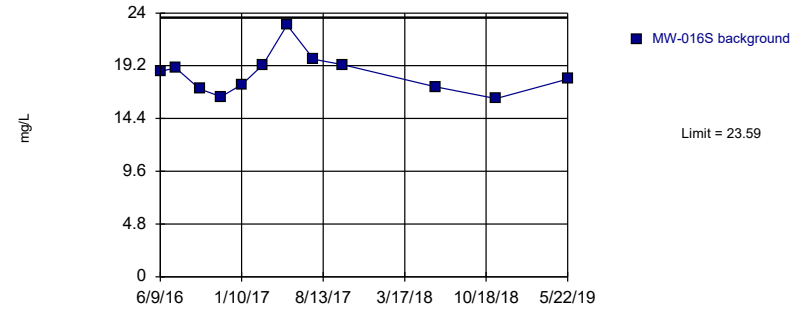
Prediction Limit
Intrawell Parametric, MW-016I



Background Data Summary: Mean=60.32, Std. Dev.=17.21, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9244, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

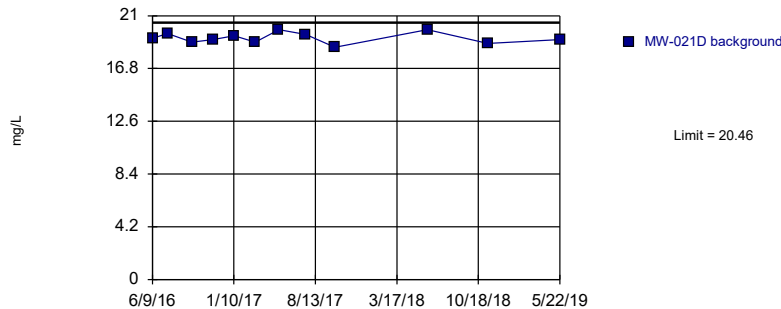
Prediction Limit
Intrawell Parametric, MW-016S



Background Data Summary: Mean=18.46, Std. Dev.=1.833, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9079, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

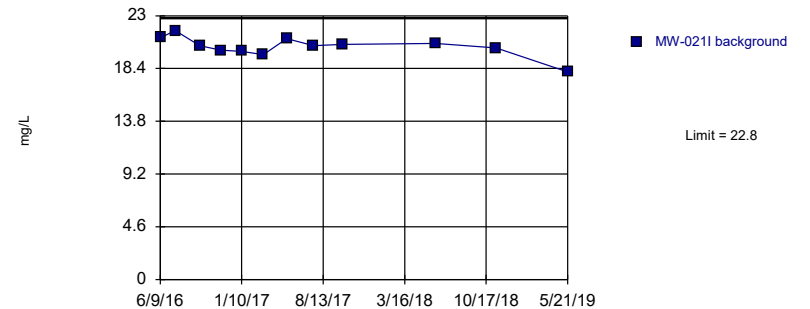
Prediction Limit
Intrawell Parametric, MW-021D



Background Data Summary: Mean=19.23, Std. Dev.=0.4376, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9604, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

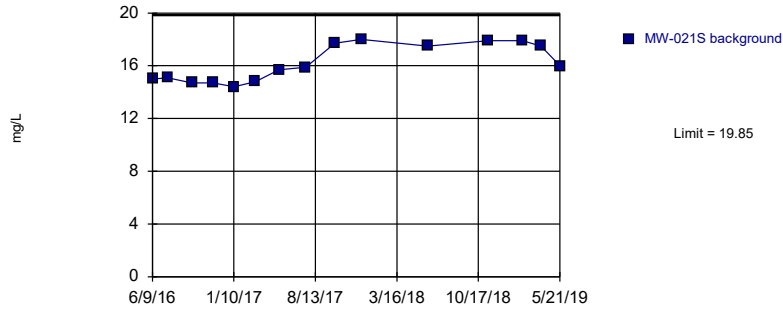
Prediction Limit
Intrawell Parametric, MW-021I



Background Data Summary: Mean=20.29, Std. Dev.=0.8959, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9204, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

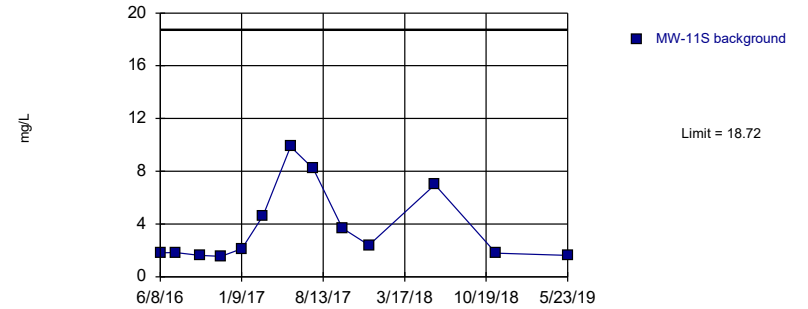
Prediction Limit
Intrawell Parametric, MW-021S



Background Data Summary: Mean=16.19, Std. Dev.=1.398, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8477, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

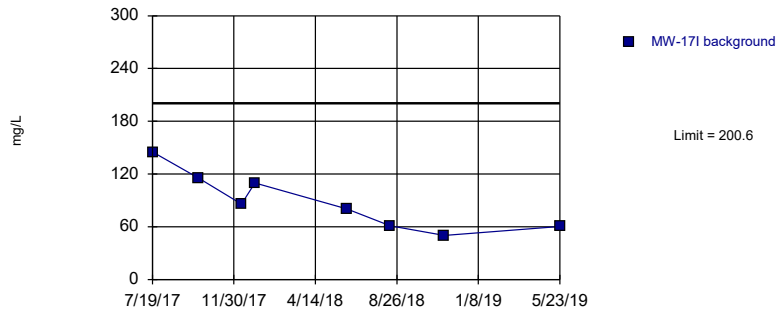
Prediction Limit
Intrawell Parametric, MW-11S (bg)



Background Data Summary (based on natural log transformation): Mean=1.075, Std. Dev.=0.6769, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8336, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

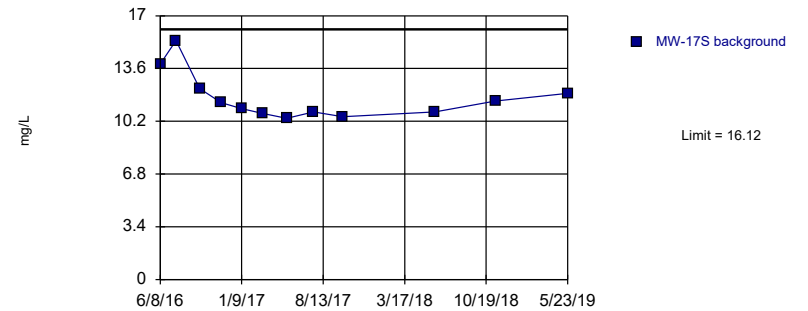
Prediction Limit
Intrawell Parametric, MW-171



Background Data Summary: Mean=88.45, Std. Dev.=32.64, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9376, critical = 0.749. Kappa = 3.436 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

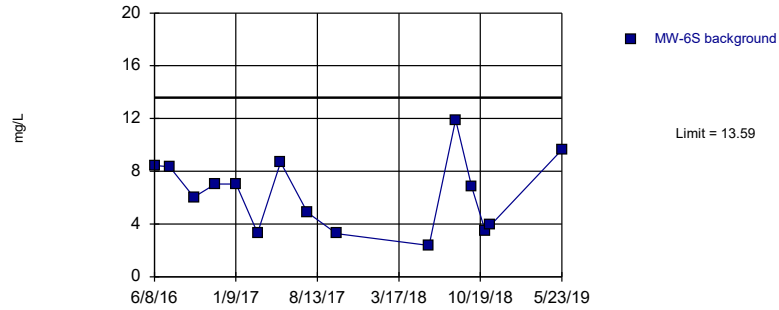
Prediction Limit
Intrawell Parametric, MW-17S



Background Data Summary (based on square root transformation): Mean=3.418, Std. Dev.=0.2133, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8189, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

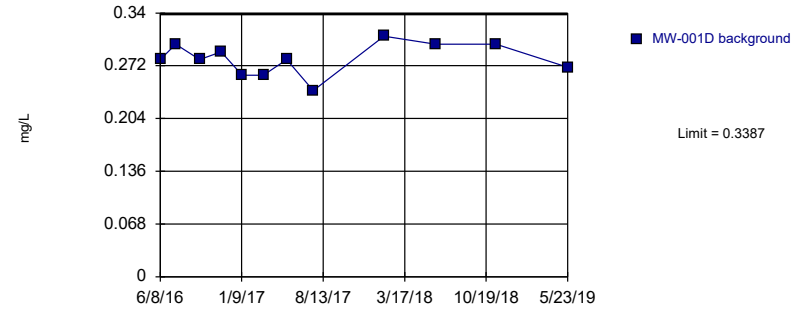
Prediction Limit
Intrawell Parametric, MW-6S (bg)



Background Data Summary: Mean=6.349, Std. Dev.=2.767, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9518, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

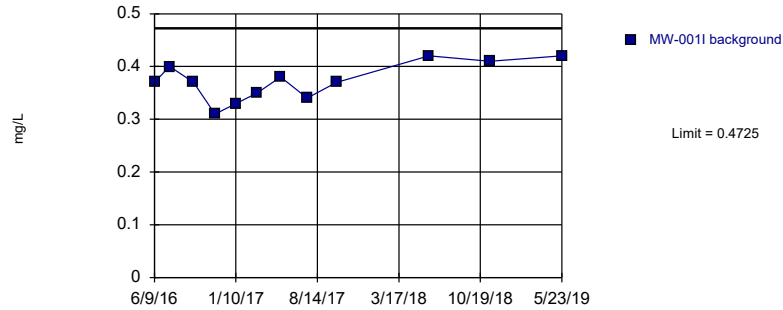
Prediction Limit
Intrawell Parametric, MW-001D



Background Data Summary: Mean=0.2808, Std. Dev.=0.02065, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9481, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

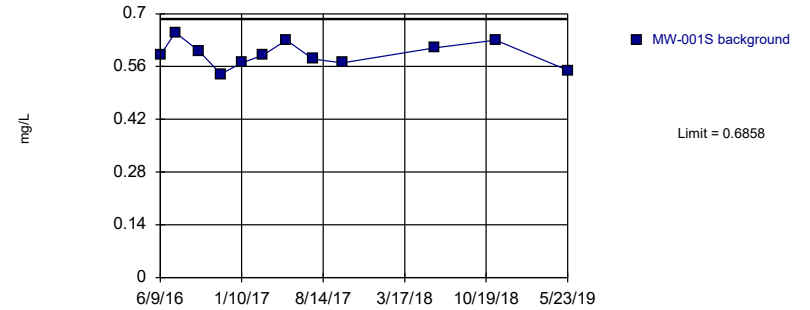
Prediction Limit
Intrawell Parametric, MW-0011



Background Data Summary: Mean=0.3725, Std. Dev.=0.03571, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.95, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

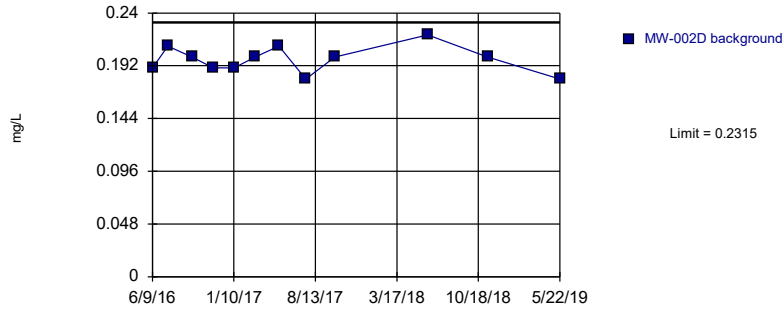
Prediction Limit
Intrawell Parametric, MW-001S



Background Data Summary: Mean=0.5925, Std. Dev.=0.03334, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9736, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

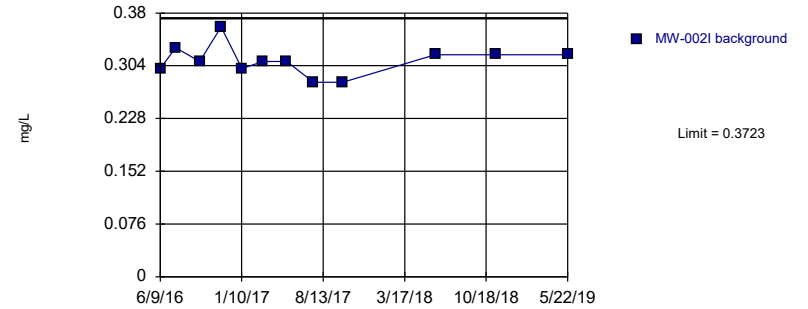
Prediction Limit
Intrawell Parametric, MW-002D



Background Data Summary: Mean=0.1975, Std. Dev.=0.01215, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9397, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

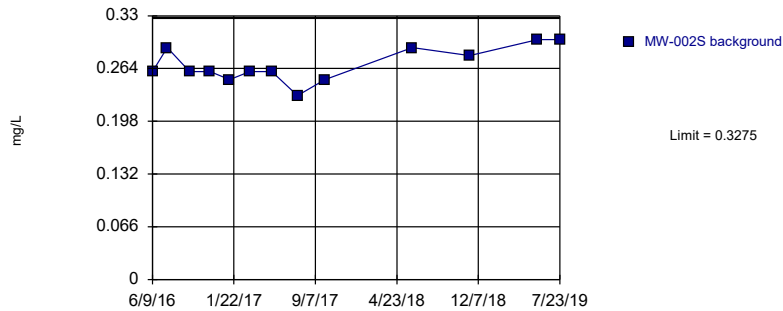
Prediction Limit
Intrawell Parametric, MW-002I



Background Data Summary: Mean=0.3117, Std. Dev.=0.02167, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9272, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

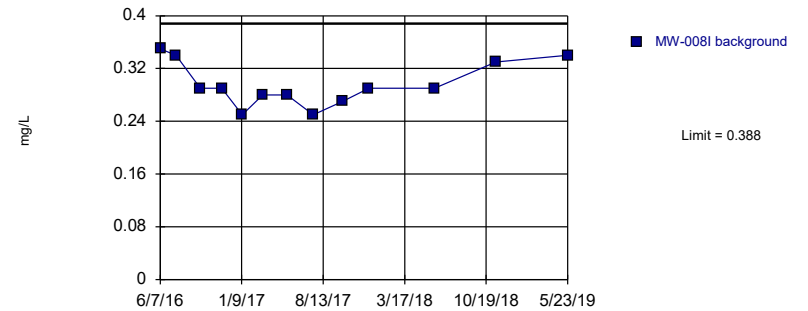
Prediction Limit
Intrawell Parametric, MW-002S



Background Data Summary: Mean=0.2685, Std. Dev.=0.02154, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9078, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

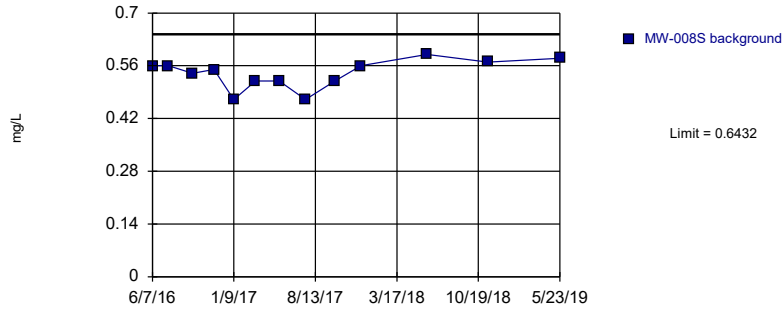
Prediction Limit
Intrawell Parametric, MW-008I (bg)



Background Data Summary: Mean=0.2962, Std. Dev.=0.03355, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8963, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

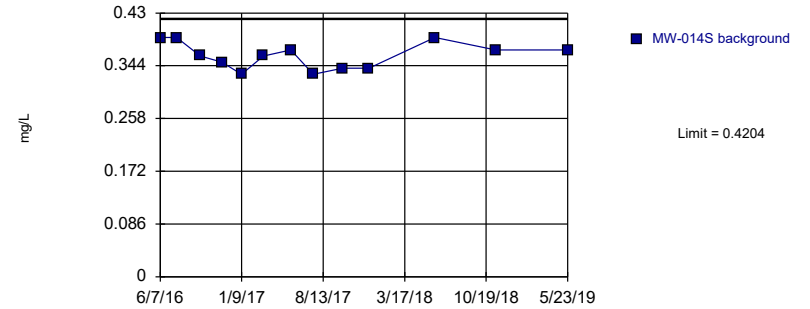
Prediction Limit
Intrawell Parametric, MW-008S (bg)



Background Data Summary: Mean=0.5392, Std. Dev.=0.03796, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9071, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

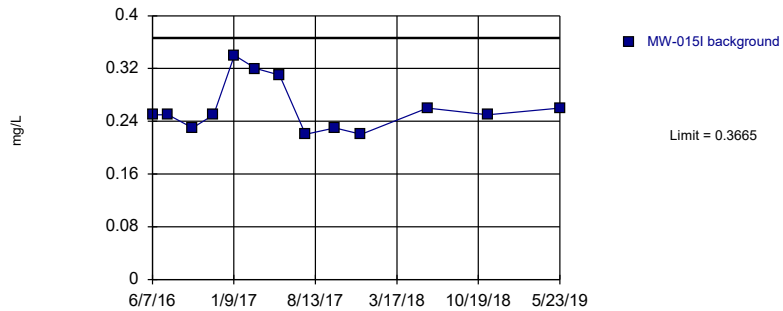
Prediction Limit
Intrawell Parametric, MW-014S (bg)



Background Data Summary: Mean=0.3608, Std. Dev.=0.02178, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9113, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

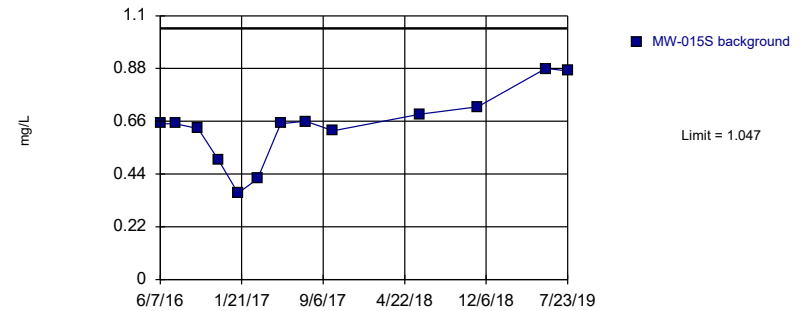
Prediction Limit
Intrawell Parametric, MW-015I



Background Data Summary: Mean=0.2608, Std. Dev.=0.03861, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8466, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

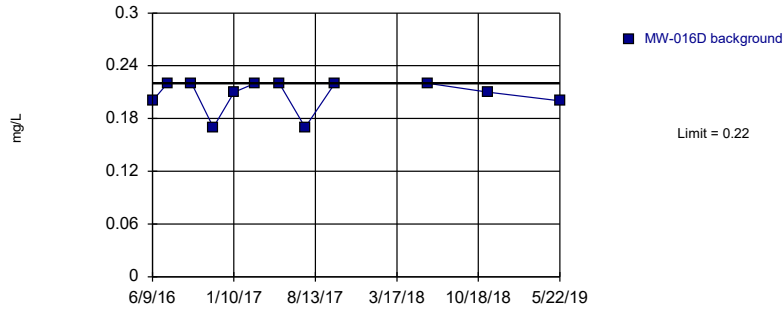
Prediction Limit
Intrawell Parametric, MW-015S



Background Data Summary: Mean=0.6385, Std. Dev.=0.1492, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9238, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

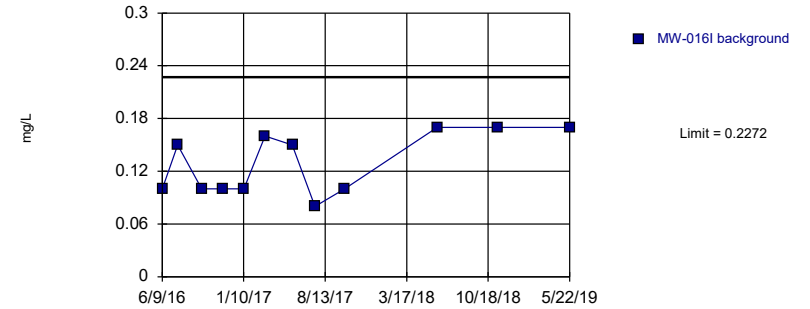
Prediction Limit
Intrawell Non-parametric, MW-016D



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 12 background values. Well-constituent pair annual alpha = 0.02143. Individual comparison alpha = 0.01077 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

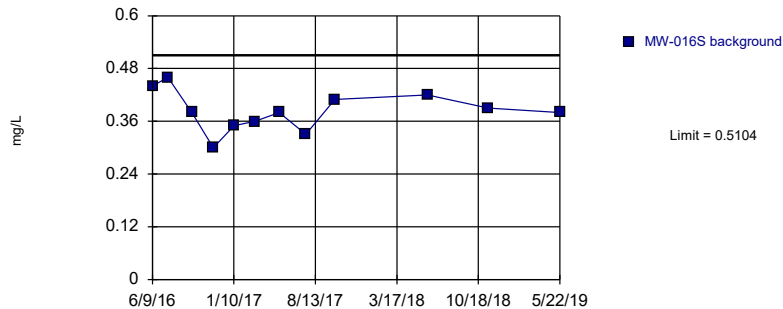
Prediction Limit
Intrawell Parametric, MW-016I



Background Data Summary: Mean=0.1292, Std. Dev.=0.03502, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8113, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

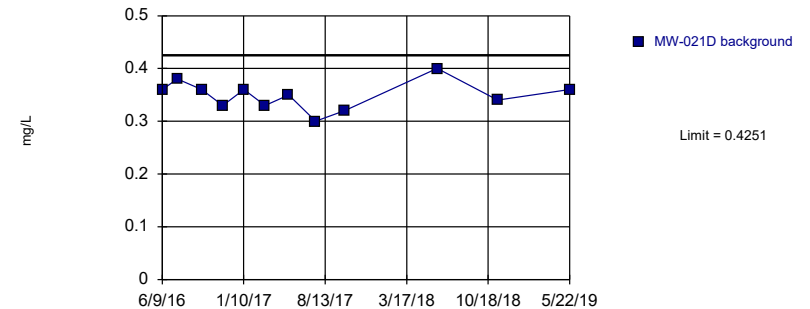
Prediction Limit
Intrawell Parametric, MW-016S



Background Data Summary: Mean=0.3833, Std. Dev.=0.04539, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9855, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

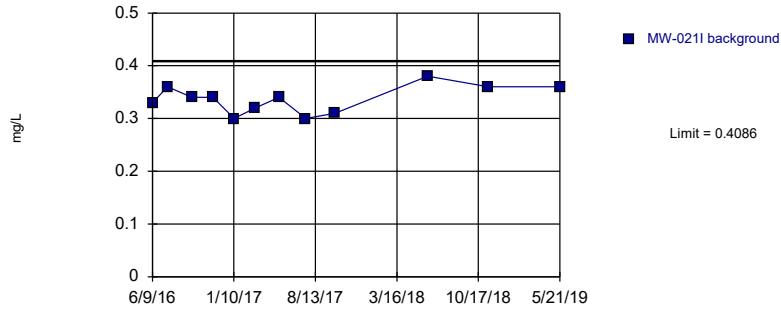
Prediction Limit
Intrawell Parametric, MW-021D



Background Data Summary: Mean=0.3492, Std. Dev.=0.02712, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9711, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

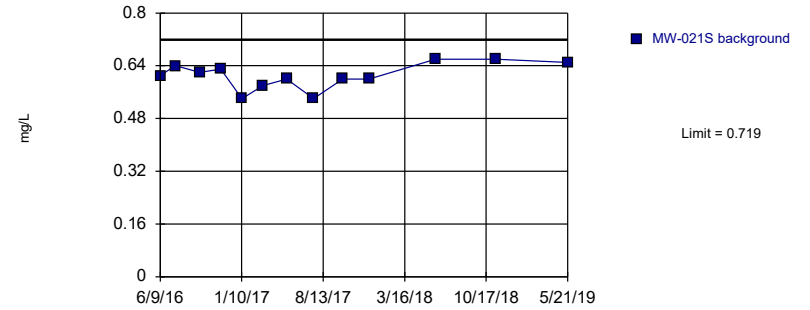
Prediction Limit
Intrawell Parametric, MW-0211



Background Data Summary: Mean=0.3367, Std. Dev.=0.0257, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9423, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

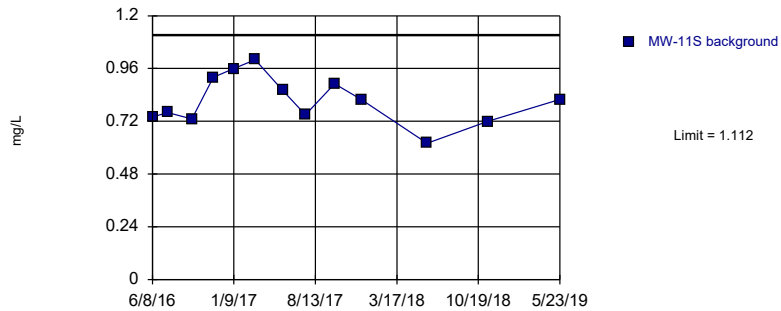
Prediction Limit
Intrawell Parametric, MW-021S



Background Data Summary: Mean=0.61, Std. Dev.=0.03979, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9212, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

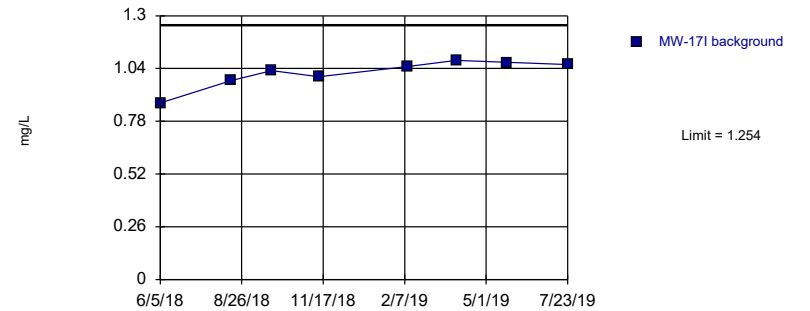
Prediction Limit
Intrawell Parametric, MW-11S (bg)



Background Data Summary: Mean=0.8146, Std. Dev.=0.1084, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9711, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

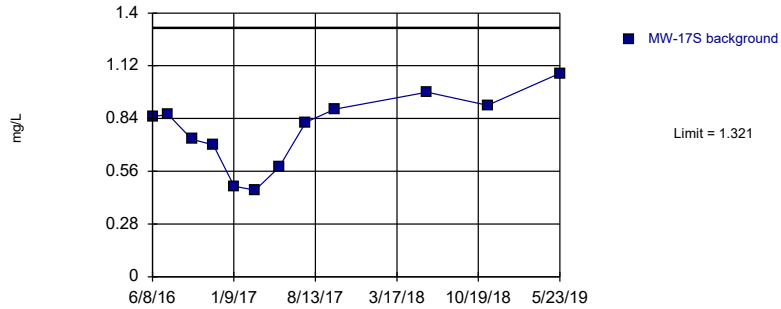
Prediction Limit
Intrawell Parametric, MW-17I



Background Data Summary: Mean=1.018, Std. Dev.=0.06882, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8428, critical = 0.749. Kappa = 3.436 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:56 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

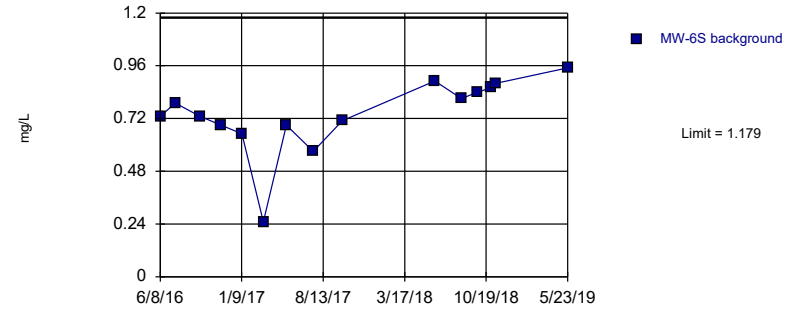
Prediction Limit
Intrawell Parametric, MW-17S



Background Data Summary: Mean=0.7783, Std. Dev.=0.1938, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.949, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

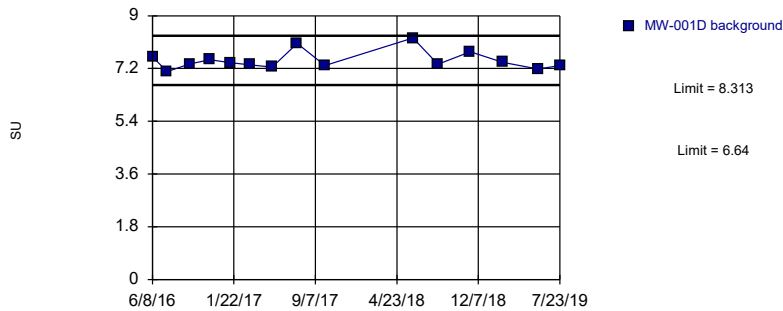
Prediction Limit
Intrawell Parametric, MW-6S (bg)



Background Data Summary: Mean=0.736, Std. Dev.=0.1692, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8602, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

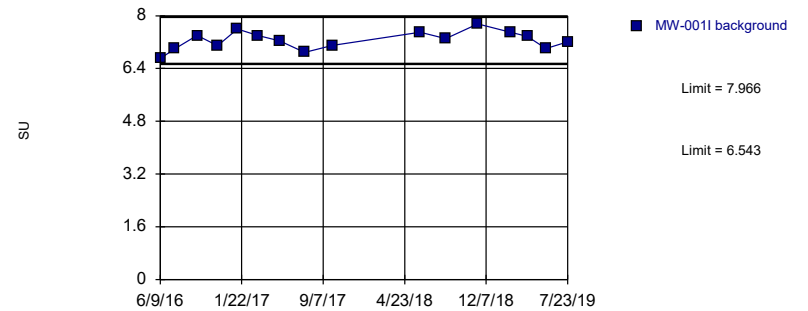
Prediction Limit
Intrawell Parametric, MW-001D



Background Data Summary: Mean=7.477, Std. Dev.=0.3196, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8468, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

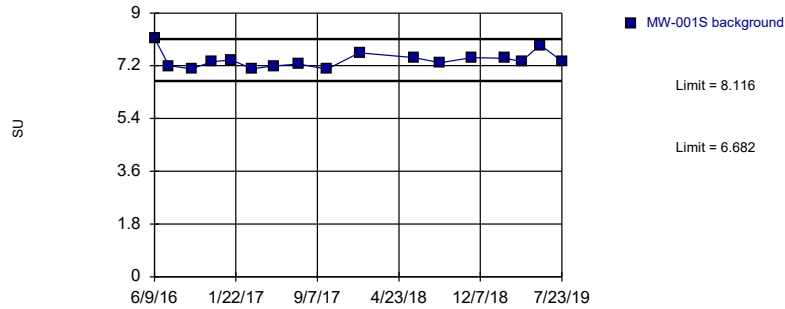
Prediction Limit
Intrawell Parametric, MW-001I



Background Data Summary: Mean=7.254, Std. Dev.=0.2784, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9877, critical = 0.844. Kappa = 2.556 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

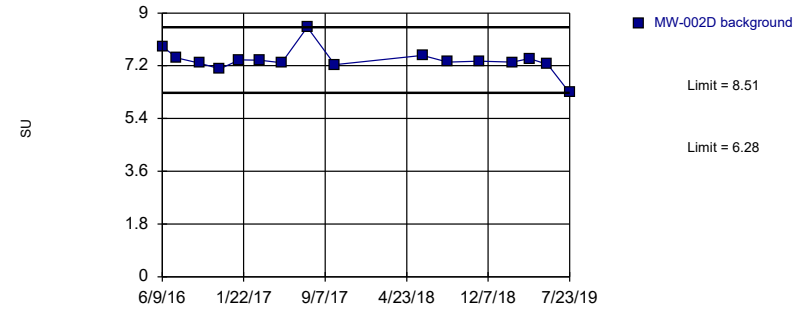
Prediction Limit
Intrawell Parametric, MW-001S



Background Data Summary: Mean=7.399, Std. Dev.=0.2841, n=17. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8743, critical = 0.851. Kappa = 2.524 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

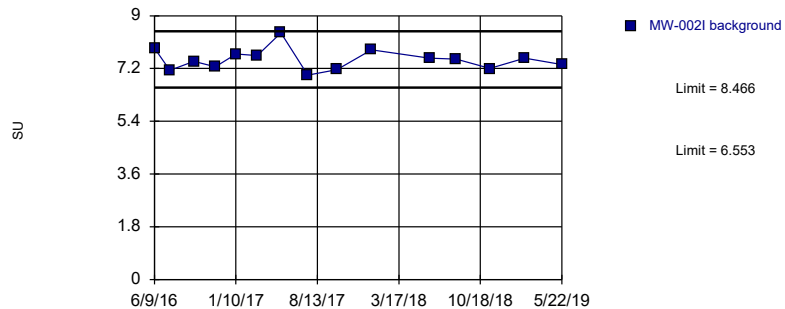
Prediction Limit
Intrawell Non-parametric, MW-002D



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 16 background values. Well-constituent pair annual alpha = 0.02574. Individual comparison alpha = 0.01291 (1 of 2). Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

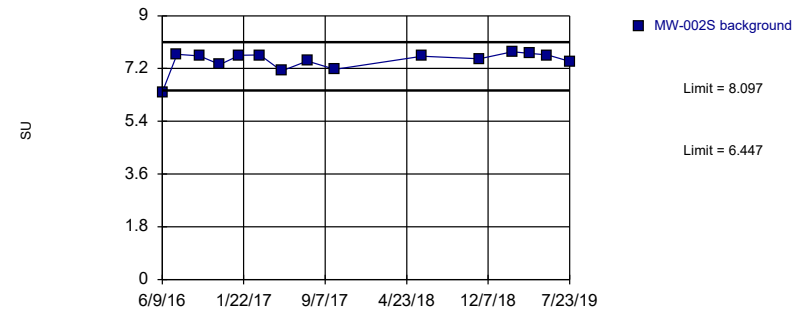
Prediction Limit
Intrawell Parametric, MW-002I



Background Data Summary: Mean=7.509, Std. Dev.=0.3654, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9426, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

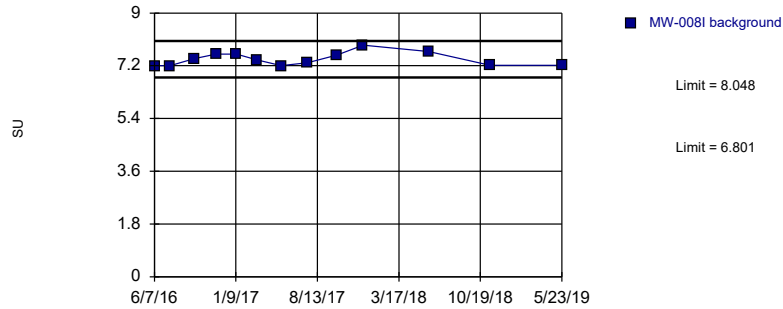
Prediction Limit
Intrawell Parametric, MW-002S



Background Data Summary (based on x^6 transformation): Mean=176756, Std. Dev.=40112, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8459, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

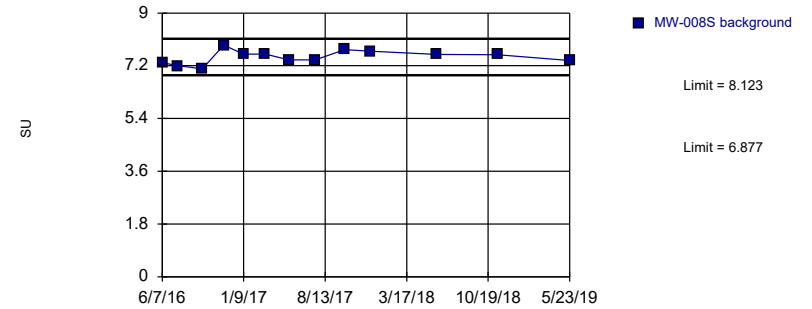
Prediction Limit
Intrawell Parametric, MW-008I (bg)



Background Data Summary: Mean=7.425, Std. Dev.=0.2278, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.882, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

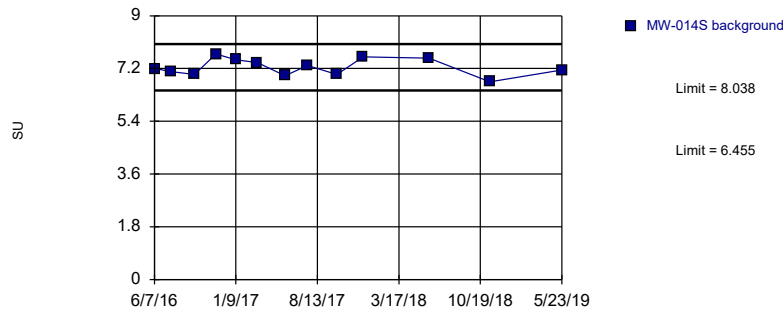
Prediction Limit
Intrawell Parametric, MW-008S (bg)



Background Data Summary: Mean=7.5, Std. Dev.=0.2276, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9737, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

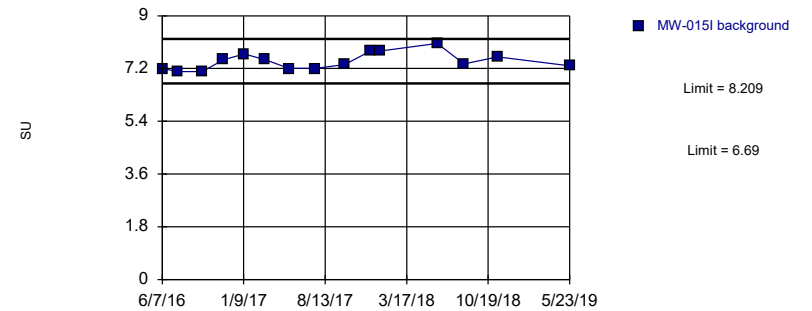
Prediction Limit
Intrawell Parametric, MW-014S (bg)



Background Data Summary: Mean=7.246, Std. Dev.=0.289, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9666, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

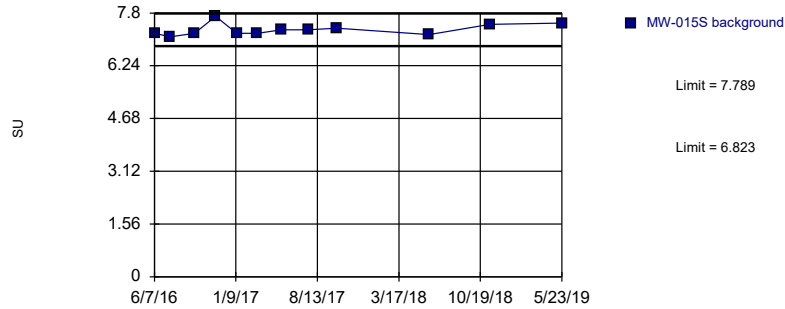
Prediction Limit
Intrawell Parametric, MW-015I



Background Data Summary: Mean=7.449, Std. Dev.=0.2901, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9292, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

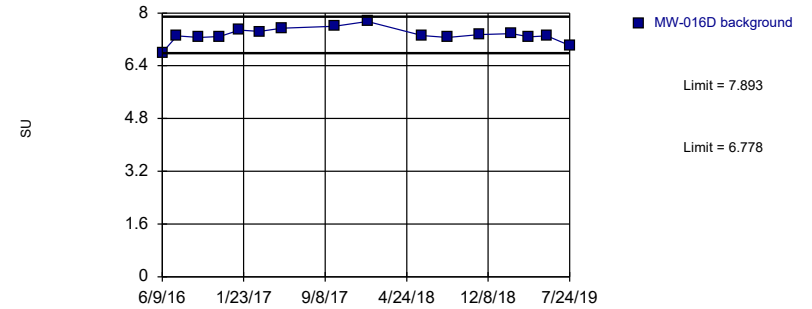
Prediction Limit
Intrawell Parametric, MW-015S



Background Data Summary: Mean=7.306, Std. Dev.=0.1725, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8864, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

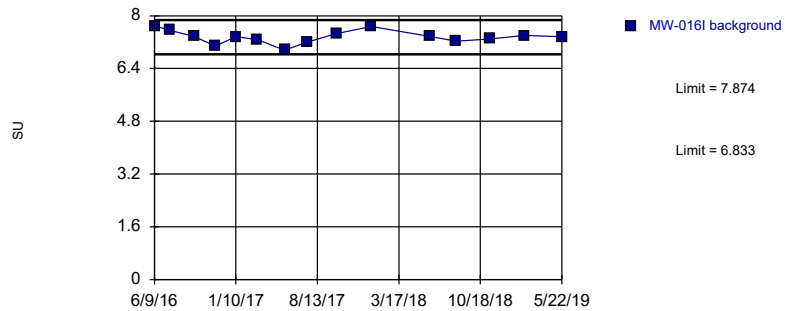
Prediction Limit
Intrawell Parametric, MW-016D



Background Data Summary: Mean=7.336, Std. Dev.=0.218, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9272, critical = 0.844. Kappa = 2.556 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

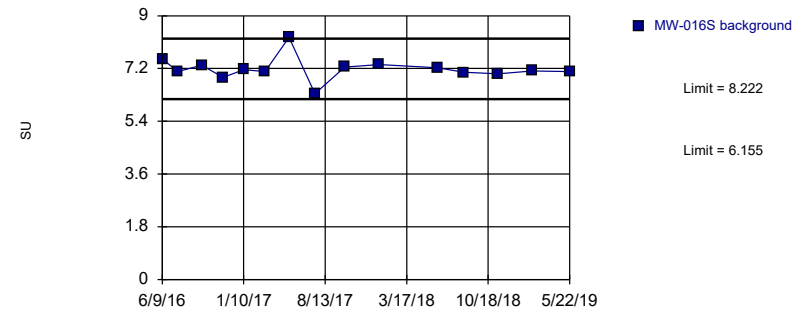
Prediction Limit
Intrawell Parametric, MW-016I



Background Data Summary: Mean=7.353, Std. Dev.=0.1988, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9635, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

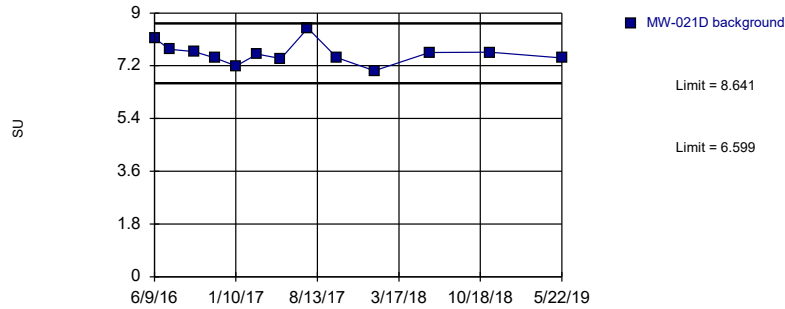
Prediction Limit
Intrawell Parametric, MW-016S



Background Data Summary: Mean=7.189, Std. Dev.=0.3948, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8429, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

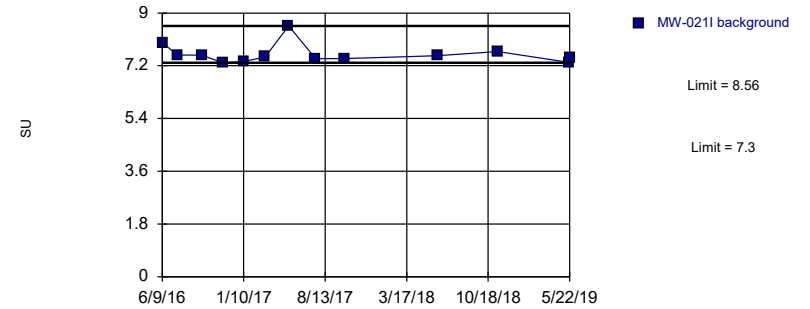
Prediction Limit
Intrawell Parametric, MW-021D



Background Data Summary: Mean=7.62, Std. Dev.=0.3728, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9188, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

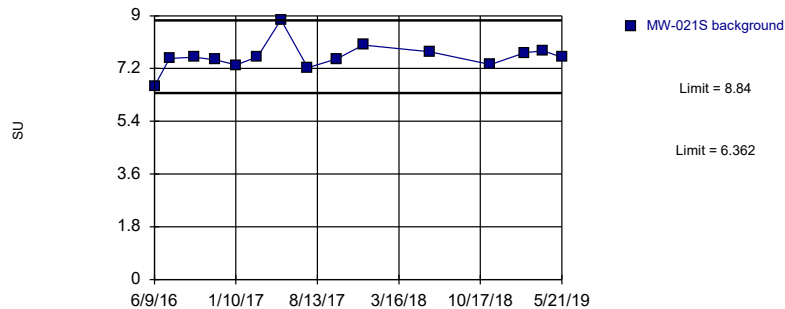
Prediction Limit
Intrawell Non-parametric, MW-021I



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 13 background values. Well-constituent pair annual alpha = 0.03858. Individual comparison alpha = 0.01938 (1 of 2). Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

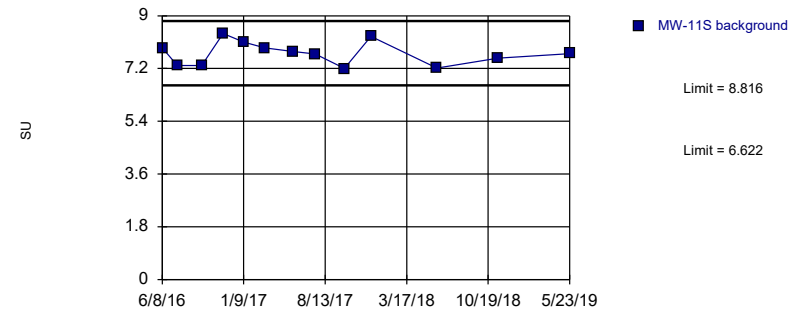
Prediction Limit
Intrawell Parametric, MW-021S



Background Data Summary: Mean=7.601, Std. Dev.=0.4734, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.878, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

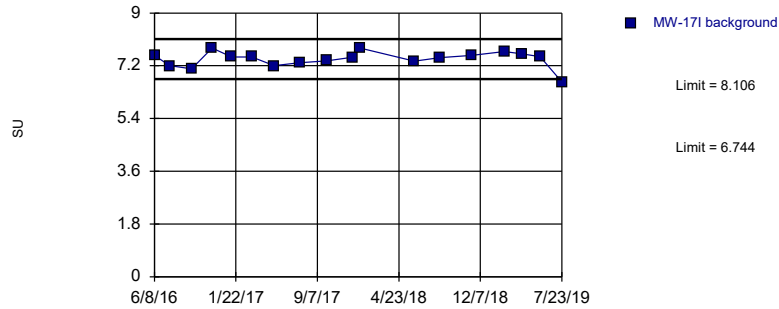
Prediction Limit
Intrawell Parametric, MW-11S (bg)



Background Data Summary: Mean=7.719, Std. Dev.=0.4004, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9382, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

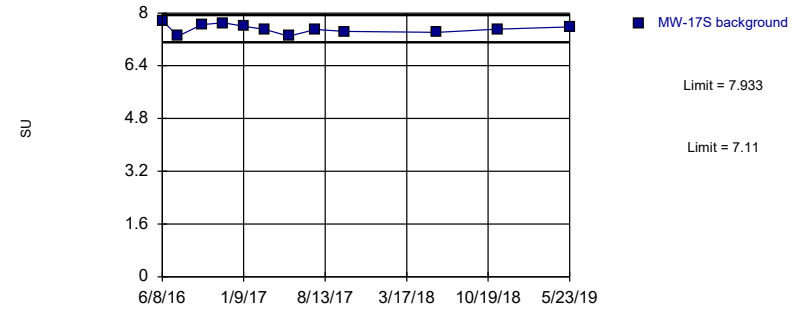
Prediction Limit
Intrawell Parametric, MW-17I



Background Data Summary: Mean=7.425, Std. Dev.=0.2731, n=18. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9039, critical = 0.858. Kappa = 2.492 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

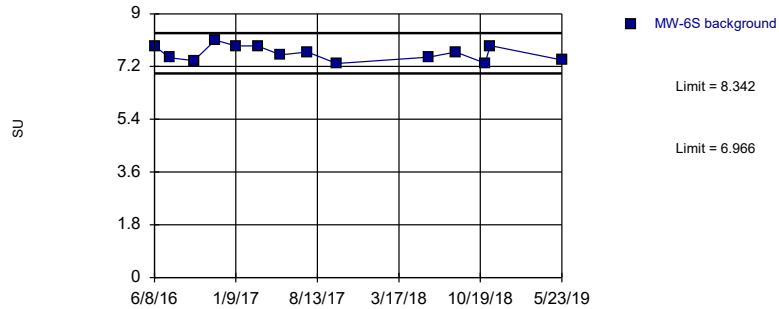
Prediction Limit
Intrawell Parametric, MW-17S



Background Data Summary: Mean=7.522, Std. Dev.=0.1471, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.967, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

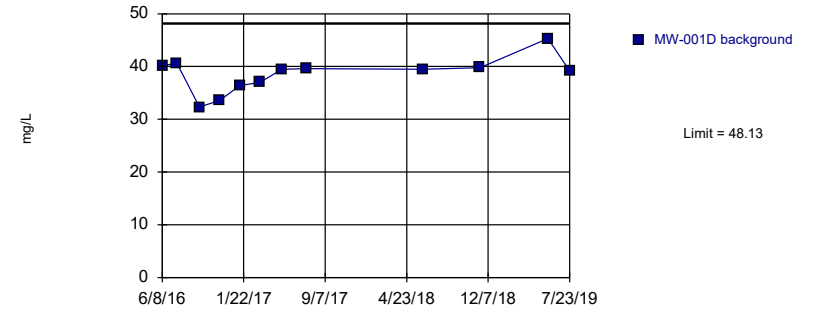
Prediction Limit
Intrawell Parametric, MW-6S (bg)



Background Data Summary: Mean=7.654, Std. Dev.=0.2569, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9313, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: pH, field Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

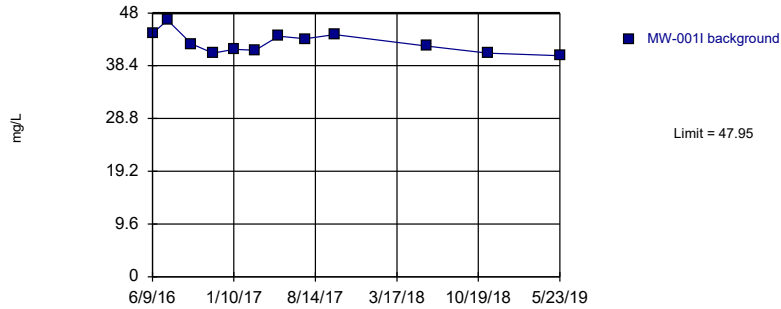
Prediction Limit
Intrawell Parametric, MW-001D



Background Data Summary: Mean=38.58, Std. Dev.=3.411, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9146, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

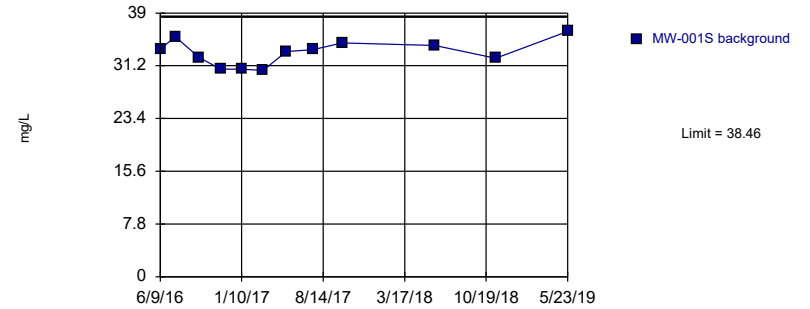
Prediction Limit
Intrawell Parametric, MW-001I



Background Data Summary: Mean=42.57, Std. Dev.=1.922, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9315, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

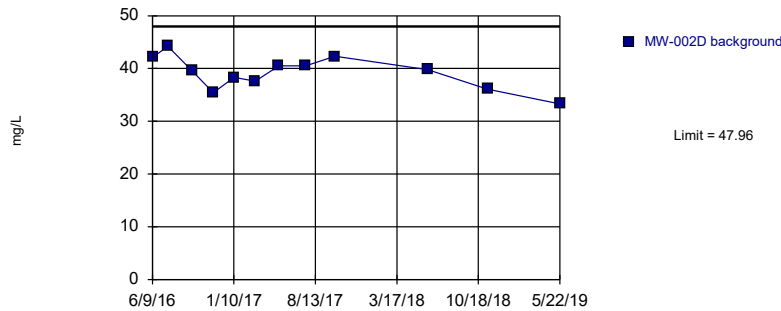
Prediction Limit
Intrawell Parametric, MW-001S



Background Data Summary: Mean=33.15, Std. Dev.=1.895, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9476, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

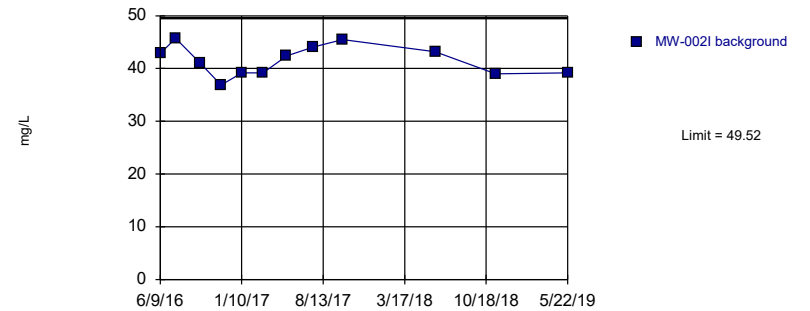
Prediction Limit
Intrawell Parametric, MW-002D



Background Data Summary: Mean=39.14, Std. Dev.=3.149, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9797, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

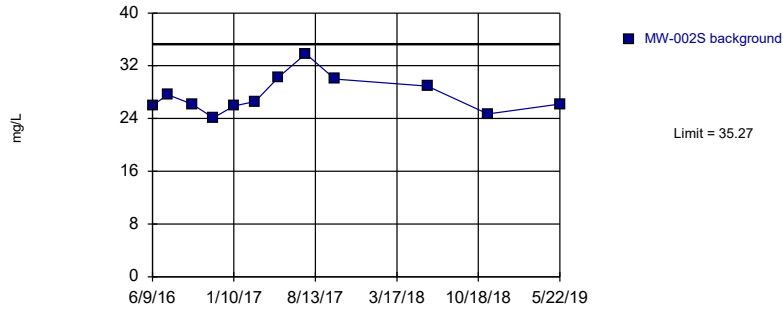
Prediction Limit
Intrawell Parametric, MW-002I



Background Data Summary: Mean=41.53, Std. Dev.=2.852, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9344, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

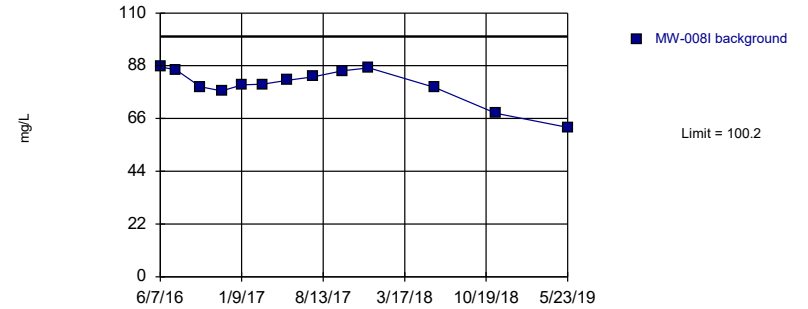
Prediction Limit
Intrawell Parametric, MW-002S



Background Data Summary: Mean=27.53, Std. Dev.=2.766, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.907, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

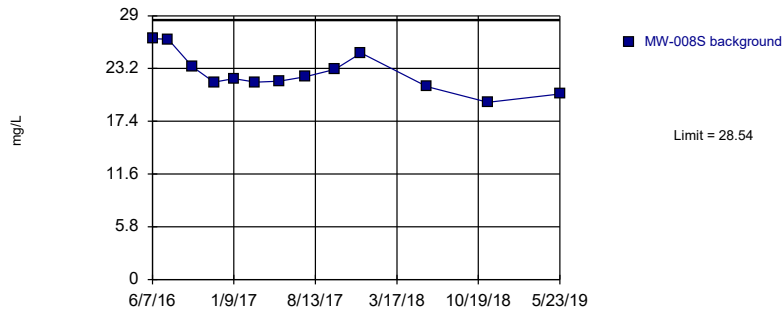
Prediction Limit
Intrawell Parametric, MW-008I (bg)



Background Data Summary: Mean=79.89, Std. Dev.=7.398, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.852, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

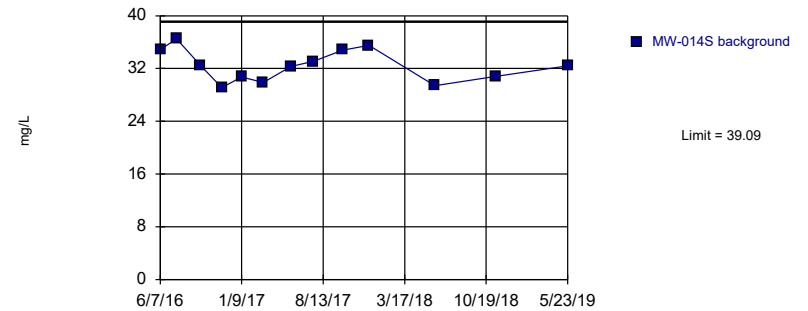
Prediction Limit
Intrawell Parametric, MW-008S (bg)



Background Data Summary: Mean=22.69, Std. Dev.=2.136, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9236, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

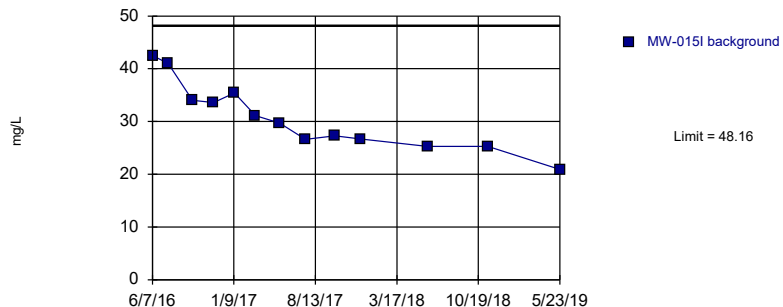
Prediction Limit
Intrawell Parametric, MW-014S (bg)



Background Data Summary: Mean=32.45, Std. Dev.=2.424, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9454, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

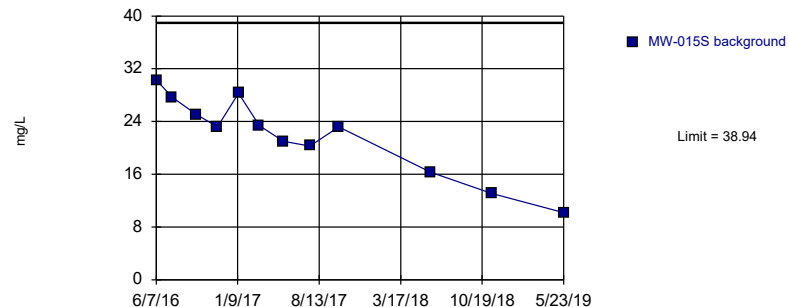
Prediction Limit Intrawell Parametric, MW-015I



Background Data Summary: Mean=30.72, Std. Dev.=6.368, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9463, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

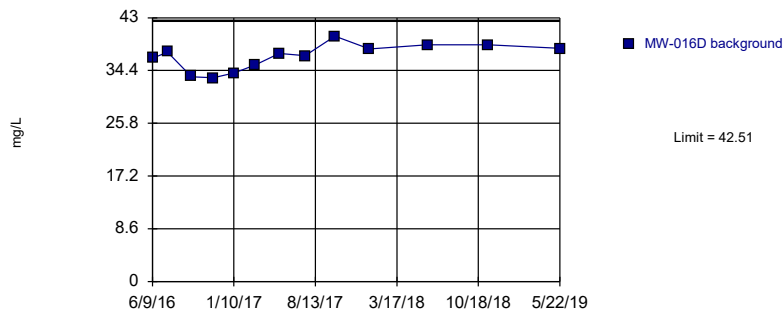
Prediction Limit Intrawell Parametric, MW-015S



Background Data Summary: Mean=21.84, Std. Dev.=6.106, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9481, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

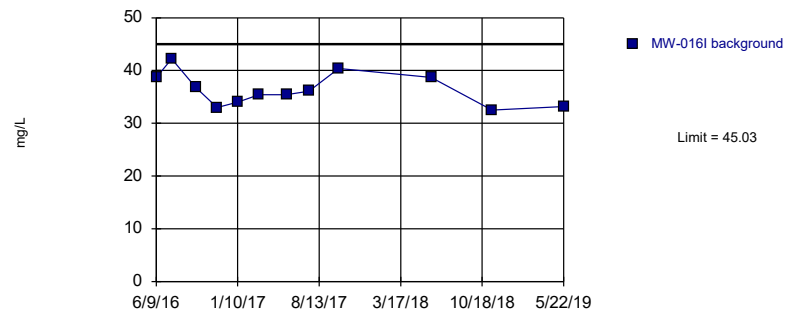
Prediction Limit Intrawell Parametric, MW-016D



Background Data Summary: Mean=36.68, Std. Dev.=2.13, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9362, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

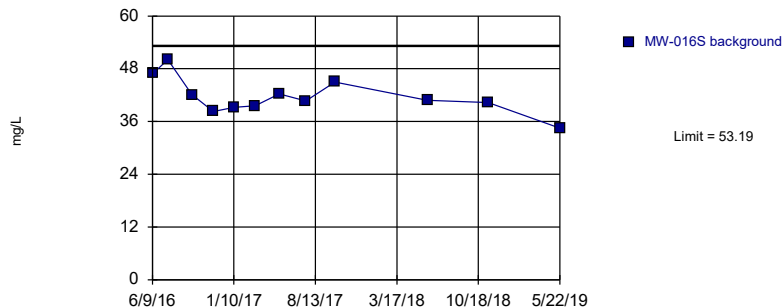
Prediction Limit Intrawell Parametric, MW-016I



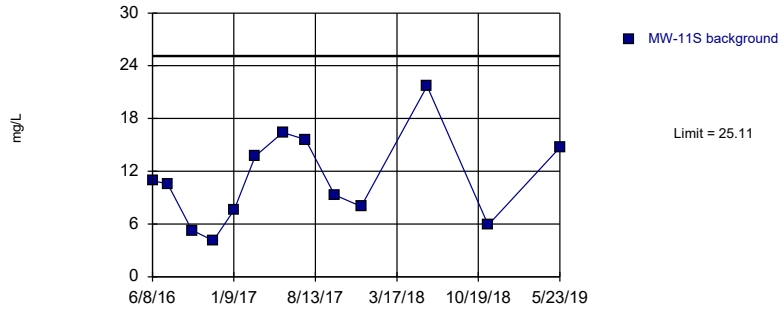
Background Data Summary: Mean=36.37, Std. Dev.=3.093, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9423, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Prediction Limit
Intrawell Parametric, MW-016S



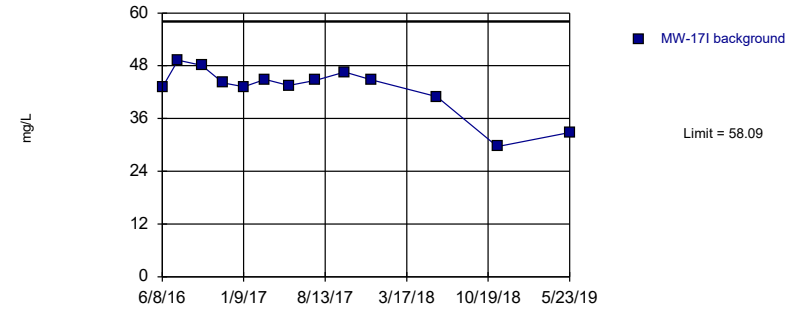
Prediction Limit
Intrawell Parametric, MW-11S (bg)



Background Data Summary: Mean=11.06, Std. Dev.=5.127, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9583, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

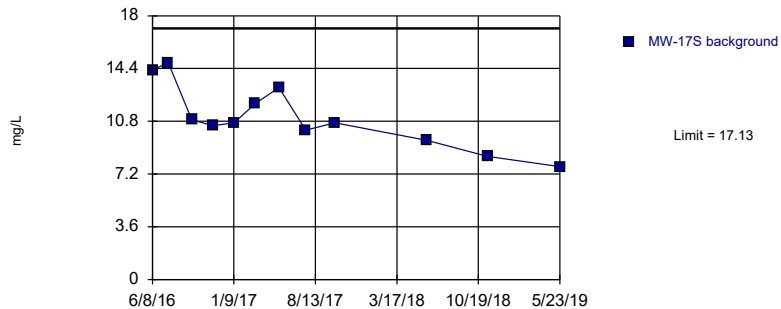
Prediction Limit
Intrawell Parametric, MW-171



Background Data Summary: Mean=42.75, Std. Dev.=5.603, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.817, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

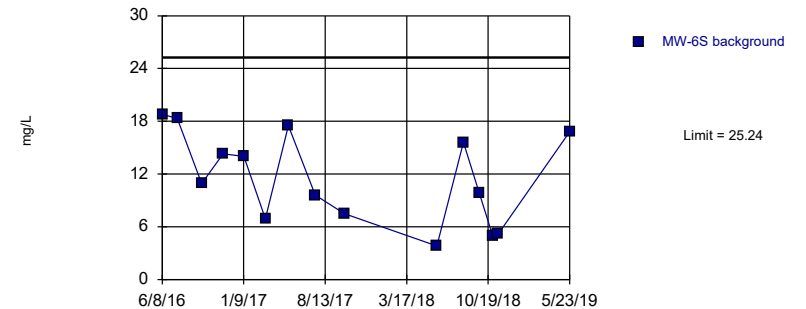
Prediction Limit
Intrawell Parametric, MW-17S



Background Data Summary: Mean=11.07, Std. Dev.=2.167, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9528, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

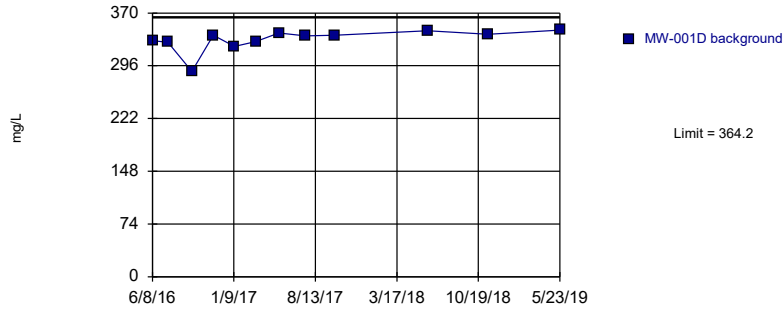
Prediction Limit
Intrawell Parametric, MW-6S (bg)



Background Data Summary: Mean=11.59, Std. Dev.=5.216, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9253, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

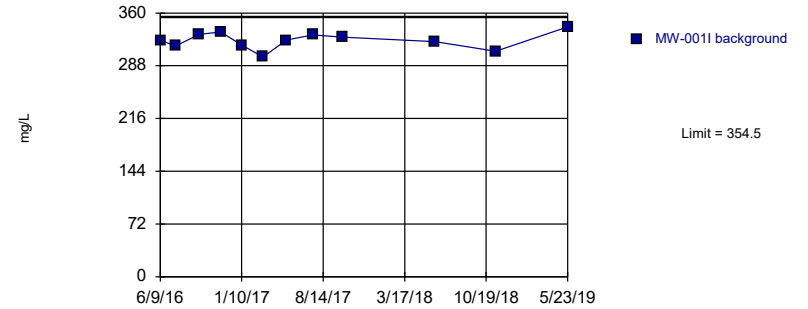
Prediction Limit
Intrawell Parametric, MW-001D



Background Data Summary (based on x^5 transformation): Mean= $4.1e12$, Std. Dev.= $8.1e11$, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8196, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

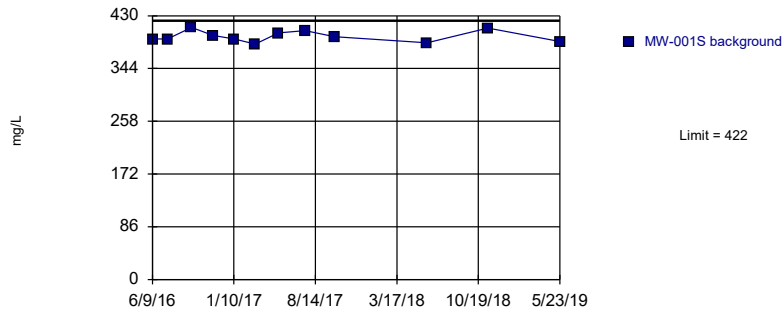
Prediction Limit
Intrawell Parametric, MW-001I



Background Data Summary: Mean=322.4, Std. Dev.=11.45, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9823, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

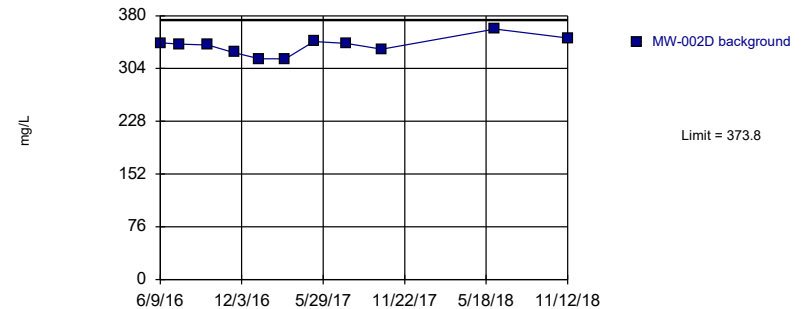
Prediction Limit
Intrawell Parametric, MW-001S



Background Data Summary: Mean=396.4, Std. Dev.=9.12, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.935, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

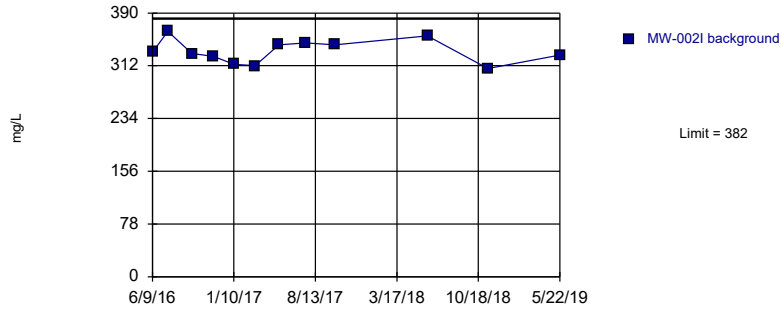
Prediction Limit
Intrawell Parametric, MW-002D



Background Data Summary: Mean=336.8, Std. Dev.=12.69, n=11. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9483, critical = 0.792. Kappa = 2.915 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:57 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

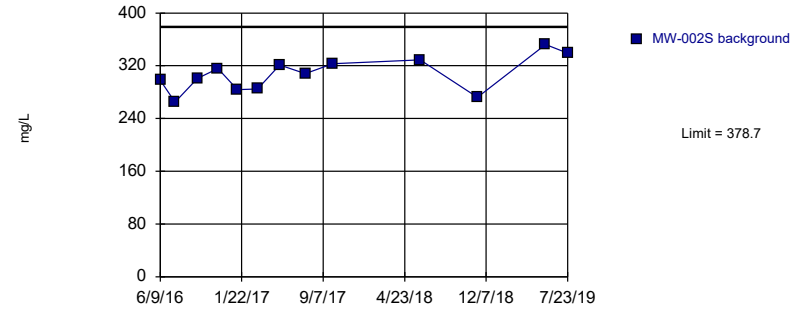
Prediction Limit
Intrawell Parametric, MW-002I



Background Data Summary: Mean=333.4, Std. Dev.=17.34, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9617, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

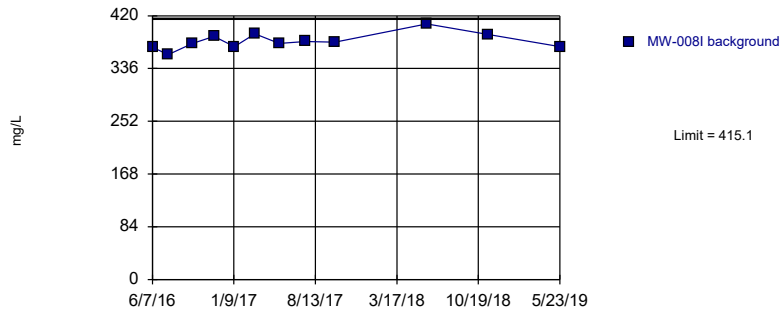
Prediction Limit
Intrawell Parametric, MW-002S



Background Data Summary: Mean=307.2, Std. Dev.=26.12, n=13. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9803, critical = 0.814. Kappa = 2.739 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

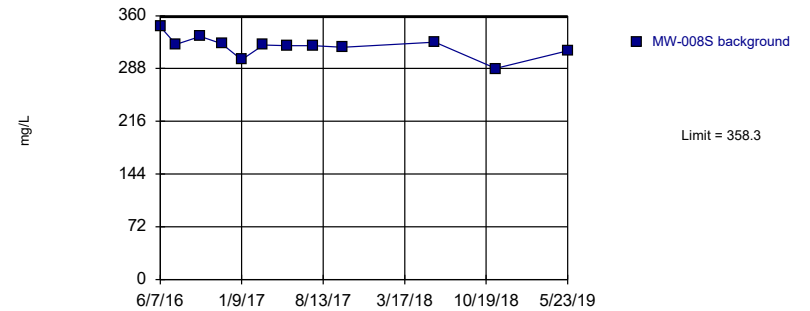
Prediction Limit
Intrawell Parametric, MW-008I (bg)



Background Data Summary: Mean=379.5, Std. Dev.=12.72, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9516, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

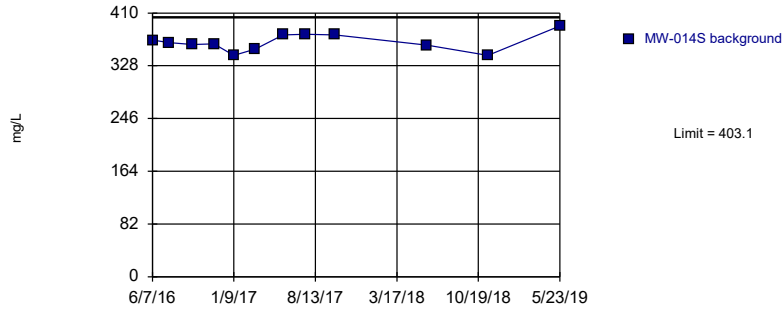
Prediction Limit
Intrawell Parametric, MW-008S (bg)



Background Data Summary: Mean=318.3, Std. Dev.=14.31, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9261, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

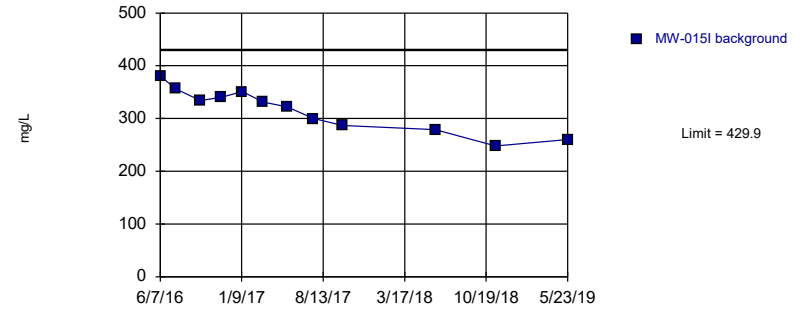
Prediction Limit
Intrawell Parametric, MW-014S (bg)



Background Data Summary: Mean=364.7, Std. Dev.=13.73, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9582, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

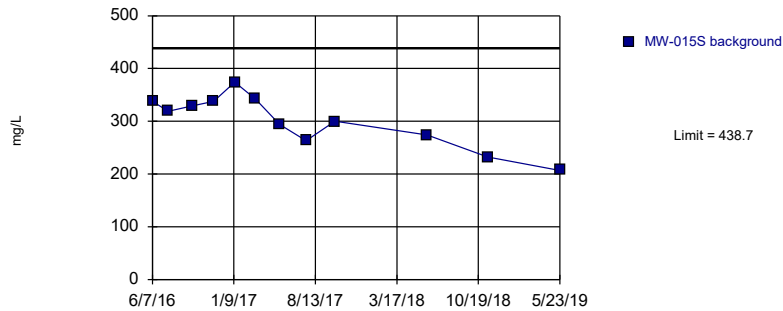
Prediction Limit
Intrawell Parametric, MW-015I



Background Data Summary: Mean=315.7, Std. Dev.=40.8, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9648, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

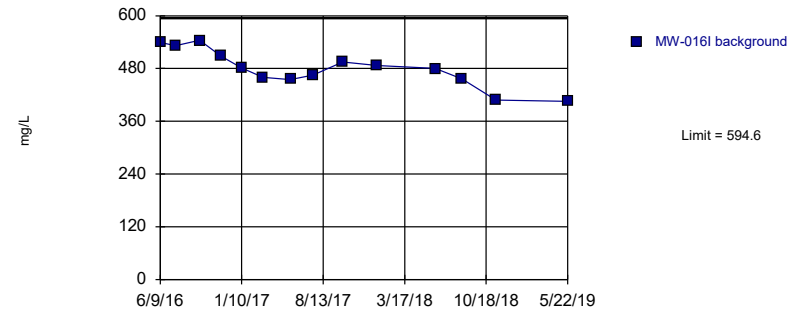
Prediction Limit
Intrawell Parametric, MW-015S



Background Data Summary: Mean=300.8, Std. Dev.=49.24, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9544, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

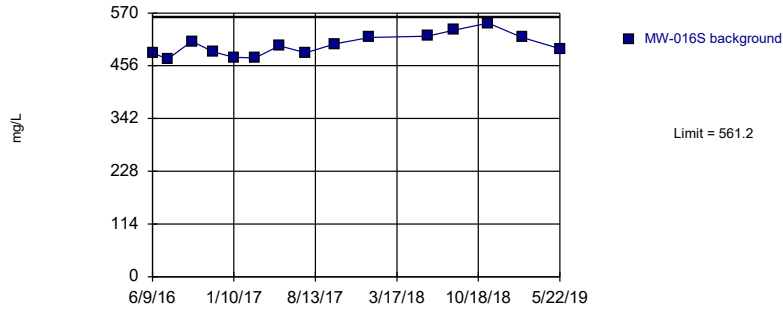
Prediction Limit
Intrawell Parametric, MW-016I



Background Data Summary: Mean=479.6, Std. Dev.=42.94, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9477, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

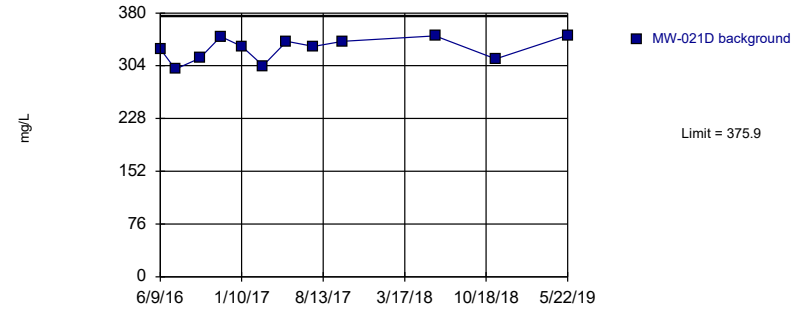
Prediction Limit
Intrawell Parametric, MW-016S



Background Data Summary: Mean=500.7, Std. Dev.=23.13, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9481, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

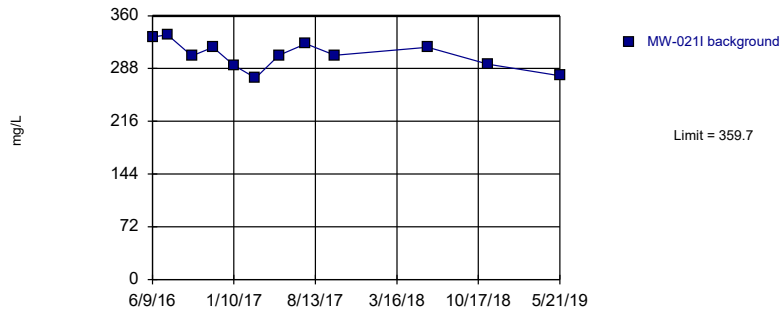
Prediction Limit
Intrawell Parametric, MW-021D



Background Data Summary: Mean=328.6, Std. Dev.=16.89, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9109, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

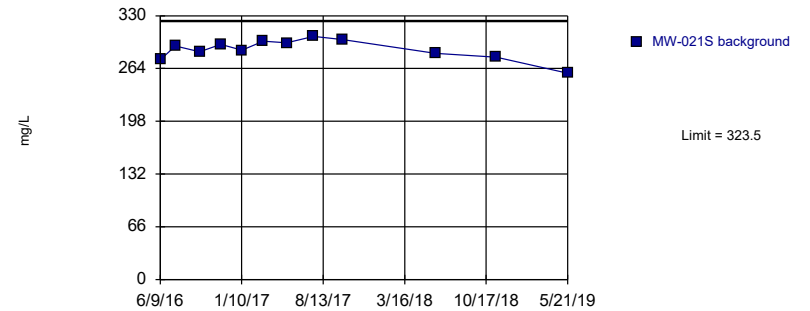
Prediction Limit
Intrawell Parametric, MW-0211



Background Data Summary: Mean=306.4, Std. Dev.=19.05, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9545, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

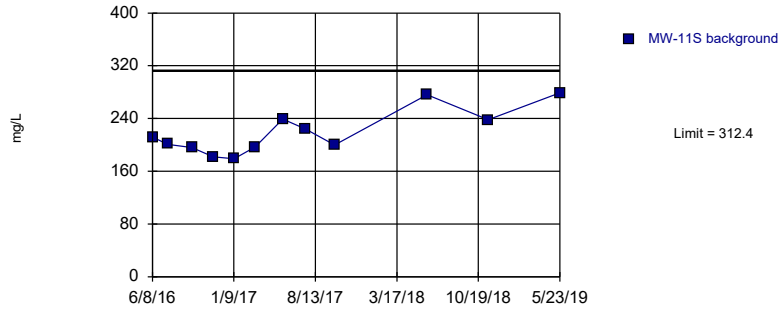
Prediction Limit
Intrawell Parametric, MW-021S



Background Data Summary: Mean=287.5, Std. Dev.=12.85, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9358, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

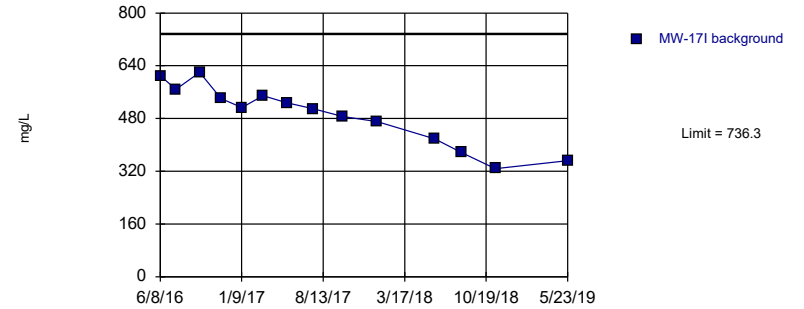
Prediction Limit Intrawell Parametric, MW-11S (bg)



Background Data Summary: Mean=218.6, Std. Dev.=33.51, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8953, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

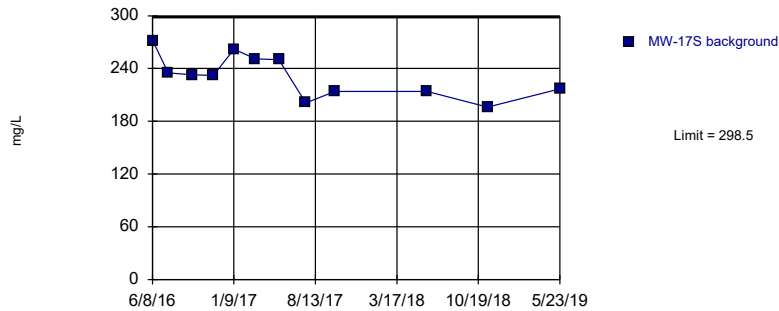
Prediction Limit Intrawell Parametric, MW-17I



Background Data Summary: Mean=490.6, Std. Dev.=91.76, n=14. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9437, critical = 0.825. Kappa = 2.678 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

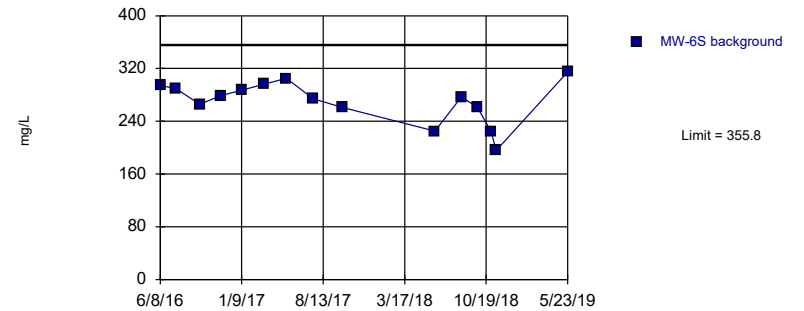
Prediction Limit Intrawell Parametric, MW-17S



Background Data Summary: Mean=231.4, Std. Dev.=23.97, n=12. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9619, critical = 0.805. Kappa = 2.8 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

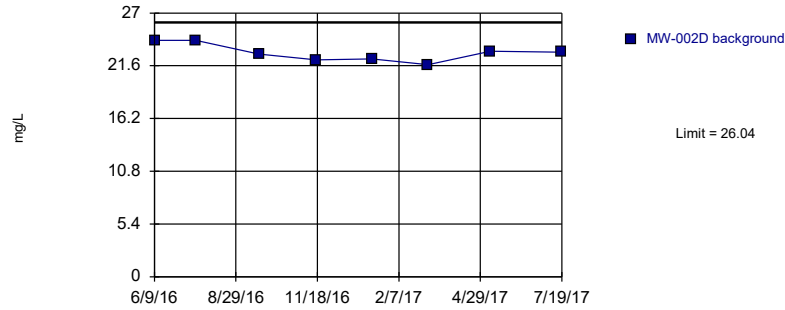
Prediction Limit Intrawell Parametric, MW-6S (bg)



Background Data Summary: Mean=270.1, Std. Dev.=32.78, n=15. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.92, critical = 0.835. Kappa = 2.617 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 12:58 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

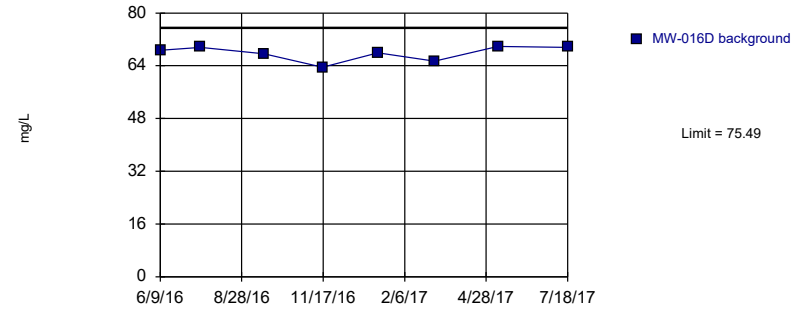
Prediction Limit
Intrawell Parametric, MW-002D



Background Data Summary: Mean=22.94, Std. Dev.=0.9039, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9222, critical = 0.749. Kappa = 3.436 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:59 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

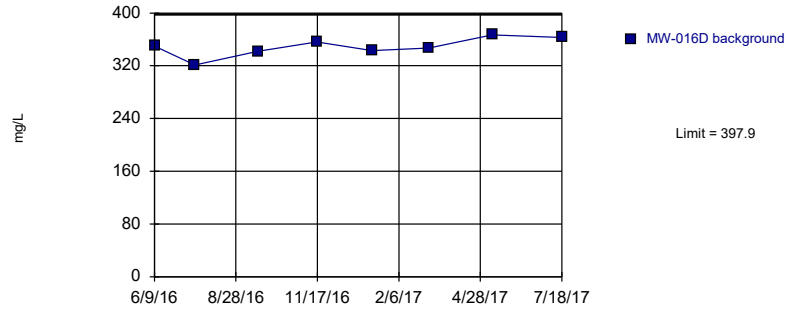
Prediction Limit
Intrawell Parametric, MW-016D



Background Data Summary: Mean=67.79, Std. Dev.=2.241, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8717, critical = 0.749. Kappa = 3.436 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Chloride, total Analysis Run 1/28/2020 12:59 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Prediction Limit Intrawell Parametric, MW-016D



Background Data Summary: Mean=348.6, Std. Dev.=14.35, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9452, critical = 0.749. Kappa = 3.436 (c=7, w=16, 1 of 2, event alpha = 0.05132). Report alpha = 0.0004702. Assumes 1 future value.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/28/2020 1:00 PM View: Intrawell
Rockport Landfill Client: Geosyntec Data: Rockport_LF

Memorandum

Date: May 15, 2020

To: David Miller (AEP)

Copies to: Justin Jent (AEP)

From: Allison Kreinberg (Geosyntec)

Subject: Evaluation of Detection Monitoring Data at Rockport Plant's Landfill (LF)

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257 Subpart D, "CCR rule"), the second semi-annual detection monitoring event at the Landfill (LF), an existing CCR unit at the Rockport Power Plant located in Rockport, Indiana was completed on November 14-15 and November 22, 2019. Based on the results, verification sampling was completed on February 17-18, 2020.

Background values for the LF were previously calculated in January 2018. After a minimum of four detection monitoring events, the results of those events were compared to the existing background and the dataset was updated as appropriate. Revised upper prediction limits (UPLs) were calculated for each Appendix III parameter to represent background values. Lower prediction limits (LPLs) were also calculated for pH. Details on the calculation of these revised background values are described in Geosyntec's *Statistical Analysis Summary* report, dated February 27, 2020.

To achieve an acceptably high statistical power while maintaining a site-wide false-positive rate (SWFPR) of 10% per year or less, prediction limits were calculated based on a one-of-two retesting procedure. With this procedure, a statistically significant increase (SSI) is concluded only if both samples in a series of two exceed the UPL (or are below the LPL for pH). In practice, if the initial result did not exceed the UPL, a second sample was not collected or analyzed.

Detection monitoring results and the relevant background values are compared in Table 1 and noted exceedances are described in the list below.

- Chloride concentrations exceeded the intrawell UPL of 26.0 mg/L in both the initial (56.5 mg/L) and second (76.3 mg/L) samples collected at MW-002D, and the intrawell UPL of 75.5 mg/L in both the initial (127 mg/L) and second (133 mg/L) samples collected at MW-016D. SSIs over background are concluded for chloride at MW-002D and MW-016D.
- Fluoride concentrations exceeded the intrawell UPL of 0.719 mg/L in both the initial (0.730 mg/L) and second (0.79 mg/L) samples collected at MW-021S. An SSI over background is concluded for fluoride at MW-021S.
- Total dissolved solids (TDS) concentrations exceeded the intrawell UPL of 422 mg/L in both the initial (444 mg/L) and second (442 mg/L) samples collected at MW-001S, and the intrawell UPL of 398 mg/L in both the initial (537 mg/L) and second (579 mg/L) samples collected at MW-016D. SSIs over background are concluded for TDS at MW-002D and MW-016D.

In response to the exceedances noted above, the Rockport LF CCR unit will either transition to assessment monitoring or an alternative source demonstration (ASD) for chloride, fluoride, and TDS will be conducted in accordance with 40 CFR 257.94(e)(2). If the ASD is successful, the Rockport LF will remain in detection monitoring.

The statistical analysis was conducted within 90 days of completion of sampling and analysis in accordance with 40 CFR 257.93(h)(2). A certification of these statistics by a qualified professional engineer is provided in Attachment A.

**Table 1: Detection Monitoring Data Evaluation
Rockport - Landfill**

Parameter	Unit	Description	MW-001D		MW-001I	MW-001S		MW-002D		MW-002I	MW-002S	MW-015I	MW-015S
			11/22/2019	2/17/2020	11/22/2019	11/22/2019	2/18/2020	11/14/2019	2/18/2020	11/14/2019	11/14/2019	11/15/2019	11/15/2019
Boron	mg/L	Intrawell Background Value (UPL)	0.151		0.122	0.0686		0.106		0.0632	0.120	0.0976	0.146
		Detection Monitoring Result	0.0400	--	0.0200	0.0200	--	0.0200	--	0.0200	0.0300	0.0300	0.0200
Calcium	mg/L	Intrawell Background Value (UPL)	79.4		72.3	79.8		114		79.9	67.0	55.0	70.5
		Detection Monitoring Result	72.5	--	66.7	69.8	--	76.9	--	63.4	59.2	45.2	40.2
Chloride	mg/L	Intrawell Background Value (UPL)	62.4		36.2	43.0		26.0		33.8	29.8	72.2	28.6
		Detection Monitoring Result	49.1	--	35.0	30.6	--	56.5	76.3	23.3	27.3	16.9	9.48
Fluoride	mg/L	Intrawell Background Value (UPL)	0.339		0.473	0.686		0.232		0.372	0.328	0.367	1.05
		Detection Monitoring Result	0.270	--	0.370	0.570	--	0.180	--	0.330	0.280	0.270	0.700
pH	SU	Intrawell Background Value (UPL)	8.3		8.0	8.1		8.5		8.5	8.1	8.2	7.8
		Intrawell Background Value (LPL)	6.6		6.5	6.7		6.3		6.6	6.4	6.7	6.8
		Detection Monitoring Result	7.3	--	7.1	6.9	--	7.3	--	7.4	7.5	7.4	7.4
Sulfate	mg/L	Intrawell Background Value (UPL)	48.1		48.0	38.5		48.0		49.5	35.3	48.2	38.9
		Detection Monitoring Result	41.2	--	39.7	35.9	--	38.9	--	39.3	27.8	17.6	8.40
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	364		355	422		374		382	379	430	439
		Detection Monitoring Result	398	257	348	444	442	356	--	296	336	248	234

Parameter	Unit	Description	MW-016D		MW-016I	MW-016S	MW-17I	MW-17S	MW-021D	MW-021I	MW-021S	
			11/15/2019	2/18/2020	11/15/2019	11/15/2019	11/15/2019	11/15/2019	11/14/2019	11/14/2019	11/14/2019	2/18/2020
Boron	mg/L	Intrawell Background Value (UPL)	0.115		0.156	0.147	0.105	0.0751	0.115	0.0831	0.0695	
		Detection Monitoring Result	0.0300	--	0.0200	0.0200	0.0400	0.0200	0.0200	0.0200	0.0200	--
Calcium	mg/L	Intrawell Background Value (UPL)	100		130	122	112	40.9	82.8	72.8	63.4	
		Detection Monitoring Result	100	--	41.0	92.2	43.9	28.7	69.4	56.5	50.4	--
Chloride	mg/L	Intrawell Background Value (UPL)	75.5		106	23.6	201	16.1	20.5	22.8	19.9	
		Detection Monitoring Result	127	133	31.2	20.7	41.2	12.6	19.2	17.5	17.4	--
Fluoride	mg/L	Intrawell Background Value (UPL)	0.220		0.227	0.510	1.25	1.32	0.425	0.409	0.719	
		Detection Monitoring Result	0.170	--	0.140	0.320	0.950	0.960	0.320	0.380	0.730	0.79
pH	SU	Intrawell Background Value (UPL)	7.9		7.9	8.2	8.1	7.9	8.6	8.6	8.8	
		Intrawell Background Value (LPL)	6.8		6.8	6.2	6.7	7.1	6.6	7.3	6.4	
		Detection Monitoring Result	7.3	--	7.4	7.0	7.4	7.6	7.4	7.5	7.5	--
Sulfate	mg/L	Intrawell Background Value (UPL)	42.5		45.0	53.2	58.1	17.1	43.2	51.9	24.6	
		Detection Monitoring Result	40.8	--	25.2	35.2	23.2	6.20	38.6	35.5	15.8	--
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	398		595	561	736	299	376	360	324	
		Detection Monitoring Result	537	579	343	497	309	207	323	262	241	--

Notes

UPL: Upper prediction limit

LPL: Lower prediction limit

Bold values exceed the background value.

Background values are shaded gray.

--: not analyzed

ATTACHMENT A

Certification by Qualified Professional Engineer

CERTIFICATION BY QUALIFIED PROFESSIONAL ENGINEER

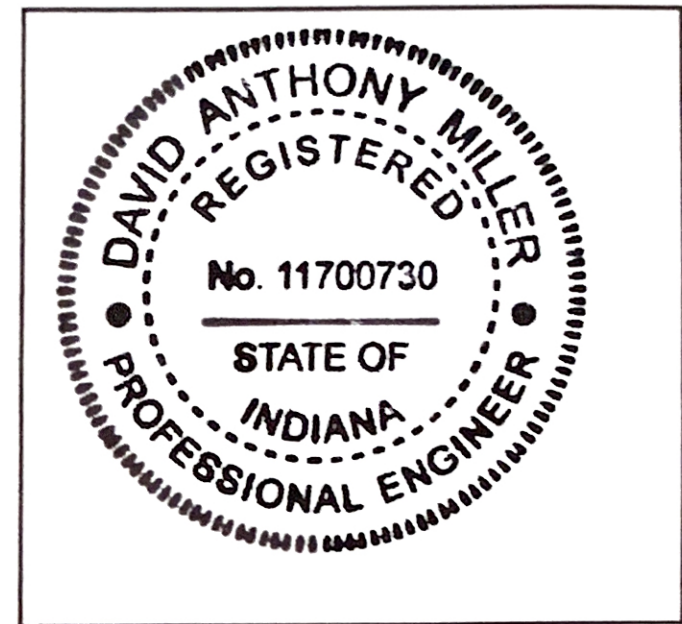
I certify that the selected statistical method, described above and in the February 27, 2020 *Statistical Analysis Summary* report, is appropriate for evaluating the groundwater monitoring data for the Rockport LF CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature



11700730

License Number

INDIANA

Licensing State

05.18.2020

Date

Memorandum

Date: August 4, 2020
To: David Miller (AEP)
Copies to: Justin Jent (AEP)
From: Allison Kreinberg (Geosyntec)
Subject: Evaluation of Detection Monitoring Data at Rockport Plant's Landfill (LF)

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257 Subpart D, "CCR rule"), the first semi-annual detection monitoring event at the Landfill (LF), an existing CCR unit at the Rockport Power Plant located in Rockport, Indiana was completed on May 18-19, 2020. Based on the results, verification sampling was completed on July 15-16, 2020.

Background values for the LF were previously calculated in January 2018. After a minimum of four detection monitoring events, the results of those events were compared to the existing background and the dataset was updated as appropriate. Revised upper prediction limits (UPLs) were calculated for each Appendix III parameter to represent background values. Lower prediction limits (LPLs) were also calculated for pH. Details on the calculation of these revised background values are described in Geosyntec's *Statistical Analysis Summary* report, dated February 27, 2020.

To achieve an acceptably high statistical power while maintaining a site-wide false-positive rate (SWFPR) of 10% per year or less, prediction limits were calculated based on a one-of-two retesting procedure. With this procedure, a statistically significant increase (SSI) is concluded only if both samples in a series of two exceed the UPL (or are below the LPL for pH). In practice, if the initial result did not exceed the UPL, a second sample was not collected or analyzed.

Detection monitoring results and the relevant background values are compared in Table 1 and noted exceedances are described in the list below.

- Calcium concentrations exceeded the intrawell UPL of 100 mg/L in both the initial (108 mg/L) and second (102 mg/L) samples collected at MW-016D. An SSI over background is concluded for calcium at MW-016D.
- Chloride concentrations exceeded the intrawell UPL of 26.0 mg/L in both the initial (93.6 mg/L) and second (96.2 mg/L) samples collected at MW-002D, the intrawell UPL of 75.5 mg/L in both the initial (135 mg/L) and second (133 mg/L) samples collected at MW-016D, and the intrawell UPL of 23.6 mg/L in both the initial (26.7 mg/L) and second (25.8 mg/L) samples collected at MW-016S. SSIs over background are concluded for chloride at MW-002D, MW-016D, and MW-016S.
- Fluoride concentrations exceeded the intrawell UPL of 0.72 mg/L in both the initial (0.76 mg/L) and second (0.77 mg/L) samples collected at MW-021S. An SSI over background is concluded for fluoride at MW-021S.
- Total dissolved solids (TDS) concentrations exceeded the intrawell UPL of 374 mg/L in both the initial (399 mg/L) and second (411 mg/L) samples collected at MW-002D, and the intrawell UPL of 398 mg/L in both the initial (558 mg/L) and second (519 mg/L) samples collected at MW-016D. SSIs over background are concluded for TDS at MW-002D and MW-016D.

In response to the exceedances noted above, the Rockport LF CCR unit will either transition to assessment monitoring or an alternative source demonstration (ASD) for calcium, chloride, fluoride, and TDS will be conducted in accordance with 40 CFR 257.94(e)(2). If the ASD is successful, the Rockport LF will remain in detection monitoring.

The statistical analysis was conducted within 90 days of completion of sampling and analysis in accordance with 40 CFR 257.93(h)(2). A certification of these statistics by a qualified professional engineer is provided in Attachment A.

**Table 1: Detection Monitoring Data Evaluation
Rockport Plant - Landfill**

Parameter	Unit	Description	MW-001D	MW-001I		MW-001S	MW-002D		MW-002I	MW-002S		MW-015I	MW-015S
			5/19/2020	5/19/2020	7/16/2020	5/19/2020	5/18/2020	7/15/2020	5/18/2020	5/18/2020	7/15/2020	5/19/2020	5/19/2020
Boron	mg/L	Intrawell Background Value (UPL)	0.151	0.122		0.0686	0.106		0.0632	0.120		0.0976	0.146
		Detection Monitoring Result	0.040	0.020	--	0.020	0.020	--	0.020	0.020	--	0.030	0.020
Calcium	mg/L	Intrawell Background Value (UPL)	79.4	72.3		79.8	114		79.9	67.0		55.0	70.5
		Detection Monitoring Result	59.9	71.2	--	72.0	88.7	--	61.9	53.7	--	49.2	42.4
Chloride	mg/L	Intrawell Background Value (UPL)	62.4	36.2		43.0	26.0		33.8	29.8		72.2	28.6
		Detection Monitoring Result	23.8	37.7	35.4	34.7	93.6	96.2	24.4	28.9	--	19.0	10.3
Fluoride	mg/L	Intrawell Background Value (UPL)	0.34	0.47		0.69	0.23		0.37	0.33		0.37	1.05
		Detection Monitoring Result	0.30	0.40	--	0.55	0.21	--	0.36	0.34	0.33	0.25	0.86
pH	SU	Intrawell Background Value (UPL)	8.3	8.0		8.1	8.5		8.5	8.1		8.2	7.8
		Intrawell Background Value (LPL)	6.6	6.5		6.7	6.3		6.6	6.4		6.7	6.8
		Detection Monitoring Result	7.1	7.2	--	7.0	7.8	--	7.8	7.4	--	7.5	7.6
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	364	355		422	374		382	379		430	439
		Detection Monitoring Result	261	323	--	350	399	411	297	344	--	253	218
Sulfate	mg/L	Intrawell Background Value (UPL)	48.1	48.0		38.5	48.0		49.5	35.3		48.2	38.9
		Detection Monitoring Result	23.3	40.1	--	37.1	36.2	--	40.5	24.9	--	17.8	9.1

Parameter	Unit	Description	MW-016D		MW-016I	MW-016S		MW-021D	MW-021I	MW-021S	
			5/19/2020	7/15/2020	5/19/2020	5/19/2020	7/15/2020	5/19/2020	5/19/2020	5/19/2020	7/15/2020
Boron	mg/L	Intrawell Background Value (UPL)	0.115		0.156	0.147		0.115	0.0831	0.0695	
		Detection Monitoring Result	0.030	--	0.020	0.030	--	0.020	0.020	0.020	--
Calcium	mg/L	Intrawell Background Value (UPL)	100		130	122		82.8	72.8	63.4	
		Detection Monitoring Result	108	102	51.9	104	--	69.2	58.5	49.1	--
Chloride	mg/L	Intrawell Background Value (UPL)	75.5		106	23.6		20.5	22.8	19.9	
		Detection Monitoring Result	135	133	31.3	26.7	25.8	19.9	19.3	18.0	--
Fluoride	mg/L	Intrawell Background Value (UPL)	0.22		0.23	0.51		0.43	0.41	0.72	
		Detection Monitoring Result	0.17	--	0.14	0.34	--	0.26	0.35	0.76	0.77
pH	SU	Intrawell Background Value (UPL)	7.9		7.9	8.2		8.6	8.6	8.8	
		Intrawell Background Value (LPL)	6.8		6.8	6.2		6.6	7.3	6.4	
		Detection Monitoring Result	7.7	--	7.8	7.5	--	7.6	7.4	8.1	--
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	398		595	561		376	360	324	
		Detection Monitoring Result	558	519	350	470	--	328	283	238	--
Sulfate	mg/L	Intrawell Background Value (UPL)	42.5		45.0	53.2		43.2	51.9	24.6	
		Detection Monitoring Result	40.1	--	25.8	34.9	--	33.3	38.8	15.1	--

Notes:
 UPL: Upper prediction limit
 LPL: Lower prediction limit
Bold values exceed the background value.
 Background values are shaded gray.

ATTACHMENT A

Certification by a Qualified Professional Engineer

CERTIFICATION BY QUALIFIED PROFESSIONAL ENGINEER

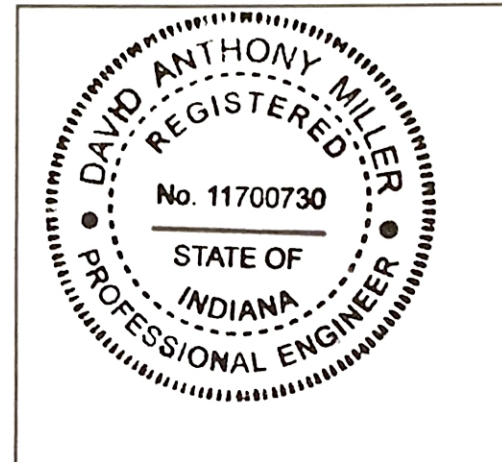
I certify that the selected statistical method, described above and in the February 27, 2020 *Statistical Analysis Summary* report, is appropriate for evaluating the groundwater monitoring data for the Rockport LF CCR management area and that the requirements of 40 CFR 257.93(f) have been met.

DAVID ANTHONY MILLER

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature



11700730

License Number

INDIANA

Licensing State

08.06.2020

Date

APPENDIX 3 – Alternate Source Demonstrations

Alternate source demonstrations that have been completed as of January 31, 2021 follow.



Alternative Source Demonstration for Appendix III Constituents, CCR Landfill

American Electric Power Service Corporation
Rockport Generating Station, Rockport, Spencer County, Indiana
Project # 7650202784

Prepared for:

American Electric Power Service Corporation

1 Riverside Plaza, Columbus, Ohio 43215

2 June 2020



2 June 2020

Mr. David Miller
Director, Land Environment & Remediation Services
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, OH 43215
Email: damiller@aep.com

Wood Environment & Infrastructure Solutions, Inc.
2456 Fortune Drive, Suite 100
Lexington, KY 40509
USA
T: 859-255-3308
www.woodplc.com

Dear Mr. Miller:

Wood Environment & Infrastructure Solutions, Inc. (Wood) has prepared this Alternative Source Demonstration (ASD) for the CCR Landfill located at the AEP Rockport Plant in Rockport, Indiana. As detailed in this report, the results of this ASD conclude that statistically significant increases (SSIs) identified in samples from the waste boundary monitoring wells are not caused by releases from the CCR Landfill. We are available to discuss the details of this report at your convenience should you require additional information.

We very much appreciate working with AEP on this project. If you require additional information about this report, please feel free to contact Kathleen Regan at (859) 566-3724.

Sincerely,

Wood Environment & Infrastructure Solutions, Inc.

Konrad W. Quast, PhD
Senior Hydrogeologist

Kathleen D. Regan, PE
Senior Associate Engineer
Project Manager

Attachments

/kdr

cc: Justin Jent, PE, American Electric Power Service Corporation



Alternative Source Demonstration for Appendix III Constituents, CCR Landfill

American Electric Power Service Corporation
Rockport Generating Station, Rockport, Spencer County, Indiana
Project # 7650202784

Prepared for:

American Electric Power Service Corporation
1 Riverside Plaza, Columbus, Ohio 43215

Prepared by:

Wood Environment & Infrastructure Solutions, Inc.
2456 Fortune Drive, Suite 100
Lexington, KY 40509
USA
T: 859-255-3308

2 June 2020

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Executive Summary

American Electric Power (AEP) operates two units at the Rockport Plant for management of coal combustion residuals (CCR): the bottom ash ponds (BAP), and the CCR Landfill. Both are regulated under the federal CCR Rule (40 CFR Part 257) that became effective in October 2015 and modified in July 2018.

The CCR Landfill has been in the detection phase of groundwater monitoring as part of its compliance with the rule. The most recent statistical analysis of Appendix III constituents identified eight statistically significant increases (SSIs) above background, distributed among seven waste boundary monitoring wells. Four waste boundary monitoring wells exhibited SSIs for chloride (MW-1I, MW-2S, MW-2D and MW-16D). One of the six wells, MW-16D, also exhibited a SSI for total dissolved solids (TDS). The remaining SSI was observed for fluoride in monitoring well MW-17I, which did not exhibit any other SSI.

This alternative source demonstration (ASD) evaluates the occurrence of SSIs in terms of site geochemistry, hydrogeologic setting, and with respect to supplementary data collected to support the evaluation. Based on the analysis presented in this ASD, CCR Landfill leachate can be excluded as a source of Appendix III SSLs for the following reasons:

- Boron occurs naturally at low concentration in site groundwater, in similar concentrations in background and downgradient wells. Boron occurs at concentrations approximately three orders-of-magnitude in the Landfill leachate as compared to site groundwater, and is a conservative ion, making it an excellent indicator for impacts from landfill leachate impacts in groundwater. If landfill leachate were impacting groundwater, boron would be expected to be observed in multiple waste boundary wells and at statistically significant concentrations above background. It does not.
- Sulfate is another typical indicator for CCR leachate impacts, which also occurs naturally in site groundwater (at similar concentration ranges in background and downgradient wells) and is elevated in the CCR Landfill leachate at concentrations approximately three orders-of-magnitude above background monitoring wells. No SSIs for sulfate were determined in any of the waste boundary well samples.
- Chloride is a naturally occurring and conservative ion, which occurs in the CCR Landfill leachate at concentrations about two orders-of-magnitude above groundwater concentrations. Spatial trends indicate that chloride concentrations tend to increase in groundwater moving downgradient from recharge areas. However, because the SSIs indicated for chloride are not associated with SSIs for boron and sulfate, the CCR Landfill leachate is not considered a source for the chloride detected in groundwater.
- The same conclusion can be drawn regarding calcium, total dissolved solids (TDS) and fluoride, for which occasional SSIs are not consistently associated with boron, sulfate, or each other. The SSIs indicated for these constituents appear to be related to the natural variation in groundwater quality, along with a spatial trend of increasing TDS with distance from recharge area.
- The conclusions listed above are also supported by the analytical results for isotope ratios of boron and strontium in leachate and groundwater samples. While only a single set of samples to date have been collected, the indication in downgradient wells, including wells that have shown SSIs, is that the leachate is distinctly different from that of background and downgradient groundwater, and supports no release from the landfill to groundwater.

1.0 Objective

American Electric Power (AEP) operates a CCR Landfill that is used for the management of coal combustion residuals (CCR). The landfill is regulated under the federal CCR Rule (40 CFR Part 257) that became effective in October 2015. During the initial phase of groundwater monitoring (detection monitoring), the CCR Rule requires the owners or operators of regulated units to collect at least eight independent samples from at least one background location and at least three waste boundary wells, analyzed for constituents listed in Appendix III and Appendix IV of the CCR rule. That sampling was completed in July 2017.

Four rounds of detection monitoring have been conducted at the landfill. Each round consists of an initial sampling event, followed by one or two rounds of verification samples based on the results of the initial events. Following completion of the verification sampling for each event, a statistical analysis is conducted to assess whether statistically significant increases (SSIs) above background are detected in the waste boundary monitoring wells for Appendix III constituents. For each semiannual sampling round where SSIs are detected, an alternate source demonstration (ASD) has been performed to assess whether these SSIs were the result of a release of leachate from the CCR landfill.

Previous ASDs performed by Geosyntec and Wood Environment & Infrastructure Solutions, Inc. (Wood) have indicated that the source of previously-identified SSIs result from natural variation in groundwater quality or potential impacts from historical oil and gas operations. The most recent ASD was completed by Wood in December 2019 for the detection monitoring event of November 2018, with verification samples taken in February and April 2019.

The first semiannual detection monitoring samples for 2019 were taken in May 2019, with verification samples taken in July and September 2019. Again, a statistical evaluation of monitoring results identified SSIs for several Appendix III constituents. The objective of this ASD is to review these results, and to assess whether the findings of the June 2019 ASD remain valid; that is, that the SSIs detected in the waste boundary wells, from detection monitoring samples collected in November 2019 and verified in February 2020 samples, are not the result of a release from the landfill.

1.1 Scope

As stated in 40 CFR 257.94(e)(2), the CCR Rule allows 90 days after the initial identification of Appendix III SSIs for the owner or operator to demonstrate that a source other than the regulated unit is responsible for identified SSIs. The regulations allow the ASD to address a number of potential causes of SSIs other than a release from the regulated unit, including error[s] in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

The scope of this ASD is focused on evaluating the second 2019 semiannual detection monitoring results (including verification samples) and assessing whether the data are consistent with the assessment conducted in the most recent ASD report (Wood, June 2019). The ASD will be undertaken to assess, through multiple lines of evidence, whether an alternative source for the SSIs can be supported, following the guidelines published in October 2017 by the Electric Research Power Institute (EPRI, Guidelines for Development of Alternative Source Demonstrations at Coal Combustion Residual Sites). This report does not include evaluations of potential errors in sampling and analysis, or the statistical approaches which were used to identify the SSIs.

1.2 Approach

The ASD presented in this document is based on a geochemical and hydrologic evaluation of groundwater quality at the CCR Landfill. The purpose of this ASD is to evaluate the identified SSIs within

the larger geochemical context of the CCR Landfill groundwater flow system, in order to assess the likelihood that these SSIs are the result of releases from the CCR Landfill. In addition to the groundwater analytical data collected for compliance with the CCR rule, used to support the statistical evaluation, Wood relied on supplemental analytical data, including analyses of the CCR Landfill leachate and monitoring well groundwater analyses of the isotopes of boron and strontium.

1.3 Report Organization

This ASD has been prepared following the *Guidelines for Development of Alternative Source Demonstrations at Coal Combustion Residual Sites* (EPRI, 2017) to the extent applicable. **Section 2** presents a summary the CCR Landfill setting, and a summary of the results from the statistical evaluation of the Appendix III detection monitoring parameters. **Section 3** presents the primary and secondary lines of evidence developed from a geochemical evaluation of the site. **Section 4** presents the technical findings of the ASD and includes certification by an Indiana-licensed Professional Engineer (PE). References are included in **Section 4**.

2.0 Background

2.1 Site Description

The Rockport Power Plant is located in southwest Indiana in Spencer County, on property extending into three Townships: Ohio, Hammond and Grass. Two CCR-regulated units are located on the property, two adjacent bottom ash ponds (BAP) and the CCR Landfill. The general layout of the property and the locations of the CCR units are shown on **Figure 1**. The CCR Landfill, or Landfill, is located about 8,000 feet (1.5 miles) northeast of the generating plant. **Figure 2** shows the general layout of the CCR Landfill and the monitoring well locations.

2.1.1 Landfill Operation

The CCR Landfill is an active disposal unit that primarily contains fly ash, with materials generated by the emission control systems added beginning in 2007. These materials include sodium sulfate generated by the removal of sulfur dioxide by the dry sorbent injection (DSI) system, and granular brominated activated carbon used for mercury removal. To a lesser extent, some bottom ash has also been placed within the CCR Landfill. As shown on **Figure 2**, the active portion of the CCR Landfill directly adjoins a closed portion of the landfill to the northeast.

The CCR Landfill is currently permitted by the Indiana Department of Environmental Management (IDEM) Office of Land Quality, Solid Waste Permits Section, as a Restricted Waste Site (RWS) under Indiana Administrative Code (IAC) 329 Title 10 (Solid Waste CCR Landfill Disposal Facilities) Rule 9-4. The active CCR Landfill is permitted as a RWS Type I, which requires a liner and leachate collection system. The permit was most recently renewed on 10 February 2015.

Leachate from the CCR Landfill cells is collected in lined ponds located north and west of the active CCR Landfill area. These ponds also collect storm water runoff from the CCR Landfill area. Prior to discharge, the leachate commingled with runoff is transferred to the Leachate Treatment Pond (north of the West Leachate Pond). Effluent from the Leachate Treatment Pond is discharged and monitored under National Pollution Discharge Elimination System (NPDES) Permit No. IN0051845 at Station 002.

2.1.2 Groundwater Flow

The principal groundwater flow zone underlying the CCR Landfill consists of the saturated section of the unconsolidated glaciofluvial sand and sand and gravel valley train sediments that fill the Ohio River valley in this area. The depth to water in this zone typically ranges from 20 to 35 feet (ft) below ground surface (BGS), and the saturated thickness (which generally increases to the southeast) ranges from less than 15 ft to more than 80 ft. A generalized cross-section is presented in **Figure 3**.

Groundwater primarily occurs under unconfined conditions, or semi-confined conditions where the saturated zone is directly overlain by surficial silt and clay. Piezometric data collected from clustered monitoring wells indicate that vertical gradients within the saturated zone are minor, and groundwater flow is primarily horizontal. Groundwater flows into the plant and landfill area from the north, northwest and west, continues flowing under the property generally to the south and east, towards Honey Creek and/or the Ohio River. A potentiometric surface map from the November 2019 sampling event is presented on **Figure 4**.

2.1.3 Existing Groundwater Monitoring System

In 2015, when the CCR Rule took effect, a monitoring well network was already present at the CCR Landfill for groundwater monitoring under IDEM permit. While the valley train sediments are considered a single well-connected aquifer system, the saturated thickness of the sediments allowed for wells at the CCR Landfill to be installed in clusters, to monitor up to three levels (shallow – “S”, intermediate – “I”, and deep – “D”) within the principal flow zone. However, the valley train sediments that make up the flow zone thin to the north, leaving less saturated overburden upgradient of the CCR Landfill. As a result, only one or two levels could be monitored in some locations.

The official CCR groundwater monitoring network for the CCR Landfill includes five background or cross-gradient wells (MW-6S, MW-8S/I, MW-11S and MW-14S) and 16 waste boundary wells (MW-1S/I/D, MW-2S/I/D, MW-15S/I, MW-16S/I/D, MW-17S/I and MW-21S/I/D). At most locations, the saturated overburden was thick enough to allow installation of screens at three different levels, with the deepest wells being completed just above bedrock at depths of 88 to 100 ft BGS. Two clusters, MW-15 and MW-17, are located just east of the CCR Landfill in an area of relatively shallow bedrock. Therefore, the deeper wells at these locations (designated “I”) have completed depths just above bedrock at 66 to 67 ft BGS. A comprehensive summary of analytical data for the groundwater monitoring network since June 2016 is presented on **Table A-1** in **Appendix A**.

2.2 Summary of Previous SSIs and ASDs

Eight baseline monitoring events and one initial detection monitoring event for the CCR Landfill were completed prior to 17 October 2017. On behalf of AEP, Geosyntec submitted these results to Groundwater Stats Consulting, LLC for statistical analysis. Oversight on the use of statistical calculations was provided by Dr. Kirk Cameron of MacStat Consulting, Ltd. According to the report (*Statistical Analysis Summary, Landfill*, Geosyntec 2018), the initial eight rounds of baseline data were used to calculate the upper prediction limits (UPLs) for each of the Appendix III constituents to represent background values. Results from each detection monitoring event conducted to date have been compared to the UPLs established from the eight baseline rounds in order to identify SSIs compared to background.

Following completion of the first detection monitoring event, the initial statistical evaluation identified 11 SSIs for calcium (2), chloride (7), fluoride (1) and TDS (3). On 4 January 2019, Geosyntec prepared an ASD focusing on statistical methods. Geosyntec evaluated the new data and based on multiple lines of evidence, revised the statistical approach for some monitoring wells. Initially, the statistical evaluation included a mixture of interwell (between wells) and intrawell (within one well) techniques. The interwell

analysis compares data from waste boundary wells against a background data set composed of results from upgradient and cross-gradient well data. The intrawell approach compares each waste boundary well against a background composed of its own historical data and is used to detect statistically significant increases within samples from an individual well over time (Horsey, HR et. al., 2001). Spatial and temporal variability observed in samples from the background monitoring wells caused Geosyntec to select an intrawell approach for all Appendix III constituents in all waste boundary monitoring wells.

After using an intrawell approach, the number of SSIs was reduced to eight, distributed among seven waste boundary wells. In January 2019 Geosyntec published an ASD to document changes to the statistical methodologies and attributed the observed SSIs to impacts from historic oil and gas operations. Since the statistical methods were revised, results from all subsequent detection monitoring events have been analyzed following the same approach. A summary of the SSIs identified in each of the four detection monitoring events is presented below, in **Exhibit 2-1**.

Exhibit 2-1. Monitoring Wells and Appendix III Parameters with SSIs

Parameter	MW-1S	MW-1I	MW-2S	MW-2D	MW-16S	MW-16D	MW-17I	MW-21S
Calcium				◆		◆		
Chloride	◆◆	◆◆◆	◆◆◆	◆◆◆★		◆◆◆★		◆
Fluoride							◆◆◆	★
TDS	★			◆	◆	◆◆◆★		

- ◆ June 2018, after verification
- ◆ November 2018, after verification
- ◆ May 2019, after verification
- ★ November 2019, after verification

As shown in **Exhibit 2-1**, there is significant overlap between the SSIs identified in each semiannual sampling event, as well as several key differences.

- The November 2019 event (plus verification samples) had the fewest number of SSIs identified to date: only five constituents in four monitoring wells.
- No SSIs were identified for calcium, which previously had been identified samples from monitoring well MW-2D and MW-16D.
- A new SSI for TDS was identified for monitoring well MW-1S, which previously had not been identified.
- A new SSI for fluoride was identified for monitoring well MW-21S, which previously had not been identified.

Wood has reviewed its December 2019 ASD with respect to the statistical evaluation of the new semiannual sampling event. The evaluation presented in the December 2019 ASD report is still valid, even in light of the new SSIs identified for TDS and fluoride. Wood has updated the geochemical analysis that forms the basis of the ASD and has included updated graphics to support the findings in this current ASD report.

3.0 Alternative Source Demonstration

The ASD presented below relies on multiple lines of evidence that the SSIs identified in the statistical analysis are not caused by releases of landfill leachate into the groundwater flow system. When taken as a whole, these lines of evidence present a compelling case that the SSIs are not a result of a release from the landfill, but a result of natural variation in groundwater quality, a result of historical oil and gas operations, or from storm water ponds. This ASD follows the approach of Wood's June 2019 report, updated with data collected for the second semiannual sampling event for 2019.

In order to evaluate the potential of a release from the CCR Landfill to groundwater, Wood evaluated groundwater quality data, including isotopes, in the context of the geochemical characteristics of CCR Landfill leachate. The results of this evaluation support that CCR Landfill leachate at the Rockport site can be ruled out as a source of the SSIs identified in waste boundary monitoring wells, through primary and supporting lines of evidence, each of which are described in more detail within this section.

Primary lines of evidence focus on the relationship between source material that could be released into the subsurface (in this case, landfill leachate) and the type and distribution of SSIs identified in groundwater. The lines of evidence supporting the conclusion of this ASD can be summarized as follows:

- SSIs are not identified for the site-specific primary indicator constituents of the Rockport CCR Landfill leachate.
- Geochemical evaluations of the CCR Landfill support that leachate has not affected water quality.
 - Conservative ion ratios and major ion chemistry do not indicate a release from the CCR Landfill.
 - Isotopes of boron and strontium do not indicate a release from the CCR Landfill.

Each of these lines of evidence are described in detail below.

3.1 SSIs Are Not Identified for Primary Indicator Constituents

The primary indicators for CCR leachate typically have much higher concentrations in leachate than in natural groundwater. They are mobile and relatively non-reactive in groundwater, so that groundwater impacted by a CCR leachate release should have elevated concentrations of the indicator constituents relative to background and with relatively similar contributions. The elevated concentrations would be expected to result in SSIs identified by statistical evaluation of the data from the downgradient waste boundary wells, and the SSIs would be expected to be generally consistent between downgradient wells. The primary lines of evidence presented below compare the occurrence of SSIs in groundwater to the composition of landfill leachate.

3.1.1 Site-Specific Leachate Analysis for Primary Indicator Constituents

The composition of landfill leachate is governed by the types of materials placed in the unit and identifying the leachate's primary constituents is key to assessing a potential release to groundwater. Since all Appendix III constituents are naturally occurring, the best indicators of CCR impacts are those constituents that are found at concentrations much higher in the source material than are seen in natural groundwater. AEP conducted sampling of its leachate collection system to identify relative concentrations of Appendix III and IV constituents in the Rockport CCR Landfill leachate.

The leachate collection system for the Landfill discharges into the North and West Leachate Collection Ponds, shown on **Figure 2**, discharge to the Leachate Treatment Pond, directly north of the West Leachate Pond. Five samples were collected from both the West and North Leachate Collection Ponds between 31 October 2018 and 20 March 2019 and results are detailed on **Table A-2** in **Appendix A**. A summary of the range of Appendix III constituent results for leachate pond samples, compared to background and waste boundary well samples, is provided below in **Exhibit 3-1**.

Exhibit 3-1. Summary of Landfill Leachate Pond and Groundwater Concentrations for Appendix III Constituents

Parameter, Units in mg/L	Range for Leachate Ponds		Range for Upgradient (Background) Wells		Range for Downgradient Waste Boundary Wells	
	Min	Max	Min	Max	Min	Max
Boron	9.18	12.3	<0.004	0.115	0.001	0.139
Calcium	166	368	35.6	79.5	28.7	114
Chloride	847	1,250	1.54	30.0	8.78	214
Fluoride	<1.50	<1.50	0.25	1.0	0.064	1.08
Total Dissolved Solids (TDS)	22,100	30,900	179	408	196	620
Sulfate	14,100	19,000	2.7	87.1	6.2	54.7

Because the CCR Landfill leachate ponds also receive some storm water runoff, concentrations in at least some of these samples are likely to be diluted compared to concentrated leachate from landfilled materials (depending on the amount of recent rainfall). Nevertheless, pond samples serve as reliable indicators of the relative composition of leachate. As seen in **Exhibit 3-1**, boron and sulfate occur at concentrations as much as three orders-of-magnitude above background groundwater levels. Results for chloride and TDS are as much as two orders-of-magnitude above background concentrations. Calcium and fluoride concentrations are within the same orders-of-magnitude as those detected in background groundwater. These results indicate that boron and sulfate are the best indicator constituents of CCR impacts, followed by TDS and chloride, based on their elevated occurrence in landfill leachate compared to natural groundwater.

3.1.2 Occurrence of Primary Indicator Constituents in Waste Boundary Monitoring Well Samples

Four primary indicator compounds are identified for the Rockport CCR Landfill leachate: boron, sulfate, TDS and chloride. Six SSIs have been identified for chloride, one for TDS and one for fluoride. However, no SSIs were identified in waste boundary wells for either boron or sulfate. Given the predominance of boron and sulfate in the CCR Landfill leachate, and that neither of these constituents are elevated above background, it is concluded that Landfill leachate is not the source of the observed SSIs. This assumption is supported by a more in-depth review of the indicator constituents, presented below.

Boron

No SSIs have been identified for boron. Boron has been identified in background wells at concentrations ranging from <0.004 to 0.115 mg/L. Concentrations in waste boundary well samples range from 0.001 to 0.139 mg/L. Landfill leachate boron concentrations are much higher and range from 9.18 to 12.3 mg/L. The boron results are plotted graphically on **Exhibit 3-2**, which illustrates the range of results for leachate (at the left of the chart) compared to and background and waste boundary groundwater samples. It should be noted that the highest concentration of boron observed in waste boundary groundwater samples (0.139 mg/L) occurred in MW-16I and did not represent an SSI for that well.

If a release of landfill leachate had occurred, boron concentrations in waste boundary well samples should be clearly higher than the range of background well results, and SSIs would likely be found in at least some of the monitoring wells with other identified SSIs.

Sulfate

No SSIs have been identified for sulfate. Sulfate has been identified in background wells at concentrations ranging from 2.7 to 87.1 mg/L. Concentrations in waste boundary well samples range from 6.2 to 54.7 mg/L. Landfill leachate sulfate concentrations are orders of magnitude higher and range from 14,100 to 19,000 mg/L. The sulfate results are plotted graphically on **Exhibit 3-3**, which clearly shows that leachate concentrations of sulfate are orders-of-magnitude higher than all groundwater samples, and that no discernable difference is present between the background and waste boundary samples. Furthermore, the highest monitoring well concentrations are seen in samples from background well MW-8I (62.3 to 87.1 mg/L).

It is expected that a release of landfill leachate would elevate groundwater concentrations of all Appendix III constituents present in the leachate in relatively similar proportions. Even if all constituents were not exhibiting statistically significant increases, a pattern of related SSIs would be observed if the increases were caused by landfill leachate. Since all SSIs occurred in absence of a boron or sulfate SSI, and the highest groundwater sulfate concentrations are associated with a background well, it is concluded that the reported SSIs are caused by the natural variation in groundwater quality, potentially impacted by historical oil and gas operations which are assumed to have high chloride and TDS and little to no sulfate, and not by releases from the CCR Landfill.

Exhibit 3-2. CCR monitoring well and landfill leachate ponds boron concentrations

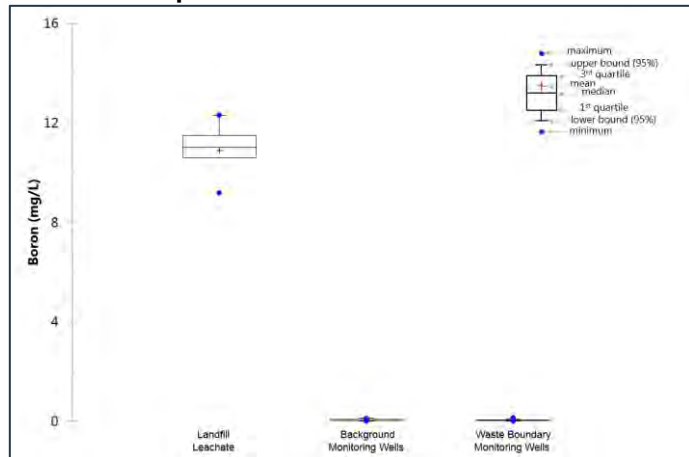
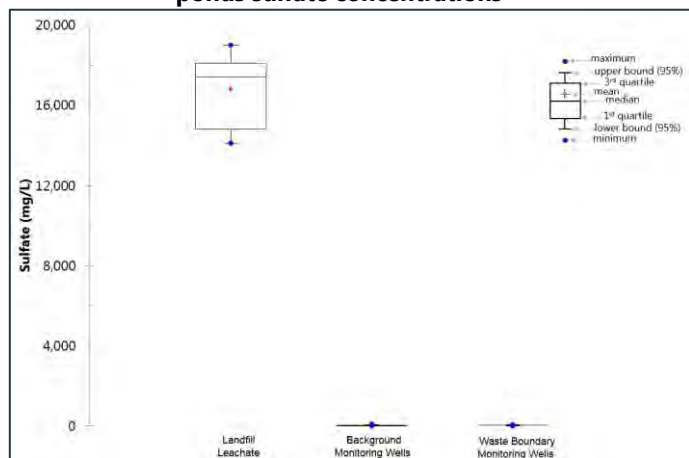


Exhibit 3-3. CCR monitoring well and landfill leachate ponds sulfate concentrations



3.2 Geochemical Evaluations

While the CCR rule requires the use of statistical analyses of samples collected from groundwater monitoring wells to assess potential impacts from CCR units (SSIs), the approach does not consider the site specific hydrogeochemical interactions that can often be complex due to simultaneous operations and natural variation within the context of the local hydrogeologic setting. Since geochemical evaluations rely on interpretation of graphical data, the discussion includes reduced size exhibits imbedded in the text. Full size exhibits are included in **Appendix B**. The major observations and conclusions from the geochemical evaluation are summarized in the sections below.

3.2.1 Indicator Parameter Cross-Plots and Major Ion Chemistry

To aid in the interpretation of individual Appendix III and other potential indicator parameters for the assessment of potential releases from the CCR Landfill, ratios of selected Appendix III indicator parameters were calculated and plotted versus concentrations of the conservative ion chloride, and major ion chemistry was assessed as a whole system using Piper trilinear diagrams. The use of these plotting techniques typically provides groupings of end members (sources of water such as background groundwater or landfill leachate), and potential trends of mixing that are not readily identifiable by analysis of individual indicator parameters on their own.

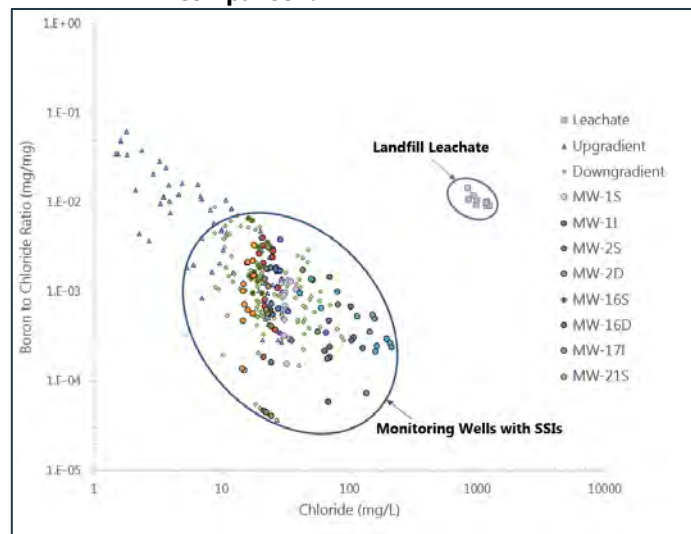
Plots of the B/Cl and SO₄/Cl ratios versus chloride in waste boundary monitoring wells show distinct end member groupings from that of the landfill leachate and support the conclusion that there are no discernable impacts from the CCR Landfill on any of the waste boundary monitoring wells. The graphics presented here include data for all wells in the CCR Landfill system and show that chloride concentrations tend to increase in groundwater moving downgradient from recharge areas represented by upgradient monitoring wells.

Boron to Chloride ratio Versus Chloride Concentration

The plotting of B/Cl versus chloride groundwater data shows primarily a single large cluster that trends perpendicular to the composition of leachate samples and is hypothesized as background and natural variability (**Exhibit 3-4**). The data are plotted on log-log scales due to the large range of concentrations and ratios making the separation in groupings appear closer than they are. The Landfill leachate clearly plots as a separate grouping of water quality having greater B/Cl ratios, while the monitoring well data plots along a trend of what can be described as natural variability. Background monitoring well MW-11S plots as upgradient recharge having lower chloride concentration and a higher B/Cl ratio.

Moving along the flow path to downgradient monitoring wells, this is followed by a trend of increasing chloride concentrations and salinity with decreasing B/Cl ratios due to geochemical evolution of groundwater and potential mixing with water associated with historic oil and gas operations and or storm water ponds. While chloride increases, boron does not increase at the same

Exhibit 3-4. Boron to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.

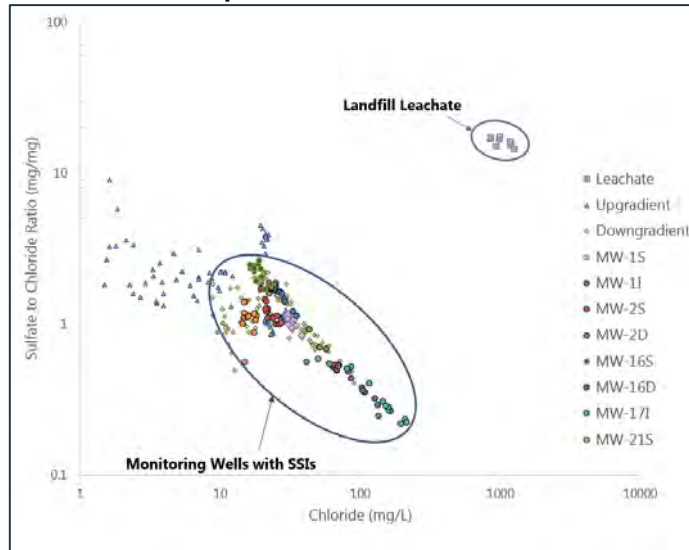


rate, resulting in the decreasing trend of B/Cl ratios as chloride concentrations and residence time increases. Thus, it is hypothesized that MW-11S represents an extreme end member of recent recharge, or relatively fresh groundwater, and after flow through the shallow overburden groundwater evolves geochemically to a lower B/Cl ratio, as chloride increases, approaching the larger background cluster values that represent older more mineralized groundwater without a significant source of boron in the aquifer matrix. The extreme end of the groundwater dataset trend is represented by MW-17I, MW-16D, and MW-2D due to higher chloride concentrations, but with lower B/Cl ratios. This plot supports that these wells are not impacted by CCR Landfill leachate but could be influenced by infiltration from the storm water holding ponds or flushing of salts from water holding ponds associated with historic oil and gas operations. If there were impacts from the landfill to groundwater, one would expect a trend of B/Cl ratios versus chloride moving from the groundwater trend toward the leachate values, but this does not occur.

Sulfate to Chloride Ratio Versus Chloride Concentration

Plotting of the SO_4/Cl ratio versus chloride shows similar results to the B/Cl ratios versus chloride concentration plot supporting the conclusion that there are no discernable impacts from the CCR Landfill on groundwater (**Exhibit 3-5**). The SO_4/Cl ratios for leachate group separately and are much higher than groundwater values. The SO_4/Cl ratios for leachate are typically around 15 mg/mg or higher, while groundwater ratios are below a value of 6 mg/mg. Similar to B/Cl ratios, the SO_4/Cl ratios versus chloride plot along a trend line of decreasing ratios as chloride and residence time increases. The extreme end of the groundwater data set trend is represented by MW-17I, MW-16D, and MW-2D variability due to higher chloride concentrations that is clearly different from leachate. Additionally, there is no trend of mixing of even small quantities of leachate with groundwater which would be shown by a deviation from the groundwater trend toward leachate, and the separation is distinct between downgradient groundwater and leachate.

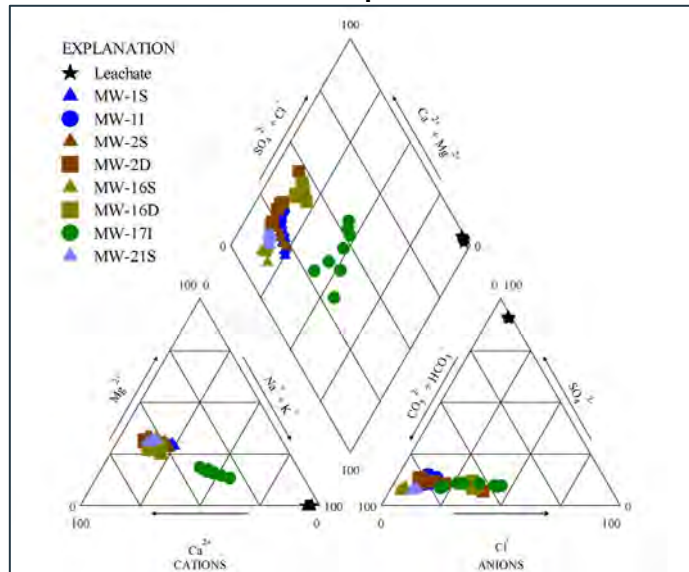
Exhibit 3-5. Sulfate to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.



CCR Landfill Major Ion Water Quality

Starting with the sixth round of sampling, additional analytes were included in the analyses making it possible to create major ion Piper trilinear diagrams for graphical comparison of water types for the CCR Landfill monitoring wells and leachate samples. Inferences of different groundwater source end members are supported by the Piper diagram shown on **Exhibit 3-6**. All of the major ion chemistry is plotted on a single diagram for downgradient monitoring wells with SSIs and results are supportive of the observations found when reviewing the cross-plots of ion ratios versus chloride concentrations. Leachate plots as a sodium sulfate water type while the monitoring wells identified with SSIs in this ASD are associated with a calcium bicarbonate water type with the exception of MW-17I. Monitoring well MW-17I shows a different major ion water type that is influenced by greater contributions of sodium and chloride, but not sulfate. The higher sodium and chloride is potentially related to the influence of upgradient stormwater ponds or historic oil and gas operations.

Exhibit 3-6. Piper diagram of major ion water quality for CCR Landfill monitoring wells with SSIs and leachate for comparison.



3.2.2 Isotope Analyses of CCR Related Water Quality and Materials

General Overview of Isotope Analyses

Water samples were collected from selected CCR Landfill monitoring wells and CCR Landfill leachate and submitted for isotope analyses of boron, strontium, and oxygen and hydrogen of water. The results of the isotope analyses serve as additional supporting lines of evidence for interpretations made using major ion and indicator parameter concentrations and reinforce the lack of leachate impacts to groundwater at the CCR Landfill.

Boron and its isotope ratio ($\delta^{11}\text{B}$) have been successfully used to identify groundwater pollution sources versus background or naturally occurring detections of constituents of concern (Davidson and Bassett 1993; Vengosh et al. 1994; Kendall et al., 1995; Ruhl et al. 2014; Harkness et al. 2017). In particular, boron isotopes have been successfully used to assess CCR related impacts in groundwater. Similarly, strontium and its isotopes ($^{87}\text{Sr}/^{86}\text{Sr}$) have also been successfully used to identify different groundwater source end members, mixing, and to determine anthropogenic versus geogenic processes associated with constituents of concern and associated with CCR impacts to groundwater (Kendall and Bullen 1995; Ruhl et al. 2014; Meredith 2016; Harkness et al. 2017; Nigro et al. 2017).

CCR Landfill Isotope Results

Stable isotope analyses are typically performed on a pair of isotopes (e.g. ^{11}B and ^{10}B , or ^{87}Sr and ^{86}Sr) and are reported as a ratio relative to internal standards, in per mil (‰) using Greek "delta" notation (δ). Deviations based on analysis of the standard are corrected for, to provide values that can be compared

between different laboratories and equipment. Isotopes commonly reported relative to a standard include boron (eq. 1), where the standard for boron is the National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) NIST SRM 951:

$$\delta^{11}B(\text{‰}) = \frac{\left(\frac{^{11}B}{^{10}B}\right)_{\text{Sample}} - \left(\frac{^{11}B}{^{10}B}\right)_{\text{Standard}}}{\left(\frac{^{11}B}{^{10}B}\right)_{\text{Standard}}} \times 1000 \quad \text{eq. 1}$$

Isotope ratios of strontium can be reported relative to a standard value but are commonly reported as the actual ratio $^{87}\text{Sr}/^{86}\text{Sr}$. The values for strontium reported here are the actual ratios, but they have been corrected to the National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) NIST SRM 987.

Background monitoring wells for the CCR Landfill show lower boron concentrations and higher $\delta^{11}\text{B}$ values compared to Landfill leachate samples (**Exhibit 3-7**). While only a limited number of background and waste boundary wells were tested (including MW-17I with a previous and current SSI, and MW-21S with a previously reported SSI), there is a clear distinction between all the CCR Landfill monitoring wells and the Landfill leachate which indicates that the wells represented are not impacted by the Landfill, and that boron in the monitoring wells is of a different source other than leachate.

In addition, while there is a variation in the leachate boron concentrations, the $\delta^{11}\text{B}$ values remain approximately equivalent. This supports the hypothesis that boron $\delta^{11}\text{B}$ values in leachate are dominated by the CCR materials. The range of observed concentrations is related to the amount of water generating the leachate or potentially dilution by fresh water derived from stormwater runoff. The result is a range of boron concentrations having a similar $\delta^{11}\text{B}$ value distinctly different from groundwater in both background and downgradient monitoring wells.

Strontium isotope results also support the boron isotope, major ion, and indicator parameter interpretations that there are no identifiable impacts on groundwater from the landfill. There are noticeably lower strontium concentrations and ratios for all CCR Landfill monitoring wells sampled compared to Landfill leachate (**Exhibit 3-8**).

Exhibit 3-7. Boron isotope ratio ($\delta^{11}\text{B}$) versus boron concentration for CCR Landfill leachate and monitoring wells for comparison.

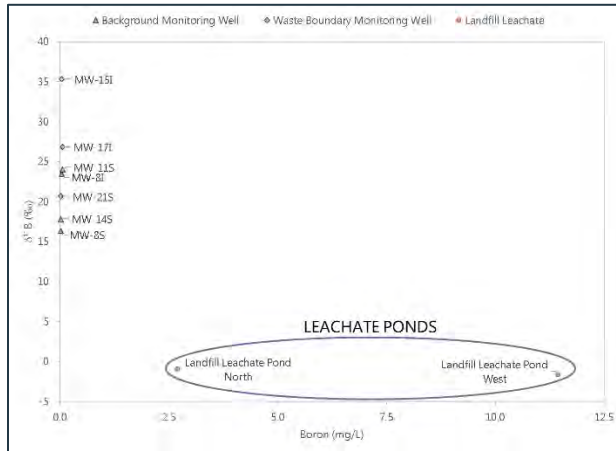
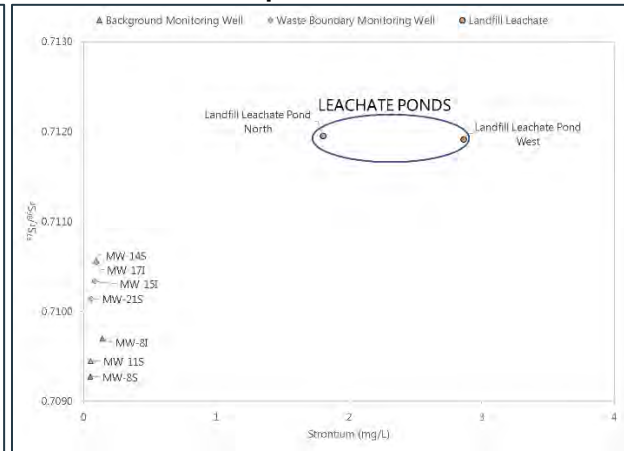


Exhibit 3-8. Strontium isotope ratio ($^{87}\text{Sr}/^{86}\text{Sr}$) versus strontium concentration for CCR Landfill leachate and monitoring wells for comparison.



3.3 Hydraulic Connection to the landfill

The groundwater monitoring network and the relationship of the wells to the regulated landfill are shown on **Figure 2**. Recent potentiometric flow data available for the site consistently indicate a local groundwater flow direction in the vicinity of MW-17 to the south and southeast. Four potentiometric surface maps are presented on **Figures 4 through 7**. As shown on these figures, well cluster MW-17 is located cross-gradient from the landfill and at least sometimes downgradient of the borrow area storm water ponds. Therefore, groundwater monitored by this well cluster is hypothesized to be unaffected by potential releases from the landfill unit. Additionally, other downgradient monitoring wells are likely impacted by the storm water ponds causing SSIs related to TDS and chloride.

4.0 Summary

As summarized in **Exhibit 2-1** above, in the initial detection monitoring event, SSIs were identified in only five of 16 downgradient monitoring wells, for the following Appendix III constituents (the number of SSIs is indicated in parentheses): chloride (2), fluoride (1) and TDS (2). The following statements summarize how the lines of evidence discussed above apply to each of the constituents with identified SSIs:

- Boron occurs naturally at low concentration in site groundwater, in similar concentrations in background and downgradient wells. Boron occurs at concentrations approximately three orders-of-magnitude in the CCR Landfill leachate as compared to site groundwater, and is a conservative ion, making it an excellent indicator for impacts from landfill leachate impacts in groundwater. If Landfill leachate were impacting groundwater, boron would be expected to be detected in multiple waste boundary wells and at statistically significant concentrations above background, but it does not and the boron that is present has been shown to be isotopically different.
- Sulfate is another common indicator for CCR leachate impacts, which also occurs naturally in site groundwater (at similar concentration ranges in background and downgradient wells) and is elevated in the CCR Landfill leachate at concentrations approximately three orders-of-magnitude above background monitoring wells. No SSIs for sulfate were determined in any of the waste boundary well samples.

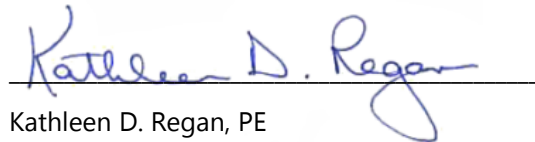
- Chloride is a naturally occurring and conservative ion, which occurs in the CCR Landfill leachate at concentrations about two orders-of-magnitude above groundwater concentrations. Spatial trends can be observed in **Exhibits 3-4** and **3-5** and indicate that chloride concentrations tend to increase in groundwater moving downgradient from recharge areas. However, because the SSIs indicated for chloride are not associated with SSIs for boron and sulfate, the CCR Landfill leachate is not considered a source for the chloride detected in groundwater.
- The same conclusion can be drawn regarding calcium, TDS and fluoride, for which occasional SSIs are not consistently associated with boron, sulfate, or each other. The SSIs indicated for these constituents appear to be related to the natural variation in groundwater quality, along with a spatial trend of increasing TDS with distance from recharge area.

4.1 Conclusion

This ASD has demonstrated, through multiple lines of evidence, that the SSIs identified in the statistical analysis of the second detection monitoring event data are not the result of a release of leachate from the CCR Landfill. Therefore, the unit will continue in detection monitoring.

4.2 Professional Engineer Certification

I certify that the above described Alternative Source demonstration is appropriate for evaluating the groundwater monitoring data for the Rockport Plant CCR Landfill and that the requirements of 40 CFR 257.95(h)(8)(3)(ii) have been met.



Kathleen D. Regan, PE
Indiana Registered Engineer PE1400182

2 June 2020

Date

5.0 References

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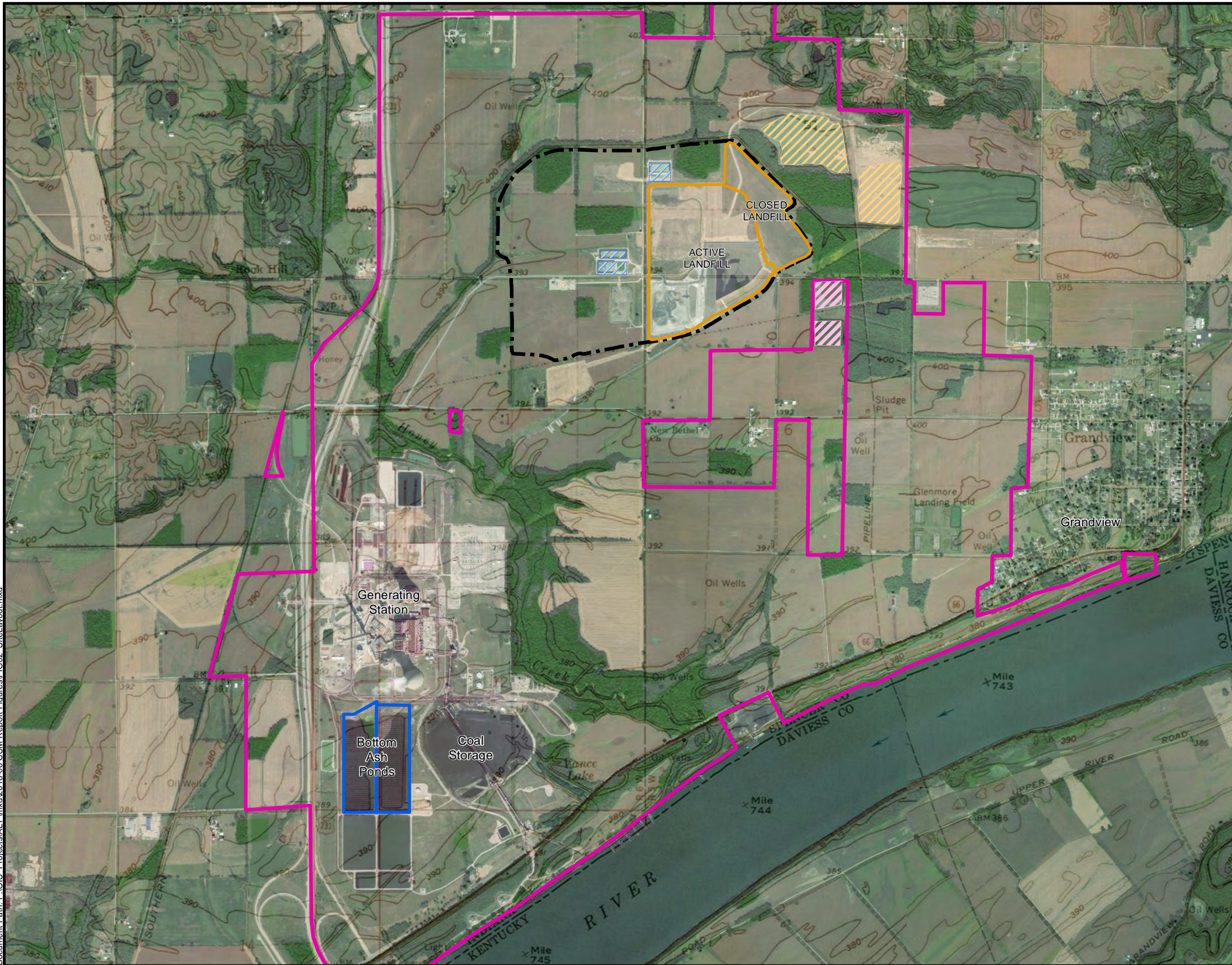
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Figures

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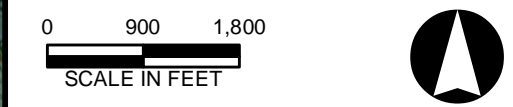


- Legend**
- Stormwater Ponds
 - Landfill Leachate Ponds
 - Grandview Wastewater Ponds
 - Property Boundary
 - Bottom Ash Ponds (BAP)
 - Landfill Area 1A (Active and Closed)
 - 1984 Landfill Permit Boundary (Area 1)

Data Sources

Date of Photography: 2016
 Source of Photography: U.S. Department of Agriculture, National Agriculture Imagery Program (NAIP)

USGS Rockport and Lewisport (IN/KY) Topographic Quadrangle Maps



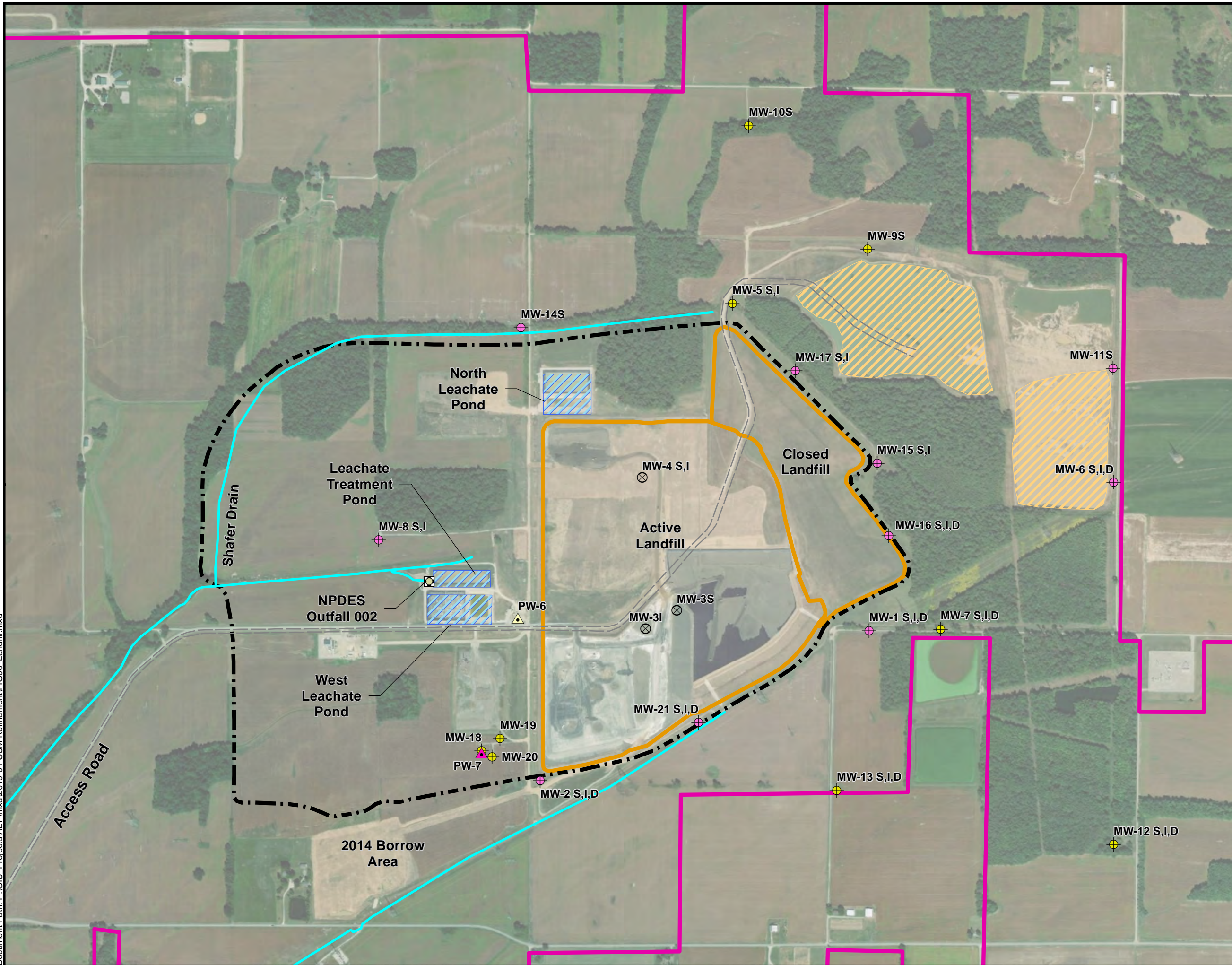
SITE LAYOUT

AEP - ROCKPORT, IN
PROJECT NUMBER: 7650202784

SCALE	1" = 1,800'	FIG. 1
DATE	9/4/2018	
DRAWN BY	TMR	
APPROVED BY	KDR	

wood.

2456 Fortune Drive, Suite 100
Lexington, Kentucky 40509
Phone: (859) 255-3308

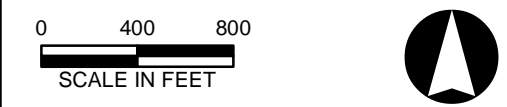


- Legend**
- Landfill - Monitoring Well
 - Landfill - CCR Monitoring Well
 - Landfill - Augmentation Water Supply Well
 - Landfill - Dust Control Water Supply Well
 - Abandoned Monitoring Well
 - NPDES Outfall 002
 - Access Road
 - Drains / Ditches
 - Stormwater Ponds
 - Landfill Leachate Ponds
 - Property Boundary
 - 1984 Landfill Permit Boundary (Area 1)
 - Landfill Area 1A (Active and Closed)

Data Sources

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: USGS Rockport and Lewisport (IN/KY) Topographic Quadrangle Maps, 1964, photorevised 1982

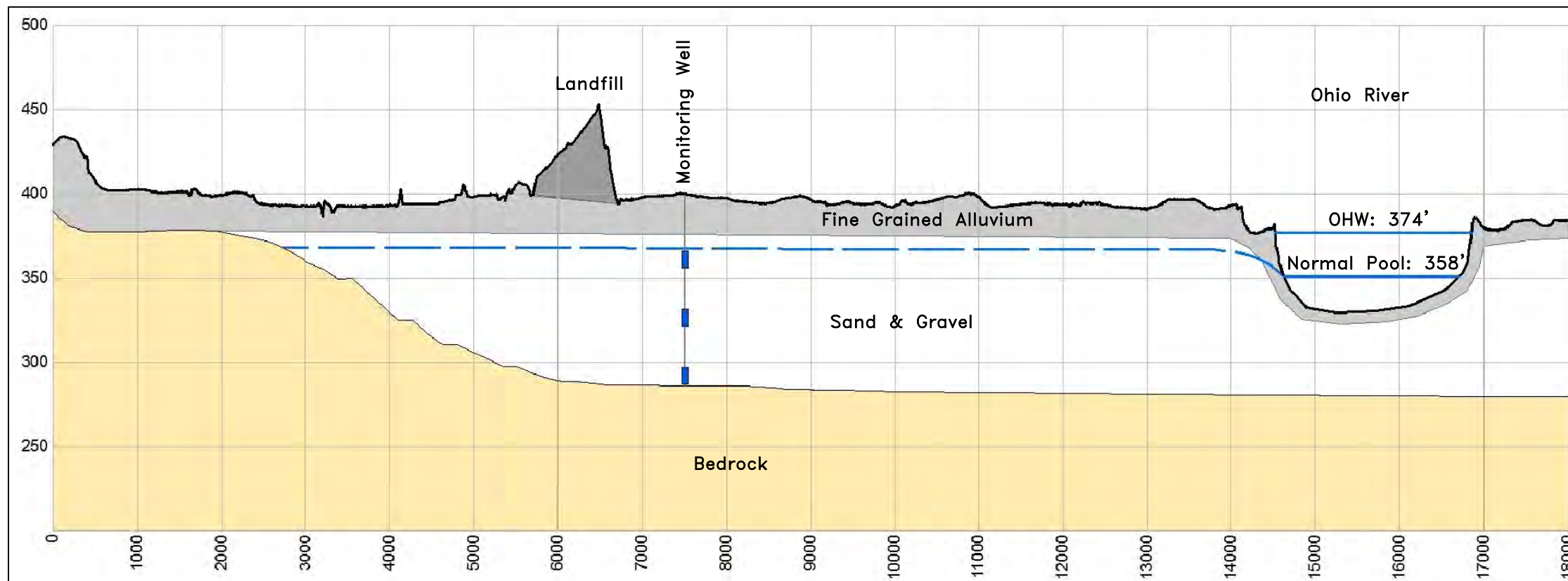
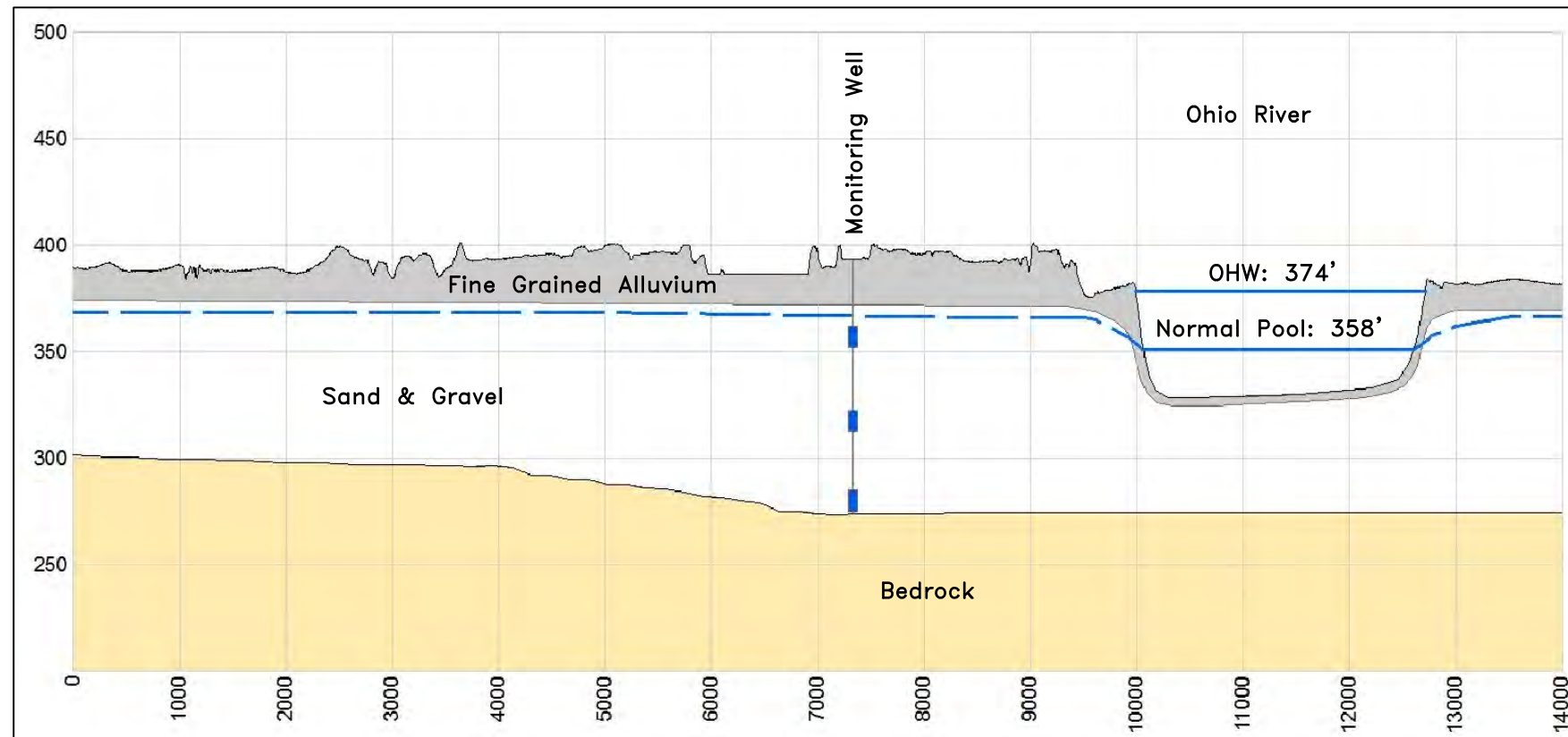


LANDFILL LAYOUT
AEP - ROCKPORT, IN
PROJECT NUMBER: 7650202784

SCALE	1" = 800'	FIG. 2
DATE	3/6/2019	
DRAWN BY	TMR	
APPROVED BY	KDR	

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2456 Fortune Drive, Suite 100
Lexington, Kentucky 40509
Phone: (859) 255-3308



SCALE: As Shown
VERTICAL EXAGGERATION: 4X



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Lexington, KY 40509
Phone: (859) 255-3308

**BOTTOM ASH PONDS
AEP - ROCKPORT, INDIANA**

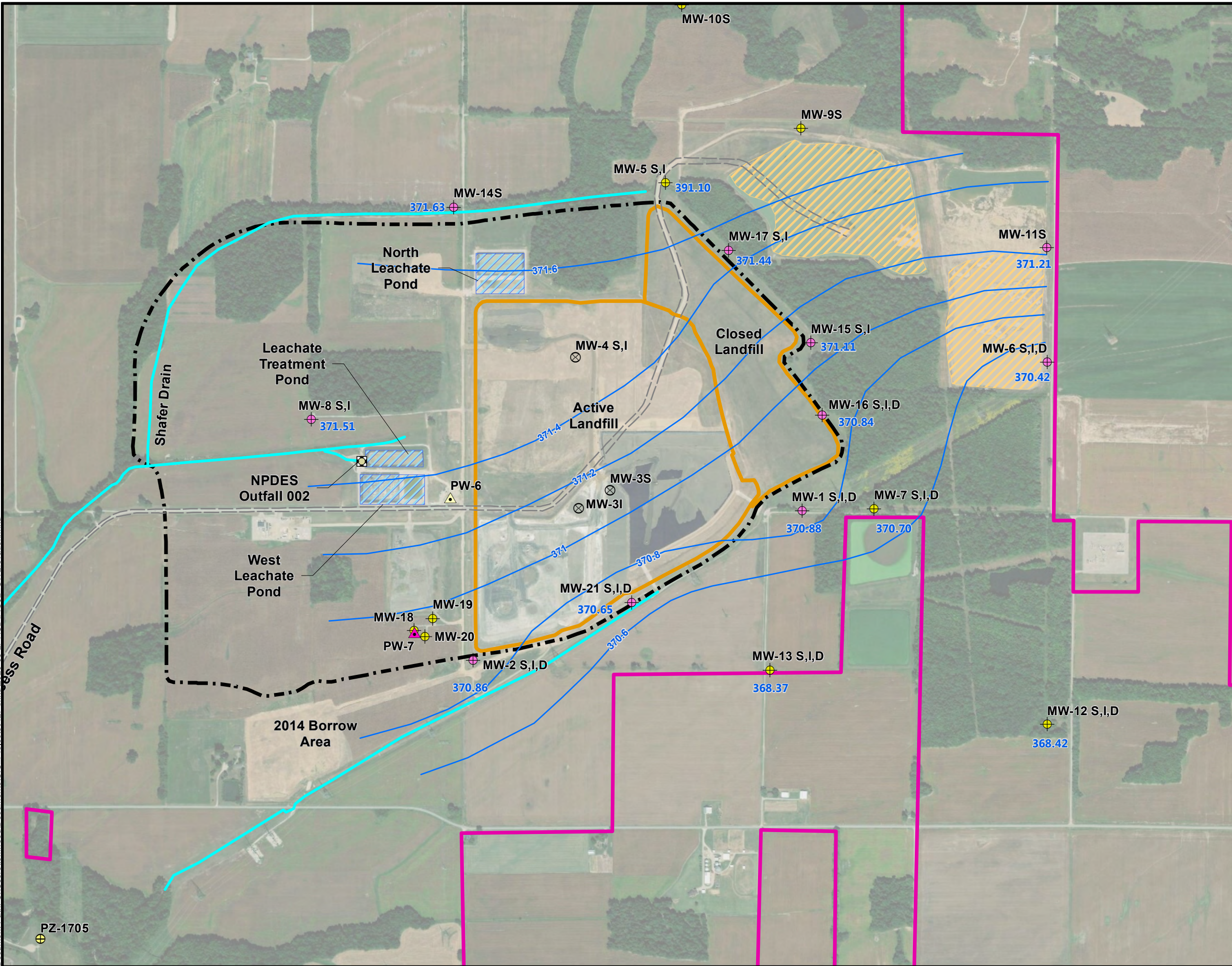
GENERALIZED CROSS-SECTIONS

PROJECT NUMBER: 7650202784

SCALE	As Shown
DATE	9/28/2017
DRAWN BY	TMR
APPROVED BY	ALD

**FIG
3**

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- Legend**
- Piezometer
 - Landfill - Monitoring Well
 - Landfill - CCR Monitoring Well
 - Landfill - Augmentation Water Supply Well
 - Landfill - Dust Control Water Supply Well
 - Abandoned Monitoring Well
 - NPDES Outfall 002
 - Groundwater Elevation Contour (11/14/2019), contour interval: 0.2 feet
 - Access Road
 - Drains / Ditches
 - Stormwater Ponds
 - Landfill Leachate Ponds
 - Property Boundary
 - 1984 Landfill Permit Boundary (Area 1)
 - Landfill Area 1A (Active and Closed)

Data Sources

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: USGS Rockport and Lewisport (IN/KY) Topographic Quadrangle Maps, 1964, photorevised 1982



POTENTIOMETRIC SURFACE CONTOURS
14 NOVEMBER 2019
 AEP - ROCKPORT, IN
 PROJECT NUMBER: 7650202784

SCALE	1" = 800'	FIG. (
DATE	5/27/2020	
DRAWN BY	TMR	
APPROVED BY	KDR	

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 Lexington, Kentucky 40509
 Phone: (859) 255-3308



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Appendices



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Appendix A
Analytical Data Tables

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/20/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/18/2017	10/4/2017	1/3/2018	6/6/2018	8/16/2018	11/14/2018	2/13/2019	4/1/2019
Field Parameters																		
Elevation	ft NGVD	--	--	369.45	369.29	368.81	368.29	367.61	367.69	367.66	368.33	368.01	366.11	369.43	369.91	368.71	369.68	370.56
pH	S.U.	--	7.09 - 8.14	8.14	7.2	7.09	7.34	7.4	7.1	7.19	7.26	7.08	7.64	7.48	7.3	7.48	7.46	7.35
Specific Conductance	µmhos/cm	--	--	687	612	703	657	470	300	567	536	635	686	590	658	535	530	892
Turbidity	NTU	--	--	0.23	1.5	0.34	0.65	1	2	0.63	0.78	0.4	1.31	1.12	0	0.56	0.8	1.15
Dissolved Oxygen	mg/L	--	--	3.37	4	2.82	3.46	5	4	2.48	2.72	3	3.06	0.61	4.59	2.3	1.1	1.09
Temperature	°C	--	--	15.04	18.9	19.09	15.17	14.8	15.7	16.81	15.81	15.63	12.81	16.23	15.38	14.7	14.9	14.6
ORP	mV	--	--	89.2	111	77.1	52.9	105	46	53.7	16.2	43.8	-20.8	-76.5	302	100.5	172	126.4
Laboratory Parameters																		
Antimony	µg/L	6	--	0.03	0.2	0.02	0.02	0.04	0.04	0.05	0.02	--	--	--	--	0.05	--	--
Arsenic	µg/L	10	--	0.43	0.69	0.38	0.38	0.43	0.76	0.5	0.39	--	--	--	--	0.34	--	--
Barium	µg/L	2000	--	18.5	21.9	17.2	17.9	17.7	36.5	22.3	17.3	--	--	--	--	17.8	--	--
Beryllium	µg/L	4	--	<0.01	0.16	<0.005	<0.005	<0.005	0.023	0.01	<0.004	--	--	--	--	0.03	--	--
Cadmium	µg/L	5	--	0.02	0.22	0.005	0.007	0.02	0.09	0.22	0.01	--	--	--	--	<0.01	--	--
Chromium	µg/L	100	--	0.3	0.7	0.3	0.207	0.72	1.38	0.552	0.255	--	--	--	--	0.25	--	--
Cobalt	µg/L	6	--	0.171	0.398	0.014	0.01	0.052	1.21	0.164	0.02	--	--	--	--	<0.02	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.15	0.74	--	0.09	--	1.3	--	--
Lead	µg/L	15	--	0.204	0.572	0.01	0.022	0.076	1.26	0.526	0.033	--	--	--	--	0.12	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--	--
Molybdenum	µg/L	100	--	0.65	0.8	0.68	0.74	0.59	0.97	1.64	0.64	--	--	--	--	0.6	--	--
Selenium	µg/L	50	--	1.1	1.1	0.9	0.9	1	1.1	1.1	1.2	--	--	--	--	0.8	--	--
Thallium	µg/L	2	--	<0.02	0.168	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	--	--	--	--	<0.1	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	4.5	--	0.7	--	2	--	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	19.5	19.7	22.4	--	19.5	--	19.7	--	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	5.55	4.29	--	3.8	--	1	--	--
Boron	mg/L	--	0.048	0.037	0.015	0.022	0.02	0.005	0.03	0.031	0.028	0.044	--	0.046	--	0.04	--	--
Calcium	mg/L	--	(79.5) 79	70.7	62.9	68	74.4	65	71.5	72.6	69.2	67.6	--	71.8	--	71.9	--	--
Lithium	mg/L	0.04	--	0.004	0.024	0.002	0.01	0.008	0.01	0.009	0.0007	--	--	--	--	0.03	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	27.3	26.9	26.9	25.6	--	26.8	--	26.8	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0015	--	--	0.0027	--	0.0022	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.32	1.24	1.16	1.15	--	1.19	--	1.16	--	--
Sodium	mg/L	--	--	--	--	--	--	--	40.6	35.2	39.6	36.1	--	31.2	--	35	--	--
Strontium	mg/L	--	--	--	--	--	--	--	0.11	0.12	0.105	0.104	--	0.11	--	0.108	--	--
Alkalinity	mg/L	--	--	--	--	--	--	--	278	273	271	269	--	250	--	273	--	--
Bromide	mg/L	--	--	--	--	--	--	--	0.086	0.108	0.104	0.109	--	0.106	--	0.1	--	--
Chloride	mg/L	--	(29.6) 33	29.6	31.1	31.4	31.9	32	30.7	31.3	30.4	33.1	39.9	34.9	37.3	38.1	40.4	38.5
Fluoride	mg/L	4	0.677	0.59	0.65	0.6	0.54	0.57	0.59	0.63	0.58	0.57	--	0.61	--	0.63	--	--
TDS	mg/L	--	(412.7) 419	392	392	411	398	392	384	402	406	396	--	386	--	410	--	--
Sulfate	mg/L	--	(36.95) 37	33.7	35.5	32.4	30.7	30.7	30.5	33.3	33.6	34.6	--	34.2	--	32.3	--	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	--	<0.07	--	--
Radium-228	pCi/L	--	--	-0.185	0.445	0.244	-0.00464	0.447	-0.172	-0.122	0.133	--	--	--	--	-0.0731	--	--
Radium-226	pCi/L	--	--	0.0665	0.374	-0.00261	0.296	0.487	0.0407	0.0324	0.176	--	--	--	--	0.108	--	--
Radium-226/228	pCi/L	5	--	-0.1185	0.819	0.24139	0.29136	0.934	-0.1313	-0.0896	0.309	--	--	--	--	0.108	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	--	0.4	--	1.65	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--	9	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--	0.8	--	6.24	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.049	0.014	--	<0.002	--	0.035	--	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0001	0.0002	<0.0001	0.0002	--	<0.0002	--	0.0026	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	5/23/2019	7/23/2019	11/22/2019	2/18/2020
Field Parameters							
Elevation	ft NGVD	--	--	371.82	372.42	370.88	369.32
pH	S.U.	--	7.09 - 8.14	7.91	7.36	6.93	7.12
Specific Conductance	µmhos/cm	--	--	593	618	612	1386
Turbidity	NTU	--	--	0.05	1.6	1.4	0.47
Dissolved Oxygen	mg/L	--	--	0.87	1.5	5.7	4.6
Temperature	°C	--	--	15.6	18.2	13.8	12.43
ORP	mV	--	--	-28.8	57	-98	118.1
Laboratory Parameters							
Antimony	µg/L	6	--	0.02	--	0.03	--
Arsenic	µg/L	10	--	0.29	--	0.34	--
Barium	µg/L	2000	--	17.6	--	18	--
Beryllium	µg/L	4	--	<0.02	--	<0.02	--
Cadmium	µg/L	5	--	<0.01	--	0.01	--
Chromium	µg/L	100	--	0.2	--	0.2	--
Cobalt	µg/L	6	--	<0.02	--	0.02	--
Copper	µg/L	--	--	0.13	--	0.3	--
Lead	µg/L	15	--	0.03	--	0.1	--
Mercury	µg/L	2	--	<0.002	--	<0.002	--
Molybdenum	µg/L	100	--	1	--	0.6	--
Selenium	µg/L	50	--	0.7	--	0.8	--
Thallium	µg/L	2	--	<0.1	--	<0.1	--
Zinc	µg/L	--	--	7.8	--	0.8	--
Silica (Dissolved)	mg/L	--	--	<0.06	--	18.9	--
Aluminum	µg/L	--	--	2	--	6	--
Boron	mg/L	--	0.048	<0.02	--	<0.02	--
Calcium	mg/L	--	(79.5) 79	73.7	--	69.8	--
Lithium	mg/L	0.04	--	0.02	--	0.0046	--
Magnesium	mg/L	--	--	26.7	--	26	--
Manganese	mg/L	--	--	0.001	--	0.0034	--
Potassium	mg/L	--	--	1.24	--	1.2	--
Sodium	mg/L	--	--	25.8	--	42.7	--
Strontium	mg/L	--	--	0.106	--	0.108	--
Alkalinity	mg/L	--	--	303	--	314	--
Bromide	mg/L	--	--	0.1	--	0.09	--
Chloride	mg/L	--	(29.6) 33	33.7	30	30.6	--
Fluoride	mg/L	4	0.677	0.55	--	0.57	--
TDS	mg/L	--	(412.7) 419	388	--	444	442
Sulfate	mg/L	--	(36.95) 37	36.3	--	35.9	--
Sulfide	mg/L	--	--	<0.1	--	<0.2	--
Radium-228	pCi/L	--	--	0.173	--	0.158	--
Radium-226	pCi/L	--	--	1.09	--	0.055	--
Radium-226/228	pCi/L	5	--	1.263	--	0.213	--
Copper (Dissolved)	µg/L	--	--	0.26	--	0.4	--
Zinc (Dissolved)	µg/L	--	--	0.7	--	0.9	--
Aluminum (Dissolved)	µg/L	--	--	<1	--	<5	--
Iron (Dissolved)	mg/L	--	--	<0.003	--	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.0004	--	<0.0005	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-1I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/20/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/18/2017	10/4/2017	6/6/2018	8/16/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.42	369.25	368.8	368.24	367.58	367.63	367.62	368.28	367.25	369.39	397.45
pH	S.U.	--	6.43 - 7.90	6.7	7	7.4	7.09	7.6	7.4	7.24	6.89	7.1	7.5	7.31
Specific Conductance	µmhos/cm	--	--	461	479	570	544	370	500	443	402	424	480	533
Turbidity	NTU	--	--	0.9	0.7	0.24	0.35	1	1	0.6	0.36	1	0.32	0
Dissolved Oxygen	mg/L	--	--	0.4	0.3	1.07	0	0.3	1	0.46	27.63	0.5	0.87	0.22
Temperature	°C	--	--	17.5	18.2	16.99	14.53	14.4	15.7	15.44	16.52	16.4	16.25	16.03
ORP	mV	--	--	-21	205	-2.1	4.4	10	36	-26.2	-118.8	-23	-102.2	253
Laboratory Parameters														
Antimony	µg/L	6	--	0.04	0.04	0.01	0.02	0.02	0.01	0.04	0.02	--	--	--
Arsenic	µg/L	10	--	0.86	0.78	0.92	0.8	0.82	0.69	0.89	0.86	--	--	--
Barium	µg/L	2000	--	85.5	86.1	84.9	93.4	90.5	76.7	85	94.3	--	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.004	<0.004	--	--	--
Cadmium	µg/L	5	--	0.08	0.1	0.02	0.02	0.02	0.05	0.01	0.007	--	--	--
Chromium	µg/L	100	--	0.2	1	0.2	0.051	0.39	0.686	0.155	0.112	--	--	--
Cobalt	µg/L	6	--	0.341	0.364	0.401	0.381	0.424	0.054	0.558	0.569	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.12	0.2	0.48	--
Lead	µg/L	15	--	0.851	1.25	0.156	0.059	0.099	0.427	0.068	0.137	--	--	--
Mercury	µg/L	2	--	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	2.47	2.85	2.89	3.27	3.33	1.82	2.87	2.85	--	--	--
Selenium	µg/L	50	--	<0.03	0.04	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	--	--	--
Thallium	µg/L	2	--	0.03	0.02	0.02	0.03	0.104	0.03	0.02	0.02	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	1	4.2	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	18.5	18.9	20.7	17.8	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	1	2	2.96	--
Boron	mg/L	--	0.093	0.075	0.014	0.018	0.015	0.004	0.045	0.049	0.047	0.018	0.11	0.056
Calcium	mg/L	--	(79.5) 71	67.4	60	64.5	63.9	60.9	66.9	65.7	64.8	68.1	66.4	--
Lithium	mg/L	0.04	--	0.005	0.022	0.007	0.005	0.005	0.006	0.008	0.0005	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	20.8	21.2	20.6	21.5	21	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.599	--	0.316	--
Potassium	mg/L	--	--	--	--	--	--	--	1.34	1.08	0.98	0.92	1.31	--
Sodium	mg/L	--	--	--	--	--	--	--	19.8	19.5	19.1	19.2	18.1	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0934	0.0926	0.086	0.0911	0.093	--
Alkalinity	mg/L	--	--	--	--	--	--	--	222	225	226	222	230	--
Bromide	mg/L	--	--	--	--	--	--	--	0.061	0.087	0.081	0.072	0.081	--
Chloride	mg/L	--	(29.6) 27.4	24.9	24.8	24.3	24.1	24.4	24.1	26.5	26.5	27.5	28.6	--
Fluoride	mg/L	4	0.428	0.37	0.4	0.37	0.31	0.33	0.35	0.38	0.34	0.37	0.42	--
TDS	mg/L	--	(412.7) 349	323	315	331	334	316	300	323	330	327	321	--
Sulfate	mg/L	--	(47.8) 48	44.3	46.7	42.4	40.7	41.4	41.2	43.8	43.3	44.1	42	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	--
Radium-228	pCi/L	--	--	0.0603	0.105	1.42	0.662	0.108	-0.0752	0.3	2.21	--	--	--
Radium-226	pCi/L	--	--	0.33	1.57	0.276	0.65	0.513	0.15	0.33	0.323	--	--	--
Radium-226/228	pCi/L	5	--	0.3903	1.675	1.696	1.312	0.621	0.0748	0.63	2.533	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.37	--	0.4	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.3	--	1	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.51	--	1	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.03	<0.0004	0.035	0.048	0.011	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.583	0.1	0.455	0.445	0.303	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/14/2018	2/13/2019	4/1/2019	5/23/2019	7/23/2019	9/11/2019	11/22/2019
Field Parameters										
Elevation	ft NGVD	--	--	368.74	369.73	370.51	371.86	372.45	--	370.95
pH	S.U.	--	6.43 - 7.90	7.75	7.5	7.37	7.01	7.21	7.25	7.05
Specific Conductance	µmhos/cm	--	--	425	443	802	503	493	481	491
Turbidity	NTU	--	--	0.61	1	1.06	0.06	2.1	0.58	1.7
Dissolved Oxygen	mg/L	--	--	0.19	2	1.28	0.73	0.57	0.26	2.1
Temperature	°C	--	--	14.68	14.7	14.6	16.79	16.4	17.5	14
ORP	mV	--	--	62.9	155	134.2	5.2	27	-35.8	-206
Laboratory Parameters										
Antimony	µg/L	6	--	<0.02	--	--	<0.02	--	--	<0.02
Arsenic	µg/L	10	--	0.82	--	--	0.73	--	--	0.71
Barium	µg/L	2000	--	85.6	--	--	83.8	--	--	11
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	--	--	<0.02
Cadmium	µg/L	5	--	0.02	--	--	<0.01	--	--	0.03
Chromium	µg/L	100	--	<0.04	--	--	0.04	--	--	0.2
Cobalt	µg/L	6	--	0.48	--	--	0.368	--	--	0.838
Copper	µg/L	--	--	0.22	--	--	0.08	--	--	0.5
Lead	µg/L	15	--	0.07	--	--	<0.02	--	--	0.291
Mercury	µg/L	2	--	--	--	--	<0.002	--	--	<0.002
Molybdenum	µg/L	100	--	2.96	--	--	2.38	--	--	3.1
Selenium	µg/L	50	--	<0.03	--	--	<0.03	--	--	<0.03
Thallium	µg/L	2	--	<0.1	--	--	<0.1	--	--	<0.1
Zinc	µg/L	--	--	1	--	--	0.9	--	--	3
Silica (Dissolved)	mg/L	--	--	18.2	--	--	18	--	--	17.5
Aluminum	µg/L	--	--	3	--	--	<1	--	--	<5
Boron	mg/L	--	0.093	0.05	--	--	0.02	--	--	<0.02
Calcium	mg/L	--	(79.5) 71	65.5	--	--	67.7	--	--	66.7
Lithium	mg/L	0.04	--	0.03	--	--	<0.009	--	--	0.00355
Magnesium	mg/L	--	--	20.6	--	--	20.6	--	--	20.7
Manganese	mg/L	--	--	0.515	--	--	0.37	--	--	0.784
Potassium	mg/L	--	--	0.97	--	--	0.98	--	--	0.9
Sodium	mg/L	--	--	18.5	--	--	18.2	--	--	18.1
Strontium	mg/L	--	--	0.0882	--	--	0.0912	--	--	0.0917
Alkalinity	mg/L	--	--	227	--	--	243	--	--	210
Bromide	mg/L	--	--	0.08	--	--	0.09	--	--	0.08
Chloride	mg/L	--	(29.6) 27.4	28.8	30.1	34.1	33.1	30.6	33.5	35
Fluoride	mg/L	4	0.428	0.41	--	--	0.42	--	--	0.37
TDS	mg/L	--	(412.7) 349	308	--	--	341	--	--	348
Sulfate	mg/L	--	(47.8) 48	40.7	--	--	40.2	--	--	39.7
Sulfide	mg/L	--	--	<0.07	--	--	<0.1	--	--	<0.2
Radium-228	pCi/L	--	--	0.415	--	--	0.71	--	--	0.546
Radium-226	pCi/L	--	--	0.288	--	--	0.37	--	--	0.421
Radium-226/228	pCi/L	5	--	0.703	--	--	1.08	--	--	0.967
Copper (Dissolved)	µg/L	--	--	0.12	--	--	0.43	--	--	<0.2
Zinc (Dissolved)	µg/L	--	--	0.9	--	--	<0.7	--	--	1
Aluminum (Dissolved)	µg/L	--	--	<1	--	--	1	--	--	<5
Iron (Dissolved)	mg/L	--	--	0.053	--	--	0.034	--	--	0.05
Manganese (Dissolved)	mg/L	--	--	0.508	--	--	0.397	--	--	0.758

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/8/2016	7/19/2016	9/20/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.6	369.43	368.97	368.42	367.75	367.81	367.81	368.34	367.44	366.27
pH	S.U.	--	6.74 - 8.16	7.6	7.1	7.36	7.5	7.4	7.33	7.25	8.06	7.3	7.68
Specific Conductance	µmhos/cm	--	--	496	471	464	842	400	558	394	525	448	539
Turbidity	NTU	--	--	8.8	2	6.27	4	5	1.93	2.15	2.47	2	3.89
Dissolved Oxygen	mg/L	--	--	0.5	0.2	0.55	0.8	2	0.25	0.53	0.81	0.4	1.83
Temperature	°C	--	--	19.4	16.7	15.77	14.8	14.7	15.14	15.84	21.46	16.5	6.7
ORP	mV	--	--	63	220	92.8	252	182	49.6	132.7	152.8	-14	-5.3
Laboratory Parameters													
Antimony	µg/L	6	--	0.05	0.03	0.03	0.03	0.03	0.02	0.02	0.02	--	--
Arsenic	µg/L	10	--	1.29	0.73	1.07	0.65	0.77	0.58	0.75	0.59	--	--
Barium	µg/L	2000	--	255	147	160	147	162	139	142	139	--	--
Beryllium	µg/L	4	--	0.01	<0.005	0.007	<0.005	<0.005	<0.005	0.006	<0.004	--	--
Cadmium	µg/L	5	--	0.13	0.07	0.04	0.04	0.15	0.04	0.04	0.05	--	--
Chromium	µg/L	100	--	0.3	1.5	0.3	0.072	0.439	0.687	0.174	0.131	--	--
Cobalt	µg/L	6	--	3.64	0.373	0.836	0.329	0.577	0.173	0.44	0.212	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.93	1.02	--
Lead	µg/L	15	--	1.13	1.37	0.5	0.222	0.807	1.92	0.419	0.355	--	--
Mercury	µg/L	2	--	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	3.44	3.59	3.6	3.24	2.43	3.4	3.05	2.94	--	--
Selenium	µg/L	50	--	0.07	0.03	0.07	0.03	0.03	0.03	0.06	<0.03	--	--
Thallium	µg/L	2	--	0.04	0.02	0.056	0.02	0.05	0.03	0.04	0.03	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	4.5	4.5	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	18.9	19.4	21.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	8.08	14.6	--
Boron	mg/L	--	0.066	0.017	0.015	0.016	0.018	0.006	0.055	0.046	0.019	0.002	--
Calcium	mg/L	--	(79.5) 75	63.6	57.9	65.2	69.3	63.4	70	67.8	63.9	65.7	--
Lithium	mg/L	0.04	--	<0.0002	0.017	0.0005	0.004	0.007	0.007	0.009	0.002	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	21.9	22.2	20.7	20.9	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.511	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.13	1.13	0.89	0.89	--
Sodium	mg/L	--	--	--	--	--	--	--	19.4	19.3	18.8	18	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0985	0.101	0.0885	0.092	--
Alkalinity	mg/L	--	--	--	--	--	--	--	206	202	206	220	--
Bromide	mg/L	--	--	--	--	--	--	--	0.09	0.115	0.109	0.03	--
Chloride	mg/L	--	(29.6) 50	27.3	29.8	29.8	39.3	40.6	40.3	40.9	39.3	10.3	--
Fluoride	mg/L	4	0.321	0.28	0.3	0.28	0.29	0.26	0.26	0.28	0.24	0.85	0.31
TDS	mg/L	--	(412.7) 369	331	329	288	339	323	330	342	338	339	--
Sulfate	mg/L	--	(45.1) 45	40.2	40.6	32.3	33.6	36.4	37	39.5	39.6	10.4	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	0.558	0.06	0.525	0.566	0.315	0.0844	0.511	0.444	--	--
Radium-226	pCi/L	--	--	0.526	0.135	0.932	6.73	0.334	0.154	0.213	0.502	--	--
Radium-226/228	pCi/L	5	--	1.084	0.195	1.457	7.296	0.649	0.2384	0.724	0.946	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.58	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	4.2	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.052	0.012	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.553	0.62	0.486	0.616	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/7/2018	8/16/2018	11/14/2018	2/13/2019	5/23/2019	7/23/2019	11/22/2019	2/17/2020
Field Parameters											
Elevation	ft NGVD	--	--	369.56	369.94	368.73	369.71	371.84	372.45	367.22	369.34
pH	S.U.	--	6.74 - 8.16	8.24	7.35	7.77	7.41	7.18	7.3	7.26	7.38
Specific Conductance	µmhos/cm	--	--	508	568	457	317	0.504	510	609	817
Turbidity	NTU	--	--	1.71	0	1.03	2	0.3	1.5	2.53	0.98
Dissolved Oxygen	mg/L	--	--	0.25	0.26	0.2	10	3.68	2.1	3.57	6.09
Temperature	°C	--	--	15.85	16.71	14.06	14	17.02	16.7	14.31	13.25
ORP	mV	--	--	-112	200	53	188	55.9	44	51.3	211.2
Laboratory Parameters											
Antimony	µg/L	6	--	--	--	0.03	--	0.05	--	0.04	--
Arsenic	µg/L	10	--	--	--	0.62	--	0.47	--	0.57	--
Barium	µg/L	2000	--	--	--	101	--	99.2	--	101	--
Beryllium	µg/L	4	--	--	--	<0.02	--	<0.02	--	<0.02	--
Cadmium	µg/L	5	--	--	--	0.02	--	0.02	--	0.03	--
Chromium	µg/L	100	--	--	--	0.07	--	0.1	--	0.2	--
Cobalt	µg/L	6	--	--	--	0.04	--	0.058	--	0.097	--
Copper	µg/L	--	--	0.55	--	0.75	--	0.83	--	0.4	--
Lead	µg/L	15	--	--	--	0.07	--	0.138	--	0.2	--
Mercury	µg/L	2	--	--	--	--	--	<0.002	--	<0.002	--
Molybdenum	µg/L	100	--	--	--	2	--	1	--	1	--
Selenium	µg/L	50	--	--	--	0.04	--	0.09	--	0.08	--
Thallium	µg/L	2	--	--	--	<0.1	--	<0.1	--	<0.1	--
Zinc	µg/L	--	--	2	--	1	--	65.9	--	2	--
Silica (Dissolved)	mg/L	--	--	17.9	--	19	--	17.8	--	18.5	--
Aluminum	µg/L	--	--	16.1	--	<1	--	4	--	<5	--
Boron	mg/L	--	0.066	0.103	0.02	0.1	<0.02	0.02	--	0.04	--
Calcium	mg/L	--	(79.5) 75	70.9	--	71.9	--	73.6	--	72.5	--
Lithium	mg/L	0.04	--	--	--	0.01	--	0.01	--	0.0038	--
Magnesium	mg/L	--	--	20.4	--	22.1	--	18.3	--	22.2	--
Manganese	mg/L	--	--	0.216	--	0.138	--	0.169	--	0.163	--
Potassium	mg/L	--	--	1.34	--	1.71	--	1.23	--	1.3	--
Sodium	mg/L	--	--	18.2	--	20.9	--	18.7	--	26	--
Strontium	mg/L	--	--	0.359	--	0.272	--	0.553	--	0.194	--
Alkalinity	mg/L	--	--	218	--	222	--	208	--	260	--
Bromide	mg/L	--	--	0.113	--	0.1	--	0.09	--	0.1	--
Chloride	mg/L	--	(29.6) 50	43.1	43.8	46.9	43.8	32.1	--	49.1	--
Fluoride	mg/L	4	0.321	0.3	--	0.3	--	0.27	--	0.27	--
TDS	mg/L	--	(412.7) 369	345	--	340	--	346	--	398	257
Sulfate	mg/L	--	(45.1) 45	39.5	--	39.8	--	45.3	39.2	41.2	--
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	<0.1	--	<0.2	--
Radium-228	pCi/L	--	--	--	--	0.295	--	0.55	--	0.197	--
Radium-226	pCi/L	--	--	--	--	0.0679	--	0.652	--	0.11	--
Radium-226/228	pCi/L	5	--	--	--	0.3629	--	1.202	--	0.307	--
Copper (Dissolved)	µg/L	--	--	0.98	--	0.78	--	0.8	--	2.19	--
Zinc (Dissolved)	µg/L	--	--	11.8	--	2	--	2	--	3	--
Aluminum (Dissolved)	µg/L	--	--	2	--	5.05	--	3	--	<5	--
Iron (Dissolved)	mg/L	--	--	<0.002	--	0.02	--	<0.003	--	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.0605	--	0.144	--	0.148	--	0.131	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/9/2017	5/9/2017	7/19/2017	10/4/2017	6/6/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.34	369.03	369.02	368.77	366.24	368.15	368.06	368.22	366.68	369.94
pH	S.U.	--	6.30 - 8.44	6.4	7.68	7.63	7.34	7.65	7.66	7.12	7.46	7.17	7.62
Specific Conductance	µmhos/cm	--	--	423	465	440	459	341	522	354	409	509	470
Turbidity	NTU	--	--	3.1	1.85	0.51	0.96	0.74	1.31	2.68	4.81	1.55	1.84
Dissolved Oxygen	mg/L	--	--	2.8	1.85	4.67	3.91	4.18	3.63	4.52	2.62	2.63	4.66
Temperature	°C	--	--	17.5	16.34	15.81	16.03	15.1	15.73	15.67	16.06	16.42	16.48
ORP	mV	--	--	34	64	90.4	-19	165	13.1	165.7	-5.9	26.6	59.1
Laboratory Parameters													
Antimony	µg/L	6	--	<0.02	0.02	0.04	0.02	0.02	0.02	0.04	0.12	--	--
Arsenic	µg/L	10	--	0.97	1.09	0.94	0.94	0.92	0.95	0.95	0.96	--	--
Barium	µg/L	2000	--	16	14	12.4	12.4	11	12.3	12.3	13.6	--	--
Beryllium	µg/L	4	--	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.01	0.01	0.02	0.02	0.09	0.009	0.01	0.03	--	--
Chromium	µg/L	100	--	0.4	0.6	0.3	0.337	0.329	0.67	0.37	0.41	--	--
Cobalt	µg/L	6	--	0.177	0.09	0.017	0.019	0.014	0.051	0.064	0.121	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.33	0.2	1.58
Lead	µg/L	15	--	0.158	0.105	0.101	0.022	0.063	0.042	0.047	0.243	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	2.03	2.39	2.07	1.91	2.14	1.92	1.75	1.81	--	--
Selenium	µg/L	50	--	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	--	--
Thallium	µg/L	2	--	<0.02	<0.01	<0.01	<0.01	0.074	<0.01	<0.01	0.03	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	3.3	5.3
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	28.6	28.8	31.9	26.7
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	36.6	14.7	15.3
Boron	mg/L	--	0.109	<0.002	0.015	0.014	0.018	0.004	0.069	0.084	0.052	0.045	0.073
Calcium	mg/L	--	(79.5) 66	59.4	51.6	57.4	62.4	51.6	57.9	59	53.3	60.7	57
Lithium	mg/L	0.04	--	0.0004	0.018	0.005	0.008	0.009	0.0007	0.002	0.005	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	21.2	21.9	19.5	22.8	21.3
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0124	--	0.0063
Potassium	mg/L	--	--	--	--	--	--	--	0.73	0.81	0.65	0.64	0.68
Sodium	mg/L	--	--	--	--	--	--	--	13.4	14	11.8	16.3	22.1
Strontium	mg/L	--	--	--	--	--	--	--	0.0837	0.0855	0.0756	0.0888	0.0906
Alkalinity	mg/L	--	--	--	--	--	--	--	174	191	188	207	215
Bromide	mg/L	--	--	--	--	--	--	--	0.02	0.071	0.116	0.06	0.063
Chloride	mg/L	--	(29.6) 24	21.5	21.8	23.8	21.8	21.2	21	20.8	19.6	21.2	25.3
Fluoride	mg/L	4	0.299	0.26	0.29	0.26	0.26	0.25	0.26	0.26	0.23	0.25	0.29
TDS	mg/L	--	(412.7) 343	298	265	301	316	284	285	321	308	323	329
Sulfate	mg/L	--	(35.08) 35	26	27.6	26.2	24.1	25.9	26.6	30.3	33.8	30	28.9
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4
Radium-228	pCi/L	--	--	-0.035	0.54	0	0.228	0.343	0.0555	-0.0726	0.631	--	--
Radium-226	pCi/L	--	--		0.12	0.172	0.143	0.311	0.465	0.434	0.0617	--	--
Radium-226/228	pCi/L	5	--	-0.035	0.66	0.172	0.371	0.654	0.5205	0.3614	0.6927	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	0.27
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	0.6
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	2
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.053	0.013	<0.002
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.0001	<0.0001	<0.0001	0.0021	0.0003

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/13/2018	2/13/2019	4/1/2019	5/22/2019	7/23/2019	9/11/2019	11/14/2019
Field Parameters										
Elevation	ft NGVD	--	--	367.91	368.87	369.97	371.02	371.37	370.52	370.86
pH	S.U.	--	6.30 - 8.44	7.53	7.77	7.72	7.66	7.45	7.33	7.54
Specific Conductance	µmhos/cm	--	--	425	451	491	500	486	473	657
Turbidity	NTU	--	--	2.15	0.8	1.51	1.08	1.7	0.83	0.2
Dissolved Oxygen	mg/L	--	--	3.7	3.1	4.7	5.77	1.3	1.78	3.59
Temperature	°C	--	--	14.51	14.6	14.5	15.93	16.2	16.4	15.18
ORP	mV	--	--	23	71	-17.9	-3.2	55	7.7	4
Laboratory Parameters										
Antimony	µg/L	6	--	0.04	--	--	0.03	--	--	<0.02
Arsenic	µg/L	10	--	0.82	--	--	0.78	--	--	0.76
Barium	µg/L	2000	--	16.5	--	--	18	--	--	19.3
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	--	--	<0.02
Cadmium	µg/L	5	--	0.11	--	--	0.08	--	--	<0.01
Chromium	µg/L	100	--	0.1	--	--	0.1	--	--	0.255
Cobalt	µg/L	6	--	<0.02	--	--	0.02	--	--	<0.02
Copper	µg/L	--	--	0.28	--	--	0.56	--	--	<0.2
Lead	µg/L	15	--	0.04	--	--	0.133	--	--	<0.05
Mercury	µg/L	2	--	--	--	--	<0.002	--	--	<0.002
Molybdenum	µg/L	100	--	2	--	--	2	--	--	1
Selenium	µg/L	50	--	0.2	--	--	1	--	--	1.1
Thallium	µg/L	2	--	<0.1	--	--	<0.1	--	--	<0.1
Zinc	µg/L	--	--	89.4	--	--	7.5	--	--	<0.7
Silica (Dissolved)	mg/L	--	--	26.8	--	--	25	--	--	25.2
Aluminum	µg/L	--	--	7.27	--	--	6.68	--	--	<5
Boron	mg/L	--	0.109	0.06	--	--	<0.02	--	--	0.03
Calcium	mg/L	--	(79.5) 66	54.7	--	--	51.3	--	--	59.2
Lithium	mg/L	0.04	--	<0.009	--	--	<0.009	--	--	0.00413
Magnesium	mg/L	--	--	20.9	--	--	19	--	--	20.4
Manganese	mg/L	--	--	0.0025	--	--	0.0017	--	--	0.001
Potassium	mg/L	--	--	0.68	--	--	0.66	--	--	0.7
Sodium	mg/L	--	--	23.7	--	--	26	--	--	32.9
Strontium	mg/L	--	--	0.086	--	--	0.0803	--	--	0.0909
Alkalinity	mg/L	--	--	207	--	--	220	--	--	221
Bromide	mg/L	--	--	<0.04	--	--	<0.04	--	--	0.08
Chloride	mg/L	--	(29.6) 24	24.8	26.5	26.1	26.4	26.8	26.6	27.3
Fluoride	mg/L	4	0.299	0.28	--	--	0.3	--	--	0.28
TDS	mg/L	--	(412.7) 343	272	--	--	352	339	--	336
Sulfate	mg/L	--	(35.08) 35	24.7	--	--	26.2	--	--	27.8
Sulfide	mg/L	--	--	<0.1	--	--	<0.1	--	--	<0.2
Radium-228	pCi/L	--	--	0.146	--	--	0.54	--	--	0.161
Radium-226	pCi/L	--	--	0.0173	--	--	0.0674	--	--	0.0407
Radium-226/228	pCi/L	5	--	0.1633	--	--	0.6074	--	--	0.2017
Copper (Dissolved)	µg/L	--	--	1.84	--	--	0.87	--	--	1.84
Zinc (Dissolved)	µg/L	--	--	5	--	--	4	--	--	2
Aluminum (Dissolved)	µg/L	--	--	1	--	--	5.16	--	--	<5
Iron (Dissolved)	mg/L	--	--	0.003	--	--	0.003	--	--	<0.02
Manganese (Dissolved)	mg/L	--	--	0.0005	--	--	0.0009	--	--	<0.0005

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-2I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	1/3/2018	6/6/2018	8/16/2018
Field Parameters															
Elevation	ft NGVD	--	--	369.26	368.97	368.94	368.7	366.31	368.06	368.01	368.16	366.64	365.54	369.85	369.32
pH	S.U.	--	6.43 - 8.69	7.89	7.14	7.45	7.26	7.7	7.64	8.42	6.98	7.16	7.84	7.55	7.52
Specific Conductance	µmhos/cm	--	--	581	542	513	495	370	557	383	431	553	568	802	614
Turbidity	NTU	--	--	2.02	1.41	0.94	1.83	3.99	16	24.3	6.25	10.3	1.3	0.91	0
Dissolved Oxygen	mg/L	--	--	1.54	7.64	1.96	3.62	--	10.86	1.97	22.85	0.71	1.12	1.1	0.06
Temperature	°C	--	--	15.88	15.93	17.11	15.97	14.38	14.74	15.42	16.34	15.68	11.06	15.3	16.03
ORP	mV	--	--	65.9	29.8	-29.6	-11.6	161.9	-52.8	156.9	-180.6	-63.4	-51.8	-55.4	-46
Laboratory Parameters															
Antimony	µg/L	6	--	0.06	0.06	0.07	0.13	0.1	0.1	0.15	0.11	--	--	--	--
Arsenic	µg/L	10	--	0.64	0.68	0.55	0.61	0.65	0.74	0.9	0.76	--	--	--	--
Barium	µg/L	2000	--	78.5	84	67.1	60.1	59.4	58.4	59.3	62.9	--	--	--	--
Beryllium	µg/L	4	--	<0.005	0.006	<0.005	<0.005	<0.005	0.01	0.022	0.02	--	--	--	--
Cadmium	µg/L	5	--	0.03	0.05	0.05	0.07	0.16	0.22	0.09	0.05	--	--	--	--
Chromium	µg/L	100	--	0.2	0.6	0.1	0.143	0.154	1.01	0.829	0.567	--	--	--	--
Cobalt	µg/L	6	--	0.606	0.76	0.415	0.26	0.28	0.581	1.28	0.995	--	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	2.21	1.82	--	0.2	--
Lead	µg/L	15	--	0.208	0.454	0.178	0.231	0.383	0.588	1.39	1.19	--	--	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	--	--	--	--
Molybdenum	µg/L	100	--	4.91	5	4.21	3.14	2.07	2.06	2.17	2.07	--	--	--	--
Selenium	µg/L	50	--	0.7	0.7	0.6	0.4	0.2	0.2	0.4	0.2	--	--	--	--
Thallium	µg/L	2	--	0.051	0.04	0.04	0.02	0.03	0.03	0.04	0.064	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	4.4	3.4	--	20.8	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	16.3	16.8	18.9	--	16.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	315	244	--	9.39	--
Boron	mg/L	--	0.043	0.019	0.009	0.025	0.013	<0.002	0.024	0.034	0.025	0.03	--	0.052	0.03
Calcium	mg/L	--	(79.5) 78	74	67.5	66.8	73.9	63.9	71.5	71	68.9	72.5	--	72.7	--
Lithium	mg/L	0.04	--	0.005	0.021	0.002	0.006	0.007	0.005	0.007	<0.0002	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	22.8	23.6	22.8	23.7	--	23.7	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.463	--	--	0.564	--
Potassium	mg/L	--	--	--	--	--	--	--	1.09	1.2	1.01	1.05	--	1.14	--
Sodium	mg/L	--	--	--	--	--	--	--	14.7	15.3	15.8	16.8	--	16.9	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0919	0.0977	0.0885	0.0946	--	0.0959	--
Alkalinity	mg/L	--	--	--	--	--	--	--	223	218	236	252	--	254	--
Bromide	mg/L	--	--	--	--	--	--	--	0.05	0.071	0.072	0.075	--	0.077	--
Chloride	mg/L	--	(29.6) 32	28.6	29.7	28	25.8	27.1	25.8	28.6	29.7	29.8	28.8	31.8	31.5
Fluoride	mg/L	4	0.371	0.3	0.33	0.31	0.36	0.3	0.31	0.31	0.28	0.28	--	0.32	--
TDS	mg/L	--	(412.7) 375	332	363	330	326	314	312	343	346	343	--	356	--
Sulfate	mg/L	--	(48.53) 49	42.9	54.7	41.1	36.9	39.2	39.2	42.4	44.1	45.5	--	43.2	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	--
Radium-228	pCi/L	--	--	-0.0463	0.62	0.241	0.137	0.648	0.146	0.163	0.195	--	--	--	--
Radium-226	pCi/L	--	--	0.398	0.342	0.267	0.288	0.197	0.289	0.328	0.341	--	--	--	--
Radium-226/228	pCi/L	5	--	0.3517	0.962	0.508	0.425	0.845	0.435	0.491	0.536	--	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	--	1.96	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.3	--	--	21.7	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--	154	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.053	0.016	0.03	0.054	--	0.238	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.258	0.331	0.333	0.323	--	0.563	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/13/2018	2/13/2019	5/22/2019	11/14/2019
Field Parameters							
Elevation	ft NGVD	--	--	367.97	368.87	371.17	371.18
pH	S.U.	--	6.43 - 8.69	7.2	7.55	7.34	7.39
Specific Conductance	µmhos/cm	--	--	434	435	481	576
Turbidity	NTU	--	--	17.03	2.8	0	4.1
Dissolved Oxygen	mg/L	--	--	0.13	10	0.71	0.33
Temperature	°C	--	--	14.25	14.3	16.09	15.93
ORP	mV	--	--	36.8	-17	-83.8	-115
Laboratory Parameters							
Antimony	µg/L	6	--	0.02	--	0.03	0.05
Arsenic	µg/L	10	--	0.49	--	0.4	0.39
Barium	µg/L	2000	--	95	--	102	90.8
Beryllium	µg/L	4	--	<0.02	--	<0.02	<0.02
Cadmium	µg/L	5	--	0.04	--	0.003	0.12
Chromium	µg/L	100	--	0.327	--	0.06	0.1
Cobalt	µg/L	6	--	0.492	--	0.347	0.141
Copper	µg/L	--	--	1.52	--	0.24	<0.2
Lead	µg/L	15	--	0.467	--	0.143	0.07
Mercury	µg/L	2	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	2	--	2.13	2.14
Selenium	µg/L	50	--	0.2	--	0.05	0.9
Thallium	µg/L	2	--	<0.1	--	<0.1	<0.1
Zinc	µg/L	--	--	35.2	--	7.4	1
Silica (Dissolved)	mg/L	--	--	16.9	--	15.9	15
Aluminum	µg/L	--	--	91.9	--	6.25	<5
Boron	mg/L	--	0.043	0.05	<0.02	<0.02	<0.02
Calcium	mg/L	--	(79.5) 78	64.8	--	64.3	63.4
Lithium	mg/L	0.04	--	<0.009	--	<0.009	0.00402
Magnesium	mg/L	--	--	21.2	--	20.4	19.4
Manganese	mg/L	--	--	0.576	--	0.699	0.272
Potassium	mg/L	--	--	0.89	--	0.92	0.9
Sodium	mg/L	--	--	15.3	--	13.5	13.2
Strontium	mg/L	--	--	0.0864	--	0.083	0.0803
Alkalinity	mg/L	--	--	247	--	241	208
Bromide	mg/L	--	--	0.06	--	0.05	0.04
Chloride	mg/L	--	(29.6) 32	27.9	31.5	25.4	23.3
Fluoride	mg/L	4	0.371	0.32	--	0.32	0.33
TDS	mg/L	--	(412.7) 375	308	--	328	296
Sulfate	mg/L	--	(48.53) 49	39	--	39.2	39.3
Sulfide	mg/L	--	--	<0.1	--	<0.1	<0.2
Radium-228	pCi/L	--	--	0.291	--	0.451	0.191
Radium-226	pCi/L	--	--	0.258	--	0.194	0.0689
Radium-226/228	pCi/L	5	--	0.549	--	0.645	0.2599
Copper (Dissolved)	µg/L	--	--	0.2	--	0.64	1.08
Zinc (Dissolved)	µg/L	--	--	2	--	0.9	2
Aluminum (Dissolved)	µg/L	--	--	<1	--	1	<5
Iron (Dissolved)	mg/L	--	--	0.037	--	0.02	<0.02
Manganese (Dissolved)	mg/L	--	--	0.565	--	0.643	0.251

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	6/7/2018	8/16/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.22	368.96	368.9	368.68	366.41	368.04	367.96	367.95	366.6	369.84	369.25
pH	S.U.	--	6.45 -8.63	7.86	7.47	7.29	7.1	7.4	7.39	7.3	8.51	7.24	7.55	7.33
Specific Conductance	µmhos/cm	--	--	586	524	551	516	386	568	388	516	428	460	830
Turbidity	NTU	--	--	2.31	3.15	3.5	0.79	3.45	2.67	2.32	1.72	1.82	5.05	0
Dissolved Oxygen	mg/L	--	--	0.45	0.31	1.77	0.31	5.47	0.79	0.87	0.45	0.84	6.83	0.74
Temperature	°C	--	--	15.8	15.79	19.32	15.58	14.22	14.45	15.65	16.06	15.71	15.35	17.83
ORP	mV	--	--	-2.7	-168.3	45	-0.7	206.9	-87.3	143.6	-24.8	-41	32.3	-24
Laboratory Parameters														
Antimony	µg/L	6	--	0.03	0.06	0.02	0.02	0.03	0.03	0.04	0.02	--	--	--
Arsenic	µg/L	10	--	0.78	0.82	0.81	0.61	0.62	0.59	0.65	0.62	--	--	--
Barium	µg/L	2000	--	185	195	180	172	157	160	159	169	--	--	--
Beryllium	µg/L	4	--	<0.005	0.006	0.007	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	--
Cadmium	µg/L	5	--	0.12	0.12	0.07	0.1	0.26	0.09	0.08	0.08	--	--	--
Chromium	µg/L	100	--	0.2	0.4	0.3	0.05	0.277	0.562	0.188	0.162	--	--	--
Cobalt	µg/L	6	--	0.473	0.439	0.425	0.212	0.327	0.252	0.335	0.353	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.16	1.96	2.09	--
Lead	µg/L	15	--	0.648	0.359	0.247	0.021	0.378	0.045	0.144	0.075	--	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	2.11	2.16	1.97	2.09	1.8	2.13	1.9	1.89	--	--	--
Selenium	µg/L	50	--	<0.03	<0.03	0.05	0.09	0.08	0.03	0.06	0.04	--	--	--
Thallium	µg/L	2	--	0.02	0.02	0.03	0.01	0.02	0.02	0.02	0.02	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	6	3.5	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.5	17.9	20.5	17.4	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	17.5	20.7	70.5	--
Boron	mg/L	--	0.074	<0.002	0.01	0.013	0.014	<0.002	0.03	0.027	0.073	0.041	0.076	0.038
Calcium	mg/L	--	(79.5) 81	75.6	65.8	66.7	73.9	64.2	74.2	70.8	64.7	67.7	78.6	--
Lithium	mg/L	0.04	--	0.002	0.018	0.002	0.007	0.007	0.008	0.011	0.0006	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	24.3	23.9	21.9	22.6	26.4	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.657	--	0.943	--
Potassium	mg/L	--	--	--	--	--	--	--	1.17	1.21	1.32	1.1	1.28	--
Sodium	mg/L	--	--	--	--	--	--	--	17.3	16.9	16	15.8	16.4	--
Strontium	mg/L	--	--	--	--	--	--	--	0.104	0.104	0.0894	0.0952	0.111	--
Alkalinity	mg/L	--	--	--	--	--	--	--	249	248	261	248	263	--
Bromide	mg/L	--	--	--	--	--	--	--	0.06	0.079	0.156	0.083	0.073	--
Chloride	mg/L	--	(29.6) 25	24.2	24.2	22.8	22.2	22.3	21.7	23.1	23	22.4	43.1	93.0 ?
Fluoride	mg/L	4	0.222	0.19	0.21	0.2	0.19	0.19	0.2	0.21	0.18	0.2	0.22	--
TDS	mg/L	--	(412.7) 358	341	339	338	327	318	318	343	340	332	361	--
Sulfate	mg/L	--	(46.44) 46	42.1	44.2	39.6	35.4	38.3	37.6	40.5	40.5	42.3	39.8	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	--
Radium-228	pCi/L	--	--	0.0495	0.195	0.451	0.473	0.506	1.11	0.0264	0.257	--	--	--
Radium-226	pCi/L	--	--	-0.0267	0.133	-0.00345	1.77	0.772	0.185	0.429	0.115	--	--	--
Radium-226/228	pCi/L	5	--	0.0228	0.328	0.44755	2.243	1.278	1.295	0.4554	0.372	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.11	--	0.12	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.8	--	0.5	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.14	--	2.75	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.055	0.017	0.005	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.565	0.602	0.662	0.619	0.621	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/12/2018	2/13/2019	5/22/2019	7/24/2019	9/11/2019	11/14/2019	2/18/2020
Field Parameters										
Elevation	ft NGVD	--	--	367.91	368.89	371.01	371.37	-----	371.11	-----
pH	S.U.	--	6.45 -8.63	7.36	7.32	7.25	6.28	7.15	7.3	7.08
Specific Conductance	µmhos/cm	--	--	464	391	803	834	705	726	1377
Turbidity	NTU	--	--	5.4	2.1	1.25	3	1.9	9.2	2.13
Dissolved Oxygen	mg/L	--	--	0.86	0.37	2.29	0.9	0.58	0.3	0.57
Temperature	°C	--	--	14.61	13.7	15.57	15.8	16.5	14.94	12.75
ORP	mV	--	--	-25.4	-164	-71.2	8	-109	-73	-76.4
Laboratory Parameters										
Antimony	µg/L	6	--	0.03	--	<0.02	--	--	0.04	--
Arsenic	µg/L	10	--	0.58	--	0.53	--	--	0.62	--
Barium	µg/L	2000	--	190	--	248	--	--	193	--
Beryllium	µg/L	4	--	<0.02	--	<0.02	--	--	<0.02	--
Cadmium	µg/L	5	--	0.17	--	0.3	--	--	0.19	--
Chromium	µg/L	100	--	0.2	--	<0.04	--	--	0.334	--
Cobalt	µg/L	6	--	0.5	--	0.488	--	--	0.537	--
Copper	µg/L	--	--	0.22	--	0.18	--	--	0.4	--
Lead	µg/L	15	--	0.14	--	0.129	--	--	0.416	--
Mercury	µg/L	2	--	--	--	<0.002	--	--	<0.002	--
Molybdenum	µg/L	100	--	2	--	2	--	--	2.28	--
Selenium	µg/L	50	--	<0.03	--	<0.03	--	--	0.04	--
Thallium	µg/L	2	--	<0.1	--	<0.1	--	--	<0.1	--
Zinc	µg/L	--	--	0.9	--	533	--	--	2	--
Silica (Dissolved)	mg/L	--	--	17.8	--	17.1	--	--	16.5	--
Aluminum	µg/L	--	--	15.4	--	3	--	--	10	--
Boron	mg/L	--	0.074	0.07	--	<0.02	--	--	0.02	--
Calcium	mg/L	--	(79.5) 81	72.4	--	98.5	114	103	76.9	--
Lithium	mg/L	0.04	--	<0.009	--	0.02	--	--	0.00298	--
Magnesium	mg/L	--	--	24.5	--	32.2	--	--	24.7	--
Manganese	mg/L	--	--	0.717	--	0.941	--	--	0.855	--
Potassium	mg/L	--	--	0.99	--	1.2	--	--	1	--
Sodium	mg/L	--	--	14.8	--	20.7	--	--	16.9	--
Strontium	mg/L	--	--	0.102	--	0.138	--	--	0.108	--
Alkalinity	mg/L	--	--	247	--	261	--	--	252	--
Bromide	mg/L	--	--	<0.04	--	0.08	--	--	0.06	--
Chloride	mg/L	--	(29.6) 25	51.3	40.9	135	156	110	56.5	76.3
Fluoride	mg/L	4	0.222	0.2	--	0.18	--	SSI ↓	0.18	--
TDS	mg/L	--	(412.7) 358	348	--	531	540	443	356	--
Sulfate	mg/L	--	(46.44) 46	36.1	--	33.3	--	--	38.9	--
Sulfide	mg/L	--	--	<0.1	--	<0.1	--	--	<0.2	--
Radium-228	pCi/L	--	--	0.0387	--	0.553	--	--	0.803	--
Radium-226	pCi/L	--	--	0.245	--	0.207	--	--	0.334	--
Radium-226/228	pCi/L	5	--	0.2837	--	0.76	--	--	1.137	--
Copper (Dissolved)	µg/L	--	--	0.11	--	0.39	--	--	1.64	--
Zinc (Dissolved)	µg/L	--	--	1	--	3	--	--	2	--
Aluminum (Dissolved)	µg/L	--	--	<1	--	1	--	--	<5	--
Iron (Dissolved)	mg/L	--	--	0.007	--	0.009	--	--	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.702	--	0.948	--	--	0.8	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-6S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/18/2016	9/20/2016	11/16/2016	1/10/2017	3/8/2017	5/8/2017	7/18/2017	10/3/2017	6/5/2018	8/15/2018	9/26/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.59	368.99	368.14	367.39	367.54	367.81	368.48	367.6	369.94	370.04	368.35
pH	S.U.	--	7.9	7.5	7.4	8.1	7.9	7.9	7.6	7.7	7.3	7.52	7.7	7.9
Specific Conductance	µmhos/cm	--	--	401	430	741	360	300	441	292	347	330	483	321
Turbidity	NTU	--	--	1	0.5	1	2	1	1	1	1	0.47	0	8
Dissolved Oxygen	mg/L	--	--	7.1	5.7	1	6	5	5	7	7	5.82	8.1	5.1
Temperature	°C	--	--	16.8	19	15	14.8	14.7	15.5	15.2	16.4	16.28	16	15.5
ORP	mV	--	--	53	71	258	146	36	49	74	0.3	-9.3	155	133
Laboratory Parameters														
Antimony	µg/L	6	--	0.03	0.03	0.03	0.03	0.03	0.03	0.02	--	--	0.03	0.03
Arsenic	µg/L	10	--	0.26	0.26	0.26	0.28	0.26	0.28	0.27	--	--	0.25	0.25
Barium	µg/L	2000	--	13.6	13.6	14.1	14.8	15.8	15.4	14.3	--	--	14.8	13.5
Beryllium	µg/L	4	--	0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	<0.004	<0.02
Cadmium	µg/L	5	--	0.25	0.02	0.02	0.008	0.05	0.009	0.04	--	--	0.06	0.04
Chromium	µg/L	100	--	0.4	0.3	0.2	0.599	1.37	0.583	0.291	--	--	0.42	0.265
Cobalt	µg/L	6	--	0.052	0.019	0.027	0.045	0.049	0.061	0.026	--	--	0.039	<0.02
Copper	µg/L	--	--	--	--	--	--	--	--	0.37	0.31	0.46	0.42	0.29
Lead	µg/L	15	--	0.074	0.034	0.05	0.032	0.113	0.083	0.056	--	--	0.247	0.03
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--
Molybdenum	µg/L	100	--	3.28	3.34	2.8	2.93	3.29	2.73	4.36	--	--	2.22	2.37
Selenium	µg/L	50	--	0.3	0.2	0.3	0.4	0.7	0.8	0.4	--	--	0.4	0.2
Thallium	µg/L	2	--	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	--	--	0.01	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	1	0.5	2.5	1	0.7
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	14.4	14.6	16.9	15.4	15.2	16.8
Aluminum	µg/L	--	--	--	--	--	--	--	--	8.57	17.8	10.4	13.8	3
Boron	mg/L	--	0.012	0.014	0.012	0.028	0.006	0.032	0.051	0.078	0.094	0.09	0.101	0.08
Calcium	mg/L	--	46.1	46.3	44.4	50.8	47.8	53.2	50.3	47	44.8	45.2	52.8	44.1
Lithium	mg/L	0.04	--	0.015	0.004	0.006	0.014	0.009	0.011	<0.0002	--	--	0.005	0.02
Magnesium	mg/L	--	--	--	--	--	--	23.3	23.5	20.9	19.8	19.3	24	18.8
Manganese	mg/L	--	--	--	--	--	--	--	--	0.0007	--	0.0024	0.0021	<0.0002
Potassium	mg/L	--	--	--	--	--	--	0.7	0.75	0.82	0.78	0.57	0.91	0.71
Sodium	mg/L	--	--	--	--	--	--	38.9	34.9	26.3	23.2	15.6	25.6	26.1
Strontium	mg/L	--	--	--	--	--	--	0.0661	0.067	0.0574	0.0548	0.0555	0.065	0.051
Alkalinity	mg/L	--	--	--	--	--	--	260	272	241	249	237	267	241
Bromide	mg/L	--	--	--	--	--	--	<0.02	0.072	<0.05	0.04	0.03	0.04	<0.04
Chloride	mg/L	--	8.44	8.35	6.04	7.04	7.03	3.32	8.68	4.88	3.28	2.38	11.9	6.83
Fluoride	mg/L	4	0.73	0.79	0.73	0.69	0.65	0.25	0.69	0.57	0.71	0.89	0.81	0.84
TDS	mg/L	--	294	290	266	279	287	296	305	274	261	225	277	261
Sulfate	mg/L	--	18.8	18.3	10.9	14.3	14	6.9	17.5	9.6	7.5	3.8	15.6	9.8
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.4	<0.1
Radium-228	pCi/L	--	--	0.101	0.798	-0.249	0.501	0.297	-0.337	0.954	--	--	0.328	0.367
Radium-226	pCi/L	--	--	0	0.0671	0.202	0.0815	-0.00471	0.12	-0.0229	--	--	0.0553	0.089
Radium-226/228	pCi/L	5	--	0.101	0.8651	-0.047	0.5825	0.29229	-0.217	0.954	--	--	0.3833	0.456
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	1.85	--	0.4	2.17	1.86
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.2	--	0.9	3.1	3
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	4.34	--	1	2.51	109
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.023	<0.002	0.003	0.163
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	<0.0001	<0.0001	0.0002	0.0007	0.0015	<0.0002	0.0121

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-6S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/1/2018	11/14/2018	12/12/2018	5/23/2019	11/14/2019
Field Parameters								
Elevation	ft NGVD	--	--	368.89	368.72	368.4	372.52	370.42
pH	S.U.	--	7.9	7.31	7.91	7.46	7.42	7.29
Specific Conductance	µmhos/cm	--	--	430	221	464	473	452
Turbidity	NTU	--	--	0.51	0.4	0.53	1.4	0.21
Dissolved Oxygen	mg/L	--	--	7.53	5.5	4.42	6.4	5.85
Temperature	°C	--	--	15.04	14.4	14.71	16.6	14.4
ORP	mV	--	--	115.3	126	196	70	291.1
Laboratory Parameters								
Antimony	µg/L	6	--	0.02	0.03	0.03	0.03	0.03
Arsenic	µg/L	10	--	0.23	0.23	0.24	0.22	0.23
Barium	µg/L	2000	--	12.1	11.8	13.4	15.9	15
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.01	<0.01	<0.01	0.03	<0.01
Chromium	µg/L	100	--	0.221	0.218	0.212	0.285	0.284
Cobalt	µg/L	6	--	<0.02	<0.02	<0.02	<0.02	<0.02
Copper	µg/L	--	--	0.17	0.18	0.26	0.51	<0.2
Lead	µg/L	15	--	<0.02	0.02	<0.02	0.04	<0.05
Mercury	µg/L	2	--	--	--	-----	<0.002	<0.002
Molybdenum	µg/L	100	--	2.38	2.18	2.2	2	2
Selenium	µg/L	50	--	0.2	0.2	0.4	0.6	0.4
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	<0.7	1	2	<0.7	<0.7
Silica (Dissolved)	mg/L	--	--	15.3	15.2	15.9	15.8	15
Aluminum	µg/L	--	--	2	5.28	3	2	<5
Boron	mg/L	--	0.012	0.04	0.04	0.102	0.02	<0.02
Calcium	mg/L	--	46.1	42.3	38.8	46.8	52.5	47.8
Lithium	mg/L	0.04	--	<0.009	0.01	<0.009	0.02	0.00645
Magnesium	mg/L	--	--	19.3	17.5	20.8	22.9	20
Manganese	mg/L	--	--	0.0007	0.0002	0.0003	0.0003	<0.0005
Potassium	mg/L	--	--	0.5	0.92	0.86	0.62	0.4
Sodium	mg/L	--	--	22	20.2	23.3	25.5	29.6
Strontium	mg/L	--	--	0.0519	0.0524	0.0595	0.691	0.0627
Alkalinity	mg/L	--	--	230	242	247	264	262
Bromide	mg/L	--	--	<0.04	<0.04	<0.04	<0.04	<0.04
Chloride	mg/L	--	8.44	3.52	3.91	6.48	9.64	5.36
Fluoride	mg/L	4	0.73	0.86	0.88	0.88	0.95	0.9
TDS	mg/L	--	294	225	196	240	315	277
Sulfate	mg/L	--	18.8	4.9	5.2	10	16.8	12
Sulfide	mg/L	--	--	<0.1	<0.07	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.354	0.387	-0.368	0.343	-0.011
Radium-226	pCi/L	--	--	0.0398	0.0239	0.0533	0.0431	0.0416
Radium-226/228	pCi/L	5	--	0.3938	0.4109	0.0533	0.3861	0.0416
Copper (Dissolved)	µg/L	--	--	0.14	0.53	0.17	1.22	0.4
Zinc (Dissolved)	µg/L	--	--	0.7	<0.7	2	1	0.9
Aluminum (Dissolved)	µg/L	--	--	1	2	8.1	1	<5
Iron (Dissolved)	mg/L	--	--	<0.003	0.005	0.01	<0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	0.0003	<0.0002	0.0007	0.0002	<0.0005

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-6I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/25/2018	10/31/2018	11/15/2018	12/12/2018	5/23/2019	11/14/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.18	368.75	368.62	368.48	372.32	370.28
pH	S.U.	--	7.6	7.8	7.25	7.35	7.44	7.66	7.32
Specific Conductance	µmhos/cm	--	--	332	467	344	458	453	374
Turbidity	NTU	--	--	6.5	0.76	0.74	0.25	0.36	0.46
Dissolved Oxygen	mg/L	--	--	1.7	0.27	2.78	0.79	1.02	2.15
Temperature	°C	--	--	16.4	15.9	14.2	14.71	16.5	14.4
ORP	mV	--	--	149	24.9	140.5	163	168.8	301.7
Laboratory Parameters									
Antimony	µg/L	6	--	0.25	0.25	0.25	0.23	0.23	0.2
Arsenic	µg/L	10	--	0.2	0.2	0.19	0.19	0.19	0.19
Barium	µg/L	2000	--	31.9	32.2	31.9	30.5	35.8	28.5
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.11	0.01	0.01	0.01	0.01	0.02
Chromium	µg/L	100	--	0.05	0.1	<0.04	0.05	0.07	0.222
Cobalt	µg/L	6	--	0.313	0.452	0.42	0.362	0.436	0.525
Copper	µg/L	--	--	2.36	0.78	0.92	1.21	0.6	0.7
Lead	µg/L	15	--	0.05	0.118	<0.02	<0.02	<0.02	<0.05
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	5.31	4.7	4.46	4.17	4.4	4.43
Selenium	µg/L	50	--	0.6	0.7	0.8	0.6	0.6	0.4
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Zinc	µg/L	--	--	3	<0.7	0.7	2	1	1
Silica (Dissolved)	mg/L	--	--	19.9	18.1	18.8	18.6	18.1	16.6
Aluminum	µg/L	--	--	6.57	5.88	5.54	3	4	<5
Boron	mg/L	--	0.06	0.06	0.04	0.03	0.06	<0.02	<0.02
Calcium	mg/L	--	42.2	43.1	42.4	43.1	47.2	47.4	44.7
Lithium	mg/L	0.04	--	0.01	<0.009	0.034	<0.009	0.01	0.0054
Magnesium	mg/L	--	--	13.9	15.1	14.6	16.1	15.7	14
Manganese	mg/L	--	--	0.185	0.24	0.247	0.249	0.272	0.276
Potassium	mg/L	--	--	0.93	0.76	0.78	0.88	1.13	0.8
Sodium	mg/L	--	--	35.7	35.9	32.9	32.7	29.9	26.6
Strontium	mg/L	--	--	0.0482	0.0528	0.0549	0.061	0.0622	0.0582
Alkalinity	mg/L	--	--	267	259	246	257	278	227
Bromide	mg/L	--	--	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chloride	mg/L	--	5.18	2.91	3.47	3.94	3.84	2.7	2.26
Fluoride	mg/L	4	0.89	0.88	0.86	0.86	0.86	0.85	0.89
TDS	mg/L	--	281	274	245	248	245	268	224
Sulfate	mg/L	--	9.9	5.4	4.9	6.3	7.3	4.1	4.1
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.218	0.216	0.675	0.488	0.496	0.296
Radium-226	pCi/L	--	--	0.35	0.323	0.638	0.489	0.557	0.215
Radium-226/228	pCi/L	5	--	0.568	0.539	1.313	0.977	1.053	0.511
Copper (Dissolved)	µg/L	--	--	2.79	1.09	0.86	0.74	2.58	0.5
Zinc (Dissolved)	µg/L	--	--	4	1	<0.7	<0.7	3	0.9
Aluminum (Dissolved)	µg/L	--	--	30.9	1	8.05	4	4	<5
Iron (Dissolved)	mg/L	--	--	0.064	<0.003	0.003	0.004	0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	0.254	0.232	0.246	0.231	0.256	0.238

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-6D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/25/2018	10/31/2018	11/14/2018	12/12/2018	5/23/2019	11/14/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.15	368.72	369.6	368.44	372.31	370.23
pH	S.U.	--	7.5	7.7	7.21	7.54	7.4	7.55	7.73
Specific Conductance	µmhos/cm	--	--	369	521	365	513	681	730
Turbidity	NTU	--	--	9	0	8.4	0.25	1.2	1.2
Dissolved Oxygen	mg/L	--	--	0.4	0.34	0.42	0.15	0.9	2.19
Temperature	°C	--	--	16.2	16	13.5	15.07	18.6	14.1
ORP	mV	--	--	155	54.3	131	110	145	126.6
Laboratory Parameters									
Antimony	µg/L	6	--	0.02	0.03	0.03	0.02	<0.02	0.05
Arsenic	µg/L	10	--	0.89	1.3	1.05	0.93	0.94	1.08
Barium	µg/L	2000	--	77.1	75.7	73.6	76.5	112	76
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.03	0.01	0.02	0.01	0.01	0.01
Chromium	µg/L	100	--	0.04	0.346	0.2	0.05	0.08	0.09
Cobalt	µg/L	6	--	0.392	0.806	0.598	0.404	0.578	0.429
Copper	µg/L	--	--	0.45	1.18	1.6	1.64	0.17	0.5
Lead	µg/L	15	--	<0.02	0.205	0.167	<0.02	<0.02	<0.05
Mercury	µg/L	2	--	--	--	--	--	0.002	<0.002
Molybdenum	µg/L	100	--	3.23	2.79	2.83	3.02	2.81	3.13
Selenium	µg/L	50	--	7.3	8.5	8.2	4.3	0.09	9.3
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	<0.7	2	73.1	2	<0.7	<0.7
Silica (Dissolved)	mg/L	--	--	19.5	17.5	17.6	18	18.2	16.5
Aluminum	µg/L	--	--	2	142	70.3	3	1	6
Boron	mg/L	--	0.094	0.05	0.03	0.05	0.115	0.03	0.02
Calcium	mg/L	--	61.9	61.7	57.2	53.1	60.1	78.9	62
Lithium	mg/L	0.04	--	0.02	0.009	0.01	<0.009	0.01	0.00722
Magnesium	mg/L	--	--	16.8	16.9	15.2	17.1	22.1	17.4
Manganese	mg/L	--	--	0.147	0.145	0.156	0.144	0.278	0.12
Potassium	mg/L	--	--	1.2	1.04	1.43	1.47	1.29	1.05
Sodium	mg/L	--	--	29	27.8	26.5	29	35.5	30
Strontium	mg/L	--	--	0.0919	0.093	0.0927	0.102	0.14	0.0949
Alkalinity	mg/L	--	--	260	260	266	271	305	265
Bromide	mg/L	--	--	<0.04	<0.04	<0.04	<0.04	0.07	<0.04
Chloride	mg/L	--	12.3	10.9	10.2	10	10.8	25.1	12.2
Fluoride	mg/L	4	0.39	0.41	0.41	0.42	0.42	0.36	0.41
TDS	mg/L	--	331	310	295	276	296	408	310
Sulfate	mg/L	--	27.3	24.1	23	22.2	23.6	39.5	25.4
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.29	0.21	0.275	-0.0272	0.586	0.179
Radium-226	pCi/L	--	--	0.295	0.122	0.102	0.423	0.543	0.108
Radium-226/228	pCi/L	5	--	0.585	0.332	0.377	0.423	0.423	0.423
Copper (Dissolved)	µg/L	--	--	1.27	0.44	0.7	0.5	0.53	0.4
Zinc (Dissolved)	µg/L	--	--	2	0.9	2	2	1	2
Aluminum (Dissolved)	µg/L	--	--	31.6	3	2	45.3	15.6	10
Iron (Dissolved)	mg/L	--	--	0.082	<0.003	0.004	0.117	0.007	<0.02
Manganese (Dissolved)	mg/L	--	--	0.127	0.137	0.135	0.142	0.263	0.123

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-7S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/30/2018	11/14/2018	12/12/2018	5/22/2019	11/22/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.5	368.76	368.68	368.47	371.91	370.7
pH	S.U.	--	7.4	7.4	7.33	7.31	7.3	8.39	7.33
Specific Conductance	µmhos/cm	--	--	417	611	455	629	527	580
Turbidity	NTU	--	--	106	104	42.6	44	4.77	34.3
Dissolved Oxygen	mg/L	--	--	0.4	0.32	0.7	0.23	0.65	3.61
Temperature	°C	--	--	15.4	15.01	13.9	14.43	14.69	13.49
ORP	mV	--	--	106	85.4	48.2	92	0.1	56.1
Laboratory Parameters									
Antimony	µg/L	6	--	0.14	0.15	0.06	0.09	0.02	0.09
Arsenic	µg/L	10	--	1.48	2.01	0.7	1.06	0.11	0.97
Barium	µg/L	2000	--	18.7	24.3	12.9	15.4	8.42	15.5
Beryllium	µg/L	4	--	0.101	0.127	0.05	0.07	<0.02	0.06
Cadmium	µg/L	5	--	0.05	0.06	0.02	0.05	0.02	0.04
Chromium	µg/L	100	--	2.08	2.45	0.831	1.48	0.1	1.38
Cobalt	µg/L	6	--	6.48	9.82	3.47	4.98	0.255	4.77
Copper	µg/L	--	--	4.4	5.36	1.91	2.76	0.51	2.82
Lead	µg/L	15	--	4.69	6.69	2.38	3.56	0.205	3.4
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Selenium	µg/L	50	--	0.6	0.8	0.3	0.4	0.2	0.5
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	7.9	9.5	14	5	39.1	5.3
Silica (Dissolved)	mg/L	--	--	20.8	18.7	18.6	19.3	18.4	17.9
Aluminum	µg/L	--	--	1520	1850	681	1170	39.3	954
Boron	mg/L	--	0.079	0.04	0.07	0.135	0.08	0.03	<0.02
Calcium	mg/L	--	70.2	73.7	68.3	66.2	67.1	62.4	67.6
Lithium	mg/L	0.04	--	0.02	0.01	<0.009	<0.009	<0.009	0.00447
Magnesium	mg/L	--	--	25.4	25.7	24.3	24.6	21.7	25
Manganese	mg/L	--	--	0.334	0.49	0.182	0.248	0.0145	0.263
Potassium	mg/L	--	--	1.33	1.39	1.81	1.3	0.87	1.09
Sodium	mg/L	--	--	17.9	19.1	18.9	18.7	17	17
Strontium	mg/L	--	--	0.083	0.0857	0.0883	0.0874	0.0803	0.086
Alkalinity	mg/L	--	--	256	261	255	261	242	254
Bromide	mg/L	--	--	0.09	0.09	0.09	0.09	0.1	0.08
Chloride	mg/L	--	32.8	32.2	33.5	33.2	33.6	35.4	30.5
Fluoride	mg/L	4	0.52	0.54	0.53	0.54	0.55	0.55	0.54
TDS	mg/L	--	358	370	358	354	353	353	383
Sulfate	mg/L	--	32	32.2	33.1	33.1	33.7	34.1	33.6
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.48	0.601	0.254	0.191	0.27	0.8
Radium-226	pCi/L	--	--	0.271	0.245	0.211	0.507	0.0334	0.142
Radium-226/228	pCi/L	5	--	0.751	0.846	0.465	0.698	0.3034	0.942
Copper (Dissolved)	µg/L	--	--	1.01	0.07	1.62	0.2	0.17	<0.2
Zinc (Dissolved)	µg/L	--	--	2	<0.7	3	<0.7	<0.7	<0.7
Aluminum (Dissolved)	µg/L	--	--	311	3	2	3	2	<5
Iron (Dissolved)	mg/L	--	--	0.618	0.004	0.005	0.007	<0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	0.0797	0.0021	0.0012	0.0026	0.0009	<0.005

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-7I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/30/2018	11/15/2018	12/12/2018	5/22/2019	5/22/2019	11/22/2019
Field Parameters										
Elevation	ft NGVD	--	--	369.01	368.51	368.5	368.27	371.73	371.73	370.49
pH	S.U.	--	7.4	7.5	7.3	7.03	7.27	8.4	8.4	7.24
Specific Conductance	µmhos/cm	--	--	419	613	460	645	573	573	609
Turbidity	NTU	--	--	19	14.4	7.05	19.9	1.6	1.6	19.5
Dissolved Oxygen	mg/L	--	--	0.3	0.36	0.95	0.21	0.7	0.7	3.5
Temperature	°C	--	--	15.5	15.17	13.78	14.46	15.1	15.1	13.66
ORP	mV	--	--	57	-19.2	68.4	44	-71.2	-71.2	3.7
Laboratory Parameters										
Antimony	µg/L	6	--	0.02	0.03	<0.02	<0.02	0.02	0.02	0.04
Arsenic	µg/L	10	--	0.28	0.43	0.24	0.26	0.23	0.23	0.3
Barium	µg/L	2000	--	175	230	162	147	116	116	246
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.05	0.06	0.03	0.03	0.35	0.35	0.12
Chromium	µg/L	100	--	0.2	0.315	0.09	0.07	0.09	0.09	0.281
Cobalt	µg/L	6	--	3.07	8.34	1.11	1.67	1.1	1.1	4.36
Copper	µg/L	--	--	0.55	1.45	0.59	0.76	0.4	0.4	0.8
Lead	µg/L	15	--	0.45	0.6	0.05	0.145	0.228	0.228	0.596
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002	<0.002
Molybdenum	µg/L	100	--	4.2	4.31	<0.4	3.45	3.63	3.63	6.45
Selenium	µg/L	50	--	0.05	0.09	0.05	0.05	0.04	0.04	0.09
Thallium	µg/L	2	--	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.2
Zinc	µg/L	--	--	2	15.1	1	2	3	3	3
Silica (Dissolved)	mg/L	--	--	20.5	18.1	18.5	18.8	18.4	18.4	17.7
Aluminum	µg/L	--	--	74.1	304	69.9	39.5	27.7	27.7	85.4
Boron	mg/L	--	0.07	0.04	0.06	0.09	0.08	0.03	0.03	<0.02
Calcium	mg/L	--	75.3	75.4	68.8	68.8	73.7	73.7	73.7	70.9
Lithium	mg/L	0.04	--	0.01	<0.009	<0.009	<0.009	<0.009	<0.009	0.00382
Magnesium	mg/L	--	--	21.9	21.7	21.4	22.8	21.5	21.5	21.9
Manganese	mg/L	--	--	2.76	4	1.08	2.89	0.821	0.821	4.56
Potassium	mg/L	--	--	1.22	0.97	1.57	1.19	1.08	1.08	1.21
Sodium	mg/L	--	--	19.8	20.1	21.5	21.3	18.1	18.1	19
Strontium	mg/L	--	--	0.0928	0.0932	0.1	0.103	0.11	0.11	0.1
Alkalinity	mg/L	--	--	236	237	233	229	232	232	225
Bromide	mg/L	--	--	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chloride	mg/L	--	45	45.8	48.2	47.6	48.8	49	49	51.6
Fluoride	mg/L	4	0.33	0.34	0.34	0.35	0.35	0.33	0.33	0.3
TDS	mg/L	--	312	348	338	354	347	376	376	380
Sulfate	mg/L	--	38.4	38.9	38.9	39	39.1	43.1	43.1	42.4
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	-0.0705	0.369	0.123	0.089	0.643	0.643	0.0399
Radium-226	pCi/L	--	--	4.16	0.513	0.605	0.934	0.155	0.155	0.575
Radium-226/228	pCi/L	5	--	4.16	0.882	0.728	1.023	0.798	0.798	0.6149
Copper (Dissolved)	µg/L	--	--	0.93	0.24	1.56	0.72	0.15	0.15	<0.2
Zinc (Dissolved)	µg/L	--	--	2	0.9	3	2	2	2	0.9
Aluminum (Dissolved)	µg/L	--	--	1	10.6	2	137	2	2	<5
Iron (Dissolved)	mg/L	--	--	<0.003	0.01	0.006	0.128	<0.003	<0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	0.172	0.51	0.243	3.9	0.121	0.121	0.284

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-7D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/31/2018	11/15/2018	12/12/2018	5/22/2019	11/22/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.08	368.65	368.57	368.35	371.82	372.93
pH	S.U.	--	7.2	7.5	6.91	7.26	7.18	7.91	7.12
Specific Conductance	µmhos/cm	--	--	419	617	444	622	549	931
Turbidity	NTU	--	--	10.8	1.02	5.96	0	0.01	1.75
Dissolved Oxygen	mg/L	--	--	0.7	3.72	11.3	0.52	2	3.49
Temperature	°C	--	--	15.2	14.79	13.32	15.23	16.25	13.37
ORP	mV	--	--	57	26.4	26.4	-5	-40.4	27.7
Laboratory Parameters									
Antimony	µg/L	6	--	0.04	0.03	0.04	0.06	0.02	0.02
Arsenic	µg/L	10	--	0.91	0.8	0.87	0.85	0.72	0.47
Barium	µg/L	2000	--	286	283	268	320	284	385
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.02	0.02	0.04	<0.01	<0.01	0.01
Chromium	µg/L	100	--	0.2	0.334	0.1	0.1	0.07	4.04
Cobalt	µg/L	6	--	2.52	2.46	2.24	2.24	1.88	2.43
Copper	µg/L	--	--	0.34	0.44	0.57	1.59	0.08	<0.2
Lead	µg/L	15	--	0.1	0.164	0.101	0.144	<0.02	<0.05
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	4.09	9.76	7.38	5.43	3.49	2.61
Selenium	µg/L	50	--	0.05	0.05	0.03	<0.03	<0.03	<0.03
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	2	4	3	5.1	0.9
Silica (Dissolved)	mg/L	--	--	216	19.2	19.9	19.8	19.2	18.8
Aluminum	µg/L	--	--	31.4	56.7	16.5	<1	1	<5
Boron	mg/L	--	0.06	0.04	0.05	0.07	0.04	0.02	<0.02
Calcium	mg/L	--	80.1	79.2	75	62.8	77.4	76.7	106
Lithium	mg/L	0.04	--	<0.009	0.01	0.02	<0.009	<0.009	0.00426
Magnesium	mg/L	--	--	25	25.8	21	25.7	24.3	35
Manganese	mg/L	--	--	1.89	1.66	1.34	1.51	1.49	1.64
Potassium	mg/L	--	--	1.22	1.07	1.39	1.25	0.94	1.12
Sodium	mg/L	--	--	14.2	15.4	12.9	15.3	13.9	19.3
Strontium	mg/L	--	--	0.137	0.141	0.125	0.146	0.138	0.204
Alkalinity	mg/L	--	--	273	293	296	300	296	287
Bromide	mg/L	--	--	0.09	0.08	0.08	0.08	0.009	0.365
Chloride	mg/L	--	17.3	17.5	17.2	16.9	17.2	19.1	139
Fluoride	mg/L	4	0.27	0.26	0.26	0.26	0.27	0.26	0.22
TDS	mg/L	--	359	358	3.46	340	344	371	514
Sulfate	mg/L	--	36.9	36.3	36	35.4	35.5	35.2	34.3
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.36	0.202	0.548	0.159	0.89	0.084
Radium-226	pCi/L	--	--	0.983	0.107	0.45	0.717	0.265	0.328
Radium-226/228	pCi/L	5	--	1.343	0.309	0.998	0.876	1.155	0.412
Copper (Dissolved)	µg/L	--	--	0.55	0.17	2.01	0.18	0.77	<0.2
Zinc (Dissolved)	µg/L	--	--	2	2	4	1	3	0.9
Aluminum (Dissolved)	µg/L	--	--	6.36	6.44	2	3	2	<5
Iron (Dissolved)	mg/L	--	--	0.103	0.081	0.08	0.093	0.072	0.06
Manganese (Dissolved)	mg/L	--	--	1.76	1.6	1.47	1.35	1.5	1.58

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-8S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/19/2016	9/21/2016	11/17/2016	1/9/2017	3/7/2017	5/9/2017	7/18/2017	10/4/2017	12/12/2017	6/5/2018	11/13/2018	5/23/2019	11/21/2019
Field Parameters																
Elevation	ft NGVD	--	--	369.78	369.44	369.25	368.53	368.39	368.39	368.81	367.5	366.59	369.59	368.9	371.48	371.51
pH	S.U.	--	7.3	7.2	7.1	7.9	7.6	7.6	7.4	7.4	7.75	7.7	7.59	7.58	7.38	7.43
Specific Conductance	µmhos/cm	--	--	516	540	811	450	260	444	410	395	460	400	354	440	495
Turbidity	NTU	--	--	1.1	2	2	3	4	8	1	2.46	6	3.48	2.6	0.69	53.7
Dissolved Oxygen	mg/L	--	--	3.2	3.6	1	2	4	2	3.2	3.12	0.8	2.1	3.8	6.54	6.51
Temperature	°C	--	--	20.7	21.6	16.2	14	14.2	15.6	15.8	16.57	14.1	15.05	14.4	16.17	12.82
ORP	mV	--	--	29	18	275	131	50	50	65	29.9	-17	-33.7	158	54.2	110.9
Laboratory Parameters																
Antimony	µg/L	6	--	0.3	0.02	0.03	0.02	0.04	0.03	0.02	--	--	--	0.05	<0.02	0.04
Arsenic	µg/L	10	--	1.78	1.33	1.26	1.56	1.53	2.09	1.19	--	--	--	1.61	1.52	1.97
Barium	µg/L	2000	--	13.1	12.2	10.9	13.8	14.5	16.9	10.9	--	--	--	10.4	9.22	16.6
Beryllium	µg/L	4	--	0.232	<0.005	<0.005	0.006	0.009	0.01	<0.004	--	--	--	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.31	0.02	0.05	0.01	0.26	0.09	0.13	--	--	--	0.03	<0.01	0.03
Chromium	µg/L	100	--	0.6	0.4	0.156	1.04	0.881	0.423	0.277	--	--	--	0.578	0.235	0.378
Cobalt	µg/L	6	--	0.453	0.125	0.113	0.447	0.433	0.981	0.052	--	--	--	0.207	0.058	0.669
Copper	µg/L	--	--	--	--	--	--	--	--	0.18	0.12	--	0.25	1.7	0.13	0.5
Lead	µg/L	15	--	0.364	0.066	0.065	0.19	0.278	0.389	0.038	--	--	--	0.152	0.03	0.33
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.015	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	1.1	0.8	0.71	0.77	1.56	0.75	0.83	--	--	--	0.9	0.9	0.5
Selenium	µg/L	50	--	0.6	0.2	0.2	0.2	0.2	0.3	0.2	--	--	--	0.5	0.6	1
Thallium	µg/L	2	--	0.276	0.03	<0.01	0.01	0.17	<0.01	<0.01	--	--	--	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	0.7	0.6	--	1	3	2	2
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	21.5	21.2	24.7	--	21.7	21.4	<0.06	20.9
Aluminum	µg/L	--	--	--	--	--	--	--	--	7.37	10.6	--	53	31	8.03	164
Boron	mg/L	--	0.01	0.012	0.011	0.032	<0.002	0.043	0.028	0.022	0.016	--	0.058	0.04	<0.02	<0.02
Calcium	mg/L	--	42.7	41.5	42.7	42.9	45.8	44.8	42.9	44.4	39.8	--	42.3	35.6	35.9	39
Lithium	mg/L	0.04	--	0.025	0.001	0.002	0.002	0.006	0.006	0.001	--	--	--	<0.009	0.02	0.00311
Magnesium	mg/L	--	--	--	--	--	--	19.6	20	20	17.6	--	18.8	16	16.1	16.9
Manganese	mg/L	--	--	--	--	--	--	--	--	0.0021	--	--	0.0323	0.0154	0.0033	0.0413
Potassium	mg/L	--	--	--	--	--	--	0.91	0.89	0.77	0.65	--	0.82	0.88	0.76	1
Sodium	mg/L	--	--	--	--	--	--	41.2	40.5	42.1	43.2	--	40.1	34.6	37.4	39.7
Strontium	mg/L	--	--	--	--	--	--	0.0562	0.0564	0.0543	0.0494	--	0.0555	0.0464	0.0458	0.0478
Alkalinity	mg/L	--	--	--	--	--	--	162	181	167	171	--	181	159	150	173
Bromide	mg/L	--	--	--	--	--	--	0.03	0.062	0.04	0.06	--	<0.02	<0.04	<0.04	0.1
Chloride	mg/L	--	23.7	23.5	22.1	21.1	20.8	21.4	22.8	22.7	22.4	22.5	23.8	22.9	23.6	23.1
Fluoride	mg/L	4	0.56	0.56	0.54	0.55	0.47	0.52	0.52	0.47	0.52	0.56	0.59	0.57	0.58	0.49
TDS	mg/L	--	345	321	332	322	300	320	319	319	317	--	324	288	312	324
Sulfate	mg/L	--	26.5	26.4	23.4	21.7	22.1	21.7	21.8	22.3	23.1	24.9	21.2	19.5	20.4	20
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	0.455	1.16	0.343	0.394	0.26	-0.175	1.5	--	--	--	0.346	0.113	0.0252
Radium-226	pCi/L	--	--	0.122	0.131	0.147	0.282	0.0561	0.127	0.153	--	--	--	0.137	0.0183	0.296
Radium-226/228	pCi/L	5	--	0.577	1.291	0.49	0.676	0.3161	-0.048	1.653	--	--	--	0.483	0.1313	0.3212
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.96	--	--	0.44	0.29	0.48	<0.2
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.5	--	--	0.7	2	2	0.7
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2	--	--	1	1	7.36	10
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.004	<0.0004	<0.0004	0.014	--	0.002	0.003	0.007	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	0.0002	0.0004	0.0002	0.0004	--	0.0012	0.0006	0.0007	<0.0005

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-8I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/19/2016	9/21/2016	11/17/2016	1/9/2017	3/6/2017	5/9/2017	7/18/2017	10/4/2017	12/12/2017	6/4/2018	11/14/2018	5/23/2019	11/22/2019
Field Parameters																
Elevation	ft NGVD	--	--	370.06	369.7	369.51	368.84	368.68	368.68	369.07	367.78	366.87	369.85	367.78	371.38	371.37
pH	S.U.	--	7.2	7.2	7.44	7.6	7.6	7.4	7.2	7.3	7.56	7.9	7.68	7.22	7.22	6.73
Specific Conductance	µmhos/cm	--	--	580	455	968	420	80	507	485	471	390	619	453	607	525
Turbidity	NTU	--	--	9	3.29	1	5	10	2	1	6.26	1	3.18	9	2.4	8
Dissolved Oxygen	mg/L	--	--	0.6	0.17	0.8	1	4.5	0.3	0.2	0.31	9.7	2.46	0.37	2.53	1.3
Temperature	°C	--	--	21	15.39	17.1	14	14.4	15	16.2	15.51	14.4	17.42	13.8	19.41	13.6
ORP	mV	--	--	-60	-63.9	-1	29	25	52	-15	-67.4	111	-75.3	190	-8.1	-185
Laboratory Parameters																
Antimony	µg/L	6	--	0.27	0.07	0.1	0.08	0.08	0.08	0.07	--	--	--	0.17	0.17	0.16
Arsenic	µg/L	10	--	11.5	2.08	1.39	2.58	2.78	2.09	1.31	--	--	--	3.41	1.07	1.6
Barium	µg/L	2000	--	70.1	57	58.4	54.9	56.9	57.8	60.4	--	--	--	57.9	63.8	58.5
Beryllium	µg/L	4	--	0.119	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	--	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.28	0.02	0.04	0.02	0.04	0.05	0.02	--	--	--	0.15	0.02	0.08
Chromium	µg/L	100	--	0.5	0.1	0.055	0.817	0.511	0.23	0.077	--	--	--	0.07	0.05	0.1
Cobalt	µg/L	6	--	0.961	0.643	0.646	0.671	0.656	0.77	0.672	--	--	--	1.01	0.55	0.741
Copper	µg/L	--	--	--	--	--	--	--	--	0.11	0.13	--	0.42	1.45	0.2	0.5
Lead	µg/L	15	--	0.242	0.02	0.032	0.025	0.032	0.054	0.01	--	--	--	0.111	<0.02	<0.05
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	3	2.34	2.47	2.31	2.73	2.29	2.58	--	--	--	2.7	2.72	2.43
Selenium	µg/L	50	--	7.5	2.7	3	2.3	2.9	4.5	4.7	--	--	--	2.5	3.7	1.4
Thallium	µg/L	2	--	0.166	0.03	0.03	0.04	0.05	0.03	0.03	--	--	--	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	0.7	0.9	--	3.2	9.2	21.9	3
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	14.6	14.7	17.1	--	16.4	14.1	<0.06	13.3
Aluminum	µg/L	--	--	--	--	--	--	--	--	2	1	--	0.8	8.7	<1	<5
Boron	mg/L	--	0.017	0.016	0.017	0.028	0.006	0.083	0.045	0.026	0.096	--	0.044	0.06	0.03	0.02
Calcium	mg/L	--	72	67.9	67.4	77.5	79.5	74.7	71.9	72.2	74.7	--	76.7	67.7	70.7	66.9
Lithium	mg/L	0.04	--	0.007	0.008	0.009	0.005	0.01	0.001	<0.0002	--	--	--	0.02	0.02	0.00419
Magnesium	mg/L	--	--	--	--	--	--	22.3	22.9	22.2	22.5	--	23.5	21.4	22.4	20.7
Manganese	mg/L	--	--	--	--	--	--	--	--	0.357	--	--	0.32	0.509	0.407	0.443
Potassium	mg/L	--	--	--	--	--	--	1.84	1.73	1.48	2.02	--	1.6	2.28	1.76	1.76
Sodium	mg/L	--	--	--	--	--	--	29.4	28.5	29.7	28.6	--	32.5	31.5	31.6	29.2
Strontium	mg/L	--	--	--	--	--	--	0.146	0.148	0.14	0.146	--	0.152	0.139	0.138	0.129
Alkalinity	mg/L	--	--	--	--	--	--	245	246	247	237	--	268	250	250	268
Bromide	mg/L	--	--	--	--	--	--	0.04	0.065	0.062	0.064	--	0.05	<0.04	<0.04	<0.04
Chloride	mg/L	--	21.7	22	21.5	21.3	20.9	20.7	21.2	20.9	20.1	19.3	20.9	20.6	21	19.7
Fluoride	mg/L	4	0.35	0.34	0.29	0.29	0.25	0.28	0.28	0.25	0.27	0.29	0.29	0.33	0.34	0.3
TDS	mg/L	--	370	358	376	387	371	391	376	379	378	--	407	390	371	381
Sulfate	mg/L	--	87.5	86.3	79.2	77.5	80	80.3	81.9	83.4	85.9	87.1	79	68.2	62.3	68.3
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.4275	0.157	0.42	1.1	0.372	0.45	0.616	--	--	--	0.354	0.43	0.479
Radium-226	pCi/L	--	--	0.824	0.521	0.746	0.725	0.643	0.561	0.463	--	--	--	0.676	0.663	0.723
Radium-226/228	pCi/L	5	--	1.2515	0.678	1.166	1.825	1.015	1.011	1.079	--	--	--	1.03	1.093	1.202
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.52	--	--	0.27	0.17	0.45	<0.2
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.4	--	--	16.8	<0.7	2	0.9
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.46	--	--	<0.8	<1	2	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	0.36	0.405	0.35	0.515	--	1.08	0.213	0.334	0.333
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	0.349	0.39	0.324	0.363	--	0.31	0.358	0.368	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-11S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/18/2016	9/20/2016	11/16/2016	1/9/2017	3/7/2017	5/19/2017	7/18/2017	10/3/2017	12/12/2017	6/5/2018	11/14/2018	5/23/2019	11/15/2019
Field Parameters																
Elevation	ft NGVD	--	--	369.93	369.4	368.47	367.7	367.51	367.92	368.57	367.86	366.6	369.69	369.27	373.25	371.21
pH	S.U.	--	7.9	7.3	7.3	8.4	8.1	7.9	7.78	7.7	7.2	8.3	7.21	7.55	7.71	7.76
Specific Conductance	µmhos/cm	--	--	272	330	433	200	70	307	386	267	260	360	309	440	533
Turbidity	NTU	--	--	0.81	0.4	1	0.8	0.3	2.64	0.4	0.5	0.6	0.39	0.2	1	1.97
Dissolved Oxygen	mg/L	--	--	9.3	7.4	2	7	7	6.99	6.1	8	19.4	6.94	6.9	9	5.53
Temperature	°C	--	--	16.1	22.4	14.7	14.8	15	15.7	17.1	15.4	13.4	14.97	13.25	17.3	15.3
ORP	mV	--	--	24	167	227	126	47	75.6	73	-13	73	-2.7	152	240	114.7
Laboratory Parameters																
Antimony	µg/L	6	--	0.04	0.04	0.05	0.04	0.04	0.04	<0.05	--	--	--	0.05	0.05	0.04
Arsenic	µg/L	10	--	0.53	0.42	0.45	0.52	0.52	0.48	0.5	--	--	--	0.38	0.36	0.43
Barium	µg/L	2000	--	9.79	11.3	7.91	6.52	7.09	7.73	8.16	--	--	--	12.5	13.7	10.8
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.02	--	--	--	<0.02	0.03	<0.02
Cadmium	µg/L	5	--	0.03	0.03	0.02	0.01	0.007	0.03	<0.02	--	--	--	0.03	0.02	<0.01
Chromium	µg/L	100	--	0.5	0.8	0.416	0.725	1.25	0.567	0.568	--	--	--	0.384	0.483	0.468
Cobalt	µg/L	6	--	0.043	0.029	0.027	0.022	0.027	0.03	0.02	--	--	--	<0.02	0.03	<0.02
Copper	µg/L	--	--	--	--	--	--	--	--	0.44	0.26	--	0.25	0.44	2.07	0.3
Lead	µg/L	15	--	0.02	0.046	0.027	0.02	0.02	0.023	0.06	--	--	--	0.03	<0.02	<0.05
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	0.002	0.002	<0.002	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	4.36	3.37	4.71	6.09	6.03	4.86	4.69	--	--	--	2.4	2.04	2.15
Selenium	µg/L	50	--	0.08	0.1	0.07	0.05	0.2	0.2	0.3	--	--	--	0.04	<0.03	0.06
Thallium	µg/L	2	--	0.01	0.01	0.02	0.01	0.01	0.01	0.2	--	--	--	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	7	<0.4	--	2	<0.7	<0.7	0.8
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	24.9	24.4	27.3	--	25.8	26.6	24.5	25
Aluminum	µg/L	--	--	--	--	--	--	--	--	10	3.63	--	2	3	3	<5
Boron	mg/L	--	0.062	0.062	0.077	0.053	0.029	0.057	0.047	0.067	0.09	--	0.076	0.11	0.08	0.052
Calcium	mg/L	--	41.6	38.8	45.1	37.3	40.4	42.8	41.2	44.2	43.7	--	55.8	56.4	54.3	47.6
Lithium	mg/L	0.04	--	0.024	0.004	0.005	0.003	0.013	0.009	0.002	--	--	--	0.01	0.01	0.00669
Magnesium	mg/L	--	--	--	--	--	--	17.2	17.7	18.8	17.6	--	24.8	19.5	17.7	17
Manganese	mg/L	--	--	--	--	--	--	--	--	<0.0001	--	--	<0.0002	0.0004	<0.0002	0.0006
Potassium	mg/L	--	--	--	--	--	--	0.42	0.42	0.42	0.48	--	0.37	0.88	0.4	0.5
Sodium	mg/L	--	--	--	--	--	--	5.72	5.58	6.82	7.26	--	7.11	5.35	4.43	4.47
Strontium	mg/L	--	--	--	--	--	--	0.0508	0.0535	0.0532	0.0537	--	0.0706	0.0774	0.0707	0.0638
Alkalinity	mg/L	--	--	--	--	--	--	153	175	187	167	--	226	246	235	223
Bromide	mg/L	--	--	--	--	--	--	<0.02	<0.06	<0.02	<0.02	--	<0.02	<0.04	<0.4	<0.04
Chloride	mg/L	--	1.82	1.83	1.62	1.54	2.12	4.63	9.87	8.19	3.68	2.4	6.98	1.79	1.62	1.48
Fluoride	mg/L	4	0.74	0.76	0.73	0.92	0.96	1	0.86	0.75	0.89	0.82	0.62	0.72	0.82	0.77
TDS	mg/L	--	212	201	196	182	179	197	239	224	200	--	276	238	279	216
Sulfate	mg/L	--	10.9	10.6	5.3	4.1	7.6	13.7	16.4	15.6	9.3	8	21.7	5.9	14.7	2.7
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.231	0.741	0.179	1.96	0.0959	0.0337	0.771	--	--	--	0.419	0.805	1.72
Radium-226	pCi/L	--	--	0.584	-0.0127	0.109	0.141	0.0906	0.091	0.0225	--	--	--	0.217	0.0772	0.0737
Radium-226/228	pCi/L	5	--	0.815	0.7283	0.288	2.101	0.1865	0.1247	0.7935	--	--	--	0.636	0.8822	1.7937
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.82	--	--	0.63	0.71	0.26	0.3
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	9	--	--	2	1	<0.7	1
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	66.5	--	--	2.92	3	2	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.014	--	0.008	0.04	0.004	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	<0.0001	0.0002	0.0001	<0.0002	--	<0.002	0.0005	<0.0002	<0.0005

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-12S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	11/1/2018	11/14/2008	12/11/2018	5/22/2019	11/21/2019
Field Parameters									
Elevation	ft NGVD	--	--	367.81	367.96	367.93	368.21	372.14	368.42
pH	S.U.	--	7.2	5.9	7.6	6.83	7.12	7.31	7.52
Specific Conductance	µmhos/cm	--	--	522	551	517	816	757	728
Turbidity	NTU	--	--	9	1.14	2.14	23.7	13.8	5.1
Dissolved Oxygen	mg/L	--	--	0.2	3.13	0.36	0.29	0	10.83
Temperature	°C	--	--	14.5	14.05	13.16	13.36	14.8	12.81
ORP	mV	--	--	68	-34.8	184.2	-10	9	144.1
Laboratory Parameters									
Antimony	µg/L	6	--	0.06	0.03	0.17	0.06	0.07	0.19
Arsenic	µg/L	10	--	0.3	0.27	0.25	0.61	0.45	0.44
Barium	µg/L	2000	--	26.8	26.3	25.3	31	29.7	28.8
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.06	0.05	0.13	0.04	0.09	0.09
Chromium	µg/L	100	--	0.276	0.1	0.1	0.639	0.476	0.315
Cobalt	µg/L	6	--	0.642	0.4783	0.439	1.23	0.924	0.955
Copper	µg/L	--	--	0.5	0.36	0.55	1.08	1.59	1.2
Lead	µg/L	15	--	0.34	0.08	0.08	0.904	0.538	0.526
Mercury	µg/L	2	--	--	--	--	--	0.002	<0.002
Molybdenum	µg/L	100	--	2	2	2	2	1	1
Selenium	µg/L	50	--	0.2	0.07	0.1	0.2	0.09	0.3
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	0.8	2	2	19.3	8.2
Silica (Dissolved)	mg/L	--	--	21.5	20	20	20.3	19.3	18.8
Aluminum	µg/L	--	--	45.2	8.53	3	291	119	106
Boron	mg/L	--	0.067	0.04	0.07	0.03	0.12	0.02	0.03
Calcium	mg/L	--	86.3	87	86.4	80.2	89.3	84.9	88.7
Lithium	mg/L	0.04	--	0.01	0.01	0.01	<0.009	0.01	0.00591
Magnesium	mg/L	--	--	31.6	33.7	30.5	33	30.3	32.3
Manganese	mg/L	--	--	0.0864	0.0758	0.0811	0.106	0.163	0.116
Potassium	mg/L	--	--	1.18	1.26	1.57	1.87	1.19	1.49
Sodium	mg/L	--	--	30.2	33.9	32.1	32.4	30.5	29.6
Strontium	mg/L	--	--	0.103	0.111	0.114	0.119	0.114	0.114
Alkalinity	mg/L	--	--	392	358	374	361	354	348
Bromide	mg/L	--	--	0.1	0.1	0.1	0.1	0.1	0.2
Chloride	mg/L	--	30.1	30.1	29.9	29.4	29.5	29.7	28.7
Fluoride	mg/L	4	0.35	0.36	0.36	0.37	0.36	0.38	0.32
TDS	mg/L	--	445	446	434	422	437	455	456
Sulfate	mg/L	--	37.2	37.1	37.1	36.4	36.7	37.4	37.8
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	0.562	0.306	0.941	0.569	0.568	0.613
Radium-226	pCi/L	--	--	0.5	0.202	0.244	0.314	0.379	0.226
Radium-226/228	pCi/L	5	--	1.062	0.508	1.185	0.883	0.947	0.839
Copper (Dissolved)	µg/L	--	--	0.66	0.38	1.41	0.7	0.33	1.96
Zinc (Dissolved)	µg/L	--	--	3	2	3	4	7.5	5
Aluminum (Dissolved)	µg/L	--	--	2	1	1	76.2	2	<5
Iron (Dissolved)	mg/L	--	--	0.025	0.01	0.006	0.238	0.05	<0.02
Manganese (Dissolved)	mg/L	--	--	0.0847	0.0797	0.0677	0.103	0.144	0.0388

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-12I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	11/1/2018	11/14/2018	12/11/2018	5/22/2019	11/14/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.85	367.84	367.81	368.16	371.95	368.3
pH	S.U.	--	0	7.15	7.74	7.01	7.12	7.27	7.33
Specific Conductance	µmhos/cm	--	--	662	622	579	901	882	811
Turbidity	NTU	--	--	1.48	8.76	2.54	2.3	39.5	3
Dissolved Oxygen	mg/L	--	--	1.2	2.68	9.27	1.99	0.2	2.59
Temperature	°C	--	--	15.21	13.94	12.9	12.92	14.8	13.7
ORP	mV	--	--	-35.1	-87.8	-54.9	-52	-57	-10.1
Laboratory Parameters									
Antimony	µg/L	6	--	<0.01	<0.02	<0.02	<0.02	0.12	0.03
Arsenic	µg/L	10	--	10.1	9.24	8.79	9.32	12.6	10.3
Barium	µg/L	2000	--	370	374	365	377	395	393
Beryllium	µg/L	4	--	0.006	<0.02	0.02	<0.02	0.04	<0.02
Cadmium	µg/L	5	--	<0.005	0.02	<0.01	0.17	0.16	0.02
Chromium	µg/L	100	--	0.101	0.289	0.05	0.2	1.32	0.2
Cobalt	µg/L	6	--	1.5	1.67	1.42	1.58	2.7	1.54
Copper	µg/L	--	--	1.15	1.23	0.44	0.56	8.39	1
Lead	µg/L	15	--	0.063	0.21	0.03	0.07	1.47	0.07
Mercury	µg/L	2	--	--	--	--	--	0.002	<0.002
Molybdenum	µg/L	100	--	2.92	2.87	2.87	3.13	2.8	3.01
Selenium	µg/L	50	--	0.04	0.06	<0.003	<0.03	0.1	<0.03
Thallium	µg/L	2	--	0.01	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	2	1	3	6.3	17.5
Silica (Dissolved)	mg/L	--	--	20.9	18.8	19.2	12.6	19	17.8
Aluminum	µg/L	--	--	48.8	64.6	5.87	5.67	581	10
Boron	mg/L	--	0.115	0.062	0.115	0.03	0.05	0.03	0.02
Calcium	mg/L	--	94.1	100	94.8	90.9	95.6	99.2	93.9
Lithium	mg/L	0.04	--	0.009	<0.009	0.03	0.01	0.01	0.00469
Magnesium	mg/L	--	--	32.5	32.6	30.5	31	31.5	29.9
Manganese	mg/L	--	--	1.17	1.2	1.08	1.12	2.13	1.08
Potassium	mg/L	--	--	2.03	2.43	2.28	2.26	2.13	1.9
Sodium	mg/L	--	--	43.2	45	43.9	42	45.7	49.4
Strontium	mg/L	--	--	0.134	0.138	0.144	0.142	0.15	0.14
Alkalinity	mg/L	--	--	433	448	433	441	458	431
Bromide	mg/L	--	--	0.139	0.1	0.1	0.1	0.1	0.1
Chloride	mg/L	--	33	34	33.9	33.7	33.1	33.4	32.8
Fluoride	mg/L	4	0.24	0.25	0.25	0.25	0.23	0.25	0.22
TDS	mg/L	--	499	506	493	484	485	532	484
Sulfate	mg/L	--	31.5	30.9	31	30.7	31	32.5	32.3
Sulfide	mg/L	--	--	<0.4	<0.1	<0.07	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	-0.0683	0.788	1.19	1.04	1.17	0.863
Radium-226	pCi/L	--	--	0.463	0.516	0.51	0.83	0.565	0.578
Radium-226/228	pCi/L	5	--	0.463	1.304	1.7	1.87	1.735	1.441
Copper (Dissolved)	µg/L	--	--	0.19	0.35	0.42	1.08	0.64	1.68
Zinc (Dissolved)	µg/L	--	--	1	10.2	2	8.1	1	3
Aluminum (Dissolved)	µg/L	--	--	2.36	5.95	2	3	16.6	<5
Iron (Dissolved)	mg/L	--	--	1.15	1.18	1.09	1.16	1.51	1.15
Manganese (Dissolved)	mg/L	--	--	1.12	1.16	1.06	1.16	1.11	1.14

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-12D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/30/2018	11/14/2018	12/11/2018	5/22/2019	11/15/2019
Field Parameters									
Elevation	ft NGVD	--	--	367.91	367.91	367.86	368.25	372.03	368.34
pH	S.U.	--	7.3	7.16	8.06	7.08	7.17	7.41	7.42
Specific Conductance	µmhos/cm	--	--	530	510	449	717	686	850
Turbidity	NTU	--	--	9.68	12.7	5.25	2.2	1.4	7.41
Dissolved Oxygen	mg/L	--	--	1.68	1.41	4.9	1.4	0.7	7.97
Temperature	°C	--	--	15.56	15.16	12	12.56	15.1	13.4
ORP	mV	--	--	-52.6	-90.9	-40.8	-69	-56	89.2
Laboratory Parameters									
Antimony	µg/L	6	--	0.02	0.06	<0.02	<0.02	0.02	0.25
Arsenic	µg/L	10	--	11.9	9.78	9.95	9.64	13.3	7.64
Barium	µg/L	2000	--	282	268	272	271	282	273
Beryllium	µg/L	4	--	0.006	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	<0.005	0.05	<0.01	0.01	0.04	0.08
Chromium	µg/L	100	--	0.108	0.266	0.1	0.2	0.06	0.453
Cobalt	µg/L	6	--	0.462	0.538	0.378	0.4	0.554	0.679
Copper	µg/L	--	--	0.51	41	0.64	0.24	0.46	2.74
Lead	µg/L	15	--	0.127	0.329	0.111	0.05	0.02	0.502
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	3.09	2.96	2.94	3.13	3.57	4.24
Selenium	µg/L	50	--	<0.03	0.07	<0.03	<0.03	<0.03	0.06
Thallium	µg/L	2	--	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	3	2	0.8	1	11.5
Silica (Dissolved)	mg/L	--	--	21.1	18.9	19.5	19.5	18.8	17.8
Aluminum	µg/L	--	--	14	53.9	26.1	5.83	3	105
Boron	mg/L	--	0.098	0.112	0.09	0.03	0.09	<0.02	<0.02
Calcium	mg/L	--	90.8	95.1	86.9	86.1	82.9	84.5	80.3
Lithium	mg/L	0.04	--	0.013	<0.009	<0.009	<0.009	0.02	0.00169
Magnesium	mg/L	--	--	30.3	29.6	28.5	26.7	26.5	27.2
Manganese	mg/L	--	--	0.989	0.902	0.878	0.743	0.979	0.933
Potassium	mg/L	--	--	1.16	0.89	1.34	1.45	0.76	0.8
Sodium	mg/L	--	--	10.5	11.3	11	10.2	9.06	9.66
Strontium	mg/L	--	--	0.161	0.161	0.171	0.158	0.147	0.142
Alkalinity	mg/L	--	--	373	353	371	384	368	347
Bromide	mg/L	--	--	0.081	0.08	0.07	0.07	0.07	0.1
Chloride	mg/L	--	16.1	17.2	17	16.6	16.7	15.9	16.1
Fluoride	mg/L	4	0.27	0.26	0.26	0.26	0.26	0.26	0.23
TDS	mg/L	--	328	386	381	374	380	393	376
Sulfate	mg/L	--	15.6	14.2	14.2	13.8	13.9	14.8	15.9
Sulfide	mg/L	--	--	<0.04	<0.1	<0.07	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	0.643	0.405	0.589	1.69	0.698	0.529
Radium-226	pCi/L	--	--	0.702	0.454	0.608	0.766	0.548	0.574
Radium-226/228	pCi/L	5	--	1.345	0.859	1.197	2.456	1.246	1.103
Copper (Dissolved)	µg/L	--	--	0.35	0.21	0.12	0.44	0.25	<0.2
Zinc (Dissolved)	µg/L	--	--	3.3	2	1	1	0.7	4
Aluminum (Dissolved)	µg/L	--	--	7.24	2	2	5.13	1	<5
Iron (Dissolved)	mg/L	--	--	1.29	0.965	0.996	1.12	1.62	0.616
Manganese (Dissolved)	mg/L	--	--	0.994	0.88	0.801	0.832	1.03	0.906

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-13I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/31/2018	11/15/2018	12/11/2018	5/21/2019	11/15/2019
Field Parameters									
Elevation	ft NGVD	--	--	368.83	368.45	368.41	368.31	371.99	369.9
pH	S.U.	--	7.5	7.36	8.12	7.21	7.36	7.54	7.53
Specific Conductance	µmhos/cm	--	--	411	397	451	555	522	470
Turbidity	NTU	--	--	2.14	0.93	0.31	0.45	1.4	0
Dissolved Oxygen	mg/L	--	--	0.37	1.15	8.64	0.57	0.4	2.3
Temperature	°C	--	--	15.71	15.25	13.17	14.13	16.5	14.3
ORP	mV	--	--	-15.8	-74.3	44.5	-72	-30	280.1
Laboratory Parameters									
Antimony	µg/L	6	--	0.02	<0.02	<0.02	0.04	<0.2	0.02
Arsenic	µg/L	10	--	1.74	1.66	1.6	1.84	2.41	1.9
Barium	µg/L	2000	--	149	139	141	144	151	133
Beryllium	µg/L	4	--	0.006	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	<0.005	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	100	--	0.04	0.1	0.06	0.07	<0.04	0.08
Cobalt	µg/L	6	--	0.5	0.554	0.477	0.574	0.577	0.486
Copper	µg/L	--	--	0.39	0.62	0.1	0.58	0.09	<0.2
Lead	µg/L	15	--	0.01	0.04	<0.02	<0.02	<0.02	<0.05
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	4.49	4.23	4.09	4.29	4.11	4.01
Selenium	µg/L	50	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Thallium	µg/L	2	--	0.04	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	20.1	61.3	<0.7	2	<0.7	0.7
Silica (Dissolved)	mg/L	--	--	19.6	17.9	17.9	18.4	17.6	16.8
Aluminum	µg/L	--	--	2.54	10.6	2	<1	1	<5
Boron	mg/L	--	0.042	0.09	0.05	<0.02	0.04	0.02	<0.02
Calcium	mg/L	--	67.5	66	58.1	59.7	65.6	67.9	58.5
Lithium	mg/L	0.04	--	0.018	0.01	<0.009	<0.009	<0.009	0.00378
Magnesium	mg/L	--	--	20.4	19.1	19.2	20.9	19.4	19.2
Manganese	mg/L	--	--	0.491	0.448	0.447	0.523	0.469	0.448
Potassium	mg/L	--	--	1.23	0.93	1.32	1.24	0.99	0.9
Sodium	mg/L	--	--	15.2	15.4	15.6	16.4	15.7	15.5
Strontium	mg/L	--	--	0.0781	0.0744	0.0834	0.0879	0.0831	0.0803
Alkalinity	mg/L	--	--	231	228	231	241	235	222
Bromide	mg/L	--	--	0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chloride	mg/L	--	20	20.6	20.5	20.3	20.4	20.1	19.9
Fluoride	mg/L	4	0.38	0.38	0.38	0.38	0.38	0.37	0.32
TDS	mg/L	--	297	319	305	310	310	318	321
Sulfate	mg/L	--	40.6	41.6	41.5	41.3	40.7	41.6	42.4
Sulfide	mg/L	--	--	<0.4	<0.1	<0.07	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	-0.268	0.658	0.682	0.3	0.76	0.0456
Radium-226	pCi/L	--	--	0.456	0.509	0.669	0.589	0.646	0.361
Radium-226/228	pCi/L	5	--	0.456	1.167	1.351	0.889	1.406	0.4066
Copper (Dissolved)	µg/L	--	--	0.11	0.39	0.2	0.2	0.15	0.3
Zinc (Dissolved)	µg/L	--	--	0.7	6.3	<0.7	3	<0.7	2
Aluminum (Dissolved)	µg/L	--	--	1	1	1	5	<1	<5
Iron (Dissolved)	mg/L	--	--	0.185	0.189	0.193	0.26	0.278	0.149
Manganese (Dissolved)	mg/L	--	--	0.493	0.467	0.461	0.483	0.418	0.468

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-13D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/31/2018	11/15/2018	12/11/2018	5/21/2019	11/15/2019
Field Parameters									
Elevation	ft NGVD	--	--	368.79	368.43	368.39	368.29	371.95	369.89
pH	S.U.	--	7.4	7.03	8.11	7.17	7.29	7.45	7.55
Specific Conductance	µmhos/cm	--	--	406	382	427	540	524	466
Turbidity	NTU	--	--	5.34	10.6	4.66	3.22	2	2
Dissolved Oxygen	mg/L	--	--	1.34	1.4	5.45	0.51	1.7	1.8
Temperature	°C	--	--	16.29	14.99	12.18	14.06	18.7	13.9
ORP	mV	--	--	-71.4	-95.1	-48.5	-94	-48	50.3
Laboratory Parameters									
Antimony	µg/L	6	--	0.01	0.02	0.05	0.03	0.07	0.03
Arsenic	µg/L	10	--	6.44	5.62	7.55	5.3	20.8	5.96
Barium	µg/L	2000	--	206	204	198	219	265	223
Beryllium	µg/L	4	--	0.007	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	<0.005	0.04	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	100	--	0.071	0.353	0.209	0.06	0.2	0.09
Cobalt	µg/L	6	--	1.15	1.31	1.05	0.935	1.1	0.951
Copper	µg/L	--	--	0.26	1.02	0.55	0.28	1.11	<0.2
Lead	µg/L	15	--	0.071	0.438	0.173	<0.02	0.07	<0.05
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	2.88	2.59	2.77	3.23	3.21	2.92
Selenium	µg/L	50	--	<0.03	0.1	0.07	<0.03	0.04	<0.03
Thallium	µg/L	2	--	0.02	<0.1	>0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	0.6	2	1	2	1	5.7
Silica (Dissolved)	mg/L	--	--	19.3	17.6	17.9	17.9	17.4	16.3
Aluminum	µg/L	--	--	21.8	162	58.8	2	12.4	<5
Boron	mg/L	--	0.037	0.071	0.111	119	0.03	0.02	<0.02
Calcium	mg/L	--	65.9	68.9	63.4	60.8	67.4	66.2	60.6
Lithium	mg/L	0.04	--	0.016	<0.009	<0.009	<0.009	<0.009	0.00217
Magnesium	mg/L	--	--	21.8	21.7	20.1	22.5	19.7	20.6
Manganese	mg/L	--	--	0.762	0.669	0.648	0.677	0.997	0.709
Potassium	mg/L	--	--	1.06	1.14	1.45	1.16	0.82	0.9
Sodium	mg/L	--	--	11.2	11.6	11.4	11.2	9.25	11.9
Strontium	mg/L	--	--	0.0852	0.0867	0.0913	0.098	0.0882	0.0875
Alkalinity	mg/L	--	--	231	243	223	252	237	238
Bromide	mg/L	--	--	0.05	<0.04	<0.04	<0.04	<0.04	0.09
Chloride	mg/L	--	16.3	17	16.9	16.6	16.5	15.9	17.4
Fluoride	mg/L	4	0.28	0.27	0.27	0.28	0.27	0.26	0.23
TDS	mg/L	--	287	296	299	296	305	303	303
Sulfate	mg/L	--	35.5	34.8	34.7	34.1	33.3	33.9	37
Sulfide	mg/L	--	--	<0.4	<0.1	<0.07	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.141	-0.293	-0.157	0.226	0.844	1.49
Radium-226	pCi/L	--	--	0.501	0.356	0.242	0.389	0.586	0.219
Radium-226/228	pCi/L	5	--	0.642	0.356	0.242	0.615	1.43	1.709
Copper (Dissolved)	µg/L	--	--	0.07	0.11	0.09	0.21	0.56	<0.2
Zinc (Dissolved)	µg/L	--	--	0.5	1	<0.7	1	<0.7	0.9
Aluminum (Dissolved)	µg/L	--	--	11	3	2	20.5	1	<5
Iron (Dissolved)	mg/L	--	--	1.29	0.915	0.995	1.13	0.866	0.937
Manganese (Dissolved)	mg/L	--	--	0.74	0.625	0.702	0.612	0.777	0.746

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-14S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/20/2016	9/21/2016	11/17/2016	1/9/2017	3/7/2017	5/19/2017	7/18/2017	10/4/2017	12/12/2017	6/5/2018	11/13/2018	5/23/2019	11/16/2019
Field Parameters																
Elevation	ft NGVD	--	--	370.07	369.7	369.34	368.92	368.49	368.63	369.88	368.43	368.41	368.94	369.27	371.36	371.63
pH	S.U.	--	7.2	7.1	7	7.7	7.5	7.4	6.95	7.3	7	7.6	7.55	7.55	7.15	7.51
Specific Conductance	µmhos/cm	--	--	576	640	955	530	80	441	496	488	490	450	309	604	655
Turbidity	NTU	--	--	3.9	6	1	2	0.7	2.07	1	0.5	1	0.6	0.2	0.61	9.8
Dissolved Oxygen	mg/L	--	--	3.8	3.3	1	3.4	3	3.82	3.7	4	10.2	5.42	6.9	2.57	0.455
Temperature	°C	--	--	18.7	22.6	15.2	14.4	13.9	14.54	15.9	15.3	13.5	14.98	13.25	17.01	12.4
ORP	mV	--	--	43	53	282	147	75	55.6	67	-23	133	-7.9	152	-203.7	-9
Laboratory Parameters																
Antimony	µg/L	6	--	0.02	0.02	0.03	0.02	0.02	0.06	<0.05	--	--	--	<0.02	<0.02	0.03
Arsenic	µg/L	10	--	1.54	1.29	0.75	0.91	0.76	0.75	0.7	--	--	--	0.64	0.62	0.62
Barium	µg/L	2000	--	31	27.8	26.3	27	26.3	25	27	--	--	--	27	28.9	32.9
Beryllium	µg/L	4	--	0.008	0.005	<0.005	<0.005	<0.005	<0.004	<0.02	--	--	--	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.21	0.07	0.03	0.05	0.01	0.08	<0.02	--	--	--	0.05	0.01	<0.01
Chromium	µg/L	100	--	0.3	0.3	0.162	0.575	0.66	0.301	0.258	--	--	--	0.2	0.2	0.438
Cobalt	µg/L	6	--	0.573	0.333	0.088	0.187	0.083	0.065	0.03	--	--	--	0.03	0.03	0.04
Copper	µg/L	--	--	--	--	--	--	--	--	2.38	0.15	--	0.38	0.24	0.25	<0.2
Lead	µg/L	15	--	0.307	0.31	0.549	0.115	0.061	0.071	0.116	--	--	--	0.05	0.04	<0.05
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	1.51	1.43	1.26	1.62	1.84	1.35	1.67	--	--	--	1	1	1
Selenium	µg/L	50	--	1.4	1.2	1.2	1.1	1.1	1.2	1.3	--	--	--	1.1	0.9	0.9
Thallium	µg/L	2	--	<0.01	<0.01	0.02	0.054	0.055	0.01	0.07	--	--	--	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	9	0.8	--	1	1	<0.7	<0.7
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	20.3	20.2	23.3	--	20.4	20.2	<0.06	19.3
Aluminum	µg/L	--	--	--	--	--	--	--	--	11.4	2	--	5.75	7.32	4	5
Boron	mg/L	--	0.011	0.008	0.01	0.008	<0.002	0.031	0.017	0.03	0.042	--	0.046	0.04	<0.02	<0.02
Calcium	mg/L	--	59.2	56.3	59.5	65.4	65.7	63.4	59.8	65.6	67	--	61.1	59.2	66.9	65.1
Lithium	mg/L	0.04	--	0.018	0.006	0.004	0.006	0.005	0.001	<0.0002	--	--	--	<0.009	0.01	0.00367
Magnesium	mg/L	--	--	--	--	--	--	27.6	28.1	29.3	29.9	--	27.4	26.4	30	29.8
Manganese	mg/L	--	--	--	--	--	--	--	--	0.0006	--	--	0.0014	0.0015	0.0008	0.002
Potassium	mg/L	--	--	--	--	--	--	0.5	0.54	0.49	0.59	--	0.51	0.55	0.53	0.5
Sodium	mg/L	--	--	--	--	--	--	33	29.4	30.1	29.9	--	29.2	24.9	23.3	23.7
Strontium	mg/L	--	--	--	--	--	--	0.101	0.102	0.103	0.106	--	0.101	0.0954	0.109	0.111
Alkalinity	mg/L	--	--	--	--	--	--	232	258	257	249	--	260	259	275	252
Bromide	mg/L	--	--	--	--	--	--	<0.02	<0.06	0.03	0.04	--	<0.02	<0.04	<0.04	<0.04
Chloride	mg/L	--	28.6	29.4	28.1	27.8	27.2	26.8	29.4	29.6	29.9	30	27.1	29	28.6	28.9
Fluoride	mg/L	4	0.39	0.39	0.36	0.35	0.33	0.36	0.37	0.33	0.34	0.34	0.39	0.37	0.37	0.38
TDS	mg/L	--	368	364	361	362	344	354	376	377	376	--	360	344	390	374
Sulfate	mg/L	--	34.9	36.5	32.5	29.1	30.7	29.9	32.3	33.1	34.8	35.5	29.4	30.8	32.4	32.8
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	-0.343	0.769	0.693	0.601	-0.193	-0.019	1.73	--	--	--	0.334	0.271	1.1
Radium-226	pCi/L	--	--	0.594	0.131	0.413	0.179	0.0525	0.0316	0.153	--	--	--	0.0534	0.0483	0.112
Radium-226/228	pCi/L	5	--	0.251	0.9	1.106	0.78	-0.1405	0.0126	1.883	--	--	--	0.3874	0.3193	1.212
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.94	--	--	0.43	0.64	0.31	0.6
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	7	--	--	5.7	3	<0.7	1
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	11.3	--	--	1	<1	1	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.016	--	0.002	<0.003	<0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	<0.0001	0.0021	0.0001	<0.0002	--	<0.0002	0.0005	<0.0002	<0.0005

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/7/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/7/2017	5/10/2017	7/19/2017	10/4/2017	6/5/2018	11/13/2018	5/23/2019	7/23/2019	9/11/2019	11/15/2019
Field Parameters																		
Elevation	ft NGVD	--	--	370	369.87	369.49	368.87	367.92	367.84	367.86	368.75	367.84	396.63	368.96	371.96	372.79	372.26	371.11
pH	S.U.	--	7.1 - 7.7	7.2	7.1	7.2	7.7	7.2	7.2	7.3	7.3	7.35	7.16	7.46	7.5	5.74	7.38	7.38
Specific Conductance	µmhos/cm	--	--	512	512	510	904	470	60	419	368	393	416	317	348	362	269	467
Turbidity	NTU	--	--	7.6	2.2	1	1	1	0.5	2	2	2.34	0.33	0.41	1.51	8.3	3	10
Dissolved Oxygen	mg/L	--	--	0.5	0.5	1	1	1	6	0.4	0.3	0.07	1.9	0.77	0.4	1	0	0
Temperature	°C	--	--	16.5	17.7	19.1	15.5	13.8	13.9	14.6	15.7	14.7	14.96	12.94	15.21	15.8	16.55	13.4
ORP	mV	--	--	57	124	181	-10	179	64	65	24	18.1	-37.7	19.3	-218	47	63	64
Laboratory Parameters																		
Antimony	µg/L	6	--	0.04	0.04	0.02	0.04	0.04	0.03	0.04	0.02	--	--	<0.02	0.02	--	--	0.03
Arsenic	µg/L	10	--	0.32	0.24	0.21	0.18	0.26	0.21	0.21	0.23	--	--	0.13	0.12	--	--	0.16
Barium	µg/L	2000	--	4.71	5.85	3.21	3.27	6.05	4.98	3.54	3.11	--	--	2.46	2.54	--	--	3.17
Beryllium	µg/L	4	--	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.004	--	--	<0.02	<0.02	--	--	<0.02
Cadmium	µg/L	5	--	0.14	0.25	0.05	0.05	0.06	0.04	0.05	0.05	--	--	0.04	0.1	--	--	0.06
Chromium	µg/L	100	--	0.2	1.7	0.5	0.058	0.493	0.934	0.198	0.096	--	--	0.05	0.08	--	--	0.1
Cobalt	µg/L	6	--	3.03	1.17	1.09	0.794	1.75	1.26	1.2	1.25	--	--	0.74	0.775	--	--	2.15
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.4	0.26	0.24	0.37	0.32	--	--	0.2
Lead	µg/L	15	--	0.286	0.101	0.098	0.037	0.039	0.024	0.062	0.083	--	--	0.03	0.05	--	--	0.1
Mercury	µg/L	2	--	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	<0.002	--	--	<0.002
Molybdenum	µg/L	100	--	2.52	2.89	2.54	1.57	0.78	1.17	2.08	2.87	--	--	2.54	3.47	--	--	2.18
Selenium	µg/L	50	--	0.4	0.7	0.5	0.3	0.3	0.5	0.5	0.2	--	--	0.1	0.06	--	--	0.2
Thallium	µg/L	2	--	0.03	<0.01	0.02	0.02	0.03	0.04	0.02	0.02	--	--	<0.1	<0.1	--	--	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	--	3.5	1	21	2	2	--	--	2
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	13.1	12.7	15.8	13.1	12.4	<0.06	--	--	11.9
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	15.9	6.68	4.42	6.41	11.7	--	--	10
Boron	mg/L	--	0.15	0.011	0.012	0.008	<0.002	<0.002	0.084	0.077	0.073	0.095	0.078	0.04	<0.02	--	--	<0.02
Calcium	mg/L	--	(79.5) 71	46.9	43.6	46.6	52.3	63.6	62.9	45.7	44.4	48.3	44.7	41.8	41.3	--	--	40.2
Lithium	mg/L	0.04	--	0.007	0.022	0.005	0.005	0.008	0.008	0.003	0.0009	--	--	<0.009	<0.009	--	--	0.00357
Magnesium	mg/L	--	--	--	--	--	--	--	28.2	19.3	17.2	18.5	16.9	15.1	13.9	--	--	15.1
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.489	--	0.391	0.444	0.452	--	--	0.743
Potassium	mg/L	--	--	--	--	--	--	--	1.07	1.11	1.03	1.27	0.93	1.16	0.68	--	--	0.8
Sodium	mg/L	--	--	--	--	--	--	--	35.5	44.7	39.2	42.3	35.9	27.2	17.3	--	--	19.7
Strontium	mg/L	--	--	--	--	--	--	--	0.0903	0.0711	0.061	0.0662	0.0638	0.0574	0.0502	--	--	0.0522
Alkalinity	mg/L	--	--	--	--	--	--	--	294	257	235	267	239	226	197	--	--	209
Bromide	mg/L	--	--	--	--	--	--	--	0.04	0.062	0.05	0.074	0.03	<0.04	<0.04	--	--	<0.04
Chloride	mg/L	--	(29.6) 26	21.2	18.7	18.9	18.3	21.9	16.1	14.1	11.8	13.3	8.84	8.78	8.88	--	--	9.48
Fluoride	mg/L	4	0.86	0.65	0.65	0.63	0.5	0.36	0.42	0.65	0.66	0.62	0.69	0.72	0.88	0.87	0.81	0.7
TDS	mg/L	--	(412.7) 407	338	319	329	338	374	342	294	263	300	274	232	207	--	--	234
Sulfate	mg/L	--	(33.67) 34	30.3	27.7	25.1	23.2	28.3	23.4	21	20.3	23.2	16.3	13.1	10.2	--	--	8.4
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.07	<0.1	--	--	<0.2
Radium-228	pCi/L	--	--	0.0335	-0.092	0.302	1.11	-0.0122	-0.108	0.106	-0.0928	--	--	0.482	0.439	--	--	1.47
Radium-226	pCi/L	--	--	0.384	--	0.116	0.139	0.189	0.0973	0.135	0.0916	--	--	-0.0262	0.282	--	--	0.0996
Radium-226/228	pCi/L	5	--	0.4175	-0.092	0.418	1.249	0.1768	-0.0107	0.241	0.0916	--	--	0.482	0.721	--	--	1.5696
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.37	--	0.51	1.59	0.53	--	--	2.06
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.6	--	1	2	<0.7	--	--	2
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	3.7	--	2	3	2	--	--	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.014	<0.002	0.004	<0.003	--	--	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.448	0.361	0.284	0.379	0.349	0.332	0.289	--	--	0.257

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL
Field Parameters			
Elevation	ft NGVD	--	--
pH	S.U.	--	7.1 - 7.7
Specific Conductance	µmhos/cm	--	--
Turbidity	NTU	--	--
Dissolved Oxygen	mg/L	--	--
Temperature	°C	--	--
ORP	mV	--	--
Laboratory Parameters			
Antimony	µg/L	6	--
Arsenic	µg/L	10	--
Barium	µg/L	2000	--
Beryllium	µg/L	4	--
Cadmium	µg/L	5	--
Chromium	µg/L	100	--
Cobalt	µg/L	6	--
Copper	µg/L	--	--
Lead	µg/L	15	--
Mercury	µg/L	2	--
Molybdenum	µg/L	100	--
Selenium	µg/L	50	--
Thallium	µg/L	2	--
Zinc	µg/L	--	--
Silica (Dissolved)	mg/L	--	--
Aluminum	µg/L	--	--
Boron	mg/L	--	0.15
Calcium	mg/L	--	(79.5) 71
Lithium	mg/L	0.04	--
Magnesium	mg/L	--	--
Manganese	mg/L	--	--
Potassium	mg/L	--	--
Sodium	mg/L	--	--
Strontium	mg/L	--	--
Alkalinity	mg/L	--	--
Bromide	mg/L	--	--
Chloride	mg/L	--	(29.6) 26
Fluoride	mg/L	4	0.86
TDS	mg/L	--	(412.7) 407
Sulfate	mg/L	--	(33.67) 34
Sulfide	mg/L	--	--
Radium-228	pCi/L	--	--
Radium-226	pCi/L	--	--
Radium-226/228	pCi/L	5	--
Copper (Dissolved)	µg/L	--	--
Zinc (Dissolved)	µg/L	--	--
Aluminum (Dissolved)	µg/L	--	--
Iron (Dissolved)	mg/L	--	--
Manganese (Dissolved)	mg/L	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/7/2016	7/19/2016	9/21/2016	11/16/2016	1/10/2017	3/7/2017	5/10/2017	7/18/2017	10/4/2017	12/12/2017	1/3/2018
Field Parameters														
Elevation	ft NGVD	--	--	370	369.88	369.51	368.86	368.12	368.07	368.27	368.74	367.82	366.73	366.49
pH	S.U.	--	6.77 - 7.86	7.2	7.1	7.1	7.5	7.7	7.5	7.2	7.2	7.34	7.8	7.79
Specific Conductance	µmhos/cm	--	--	555	574	530	874	420	60	457	400	368	350	474
Turbidity	NTU	--	--	0.9	0.6	0.7	0.2	1	2	1	1	1.09	1	1.12
Dissolved Oxygen	mg/L	--	--	0.2	0.4	0.4	1.3	0.2	2	0.3	0.3	0.49	0.9	0.41
Temperature	°C	--	--	15.1	18.2	17.6	15.6	13.9	13.6	14.8	16.3	14.68	12.8	12.38
ORP	mV	--	--	52.5	-86	-54	259	-87	-42	51	-50	-79.7	-52	-77.2
Laboratory Parameters														
Antimony	µg/L	6	--	0.01	0.25	0.01	0.04	0.01	0.02	0.02	0.02	--	--	--
Arsenic	µg/L	10	--	25.2	27.9	21.1	23.6	20.2	20.4	20.2	23.6	--	--	--
Barium	µg/L	2000	--	118	132	119	107	91.2	88.9	86.1	94.8	--	--	--
Beryllium	µg/L	4	--	<0.005	0.165	<0.005	0.005	<0.005	<0.005	<0.004	<0.004	--	--	--
Cadmium	µg/L	5	--	0.02	0.23	0.009	0.06	0.005	0.03	0.03	0.02	--	--	--
Chromium	µg/L	100	--	0.2	0.5	0.1	0.132	0.35	0.7	0.134	0.089	--	--	--
Cobalt	µg/L	6	--	1.24	1.66	1.32	1.03	1	0.903	1.02	1.25	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.26	0.1	--	--
Lead	µg/L	15	--	0.026	0.254	0.026	0.213	0.01	0.065	0.09	0.082	--	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	5.76	6.74	5.75	6.73	7.63	7.91	6.52	5.58	--	--	--
Selenium	µg/L	50	--	<0.03	0.2	<0.03	<0.03	<0.03	0.07	0.04	<0.03	--	--	--
Thallium	µg/L	2	--	0.04	0.273	0.03	0.04	0.04	0.112	0.03	0.04	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	0.7	--	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	15	14	16.1	--	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	9.25	6.63	--	--
Boron	mg/L	--	0.072	0.06	0.032	0.03	0.022	0.019	0.047	0.038	0.05	0.08	--	0.04
Calcium	mg/L	--	(79.5) 54	44.1	44.6	46.1	51.4	46.5	51.1	46.6	43.9	44.6	--	--
Lithium	mg/L	0.04	--	0.005	0.018	0.004	0.004	0.011	0.006	0.002	<0.0002	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	13.3	12.7	11.1	11.2	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.134	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.01	1.02	0.94	1.05	--	--
Sodium	mg/L	--	--	--	--	--	--	--	62.3	56.1	51.8	45.4	--	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0865	0.088	0.0841	0.0871	--	--
Alkalinity	mg/L	--	--	--	--	--	--	--	229	239	224	202	--	--
Bromide	mg/L	--	--	--	--	--	--	--	0.084	0.101	0.081	0.067	--	--
Chloride	mg/L	--	(29.6) 70	59.3	53.8	43.4	44.9	48.3	38.5	32.7	27.1	23.7	22.8	--
Fluoride	mg/L	4	0.382	0.25	0.25	0.23	0.25	0.34	0.32	0.31	0.22	0.23	0.22	--
TDS	mg/L	--	(412.7) 398	380	356	334	340	351	331	322	300	287	--	--
Sulfate	mg/L	--	(47.44) 47	42.5	41	34	33.6	35.4	31.1	29.7	26.6	27.3	26.7	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	--
Radium-228	pCi/L	--	--	0.254	0.455	0.076	1.23	0.682	0.155	-0.367	1.49	--	--	--
Radium-226	pCi/L	--	--	0.609	0.636	0.428	0.517	0.187	0.71	0.189	0.153	--	--	--
Radium-226/228	pCi/L	5	--	0.863	1.091	0.504	1.747	0.869	0.865	-0.178	1.643	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.1	--	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.19	--	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.742	0.709	0.789	0.949	--	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.138	0.139	0.112	0.119	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2016	11/13/2018	5/23/2019	11/15/2019
Field Parameters								
Elevation	ft NGVD	--	--	369.64	370.28	369.01	372.01	371.09
pH	S.U.	--	6.77 - 7.86	8.06	7.36	7.6	7.29	7.38
Specific Conductance	µmhos/cm	--	--	420	527	412	414	495
Turbidity	NTU	--	--	0.88	0	0.18	0.95	7
Dissolved Oxygen	mg/L	--	--	1.89	0.25	0.31	1.61	0
Temperature	°C	--	--	14.9	17.77	12.52	18.94	13.7
ORP	mV	--	--	-94	-63	-63.7	-207.7	-85
Laboratory Parameters								
Antimony	µg/L	6	--	--	--	<0.02	<0.02	0.04
Arsenic	µg/L	10	--	--	--	23.8	25.8	26.5
Barium	µg/L	2000	--	--	--	93.3	95	88.9
Beryllium	µg/L	4	--	--	--	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	--	--	<0.01	0.01	0.05
Chromium	µg/L	100	--	--	--	<0.04	0.06	0.1
Cobalt	µg/L	6	--	--	--	1.12	1.12	1.07
Copper	µg/L	--	--	0.15	--	0.12	0.1	0.6
Lead	µg/L	15	--	--	--	0.03	<0.02	0.2
Mercury	µg/L	2	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	--	--	5.03	5.63	5.95
Selenium	µg/L	50	--	--	--	0.04	<0.03	0.04
Thallium	µg/L	2	--	--	--	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	2.5	--	0.8	7.9	2
Silica (Dissolved)	mg/L	--	--	13.9	--	13.8	<0.06	12.5
Aluminum	µg/L	--	--	4.24	--	7.01	3	21.2
Boron	mg/L	--	0.072	0.066	--	0.07	0.03	0.03
Calcium	mg/L	--	(79.5) 54	47	--	39.9	47.8	45.2
Lithium	mg/L	0.04	--	--	--	<0.009	0.01	0.00289
Magnesium	mg/L	--	--	11.8	--	9.98	11.7	11
Manganese	mg/L	--	--	0.13	--	0.106	0.128	0.116
Potassium	mg/L	--	--	0.96	--	1.21	0.9	0.9
Sodium	mg/L	--	--	42	--	29.9	29.9	24.2
Strontium	mg/L	--	--	0.0955	--	0.0827	0.0942	0.0887
Alkalinity	mg/L	--	--	226	--	199	208	198
Bromide	mg/L	--	--	0.071	--	0.06	0.04	<0.04
Chloride	mg/L	--	(29.6) 70	25.1	--	23.7	18	16.9
Fluoride	mg/L	4	0.382	0.26	--	0.25	0.26	0.27
TDS	mg/L	--	(412.7) 398	279	--	248	260	248
Sulfate	mg/L	--	(47.44) 47	25.3	--	25.3	20.9	17.6
Sulfide	mg/L	--	--	<0.4	--	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	--	--	0.283	0.423	1.63
Radium-226	pCi/L	--	--	--	--	0.0962	0.557	0.194
Radium-226/228	pCi/L	5	--	--	--	0.3792	0.98	1.824
Copper (Dissolved)	µg/L	--	--	0.36	--	0.2	0.83	<0.2
Zinc (Dissolved)	µg/L	--	--	2	--	0.8	1	1
Aluminum (Dissolved)	µg/L	--	--	1	--	1	2	<5
Iron (Dissolved)	mg/L	--	--	0.879	--	0.848	0.826	0.623
Manganese (Dissolved)	mg/L	--	--	0.126	--	0.121	0.116	0.118

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/10/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.7	369.61	369.16	368.56	367.84	367.87	367.88	368.53	367.58	366.38
pH	S.U.	--	5.88 - 8.55	7.53	7.1	7.31	6.9	7.16	7.1	8.26	6.34	7.25	7.34
Specific Conductance	µmhos/cm	--	--	0.822	764	719	669	677	804	581	595	647	872
Turbidity	NTU	--	--	0.74	0.34	5.21	0.5	0.25	0.42	1.78	0.57	0.72	0.54
Dissolved Oxygen	mg/L	--	--	0.34	0.4	7.29	0.62	0.55	0.18	0.69	22.45	0.31	0.82
Temperature	°C	--	--	15.7	16.39	17.48	16.91	14.47	18.48	16.01	15.63	15.99	14.46
ORP	mV	--	--	112.4	56.2	153.4	233.5	83	56.1	177.3	-118.9	13.6	-12.2
Laboratory Parameters													
Antimony	µg/L	6	--	0.03	0.03	0.25	0.02	0.02	0.02	0.02	0.02	--	--
Arsenic	µg/L	10	--	0.37	0.37	0.38	0.34	0.42	0.31	0.39	0.33	--	--
Barium	µg/L	2000	--	32.3	29.9	29.5	25.3	25.1	25.7	29.8	25.6	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.03	0.03	0.1	0.006	0.008	0.004	0.01	0.04	--	--
Chromium	µg/L	100	--	0.2	0.5	0.3	1.03	0.081	0.463	0.196	0.101	--	--
Cobalt	µg/L	6	--	0.073	0.025	0.07	0.028	0.014	0.012	0.063	0.01	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.1	0.19	--
Lead	µg/L	15	--	0.074	0.057	0.182	<0.004	0.039	0.006	0.027	0.01	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	1.15	1.21	1.11	1.19	1.21	1.32	1.14	0.98	--	--
Selenium	µg/L	50	--	0.6	0.6	0.8	0.4	0.4	0.4	0.3	0.4	--	--
Thallium	µg/L	2	--	0.01	<0.01	<0.01	<0.01	0.02	0.02	0.01	0.01	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	2	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	24	24.1	27.6	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	2.1	7.43	--
Boron	mg/L	--	0.088	0.028	0.025	0.024	0.025	0.017	0.038	0.082	0.037	0.061	--
Calcium	mg/L	--	(79.5) 114	96.2	83	93.5	96.4	94.6	106	105	91.8	108	109
Lithium	mg/L	0.04	--	0.007	0.031	0.005	0.018	0.013	0.013	0.008	0.01	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	36.4	36.6	31.4	38.2	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0028	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.01	1.3	0.97	1.03	--
Sodium	mg/L	--	--	--	--	--	--	--	36.9	36.7	28.7	35.7	--
Strontium	mg/L	--	--	--	--	--	--	--	0.129	0.132	0.108	0.133	--
Alkalinity	mg/L	--	--	--	--	--	--	--	423	431	436	438	--
Bromide	mg/L	--	--	--	--	--	--	--	0.1	0.158	0.162	0.206	--
Chloride	mg/L	--	(29.6) 24	18.7	19	17.1	16.4	17.5	19.3	22.9	19.8	19.3	--
Fluoride	mg/L	4	0.506	0.44	0.46	0.38	0.3	0.35	0.36	0.38	0.33	0.41	--
TDS	mg/L	--	(412.7) 517	483	471	509	486	474	473	499	484	503	517
Sulfate	mg/L	--	(52.4) 52	46.9	50.1	42.1	38.3	39.2	39.6	42.3	40.7	45	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	-0.0274	0.34	-0.131	0.0963	1.8	0.169	-0.045	2.76	--	--
Radium-226	pCi/L	--	--	0.163	0.707	0.0255	0.198	0.193	0.113	0.145	0.0933	--	--
Radium-226/228	pCi/L	5	--	0.1356	1.047	-0.1055	0.2943	1.993	0.282	0.1	2.8533	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.1	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.9	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.051	0.015	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.0013	0.0145	0.0007	0.0127	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2018	11/14/2018	2/11/2019	5/22/2019	11/15/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.62	370.12	368.86	369.84	371.94	370.84
pH	S.U.	--	5.88 - 8.55	7.23	7.07	7.02	7.12	7.1	7
Specific Conductance	µmhos/cm	--	--	770	920	720	570	774	961
Turbidity	NTU	--	--	2.2	0	0.3	1.3	0.18	4.2
Dissolved Oxygen	mg/L	--	--	7.8	0	1.35	0.41	0.34	0.39
Temperature	°C	--	--	15.73	17.04	14.2	14.4	14.54	12.05
ORP	mV	--	--	-36.9	147	142	183	-211.4	121
Laboratory Parameters									
Antimony	µg/L	6	--	--	--	0.05	--	0.03	0.03
Arsenic	µg/L	10	--	--	--	0.34	--	0.26	0.3
Barium	µg/L	2000	--	--	--	29.9	--	21.9	27.2
Beryllium	µg/L	4	--	--	--	<0.02	--	<0.02	<0.02
Cadmium	µg/L	5	--	--	--	0.08	--	0.01	0.05
Chromium	µg/L	100	--	--	--	0.07	--	0.1	0.09
Cobalt	µg/L	6	--	--	--	<0.02	--	<0.02	0.059
Copper	µg/L	--	--	1.19	--	1.46	--	0.66	0.3
Lead	µg/L	15	--	--	--	0.112	--	<0.02	0.07
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	--	--	0.9	--	0.9	0.8
Selenium	µg/L	50	--	--	--	3.2	--	0.6	1
Thallium	µg/L	2	--	--	--	<0.1	--	<0.1	<0.1
Zinc	µg/L	--	--	5	--	31.6	--	<0.7	0.8
Silica (Dissolved)	mg/L	--	--	24.9	--	24.9	--	23.3	22.3
Aluminum	µg/L	--	--	5.68	--	3	--	1	<5
Boron	mg/L	--	0.088	0.109	0.034	0.107	0.02	0.03	0.02
Calcium	mg/L	--	(79.5) 114	108	109	104	--	99.2	92.2
Lithium	mg/L	0.04	--	--	--	0.02	--	0.01	0.00639
Magnesium	mg/L	--	--	38.8	--	37.4	--	34.5	35.5
Manganese	mg/L	--	--	0.0062	--	0.004	--	0.0035	0.0115
Potassium	mg/L	--	--	1.1	--	1.28	--	0.95	0.9
Sodium	mg/L	--	--	38	--	44.4	--	29.4	29.6
Strontium	mg/L	--	--	0.137	--	0.138	--	0.21	0.118
Alkalinity	mg/L	--	--	463	--	510	--	478	445
Bromide	mg/L	--	--	0.118	--	0.1	--	0.08	0.1
Chloride	mg/L	--	(29.6) 24	17.3	--	16.2	--	18	20.7
Fluoride	mg/L	4	0.506	0.42	--	0.39	--	0.38	0.32
TDS	mg/L	--	(412.7) 517	520	533	548	517	493	497
Sulfate	mg/L	--	(52.4) 52	40.8	--	40.3	--	34.5	35.2
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	<0.1	<0.2
Radium-228	pCi/L	--	--	--	--	0.0697	--	0.299	0.179
Radium-226	pCi/L	--	--	--	--	0.0503	--	0.0904	0.0453
Radium-226/228	pCi/L	5	--	--	--	0.12	--	0.3894	0.2243
Copper (Dissolved)	µg/L	--	--	1.21	--	2.59	--	0.38	1.7
Zinc (Dissolved)	µg/L	--	--	5.2	--	4	--	<0.7	2
Aluminum (Dissolved)	µg/L	--	--	1	--	1	--	3	<5
Iron (Dissolved)	mg/L	--	--	0.004	--	<0.003	--	<0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	0.0047	--	0.0023	--	<0.0027	0.0009

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-16I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/19/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.79	369.62	369.18	368.57	367.84	367.87	367.87	368.58	367.58	366.39
pH	S.U.	--	6.73 - 7.90	7.69	7.56	7.37	7.08	7.36	7.28	6.96	7.2	7.46	7.68
Specific Conductance	µmhos/cm	--	--	957	870	867	702	674	779	569	665	644	821
Turbidity	NTU	--	--	0.42	0.46	1.37	1.4	0.18	1.41	2.27	3.15	0.7	1.9
Dissolved Oxygen	mg/L	--	--	0.29	8.08	0.68	0.53	0.46	0.34	0.21	0.29	0.28	0.38
Temperature	°C	--	--	16.2	16.86	15.43	15.64	14.71	15.19	15.48	15.99	15.71	13.08
ORP	mV	--	--	224.4	-158.9	54.7	242.3	86.1	53.5	49.8	-3.1	4.1	-25.6
Laboratory Parameters													
Antimony	µg/L	6	--	0.02	0.01	0.01	0.05	0.01	0.02	0.06	0.02	--	--
Arsenic	µg/L	10	--	0.71	0.75	0.75	0.67	0.72	0.68	0.7	0.73	--	--
Barium	µg/L	2000	--	267	267	262	234	220	221	206	238	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.06	0.03	0.03	0.05	0.04	0.03	0.08	0.03	--	--
Chromium	µg/L	100	--	0.1	0.2	0.1	0.082	0.085	0.422	0.204	0.118	--	--
Cobalt	µg/L	6	--	0.602	0.627	0.576	0.546	0.514	0.58	0.56	0.599	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.56	0.46	--
Lead	µg/L	15	--	0.023	0.025	0.023	0.053	0.01	0.034	0.153	0.065	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	1.02	1.02	1.03	0.93	1	1.17	0.91	1.07	--	--
Selenium	µg/L	50	--	0.2	0.2	0.1	0.2	0.1	0.2	0.4	0.2	--	--
Thallium	µg/L	2	--	0.085	0.06	0.074	0.069	0.071	0.075	0.075	0.07	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2.7	0.8	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	19.9	20	22.8	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	15.5	14	--
Boron	mg/L	--	0.107	0.031	0.027	0.026	0.024	0.015	0.1	0.032	0.044	0.05	--
Calcium	mg/L	--	(79.5) 114	110	93.9	95.9	96.2	89.3	101	86.7	91.3	84	71.9
Lithium	mg/L	0.04	--	0.005	0.005	0.006	0.013	0.01	0.013	0.01	0.003	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	27.6	24.7	25.6	23	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	1.03	--	--
Potassium	mg/L	--	--	--	--	--	--	--	2.9	2.47	2.62	3.21	--
Sodium	mg/L	--	--	--	--	--	--	--	46.2	41.4	50	69.2	--
Strontium	mg/L	--	--	--	--	--	--	--	0.155	0.139	0.14	0.135	--
Alkalinity	mg/L	--	--	--	--	--	--	--	368	376	369	359	--
Bromide	mg/L	--	--	--	--	--	--	--	0.1	0.152	0.154	0.206	--
Chloride	mg/L	--	(29.6) 114	80.4	86.8	90.2	59.1	44.1	39.3	37.9	50.2	70.8	71.2
Fluoride	mg/L	4	0.192	0.1	0.15	0.1	0.1	0.1	0.16	0.1	0.08	0.1	--
TDS	mg/L	--	(412.7) 589	539	532	544	508	481	460	461	465	495	487
Sulfate	mg/L	--	(43.51) 44	38.7	42.2	36.8	33	34	35.4	35.1	36.1	40.4	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	0.357	1	0.977	0.174	2.27	0.182	0.427	0.513	--	--
Radium-226	pCi/L	--	--	0.235	0.576	0.248	0.413	0.362	0.399	0.511	0.274	--	--
Radium-226/228	pCi/L	5	--	0.592	1.576	1.225	0.587	2.632	0.581	0.938	0.787	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.14	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.051	0.014	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	1.03	1.06	1.04	0.873	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2018	11/14/2018	2/11/2019	5/22/2019	11/15/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.62	370.06	368.78	369.77	371.86	370.76
pH	S.U.	--	6.73 - 7.90	7.37	7.23	7.3	7.4	7.31	7.35
Specific Conductance	µmhos/cm	--	--	720	797	545	476	641	659
Turbidity	NTU	--	--	0.89	0	0.41	0.8	0.2	1.1
Dissolved Oxygen	mg/L	--	--	0.46	0	0.95	0.36	0.25	0.01
Temperature	°C	--	--	15.93	15.56	14.42	14.5	14.58	12
ORP	mV	--	--	-68.4	120	148	122	-21107	137
Laboratory Parameters									
Antimony	µg/L	6	--	--	--	<0.02	--	<0.02	0.03
Arsenic	µg/L	10	--	--	--	0.66	--	0.64	0.72
Barium	µg/L	2000	--	--	--	153	--	151	126
Beryllium	µg/L	4	--	--	--	<0.02	--	<0.02	<0.02
Cadmium	µg/L	5	--	--	--	0.02	--	0.02	0.04
Chromium	µg/L	100	--	--	--	0.05	--	<0.04	0.1
Cobalt	µg/L	6	--	--	--	0.336	--	0.346	0.58
Copper	µg/L	--	--	0.62	--	0.45	--	0.46	1.34
Lead	µg/L	15	--	--	--	<0.02	--	0.02	0.1
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	--	--	1	--	1	1
Selenium	µg/L	50	--	--	--	0.2	--	0.1	0.4
Thallium	µg/L	2	--	--	--	<0.1	--	<0.1	<0.1
Zinc	µg/L	--	--	0.6	--	0.8	--	<0.7	1
Silica (Dissolved)	mg/L	--	--	19.8	--	18.5	--	18	17.2
Aluminum	µg/L	--	--	10.2	--	5	--	4	10
Boron	mg/L	--	0.107	0.046	--	0.139	0.02	0.03	0.02
Calcium	mg/L	--	(79.5) 114	82.9	61.6	53.7	--	56	41
Lithium	mg/L	0.04	--	--	--	<0.009	--	0.02	0.00427
Magnesium	mg/L	--	--	23.1	--	14.8	--	15.1	11.4
Manganese	mg/L	--	--	0.902	--	0.613	--	0.626	0.685
Potassium	mg/L	--	--	3.05	--	3.16	--	2.55	2.2
Sodium	mg/L	--	--	66	--	74.4	--	68.4	58.9
Strontium	mg/L	--	--	0.136	--	0.09	--	0.0898	0.0688
Alkalinity	mg/L	--	--	359	--	300	--	261	252
Bromide	mg/L	--	--	0.168	--	0.1	--	0.1	0.1
Chloride	mg/L	--	(29.6) 114	58.6	61.1	47.8	--	45.5	31.2
Fluoride	mg/L	4	0.192	0.17	--	0.17	--	0.17	0.14
TDS	mg/L	--	(412.7) 589	480	456	408	--	405	343
Sulfate	mg/L	--	(43.51) 44	38.7	--	32.5	--	33.2	25.2
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	<0.1	<0.2
Radium-228	pCi/L	--	--	--	--	0.483	--	0.269	0.482
Radium-226	pCi/L	--	--	--	--	0.162	--	0.156	0.212
Radium-226/228	pCi/L	5	--	--	--	0.645	--	0.425	0.694
Copper (Dissolved)	µg/L	--	--	0.57	--	1.43	--	1.14	0.3
Zinc (Dissolved)	µg/L	--	--	0.7	--	2	--	<0.7	1
Aluminum (Dissolved)	µg/L	--	--	0.8	--	1	--	1	<5
Iron (Dissolved)	mg/L	--	--	0.024	--	0.004	--	<0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	0.849	--	0.616	--	0.615	0.447

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/20/2016	11/17/2016	1/11/2017	3/8/2017	5/10/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.85	369.68	369.23	368.64	367.91	367.94	367.96	368.64	367.68	366.47
pH	S.U.	--	6.04 - 9.13	6.8	7.31	7.26	7.29	7.48	7.44	7.54	9.03	7.6	7.74
Specific Conductance	µmhos/cm	--	--	519	582	538	613	525	614	436	597	516	692
Turbidity	NTU	--	--	1.8	0.24	0.31	0.55	0.4	0.81	1.74	0.41	2.95	1.85
Dissolved Oxygen	mg/L	--	--	0.4	--	1.33	0.55	0.49	0.11	0.29	0.32	0.21	0.47
Temperature	°C	--	--	16.8	16.96	16.04	15.1	14.55	15.2	15.46	15.62	15.77	13.14
ORP	mV	--	--	-19	23.5	35.7	108	14.6	2.1	36.6	108.9	-26.4	-36.7
Laboratory Parameters													
Antimony	µg/L	6	--	0.02	0.02	0.02	0.02	0.01	0.02	0.03	0.03	--	--
Arsenic	µg/L	10	--	0.48	0.4	0.31	0.32	0.34	0.31	0.33	0.39	--	--
Barium	µg/L	2000	--	240	246	221	217	210	224	212	247	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.08	0.08	0.02	0.05	0.02	0.01	0.07	0.1	--	--
Chromium	µg/L	100	--	0.3	0.4	0.1	1.21	0.112	0.188	0.151	0.141	--	--
Cobalt	µg/L	6	--	0.617	0.547	0.418	0.452	0.354	0.401	0.466	0.571	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	2.21	0.11	--
Lead	µg/L	15	--	0.078	0.04	0.021	0.066	0.008	0.022	0.07	0.103	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	2.06	2.31	1.96	1.98	1.99	2.27	1.9	2.03	--	--
Selenium	µg/L	50	--	0.04	0.04	<0.03	<0.03	<0.03	0.05	<0.03	<0.03	--	--
Thallium	µg/L	2	--	0.03	0.069	0.02	0.02	0.02	0.04	0.02	0.02	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	12.8	52.4	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.1	17.6	20.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	6.2	3.72	--
Boron	mg/L	--	0.113	0.033	0.013	0.012	0.014	0.004	0.023	0.102	0.017	0.059	--
Calcium	mg/L	--	(79.5) 88	84.3	68.7	70.5	77.9	72.4	79.2	75.8	71.7	80.4	80.1
Lithium	mg/L	0.04	--	0.001	0.013	0.003	0.006	0.013	0.007	0.008	0.0006	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	22.4	22.2	21	23.3	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.975	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.12	1.54	0.97	1.33	--
Sodium	mg/L	--	--	--	--	--	--	--	22.3	21.6	22.1	24.7	--
Strontium	mg/L	--	--	--	--	--	--	--	0.142	0.143	0.128	0.146	--
Alkalinity	mg/L	--	--	--	--	--	--	--	202	210	215	195	--
Bromide	mg/L	--	--	--	--	--	--	--	0.15	0.204	<0.05	0.233	--
Chloride	mg/L	--	(29.6) 73	68.7	69.6	67.6	63.6	67.9	65.4	69.9	69.6	81.5	86
Fluoride	mg/L	4	0.251	0.2	0.22	0.22	0.17	0.21	0.22	0.22	0.17	0.22	--
TDS	mg/L	--	(412.7) 384	350	321	342	356	343	347	367	363	383	--
Sulfate	mg/L	--	(39.69) 40	36.4	37.4	33.4	33.2	34	35.3	37.2	36.8	40	37.9
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	-0.173	0.294	1.1	0.285	0.92	0.583	-0.121	0.222	--	--
Radium-226	pCi/L	--	--	0.0514	--	0.248	0.624	0.796	0.228	0.151	0.292	--	--
Radium-226/228	pCi/L	5	--	-0.1216	0.294	1.348	0.909	1.716	0.811	0.03	0.514	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.18	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.004	0.002	0.098	0.051	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.862	0.948	0.989	0.947	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2018	11/14/2018	2/11/2019	4/1/2019	5/22/2019	7/23/2019	9/11/2019	11/15/2019	2/18/2020
Field Parameters													
Elevation	ft NGVD	--	--	369.69	370.13	368.87	369.84	370.82	371.96	372.67	-----	370.78	369.44
pH	S.U.	--	6.04 - 9.13	7.32	7.26	7.35	7.37	7.28	7.31	7.02	7.28	7.31	7.17
Specific Conductance	µmhos/cm	--	--	690	782	607	510	945	755	731	813	1070	1869
Turbidity	NTU	--	--	0.9	0	0.35	1.4	0.91	0.3	1.9	0.43	0.3	0.2
Dissolved Oxygen	mg/L	--	--	0.44	0	0.94	1.48	0.64	0.26	0.5	0.36	0.01	0.42
Temperature	°C	--	--	15.94	15.88	14.45	13.2	13.5	14.43	15.9	17.5	14.4	11.76
ORP	mV	--	--	-70.7	-11	62.8	60	-16.7	-216.5	50	-52.5	45	109.3
Laboratory Parameters													
Antimony	µg/L	6	--	--	--	<0.02	--	--	0.02	--	--	0.02	--
Arsenic	µg/L	10	--	--	--	0.32	--	--	0.39	--	--	0.35	--
Barium	µg/L	2000	--	--	--	270	--	--	286	--	--	348	--
Beryllium	µg/L	4	--	--	--	<0.02	--	--	<0.02	--	--	<0.02	--
Cadmium	µg/L	5	--	--	--	0.04	--	--	<0.01	--	--	0.05	--
Chromium	µg/L	100	--	--	--	0.05	--	--	0.25	--	--	0.1	--
Cobalt	µg/L	6	--	--	--	0.472	--	--	0.64	--	--	0.632	--
Copper	µg/L	--	--	0.07	--	0.23	--	--	0.17	--	--	<0.2	--
Lead	µg/L	15	--	--	--	0.03	--	--	0.02	--	--	<0.05	--
Mercury	µg/L	2	--	--	--	--	--	--	<0.002	--	--	<0.002	--
Molybdenum	µg/L	100	--	--	--	2	--	--	2	--	--	2	--
Selenium	µg/L	50	--	--	--	0.03	--	--	<0.03	--	--	<0.03	--
Thallium	µg/L	2	--	--	--	<0.1	--	--	<0.1	--	--	<0.1	--
Zinc	µg/L	--	--	7.1	--	15.4	--	--	1	--	--	2	--
Silica (Dissolved)	mg/L	--	--	18.5	--	18.2	--	--	17.9	--	--	17.1	--
Aluminum	µg/L	--	--	2.86	--	1	--	--	2	--	--	<5	--
Boron	mg/L	--	0.113	0.033	--	0.07	--	--	0.03	--	--	0.03	--
Calcium	mg/L	--	(79.5) 88	90.2	83.8	84.1	--	--	88.5	95.6	109	100	--
Lithium	mg/L	0.04	--	--	--	<0.009	--	--	0.02	--	--	0.00427	--
Magnesium	mg/L	--	--	27.1	--	24.3	--	--	25.4	--	--	28.3	--
Manganese	mg/L	--	--	1.2	--	1	--	--	1.17	--	--	1.04	--
Potassium	mg/L	--	--	1.22	--	1.27	--	--	1.27	--	--	1.57	--
Sodium	mg/L	--	--	26.7	--	30	--	--	30.8	--	--	44.6	--
Strontium	mg/L	--	--	0.18	--	0.166	--	--	0.176	--	--	0.203	--
Alkalinity	mg/L	--	--	235	--	238	--	--	249	--	--	304	--
Bromide	mg/L	--	--	0.303	--	0.275	--	--	0.344	--	--	0.425	--
Chloride	mg/L	--	(29.6) 73	108	99.7	102	109	107	104	106	125	127	133
Fluoride	mg/L	4	0.251	0.22	--	0.21	--	--	0.2	--	--	0.17	--
TDS	mg/L	--	(412.7) 384	434	447	434	439	429	460	457	523	537	579
Sulfate	mg/L	--	(39.69) 40	38.6	--	38.6	--	--	38	--	--	40.8	38.9
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	--	<0.1	--	--	<0.2	--
Radium-228	pCi/L	--	--	--	--	0.138	--	--	0.688	--	--	0.411	--
Radium-226	pCi/L	--	--	--	--	0.179	--	--	0.551	--	--	0.158	--
Radium-226/228	pCi/L	5	--	--	--	0.317	--	--	1.239	--	--	0.569	--
Copper (Dissolved)	µg/L	--	--	0.35	--	1.5	--	--	0.25	--	--	1.98	--
Zinc (Dissolved)	µg/L	--	--	1	--	3	--	--	<0.7	--	--	3	--
Aluminum (Dissolved)	µg/L	--	--	2	--	2	--	--	<1	--	--	<5	--
Iron (Dissolved)	mg/L	--	--	0.058	--	0.023	--	--	0.067	--	--	<0.02	--
Manganese (Dissolved)	mg/L	--	--	1.19	--	1	--	--	1.23	--	--	1.07	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-17S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/8/2016	7/20/2016	9/20/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/19/2017	10/4/2017	6/5/2018	11/13/2018	5/23/2019	11/15/2019
Field Parameters																
Elevation	ft NGVD	--	--	370.14	370.11	369.81	369.37	368.47	368.21	368.24	368.89	373.03	369.48	368.74	371.85	371.44
pH	S.U.	--	7.11 - 7.97	7.77	7.3	7.65	7.7	7.6	7.5	7.3	7.5	7.44	7.41	7.51	7.58	7.64
Specific Conductance	µmhos/cm	--	--	350	373	344	146	310	60	357	287	351	319	280	322	396
Turbidity	NTU	--	--	0.6	0.7	0.79	1	1	1	3	1	0.47	0.4	0.89	0	4
Dissolved Oxygen	mg/L	--	--	0.6	1.2	0.37	0.1	0.2	1	0.2	0.2	0.38	10.12	1.07	1.56	1.3
Temperature	°C	--	--	14.7	17.9	14.55	14.7	13.8	13.5	14.9	14.3	16.82	14.39	13.45	15	13.4
ORP	mV	--	--	80	44	49.4	-40	62	47	45	30	-50.3	-84.3	121	-48.2	38
Laboratory Parameters																
Antimony	µg/L	6	--	0.01	0.03	0.02	0.03	0.03	0.04	0.04	0.02	--	--	0.02	0.02	0.02
Arsenic	µg/L	10	--	0.24	0.26	0.22	0.2	0.21	0.2	0.22	0.22	--	--	0.17	0.18	0.24
Barium	µg/L	2000	--	2.12	2.74	2.24	2.4	3.45	3.94	4.37	2.25	--	--	2.11	2.3	2.2
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.02	0.08	0.01	0.02	0.02	0.09	0.02	0.06	--	--	0.02	0.03	0.03
Chromium	µg/L	100	--	0.5	0.2	0.1	0.066	0.489	0.776	0.233	0.124	--	--	0.07	0.06	0.1
Cobalt	µg/L	6	--	0.047	0.105	0.034	0.029	0.04	0.076	0.138	0.053	--	--	0.05	0.04	0.157
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.38	0.69	0.23	0.21	0.39	0.5
Lead	µg/L	15	--	0.024	0.098	0.025	0.02	0.02	0.079	0.108	0.038	--	--	0.03	0.05	0.1
Mercury	µg/L	2	--	<0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	3.98	4.2	4.08	3.39	0.44	0.7	1.14	4.38	--	--	3.73	4.78	4.67
Selenium	µg/L	50	--	0.07	0.06	0.08	0.1	0.2	0.1	0.1	0.08	--	--	0.3	0.2	0.4
Thallium	µg/L	2	--	0.01	0.01	0.01	0.053	0.02	0.02	<0.01	0.03	--	--	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	5.7	0.7	<0.7	14.4	1
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	14	13.7	15.8	13.5	13.2	<0.06	12.2
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	9.55	10.2	4.01	2	17.4	21.3
Boron	mg/L	--	0.065	0.015	0.016	0.016	0.017	0.006	0.058	0.041	0.02	0.033	0.045	0.05	0.03	0.02
Calcium	mg/L	--	(79.5) 41	36.9	34.8	34.8	35.9	32.3	40	35.5	34.4	34.1	32.4	33.1	32.7	28.7
Lithium	mg/L	0.04	--	<0.0002	0.02	0.003	0.004	0.003	0.008	0.003	<0.0002	--	--	<0.009	0.01	0.00355
Magnesium	mg/L	--	--	--	--	--	--	--	19.2	17.5	13.7	12.9	13	13.7	12.9	11.2
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0428	--	0.0311	0.0418	0.0377	0.179
Potassium	mg/L	--	--	--	--	--	--	--	0.88	0.79	0.49	0.47	0.5	0.59	0.62	0.6
Sodium	mg/L	--	--	--	--	--	--	--	42.5	35.3	31.9	27.7	24.5	25.8	26.5	26.8
Strontium	mg/L	--	--	--	--	--	--	--	0.0566	0.0529	0.0363	0.0345	0.0357	0.0374	0.0347	0.031
Alkalinity	mg/L	--	--	--	--	--	--	--	231	221	196	189	188	202	193	174
Bromide	mg/L	--	--	--	--	--	--	--	0.02	0.05	<0.02	<0.02	0.04	<0.04	<0.04	<0.04
Chloride	mg/L	--	(29.6) 16	13.9	15.4	12.3	11.4	11	10.7	10.4	10.8	10.5	10.8	11.5	12	12.6
Fluoride	mg/L	4	1.08	0.85	0.86	0.73	0.7	0.48	0.46	0.58	0.82	0.89	0.98	0.91	1.08	0.96
TDS	mg/L	--	(412.7) 269	272	235	233	232	262	251	250	201	214	214	196	217	2.07
Sulfate	mg/L	--	(16.46) 16.5	14.3	14.8	10.9	10.5	10.7	12	13.1	10.2	10.7	9.5	8.4	7.7	6.2
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	0.783	-0.0129	0.027	0.791	-0.155	0.36	0.315	1.07	--	--	-0.0735	0.34	1.03
Radium-226	pCi/L	--	--	0.253	0.0439	0.0489	0.803	0.17	0.11	0.118	0.678	--	--	0.0202	0.0449	0.0579
Radium-226/228	pCi/L	5	--	1.036	0.031	0.0759	1.594	0.015	0.47	0.433	1.748	--	--	0.0202	0.0202	1.0879
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.35	--	0.56	0.7	2.05	<0.2
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	1	1	<0.7	0.9
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.2	--	6.2	2	1	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.026	0.004	0.004	0.01	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.0028	0.0013	0.0322	0.0881	0.0304	0.041	0.0332	0.0662

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-171

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/8/2016	7/20/2016	9/20/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/19/2017	10/4/2017	12/12/2017	1/3/2018	6/5/2018	8/16/2018	9/26/2018
Field Parameters																	
Elevation	ft NGVD	--	--	370.09	370.13	369.82	369.12	368.47	368.23	368.25	368.89	368.07	367.23	366.84	369.46	370.64	370.06
pH	S.U.	--	6.82 - 7.96	7.55	7.2	7.1	7.8	7.5	7.5	7.2	7.3	7.37	7.49	7.8	7.36	7.48	7.48
Specific Conductance	µmhos/cm	--	--	839	914	1000	607	670	60	768	678	786	530	848	652	728	453
Turbidity	NTU	--	--	13.4	9.8	--	0.1	2	9	2	1	74.99	1.74	12	1.28	0	0.58
Dissolved Oxygen	mg/L	--	--	0.8	0.8	0.9	1.3	0.3	1	0.3	0.2	0.26	0.1	2.34	0.2	0.17	0.37
Temperature	°C	--	--	14.1	16.4	18.3	14.4	13.7	13.8	14.7	14.7	17.05	8.97	7.25	15.11	17.06	14.18
ORP	mV	--	--	116	-73	-40	204	-52	8	46	-59	-90.8	-54	-40.5	-99.8	-69	-77.9
Laboratory Parameters																	
Antimony	µg/L	6	--	0.07	0.05	0.04	0.03	0.02	0.02	0.02	0.02	--	--	--	--	--	--
Arsenic	µg/L	10	--	7.14	7.41	6.45	3.38	3.94	4.61	3.61	3.76	--	--	--	--	--	--
Barium	µg/L	2000	--	168	190	198	149	148	159	133	140	--	--	--	--	--	--
Beryllium	µg/L	4	--	0.02	0.006	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	--	--	--	--
Cadmium	µg/L	5	--	0.12	0.13	0.04	0.04	0.008	0.007	0.03	0.02	--	--	--	--	--	--
Chromium	µg/L	100	--	0.6	2.1	0.1	0.059	0.254	0.776	0.196	0.127	--	--	--	--	--	--
Cobalt	µg/L	6	--	1.24	0.778	0.472	0.37	0.391	0.406	0.394	0.372	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.26	0.24	--	--	0.52	--	--
Lead	µg/L	15	--	1.19	0.284	0.133	0.049	0.02	0.026	0.115	0.02	--	--	--	--	--	--
Mercury	µg/L	2	--	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--
Molybdenum	µg/L	100	--	3.6	3.66	3.08	3.37	3.2	3.62	3.26	3.42	--	--	--	--	--	--
Selenium	µg/L	50	--	0.1	0.05	0.05	<0.03	<0.03	0.05	0.03	<0.03	--	--	--	--	--	--
Thallium	µg/L	2	--	0.03	0.02	0.02	0.056	0.02	0.02	0.01	0.05	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	4.3	30.8	--	--	2.4	--	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.1	17	19.8	--	--	16.5	--	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	3.39	21.5	--	--	5.91	--	--
Boron	mg/L	--	0.098	0.058	0.056	0.051	0.041	0.034	0.079	0.083	0.052	0.061	--	--	0.081	--	--
Calcium	mg/L	--	(79.5) 96	73.7	83.1	88.9	80	72.3	81.4	69.6	64.4	63	--	--	51.2	--	--
Lithium	mg/L	0.04	--	<0.0002	0.004	0.005	0.006	0.009	0.008	0.005	<0.0002	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	21	19.6	17.4	16.5	--	--	13.4	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.155	--	--	--	0.122	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.28	1.36	1.04	1.12	--	--	0.94	--	--
Sodium	mg/L	--	--	--	--	--	--	--	101	93.6	95.4	94.6	--	--	89.1	--	--
Strontium	mg/L	--	--	--	--	--	--	--	0.153	0.14	0.119	0.12	--	--	0.104	--	--
Alkalinity	mg/L	--	--	--	--	--	--	--	221	226	229	245	--	--	238	--	--
Bromide	mg/L	--	--	--	--	--	--	--	0.347	0.396	0.372	0.283	--	--	0.213	--	--
Chloride	mg/L	--	(29.6) 241	195	209	214	164	159	158	151	145	115	86	110	80.2	61.1	--
Fluoride	mg/L	4	0.656	0.57	0.56	0.52	0.56	0.56	0.58	0.61	0.63	0.66	0.76	0.65	0.87	0.98	1.03
TDS	mg/L	--	(412.7) 657	609	569	620	540	513	549	528	509	486	--	471	418	376	--
Sulfate	mg/L	--	(50.8) 51	43.1	49.3	48.1	44.1	43.2	44.9	43.5	44.7	46.6	44.8	--	41	--	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	0.615	0.386	1	0.499	0.531	0.33	0.191	0.791	--	--	--	--	--	--
Radium-226	pCi/L	--	--	1.31	0.781	0.587	0.263	0.979	0.693	0.816	0.0231	--	--	--	--	--	--
Radium-226/228	pCi/L	5	--	1.925	1.167	1.587	0.762	1.51	1.023	1.007	0.8141	--	--	--	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.33	--	--	--	0.57	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.2	--	--	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--	--	2.64	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.896	0.909	0.741	0.603	--	--	0.546	--	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.185	0.188	0.141	0.144	--	--	0.113	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-17I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/13/2018	2/11/2019	4/1/2019	5/23/2019	7/23/2019	9/11/2019	11/15/2019
Field Parameters										
Elevation	ft NGVD	--	--	369.35	369.89	369.89	372.03	373.11	-----	371.6
pH	S.U.	--	6.82 - 7.96	7.55	7.68	7.68	7.51	6.65	7.63	7.44
Specific Conductance	µmhos/cm	--	--	450	391	391	570	488	363	654
Turbidity	NTU	--	--	7.42	6.9	6.9	3.67	6.4	5	7
Dissolved Oxygen	mg/L	--	--	0.76	0.47	0.47	0.91	1.1	0	0
Temperature	°C	--	--	12.6	13.5	13.5	17.85	14.8	15.49	13
ORP	mV	--	--	-77.4	-55	-55	-94.3	-5.3	-112	-87
Laboratory Parameters										
Antimony	µg/L	6	--	0.02	--	--	0.02	--	--	0.06
Arsenic	µg/L	10	--	3.65	--	--	3.72	--	--	4.5
Barium	µg/L	2000	--	86.8	--	--	91.8	--	--	87.9
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	--	--	<0.02
Cadmium	µg/L	5	--	0.03	--	--	<0.01	--	--	0.05
Chromium	µg/L	100	--	<0.04	--	--	<0.04	--	--	0.1
Cobalt	µg/L	6	--	0.186	--	--	0.22	--	--	0.306
Copper	µg/L	--	--	0.26	--	--	0.07	--	--	0.5
Lead	µg/L	15	--	0.03	--	--	0.02	--	--	0.2
Mercury	µg/L	2	--	--	--	--	<0.002	--	--	<0.002
Molybdenum	µg/L	100	--	4.09	--	--	3.01	--	--	2.4
Selenium	µg/L	50	--	<0.03	--	--	<0.03	--	--	0.03
Thallium	µg/L	2	--	<0.1	--	--	<0.1	--	--	<0.1
Zinc	µg/L	--	--	2	--	--	15.1	--	--	2
Silica (Dissolved)	mg/L	--	--	15.8	--	--	<0.06	--	--	14
Aluminum	µg/L	--	--	2	--	--	1	--	--	7
Boron	mg/L	--	0.098	0.07	--	--	0.04	--	--	0.04
Calcium	mg/L	--	(79.5) 96	36.5	--	--	45.1	--	--	43.9
Lithium	mg/L	0.04	--	<0.009	--	--	0.01	--	--	0.00504
Magnesium	mg/L	--	--	9.44	--	--	11.8	--	--	12
Manganese	mg/L	--	--	0.0779	--	--	0.112	--	--	0.121
Potassium	mg/L	--	--	0.83	--	--	0.84	--	--	0.9
Sodium	mg/L	--	--	74.7	--	--	60.5	--	--	49.7
Strontium	mg/L	--	--	0.0796	--	--	0.098	--	--	0.103
Alkalinity	mg/L	--	--	231	--	--	201	--	--	205
Bromide	mg/L	--	--	0.1	--	--	0.2	--	--	2
Chloride	mg/L	--	(29.6) 241	50.1	--	--	60.2	--	--	41.2
Fluoride	mg/L	4	0.656	1.00	1.05	1.08	1.07	1.06	1.08	0.95
TDS	mg/L	--	(412.7) 657	328	--	--	352	--	--	309
Sulfate	mg/L	--	(50.8) 51	29.6	--	--	32.8	--	--	23.2
Sulfide	mg/L	--	--	<0.1	--	--	<0.1	--	--	<0.02
Radium-228	pCi/L	--	--	0.275	--	--	-0.107	--	--	1.33
Radium-226	pCi/L	--	--	0.351	--	--	0.403	--	--	0.184
Radium-226/228	pCi/L	5	--	0.626	--	--	0.403	--	--	1.514
Copper (Dissolved)	µg/L	--	--	1.62	--	--	1.24	--	--	2.03
Zinc (Dissolved)	µg/L	--	--	3	--	--	3	--	--	3
Aluminum (Dissolved)	µg/L	--	--	3	--	--	5.77	--	--	<5
Iron (Dissolved)	mg/L	--	--	0.348	--	--	0.418	--	--	0.364
Manganese (Dissolved)	mg/L	--	--	0.0765	--	--	0.106	--	--	0.114

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-21S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	12/12/2017	6/6/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.38	369.28	368.85	368.52	367.76	366.84	367.86	368.72	367.13	366.24	369.54
pH	S.U.	--	5.99 - 9.07	6.6	7.54	7.59	7.5	7.32	7.6	8.86	7.23	7.53	8	7.77
Specific Conductance	µmhos/cm	--	--	387	450	454	501	410	540	344	398	402	390	400
Turbidity	NTU	--	--	2.5	0.91	0.78	0.46	1.03	2.6	0.71	2.28	3.31	6	2.1
Dissolved Oxygen	mg/L	--	--	2.3	4.37	5.67	4.46	6.66	4.2	3.36	32.59	4.01	6.2	3.36
Temperature	°C	--	--	16.4	17.49	18.53	18.78	15.15	14.9	16.27	18.01	16.21	14.9	16.2
ORP	mV	--	--	36	13.1	48.9	46.9	198.4	150	160.1	-167.7	76.7	56	43
Laboratory Parameters														
Antimony	µg/L	6	--	0.03	0.02	0.02	0.02	0.03	0.03	0.04	0.05	--	--	0.04
Arsenic	µg/L	10	--	0.53	0.47	0.46	0.43	0.47	0.49	0.47	0.42	--	--	0.45
Barium	µg/L	2000	--	18.5	19.6	19.4	19.1	19.3	21.9	17.7	21.9	--	--	18.5
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.004	<0.04	--	--	<0.004
Cadmium	µg/L	5	--	0.02	0.02	0.006	0.02	0.01	0.01	0.01	0.01	--	--	0.01
Chromium	µg/L	100	--	0.4	0.7	0.3	0.292	0.401	0.536	0.3	0.272	--	--	0.233
Cobalt	µg/L	6	--	0.104	0.033	0.03	0.023	0.022	0.053	0.027	0.006	--	--	0.02
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.27	0.35	--	0.52
Lead	µg/L	15	--	0.095	0.042	0.025	0.023	0.024	0.095	0.023	0.024	--	--	0.024
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	1.78	1.85	1.74	1.63	1.74	2	1.62	2.31	--	--	2.04
Selenium	µg/L	50	--	0.7	0.5	0.2	0.2	0.1	0.1	0.1	0.2	--	--	0.3
Thallium	µg/L	2	--	0.01	0.01	<0.01	<0.01	0.058	<0.01	<0.01	<0.01	--	--	<0.01
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	214	--	3.7
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	23.5	22.8	26.2	--	22.5
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	1	16.5	--	6.55
Boron	mg/L	--	0.046	0.002	0.011	0.007	0.015	0.002	0.018	0.033	0.034	0.027	--	0.039
Calcium	mg/L	--	(79.5) 62	55.1	52.8	52	60	54.4	59	56	55.9	59.8	--	52.8
Lithium	mg/L	0.04	--	0.003	0.013	0.003	0.009	0.007	0.002	0.005	<0.0002	--	--	0.005
Magnesium	mg/L	--	--	--	--	--	--	--	21.3	20.5	20.7	21.8	--	19.2
Manganese	mg/L	--	--	--	--	--	--	--	--	--	<0.0001	--	--	0.0008
Potassium	mg/L	--	--	--	--	--	--	--	0.6	0.69	0.57	0.61	--	0.58
Sodium	mg/L	--	--	--	--	--	--	--	18.9	16.6	20.6	19.3	--	15.5
Strontium	mg/L	--	--	--	--	--	--	--	0.0604	0.0601	0.58	0.061	--	0.0554
Alkalinity	mg/L	--	--	--	--	--	--	--	202	195	212	210	--	183
Bromide	mg/L	--	--	--	--	--	--	--	<0.02	0.03	0.061	<0.02	--	0.02
Chloride	mg/L	--	(29.6) 16	15	15.1	14.7	14.7	14.4	14.8	15.7	15.9	17.7	18	17.5
Fluoride	mg/L	4	0.689	0.61	0.064	0.62	0.63	0.54	0.58	0.6	0.54	0.6	0.6	0.66
TDS	mg/L	--	(412.7) 313	275	292	285	294	287	298	296	304	300	--	283
Sulfate	mg/L	--	23.6	21.2	21.1	17.4	14.9	15.9	16.5	17.6	18.8	20.1	21.1	18.7
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4
Radium-228	pCi/L	--	--	0.129	0.0598	0.213	0.14	1.71	-0.0315	0.0831	0.989	--	--	--
Radium-226	pCi/L	--	--	0.0309	0.513	0.239	0.344	0.357	0.0305	0.152	0.109	--	--	--
Radium-226/228	pCi/L	5	--	0.1599	0.5728	0.452	0.484	2.067	-0.001	0.2351	1.098	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.2	--	--	0.29
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	5.1	--	--	1
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	18.3	--	--	1
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.008	0.017	--	0.005
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0001	0.0001	0.0029	<0.0002	--	<0.0002

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-21S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/14/2018	2/12/2019	4/1/2019	5/21/2019	11/14/2019	2/18/2020
Field Parameters									
Elevation	ft NGVD	--	--	368.42	370.37	371.3	371.43	370.65	369.05
pH	S.U.	--	5.99 - 9.07	7.34	7.74	7.8	7.59	7.54	7.53
Specific Conductance	µmhos/cm	--	--	380	318	404	424	530	856
Turbidity	NTU	--	--	1.67	2.8	2.45	0.29	2.8	8.71
Dissolved Oxygen	mg/L	--	--	9.55	7.1	3.89	5.26	7	6.64
Temperature	°C	--	--	14.14	15.2	14.3	15.98	15.5	11.8
ORP	mV	--	--	165.5	189	21.1	-194.8	121	132.4
Laboratory Parameters									
Antimony	µg/L	6	--	0.02	--	--	<0.02	0.03	--
Arsenic	µg/L	10	--	0.44	--	--	0.44	0.46	--
Barium	µg/L	2000	--	17.8	--	--	15.9	16.2	--
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.01	--	--	0.01	0.01	--
Chromium	µg/L	100	--	0.232	--	--	0.287	0.418	--
Cobalt	µg/L	6	--	0.06	--	--	0.02	0.03	--
Copper	µg/L	--	--	0.53	--	--	0.13	0.4	--
Lead	µg/L	15	--	0.07	--	--	0.02	<0.05	--
Mercury	µg/L	2	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	2	--	--	2	2	--
Selenium	µg/L	50	--	0.3	--	--	0.1	0.1	--
Thallium	µg/L	2	--	<0.1	--	--	<0.1	<0.1	--
Zinc	µg/L	--	--	0.8	--	--	<0.7	<0.7	--
Silica (Dissolved)	mg/L	--	--	23.2	--	--	21.3	18.8	--
Aluminum	µg/L	--	--	17	--	--	5.26	10	--
Boron	mg/L	--	0.046	0.06	<0.02	--	<0.02	<0.02	--
Calcium	mg/L	--	(79.5) 62	55	--	--	52.5	50.4	--
Lithium	mg/L	0.04	--	0.03	--	--	<0.009	0.00321	--
Magnesium	mg/L	--	--	19.6	--	--	17	17.3	--
Manganese	mg/L	--	--	0.0041	--	--	0.0009	0.002	--
Potassium	mg/L	--	--	0.88	--	--	0.55	0.3	--
Sodium	mg/L	--	--	17.1	--	--	13	15.3	--
Strontium	mg/L	--	--	0.0553	--	--	0.0506	0.0508	--
Alkalinity	mg/L	--	--	193	--	--	167	171	--
Bromide	mg/L	--	--	<0.04	--	--	<0.04	<0.04	--
Chloride	mg/L	--	(29.6) 16	17.9	17.9	17.5	16	17.4	--
Fluoride	mg/L	4	0.689	0.66	--	--	0.65	0.73	0.79
TDS	mg/L	--	(412.7) 313	278	--	--	258	241	--
Sulfate	mg/L	--	23.6	17.0	--	--	14.1	15.8	--
Sulfide	mg/L	--	--	<0.07	--	--	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.0549	--	--	0.366	0.39	--
Radium-226	pCi/L	--	--	0.0246	--	--	-0.0257	0.0413	--
Radium-226/228	pCi/L	5	--	0.0795	--	--	0.366	0.4313	--
Copper (Dissolved)	µg/L	--	--	0.13	--	--	0.27	<0.2	--
Zinc (Dissolved)	µg/L	--	--	<0.7	--	--	<0.7	0.8	--
Aluminum (Dissolved)	µg/L	--	--	2	--	--	5	<5	--
Iron (Dissolved)	mg/L	--	--	<0.003	--	--	<0.003	<0.02	--
Manganese (Dissolved)	mg/L	--	--	<0.0002	--	--	<0.0002	<0.0005	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-211

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	6/6/2018	11/13/2018	5/21/2019	11/14/2019
Field Parameters																
Elevation	ft NGVD	--	--	369.3	369.19	368.77	368.43	367.68	367.8	368.03	368.24	367	369.44	368.39	371.41	370.62
pH	S.U.	--	6.63 - 8.69	7.99	7.56	7.56	7.3	7.35	7.5	8.56	7.44	7.44	7.54	7.69	7.31	7.48
Specific Conductance	µmhos/cm	--	--	548	500	488	432	397	520	361	422	399	430	402	403	526
Turbidity	NTU	--	--	0.73	0.65	1.04	0.97	2.82	2.5	1.34	1.02	3.21	1.71	1.18	0	4
Dissolved Oxygen	mg/L	--	--	0.5	1.63	1.49	1.88	1.53	0.3	0.55	0.76	0.2	0.17	0.22	0.36	0.4
Temperature	°C	--	--	16.88	17.39	16.17	16.95	13.68	15.1	16.39	17.11	15.47	15.55	14.87	16.34	15.6
ORP	mV	--	--	-9.2	-185.2	-16.7	105.2	21.1	-3	160.7	2.1	-10.3	-13.4	8.7	67.5	31
Laboratory Parameters																
Antimony	µg/L	6	--	0.02	0.02	0.02	0.02	0.02	0.03	0.05	0.03	--	0.02	<0.02	<0.02	0.05
Arsenic	µg/L	10	--	1.55	1.67	1.55	1.41	1.39	1.08	1.19	1.38	--	0.98	1.63	0.65	1.12
Barium	µg/L	2000	--	127	136	121	126	126	123	116	123	--	121	120	106	110
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.004	<0.004	--	<0.004	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.02	0.02	0.02	0.04	0.02	0.01	0.01	0.01	--		0.03	0.01	0.07
Chromium	µg/L	100	--	0.1	0.2	0.1	0.386	1.04	0.349	0.125	0.143	--	0.061	0.1	0.1	0.2
Cobalt	µg/L	6	--	0.514	0.558	0.422	0.524	0.437	0.437	0.412	0.517	--	0.398	0.685	0.275	0.664
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.07	0.09	0.11	0.51	0.77	0.3
Lead	µg/L	15	--	0.02	0.021	0.046	0.035	<0.004	0.01	0.022	0.033	--	0.026	0.181	0.02	0.08
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	4.92	5.25	4.46	4.4	4.63	4.31	4.06	4.18	--	4.69	5.13	5.01	4.85
Selenium	µg/L	50	--	<0.03	0.05	0.03	0.09	0.07	0.07	0.05	0.05	--	<0.03	<0.03	<0.03	0.1
Thallium	µg/L	2	--	0.03	0.03	0.02	0.02	0.04	0.02	0.03	0.03	--	0.03	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	--	0.6	0.9	1	11.1	1	1
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.8	18.1	19.7	17.6	17.7	16.6	15.4
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	4.55	2.56	3.39	17.2	6.03	10
Boron	mg/L	--	0.092	0.007	0.012	0.011	0.012	<0.002	0.028	0.027	0.08	0.029	0.034	0.08	<0.02	<0.02
Calcium	mg/L	--	(979.5) 73	69	64.7	65.1	68.4	59.5	66.5	62.9	60.1	63.9	66.5	61.5	62.4	56.5
Lithium	mg/L	0.04	--	<0.0002	0.019	0.004	0.006	0.005	0.007	0.008	0.004	--	0.007	<0.009	<0.009	0.00335
Magnesium	mg/L	--	--	--	--	--	--	--	20.9	20.1	18.4	20	21.2	19.3	17.5	16.8
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.428	--	0.476	0.535	0.371	0.582
Potassium	mg/L	--	--	--	--	--	--	--	0.92	1.08	1.26	0.8	0.9	1.21	0.82	0.7
Sodium	mg/L	--	--	--	--	--	--	--	16	15.4	13	15	15.5	14.7	13.3	14.4
Strontium	mg/L	--	--	--	--	--	--	--	0.0931	0.0922	0.0805	0.0889	0.096	0.0887	0.0829	0.0797
Alkalinity	mg/L	--	--	--	--	--	--	--	212	222	221	215	230	224	199	199
Bromide	mg/L	--	--	--	--	--	--	--	0.03	0.05	<0.02	0.04	0.04	<0.04	<0.04	<0.04
Chloride	mg/L	--	(79.5) 22	21.1	21.7	20.4	20	19.9	19.6	21	20.4	20.5	20.6	20.2	18.1	17.5
Fluoride	mg/L	4	0.38	0.33	0.36	0.34	0.34	0.3	0.32	0.34	0.3	0.31	0.38	0.36	0.36	0.38
TDS	mg/L	--	(412.7) 359	331	334	305	317	292	275	306	322	306	317	294	278	262
Sulfate	mg/L	--	50	46.2	47.9	43.2	40.4	41	39.6	42.4	43.6	45.7	44.6	43.4	36	35.5
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	0.126	0.036	0.676	0.0796	1.78	0.281	0.108	0.45	--	--	0.638	0.458	0.113
Radium-226	pCi/L	--	--	0.223	1.37	0.305	0.576	0.953	0.601	0.483	0.775	--	--	0.315	0.284	0.579
Radium-226/228	pCi/L	5	--	0.349	1.406	0.981	0.6556	2.733	0.882	0.591	1.225	--	--	0.953	0.742	0.692
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.09	--	0.11	0.23	0.21	<0.2
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.7	--	1	1	<0.7	1
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	<0.8	<1	4	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.019	<0.0004	0.078	0.062	0.024	0.028	<0.003	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.37	0.427	0.425	0.441	0.427	0.441	0.346	0.315

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-21D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	1/3-11/18	6/6/2018	11/13/2018	5/22/2019	11/14/2019
Field Parameters																	
Elevation	ft NGVD	--	--	369.44	369.34	368.92	368.59	367.86	368.07	367.86	368.42	367.17	366.66	369.58	368.38	371.4	370.64
pH	S.U.	--	6.71 - 8.73	8.14	7.76	7.69	7.47	7.19	7.6	7.44	8.48	7.48	7.03	7.65	7.66	7.47	7.41
Specific Conductance	µmhos/cm	--	--	591	544	478	585	441	60	493	531	449	564	470	451	511	670
Turbidity	NTU	--	--	2.82	0.48	1.93	0.33	3.09	1.9	1.42	0.55	1.01	1.11	2.43	1.87	0.87	11
Dissolved Oxygen	mg/L	--	--	0.53	0.17	0.49	0	1.82	0.2	0.22	0.47	0.31	18.7	0.18	0.33	1.88	0
Temperature	°C	--	--	15.24	16.81	15.93	15.25	12.99	15	16.7	17.58	16.26	14.93	15.45	14.15	15.44	16.2
ORP	mV	--	--	80.4	26.3	78.1	51.1	141.4	51	40	168.3	21.3	170.4	25.1	23.2	37.3	56
Laboratory Parameters																	
Antimony	µg/L	6	--	0.08	0.08	0.06	0.06	0.07	0.07	0.08	0.12	--	--	0.11	0.07	0.08	0.19
Arsenic	µg/L	10	--	1.07	1.06	0.95	0.86	0.99	0.92	0.97	1.04	--	--	0.84	0.89	1.04	1.08
Barium	µg/L	2000	--	241	240	226	206	220	220	216	226	--	--	218	201	202	203
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.004	<0.004	--	--	0.005	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.02	0.03	0.02	0.03	0.02	0.02	0.04	0.02	--	--	0.13	0.02	0.03	0.16
Chromium	µg/L	100	--	0.2	0.3	0.1	0.05	0.124	0.433	0.165	0.11	--	--	0.091	0.06	<0.04	0.759
Cobalt	µg/L	6	--	0.216	0.21	0.195	0.171	0.202	0.182	0.208	0.203	--	--	0.196	0.224	0.234	0.397
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.11	2.7	--	1.16	0.16	0.16	1.02
Lead	µg/L	15	--	0.107	0.075	0.066	0.056	0.091	0.092	0.118	0.089	--	--	0.229	0.1	0.09	0.776
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	6.31	6.66	6.13	5.33	6.09	5.68	5.07	5.29	--	--	5.17	4.76	5.37	5.29
Selenium	µg/L	50	--	0.2	0.2	0.3	0.3	0.2	0.5	0.6	0.5	--	--	0.2	0.05	0.04	0.08
Thallium	µg/L	2	--	0.03	0.02	0.03	0.02	0.04	0.02	0.02	0.03	--	--	0.03	<0.1	<0.1	0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	187	--	6.5	1	1	4
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.5	17.6	19.6	--	17.6	17	16.9	16
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	6.79	14.1	--	17.2	9.86	5	65.5
Boron	mg/L	--	0.071	0.022	0.015	0.015	0.013	0.004	0.024	0.107	0.015	0.092	0.088	0.03	0.04	<0.02	<0.02
Calcium	mg/L	--	(79.5) 83	74.2	60.6	70.4	74.7	67.3	76.2	71.5	70.9	67.8	--	70.7	62.1	69.3	69.4
Lithium	mg/L	0.04	--	0.002	0.025	0.005	0.007	0.009	0.005	0.013	0.0005	--	--	0.006	0.01	<0.009	0.0044
Magnesium	mg/L	--	--	--	--	--	--	--	25	24.3	23.9	22.7	--	23.6	21.3	23.1	22.3
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.592	--	--	0.596	0.634	0.717	0.803
Potassium	mg/L	--	--	--	--	--	--	--	2.11	2.41	2.44	3.91	--	1.97	3.95	2.81	3.49
Sodium	mg/L	--	--	--	--	--	--	--	18.1	17.2	19.7	20.8	--	15.7	17.7	15.1	17.2
Strontium	mg/L	--	--	--	--	--	--	--	0.144	0.142	0.144	0.168	--	0.147	0.191	0.189	0.21
Alkalinity	mg/L	--	--	--	--	--	--	--	247	271	277	262	--	268	268	286	266
Bromide	mg/L	--	--	--	--	--	--	--	<0.05	0.08	0.07	<0.05	--	0.05	0.05	0.04	0.05
Chloride	mg/L	--	(29.6) 20	19.2	19.6	18.9	19.1	19.4	18.9	19.9	19.5	18.5	--	19.9	18.8	19.1	19.2
Fluoride	mg/L	4	0.407	0.36	0.38	0.36	0.33	0.36	0.33	0.35	0.3	0.32	--	0.4	0.34	0.36	0.32
TDS	mg/L	--	(412.7) 365	328	299	315	346	332	304	339	332	339	--	347	314	348	323
Sulfate	mg/L	--	43.22	39.2	41	35.5	32	34.4	35.1	37.1	36.5	37.4	--	38.4	35.2	36.8	38.6
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.07	<0.1	<0.2
Radium-228	pCi/L	--	--	0.441	0.77	0.604	0.688	0.722	0.518	0.0415	0.501	--	--	--	1.47	0.59	0.525
Radium-226	pCi/L	--	--	0.126	0.658	0.23	0.39	0.422	0.42	0.408	0.355	--	--	--	0.469	0.669	0.403
Radium-226/228	pCi/L	5	--	0.567	1.428	0.834	1.078	1.144	0.938	0.4495	0.856	--	--	--	1.939	1.259	0.928
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.39	--	--	0.08	1.33	0.85	<0.2
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.4	--	--	0.7	3	3	1
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.16	--	--	2	1	2	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.053	0.016	--	<0.002	0.007	0.005	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.616	0.625	0.62	0.646	--	0.567	0.657	0.684	0.611

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

Notes:

Data tabulated by AEP

GWPS - Groundwater Protection Standard

MCL - USEPA Maximum Contaminant Levels

RSL - USEPA Generic Tables for Residential Tapwater, May 2018, TR=1E-06, THQ=1.0

Field Parameter Units

ft NGVD - Feet, National Geodetic Vertical Datum of 1929 (also known as mean sea level (MSL))

°C - degrees Celcius

S.U. - Standard Units

µmhos/cm - micromhos per centimeter

mg/L - milligrams per liter

ORP - milliVolts (mV)

NTU - Nephelometric Turbidity Units

Laboratory Parameter Units

pCi/L picoCuries per Liter

Table A-2
Summary of Leachate Pond Data
CCR Landfill
Rockport Plant, Rockport, Indiana

Source: American Electric Power

Parameter	Unit	Combined North/West Leachate Pond			North Leachate Pond					West Leachate Pond
		7/13/2016	7/19/2016	1/24/2017	7/13/2016	7/19/2016	9/14/2016	1/24/2017	9/29/2017	9/29/2017
Boron	mg/L	1.19	2.17	2.77	0.634	0.684	0.818	2.07	2.7	11.44
Calcium	mg/L	22.8	41.3	149	19.9	22.5	21.8	80.8	-	-
Chloride	mg/L	38.5	63.7	191	17.3	19.7	9.31	18.4	-	-
Fluoride	mg/L	0.27	0.41	0.32	0.25	0.2	0.57	0.23	-	-
Total Dissolved Solids	mg/L	918	1870	1870	332	434	310	656	-	-
Sulfate	mg/L	617	1180	1020	168	254	97.6	365	-	-
pH	SU	-	-	-	-	-	-	-	-	-

Notes:

mg/L: milligrams per liter

SU: standard unit

-: Not sampled

Laboratory data reports incorrectly identified Combined North/West Leachate Pond as North/South Leachate Pond. There is no South Leachate Pond.

Prepared by: kdr 6/1/2020

Checked by: tmr 6/1/2020

Table A-3
Summary of Isotope Data
CCR Landfill
Rockport Plant, Rockport, Indiana

Sample Identifier	B (mg/L)	$\delta^{11}\text{B}$	Sr (mg/L)	$^{87}\text{Sr}/^{86}\text{Sr}$
Landfill Leachate Pond North	2.7	-0.93	1.80	0.711955
Landfill Leachate Pond West	11.4	-1.64	2.86	0.711919
MW-17I	0.058	26.86	0.093	0.710547
MW-8I	0.037	23.51	0.140	0.709697
MW-8S	0.020	16.33	0.048	0.709272
MW-11S	0.060	24.01	0.052	0.709447
MW-14S	0.017	17.78	0.094	0.710566
MW-15I	0.042	35.32	0.082	0.710333
MW-21S	0.016	20.66	0.055	0.710142

Note: monitoring well boron concentrations are averages of first eight rounds of sampling.



wood.

Appendix B
Full Size Geochemical Exhibits

Exhibit 3-4. Boron to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.

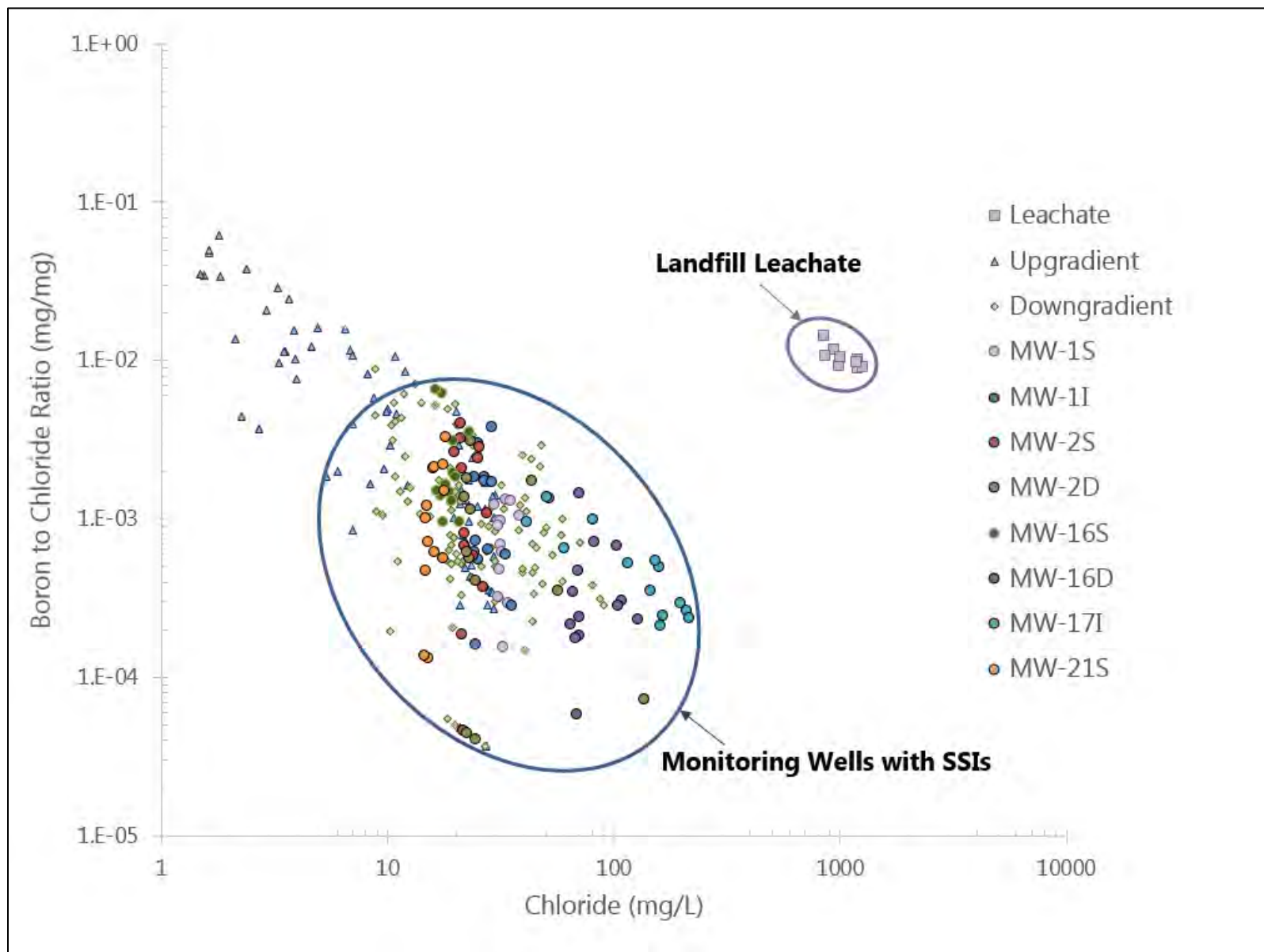


Exhibit 3-5. Sulfate to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.

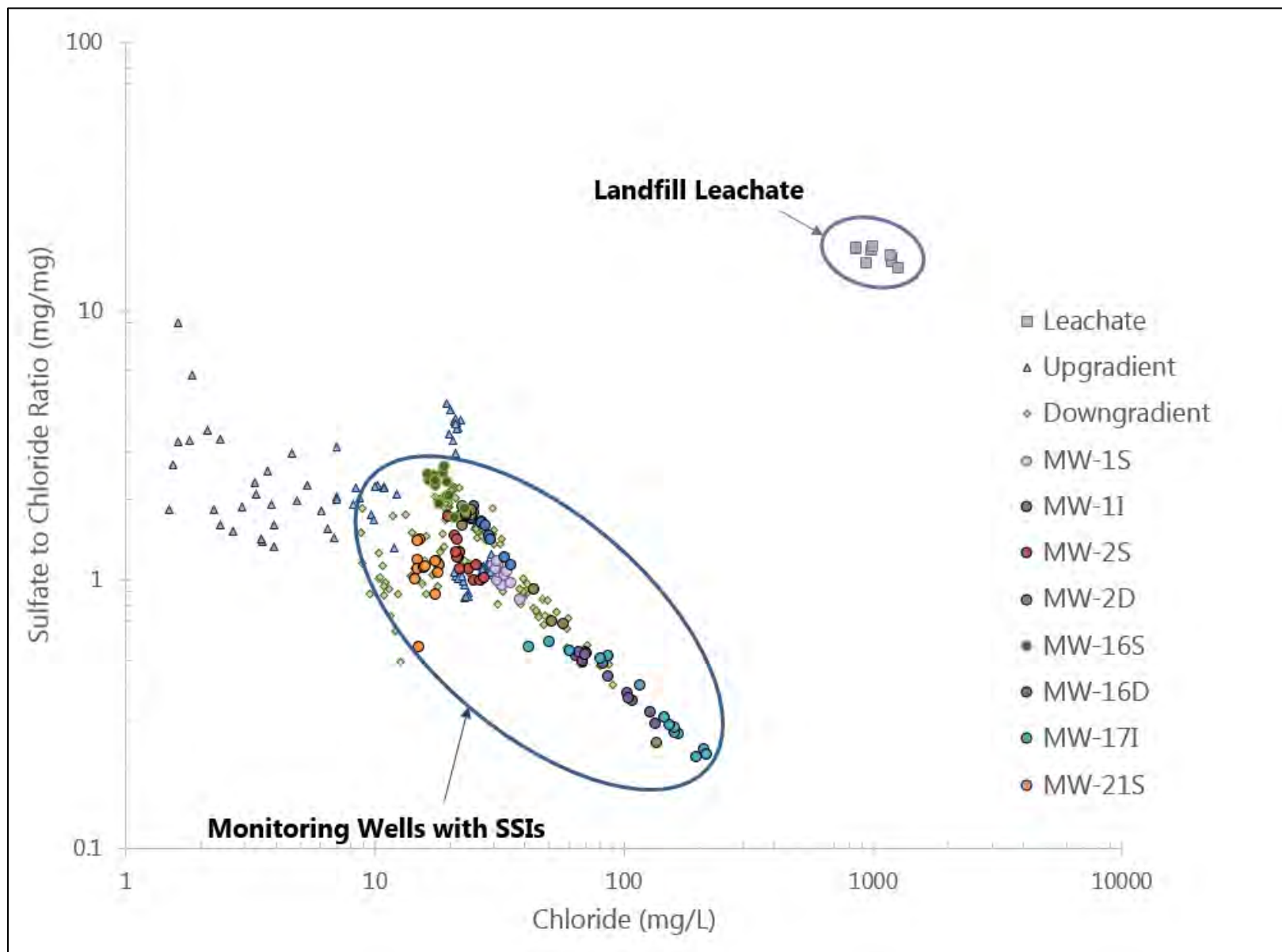


Exhibit 3-6. Piper diagram of major ion water quality for CCR Landfill monitoring wells with SSIs and leachate for comparison.

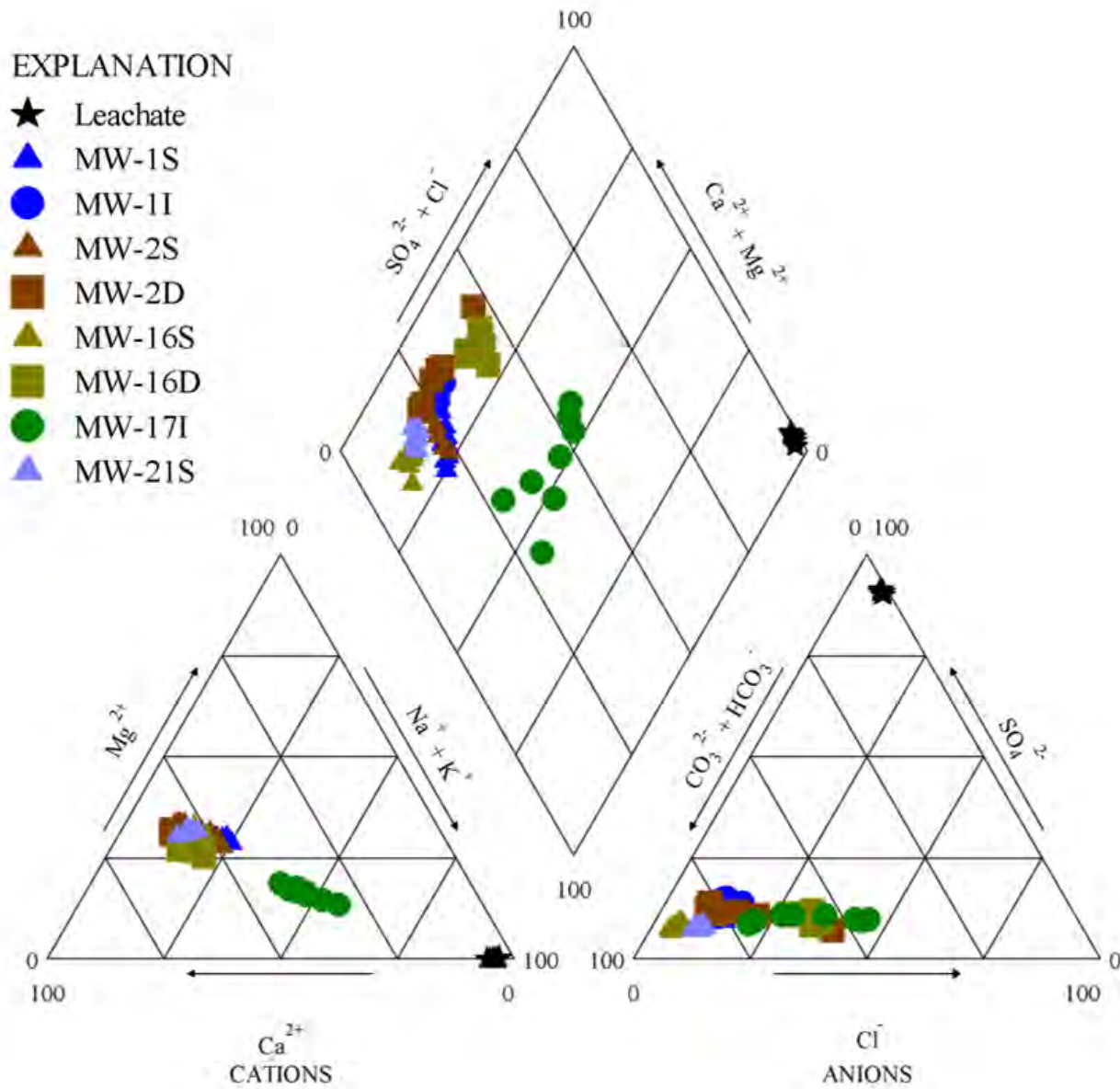


Exhibit 3-7. Boron isotope ratio ($\delta^{11}\text{B}$) versus boron concentration for CCR Landfill leachate and monitoring wells for comparison.

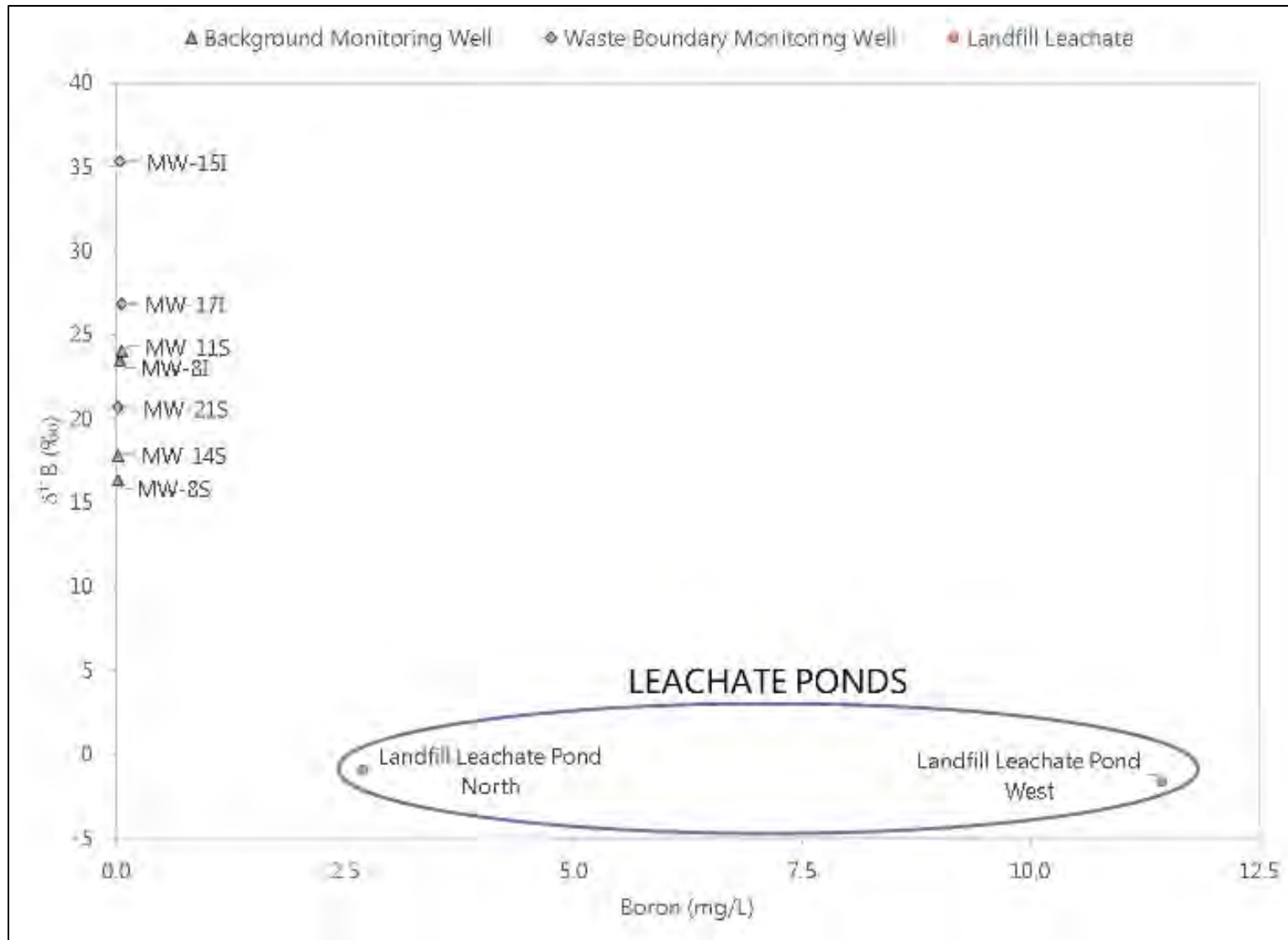
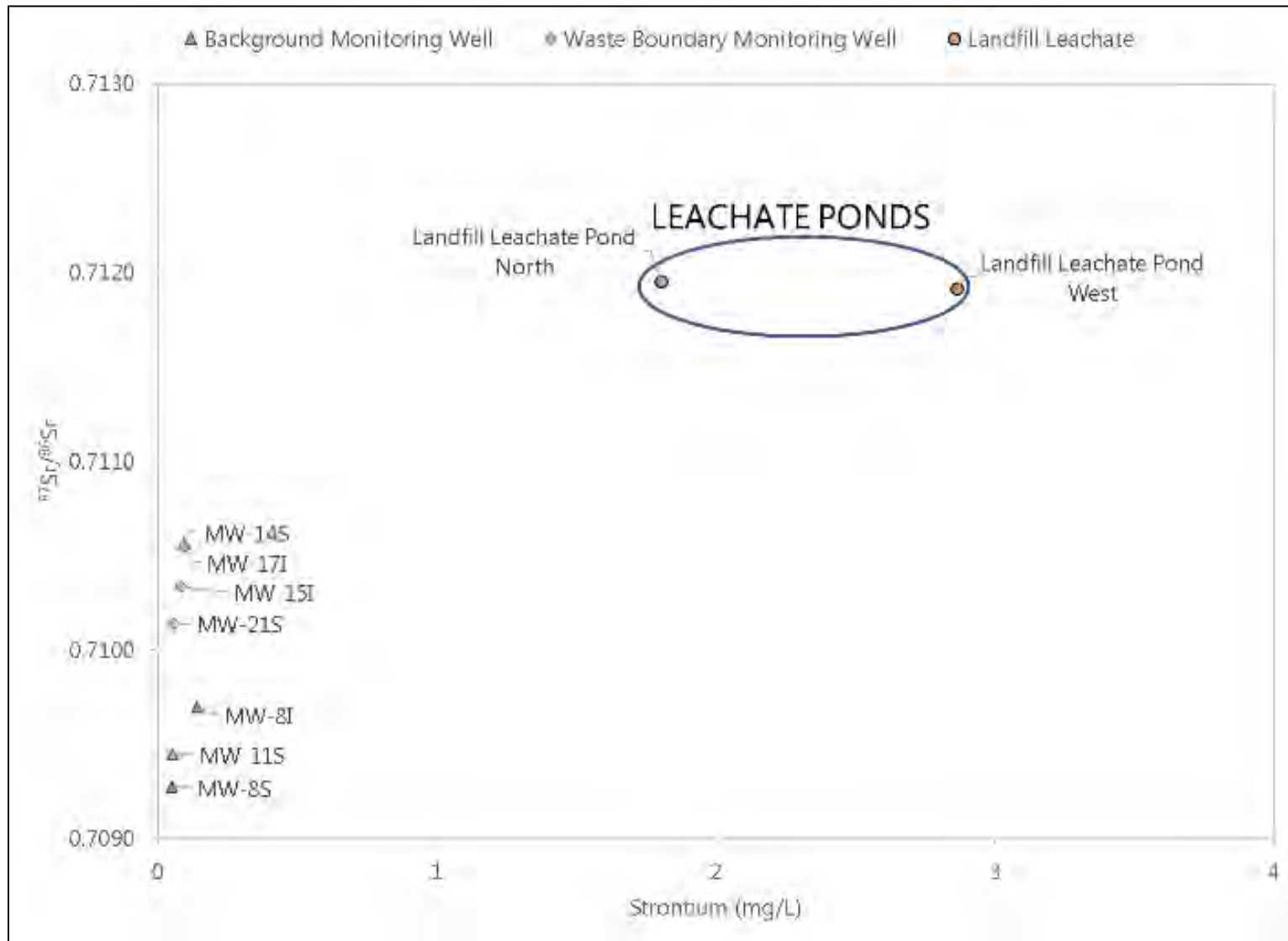


Exhibit 3-8. Strontium isotope ratio ($^{87}\text{Sr}/^{86}\text{Sr}$) versus strontium concentration for CCR Landfill leachate and monitoring wells for comparison.





Alternative Source Demonstration for Appendix III Constituents, CCR Landfill

American Electric Power Service Corporation
Rockport Generating Station, Rockport, Spencer County, Indiana
Project # 7650202784

Prepared for:

American Electric Power Service Corporation

1 Riverside Plaza, Columbus, Ohio 43215

30 October 2020



30 October 2020

Mr. David Miller
Director, Land Environment & Remediation Services
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, OH 43215
Email: damiller@aep.com

Wood Environment & Infrastructure Solutions, Inc.
2456 Fortune Drive, Suite 100
Lexington, KY 40509
USA
T: 859-255-3308
www.woodplc.com

Dear Mr. Miller:

Wood Environment & Infrastructure Solutions, Inc. (Wood) has prepared this Alternative Source Demonstration (ASD) for the CCR Landfill located at the AEP Rockport Plant in Rockport, Indiana. As detailed in this report, the results of this ASD conclude that statistically significant increases (SSIs) identified in samples from the waste boundary monitoring wells are not caused by releases from the CCR Landfill. We are available to discuss the details of this report at your convenience should you require additional information.

We very much appreciate working with AEP on this project. If you require additional information about this report, please feel free to contact Kathleen Regan at (859) 566-3724.

Sincerely,

Wood Environment & Infrastructure Solutions, Inc.

Konrad W. Quast, PhD
Senior Hydrogeologist

Kathleen D. Regan, PE
Senior Associate Engineer
Project Manager

Attachments

/kdr

cc: Justin Jent, PE, American Electric Power Service Corporation



Alternative Source Demonstration for Appendix III Constituents, CCR Landfill

American Electric Power Service Corporation
Rockport Generating Station, Rockport, Spencer County, Indiana
Project # 7650202784

Prepared for:

American Electric Power Service Corporation
1 Riverside Plaza, Columbus, Ohio 43215

Prepared by:

Wood Environment & Infrastructure Solutions, Inc.
2456 Fortune Drive, Suite 100
Lexington, KY 40509
USA
T: 859-255-3308

30 October 2020

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Appendices

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Executive Summary

American Electric Power (AEP) operates two units at the Rockport Plant for management of coal combustion residuals (CCR): the bottom ash ponds (BAP), and the CCR Landfill. Both are regulated under the federal CCR Rule (40 CFR Part 257) that became effective in October 2015 and modified in July 2018.

The CCR Landfill has been in the detection phase of groundwater monitoring as part of its compliance with the rule. The most recent statistical analysis of Appendix III constituents identified seven statistically significant increases (SSIs) above background, distributed among four waste boundary monitoring wells. Three waste boundary monitoring wells exhibited SSIs for chloride (MW-2D, MW-16S, and MW-16D). Two of the three wells with a reported SSI for chloride, MW-2D and MW-16D, also exhibited a SSI for total dissolved solids (TDS). Monitoring well MW-16D was also reported to have a third SSI for calcium. The remaining SSI was observed for fluoride in monitoring well MW-21S, which did not exhibit any other SSI.

This alternative source demonstration (ASD) evaluates the occurrence of SSIs in terms of site geochemistry, hydrogeologic setting, and with respect to supplementary data collected to support the evaluation. Based on the analysis presented in this ASD, CCR Landfill leachate can be excluded as a source of Appendix III SSLs for the following reasons:

- Boron occurs naturally at low concentration in site groundwater, in similar concentrations in background and downgradient wells. Boron occurs at concentrations approximately three orders-of-magnitude greater in the Landfill leachate as compared to site groundwater, and is a conservative ion, making it an excellent indicator for impacts from landfill leachate in groundwater. If landfill leachate were impacting groundwater, boron would be expected to be observed in multiple waste boundary wells and at statistically significant concentrations above background. It does not.
- Sulfate is another typical indicator for CCR leachate impacts, which also occurs naturally in site groundwater (at similar concentration ranges in background and downgradient wells) and is elevated in the CCR Landfill leachate at concentrations approximately three orders-of-magnitude above background monitoring wells. No SSIs for sulfate were determined in any of the waste boundary well samples.
- Chloride is a naturally occurring and conservative ion, which occurs in the CCR Landfill leachate at concentrations about two orders-of-magnitude above groundwater concentrations. Spatial trends indicate that chloride concentrations tend to increase in groundwater moving downgradient from recharge areas. However, because the SSIs indicated for chloride are not associated with SSIs for boron and sulfate, the CCR Landfill leachate is not considered a source for the chloride detected in groundwater.
- The same conclusion can be drawn regarding calcium, total dissolved solids (TDS) and fluoride, for which occasional SSIs are not consistently associated with boron, sulfate, or each other. The SSIs indicated for these constituents appear to be related to the natural variation in groundwater quality, along with a spatial trend of increasing TDS with distance from recharge area.
- The conclusions listed above are also supported by the analytical results for isotope ratios of boron and strontium in leachate and groundwater samples from a previous sampling event. While only a single set of samples to date have been collected, the indication in downgradient wells, including wells that have shown SSIs, is that the leachate is distinctly different from that of background and downgradient groundwater, and supports no release from the landfill to groundwater.



1.0 Objective

American Electric Power (AEP) operates a CCR Landfill that is used for the management of coal combustion residuals (CCR). The landfill is regulated under the federal CCR Rule (40 CFR Part 257) that became effective in October 2015. During the initial phase of groundwater monitoring (detection monitoring), the CCR Rule requires the owners or operators of regulated units to collect at least eight independent samples from at least one background location and at least three waste boundary wells, analyzed for constituents listed in Appendix III and Appendix IV of the CCR rule. That sampling was completed in July 2017.

Four rounds of detection monitoring have been conducted at the landfill. Each round consists of an initial sampling event, followed by one or two rounds of verification samples based on the results of the initial events. Following completion of the verification sampling for each event, a statistical analysis is conducted to assess whether statistically significant increases (SSIs) above background are detected in the waste boundary monitoring wells for Appendix III constituents. For each semiannual sampling round where SSIs are detected, an alternate source demonstration (ASD) has been performed to assess whether these SSIs were the result of a release of leachate from the CCR landfill.

Previous ASDs performed by Geosyntec and Wood Environment & Infrastructure Solutions, Inc. (Wood) have indicated that the source of previously-identified SSIs result from natural variation in groundwater quality or potential impacts from historical oil and gas operations. The most recent ASD was completed by Wood in December 2019 for the detection monitoring event of November 2018, with verification samples taken in February and April 2019.

The first semiannual detection monitoring samples for 2020 were taken in May 2020, with verification samples taken in July 2020. Again, a statistical evaluation of monitoring results identified SSIs for several Appendix III constituents. The objective of this ASD is to review these results, and to assess whether the findings of the previous ASDs remain valid; that is, that the SSIs detected in the waste boundary wells, from detection monitoring samples collected in May 2020 and verified in July 2020 samples, are not the result of a release from the landfill.

1.1 Scope

As stated in 40 CFR 257.94(e)(2), the CCR Rule allows 90 days after the initial identification of Appendix III SSIs for the owner or operator to demonstrate that a source other than the regulated unit is responsible for identified SSIs. The regulations allow the ASD to address a number of potential causes of SSIs other than a release from the regulated unit, including error[s] in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

The scope of this ASD is focused on evaluating the first 2020 semiannual detection monitoring results (including verification samples) and assessing whether the data are consistent with the assessment conducted in the most recent ASD report (Wood, June 2020). The ASD will be undertaken to assess, through multiple lines of evidence, whether an alternative source for the SSIs can be supported, following the guidelines published in October 2017 by the Electric Research Power Institute (EPRI, Guidelines for Development of Alternative Source Demonstrations at Coal Combustion Residual Sites). This report does not include evaluations of potential errors in sampling and analysis, or the statistical approaches which were used to identify the SSIs.

1.2 Approach

The ASD presented in this document is based on a geochemical and hydrologic evaluation of groundwater quality at the CCR Landfill. The purpose of this ASD is to evaluate the identified SSIs within

the larger geochemical context of the CCR Landfill groundwater flow system, in order to assess the likelihood that these SSIs are the result of releases from the CCR Landfill. In addition to the groundwater analytical data collected for compliance with the CCR rule, used to support the statistical evaluation, Wood relied on supplemental analytical data, including analyses of the CCR Landfill leachate and monitoring well groundwater analyses of the isotopes of boron and strontium.

1.3 Report Organization

This ASD has been prepared following the *Guidelines for Development of Alternative Source Demonstrations at Coal Combustion Residual Sites* (EPRI, 2017) to the extent applicable. **Section 2** presents a summary the CCR Landfill setting, and a summary of the results from the statistical evaluation of the Appendix III detection monitoring parameters. **Section 3** presents the primary and secondary lines of evidence developed from a geochemical evaluation of the site. **Section 4** presents the technical findings of the ASD and includes certification by an Indiana-licensed Professional Engineer (PE). References are included in **Section 4**.

2.0 Background

2.1 Site Description

The Rockport Power Plant is located in southwest Indiana in Spencer County, on property extending into three Townships: Ohio, Hammond and Grass. Two CCR-regulated units are located on the property, two adjacent bottom ash ponds (BAP) and the CCR Landfill. The general layout of the property and the locations of the CCR units are shown on **Figure 1**. The CCR Landfill, or Landfill, is located about 8,000 feet (1.5 miles) northeast of the generating plant. **Figure 2** shows the general layout of the CCR Landfill and the monitoring well locations.

2.1.1 Landfill Operation

The CCR Landfill is an active disposal unit that primarily contains fly ash, with materials generated by the emission control systems added beginning in 2007. These materials include sodium sulfate generated by the removal of sulfur dioxide by the dry sorbent injection (DSI) system, and granular brominated activated carbon used for mercury removal. To a lesser extent, some bottom ash has also been placed within the CCR Landfill. As shown on **Figure 2**, the active portion of the CCR Landfill directly adjoins a closed portion of the landfill to the northeast.

The CCR Landfill is currently permitted by the Indiana Department of Environmental Management (IDEM) Office of Land Quality, Solid Waste Permits Section, as a Restricted Waste Site (RWS) under Indiana Administrative Code (IAC) 329 Title 10 (Solid Waste CCR Landfill Disposal Facilities) Rule 9-4. The active CCR Landfill is permitted as a RWS Type I, which requires a liner and leachate collection system. The permit was most recently renewed on 10 February 2015.

Leachate from the CCR Landfill cells is collected in lined ponds located north and west of the active CCR Landfill area. These ponds also collect storm water runoff from the CCR Landfill area. Prior to discharge, the leachate commingled with runoff is transferred to the Leachate Treatment Pond (north of the West Leachate Pond). Effluent from the Leachate Treatment Pond is discharged and monitored under National Pollution Discharge Elimination System (NPDES) Permit No. IN0051845 at Station 002.

2.1.2 Groundwater Flow

The principal groundwater flow zone underlying the CCR Landfill consists of the saturated section of the unconsolidated glaciofluvial sand and sand and gravel valley train sediments that fill the Ohio River valley in this area. The depth to water in this zone typically ranges from 20 to 35 feet (ft) below ground surface (BGS), and the saturated thickness (which generally increases to the southeast) ranges from less than 15 ft to more than 80 ft. A generalized cross-section is presented in **Figure 3**.

Groundwater primarily occurs under unconfined conditions, or semi-confined conditions where the saturated zone is directly overlain by surficial silt and clay. Piezometric data collected from clustered monitoring wells indicate that vertical gradients within the saturated zone are minor, and groundwater flow is primarily horizontal. Groundwater flows into the plant and landfill area from the north, northwest and west, continues flowing under the property generally to the south and east, towards Honey Creek and/or the Ohio River. A potentiometric surface map from 19 May 2020 is presented on **Figure 4**.

2.1.3 Existing Groundwater Monitoring System

In 2015, when the CCR Rule took effect, a monitoring well network was already present at the CCR Landfill for groundwater monitoring under IDEM permit. While the valley train sediments are considered a single well-connected aquifer system, the saturated thickness of the sediments allowed for wells at the CCR Landfill to be installed in clusters, to monitor up to three levels (shallow – “S”, intermediate – “I”, and deep – “D”) within the principal flow zone. However, the valley train sediments that make up the flow zone thin to the north, leaving less saturated overburden upgradient of the CCR Landfill. As a result, only one or two levels could be monitored in some locations.

The official CCR groundwater monitoring network for the CCR Landfill includes five background or cross-gradient wells (MW-6S, MW-8S/I, MW-11S and MW-14S) and 16 waste boundary wells (MW-1S/I/D, MW-2S/I/D, MW-15S/I, MW-16S/I/D, MW-17S/I and MW-21S/I/D). At most locations, the saturated overburden was thick enough to allow installation of screens at three different levels, with the deepest wells being completed just above bedrock at depths of 88 to 100 ft BGS. Two clusters, MW-15 and MW-17, are located just east of the CCR Landfill in an area of relatively shallow bedrock. Therefore, the deeper wells at these locations (designated “I”) have completed depths just above bedrock at 66 to 67 ft BGS. A comprehensive summary of analytical data for the groundwater monitoring network since June 2016 is presented on **Table A-1** in **Appendix A**.

2.2 Summary of Previous SSIs and ASDs

Eight baseline monitoring events and one initial detection monitoring event for the CCR Landfill were completed prior to 17 October 2017. On behalf of AEP, Geosyntec submitted these results to Groundwater Stats Consulting, LLC for statistical analysis. Oversight on the use of statistical calculations was provided by Dr. Kirk Cameron of MacStat Consulting, Ltd. According to the report (*Statistical Analysis Summary, Landfill*, Geosyntec 2018), the initial eight rounds of baseline data were used to calculate the upper prediction limits (UPLs) for each of the Appendix III constituents to represent background values. Results from each detection monitoring event conducted to date have been compared to the UPLs established from the eight baseline rounds in order to identify SSIs compared to background.

Following completion of the first detection monitoring event, the initial statistical evaluation identified 11 SSIs for calcium (2), chloride (7), fluoride (1) and TDS (3). On 4 January 2019, Geosyntec prepared an ASD focusing on statistical methods. Geosyntec evaluated the new data and based on multiple lines of evidence, revised the statistical approach for some monitoring wells. Initially, the statistical evaluation included a mixture of interwell (between wells) and intrawell (within one well) techniques. The interwell analysis compares data from waste boundary wells against a background data set composed of results

from upgradient and cross-gradient well data. The intrawell approach compares each waste boundary well against a background composed of its own historical data and is used to detect statistically significant increases within samples from an individual well over time (Horsey, HR et. al., 2001). Spatial and temporal variability observed in samples from the background monitoring wells caused Geosyntec to select an intrawell approach for all Appendix III constituents in all waste boundary monitoring wells.

After using an intrawell approach, the number of SSIs was reduced to eight, distributed among seven waste boundary wells. In January 2019 Geosyntec published an ASD to document changes to the statistical methodologies and attributed the observed SSIs to impacts from historic oil and gas operations. Since the statistical methods were revised, results from all subsequent detection monitoring events have been analyzed following the same approach. A summary of the SSIs identified in each of the four detection monitoring events is presented below, in **Exhibit 2-1**.

Exhibit 2-1. Monitoring Wells and Appendix III Parameters with SSIs

Parameter	MW-1S	MW-1I	MW-2S	MW-2D	MW-16S	MW-16D	MW-17I	MW-21S
Calcium				◆		◆ ★		
Chloride	◆ ◆	◆ ◆ ◆	◆ ◆ ◆	◆ ◆ ◆ ◆ ◆ ★	★	◆ ◆ ◆ ◆ ◆ ★		◆
Fluoride							◆ ◆ ◆	◆ ★
TDS	◆			◆ ★	◆	◆ ◆ ◆ ◆ ◆ ★		

- ◆ June 2018, after verification
- ◆ November 2018, after verification
- ◆ May 2019, after verification
- ◆ November 2019, after verification
- ★ May 2020, after verification

As shown in **Exhibit 2-1**, all SSIs identified in the first round of 2020 were also identified in previous semi-annual sampling events, with one exception (MW-16S). A new SSI for chloride was identified in the first round of 2020 for monitoring well MW-16S, which previously had not been identified.

Wood has reviewed its June 2020 ASD with respect to the statistical evaluation of the new semiannual sampling event. The evaluation presented in the June 2020 ASD report is still valid, even in light of the new SSI identified for chloride in monitoring well MW-16S. Wood has updated the geochemical analysis that forms the basis of the ASD and has included updated graphics to support the findings in this current ASD report.

3.0 Alternative Source Demonstration

The ASD presented below relies on multiple lines of evidence that the SSIs identified in the statistical analysis are not caused by releases of landfill leachate into the groundwater flow system. When taken as a whole, these lines of evidence present a compelling case that the SSIs are not a result of a release from the landfill, but a result of natural variation in groundwater quality, a result of historical oil and gas operations, or from storm water ponds. This ASD follows the approach of Wood’s June 2020 report, updated with data collected for the first semiannual sampling event for 2020.

In order to evaluate the potential of a release from the CCR Landfill to groundwater, Wood evaluated groundwater quality data, including isotopes, in the context of the geochemical characteristics of CCR Landfill leachate. The results of this evaluation support that CCR Landfill leachate at the Rockport site can

be ruled out as a source of the SSIs identified in waste boundary monitoring wells, through primary and supporting lines of evidence, each of which are described in more detail within this section.

Primary lines of evidence focus on the relationship between source material that could be released into the subsurface (in this case, landfill leachate) and the type and distribution of SSIs identified in groundwater. The lines of evidence supporting the conclusion of this ASD can be summarized as follows:

- SSIs are not identified for the site-specific primary indicator constituents of the Rockport CCR Landfill leachate.
- Geochemical evaluations of the CCR Landfill support that leachate has not affected water quality.
 - Conservative ion ratios and major ion chemistry do not indicate a release from the CCR Landfill.
 - Isotopes of boron and strontium do not indicate a release from the CCR Landfill.

Each of these lines of evidence are described in detail below.

3.1 SSIs Are Not Identified for Primary Indicator Constituents

The primary indicators for CCR leachate typically have much higher concentrations in leachate than in natural groundwater. They are mobile and relatively non-reactive in groundwater, so that groundwater impacted by a CCR leachate release should have elevated concentrations of the indicator constituents relative to background and with relatively similar contributions. The elevated concentrations would be expected to result in SSIs identified by statistical evaluation of the data from the downgradient waste boundary wells, and the SSIs would be expected to be generally consistent between downgradient wells. The primary lines of evidence presented below compare the occurrence of SSIs in groundwater to the composition of landfill leachate.

3.1.1 Site-Specific Leachate Analysis for Primary Indicator Constituents

The composition of landfill leachate is governed by the types of materials placed in the unit and identifying the leachate's primary constituents is key to assessing a potential release to groundwater. Since all Appendix III constituents are naturally occurring, the best indicators of CCR impacts are those constituents that are found at concentrations much higher in the source material than are seen in natural groundwater. AEP conducted sampling of its leachate collection system to identify relative concentrations of Appendix III and IV constituents in the Rockport CCR Landfill leachate.

The leachate collection system for the Landfill discharges into the North and West Leachate Collection Ponds, shown on **Figure 2**, discharge to the Leachate Treatment Pond, directly north of the West Leachate Pond. Five samples were collected from both the West and North Leachate Collection Ponds between 31 October 2018 and 20 March 2019 and results are detailed on **Table A-2** in **Appendix A**. A summary of the range of Appendix III constituent results for leachate pond samples, compared to background and waste boundary well samples, is provided below in **Exhibit 3-1**.

Exhibit 3-1. Summary of Landfill Leachate Pond and Groundwater Concentrations for Appendix III Constituents

Parameter, Units in mg/L	Range for Leachate Ponds		Range for Upgradient (Background) Wells		Range for Downgradient Waste Boundary Wells	
	Min	Max	Min	Max	Min	Max
Boron	9.18	12.3	<0.002	0.115	<0.002	0.139
Calcium	166	368	35.6	79.5	28.7	114
Chloride	847	1,250	1.54	30.0	8.78	214

Exhibit 3-1. Summary of Landfill Leachate Pond and Groundwater Concentrations for Appendix III Constituents

Parameter, Units in mg/L	Range for Leachate Ponds		Range for Upgradient (Background) Wells		Range for Downgradient Waste Boundary Wells	
	Min	Max	Min	Max	Min	Max
Fluoride	<1.50	<1.50	0.25	1.02	0.064	1.08
Total Dissolved Solids (TDS)	22,100	30,900	179	411	196	620
Sulfate	14,100	19,000	1.6	87.1	6.2	54.7

Because the CCR Landfill leachate ponds also receive some storm water runoff, concentrations in at least some of these samples are likely to be diluted compared to concentrated leachate from landfilled materials (depending on the amount of recent rainfall). Nevertheless, pond samples serve as reliable indicators of the relative composition of leachate. As seen in **Exhibit 3-1**, boron and sulfate occur at concentrations as much as three orders-of-magnitude above background groundwater levels. Results for chloride and TDS are as much as two orders-of-magnitude above background concentrations. Calcium and fluoride concentrations are within the same orders-of-magnitude as those detected in background groundwater. These results indicate that boron and sulfate are the best indicator constituents of CCR impacts, followed by TDS and chloride, based on their elevated occurrence in landfill leachate compared to natural groundwater.

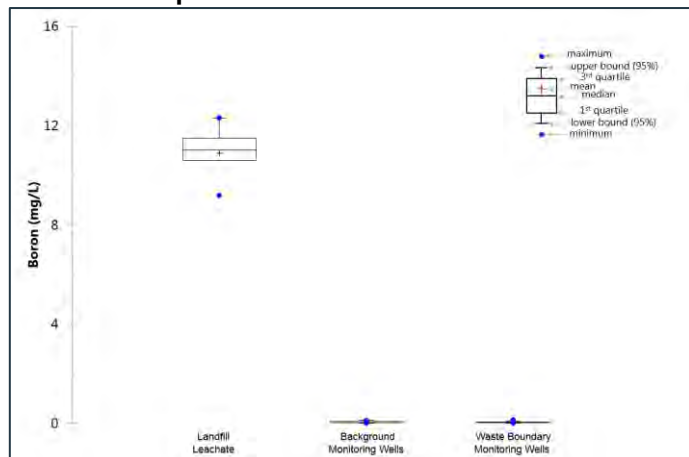
3.1.2 Occurrence of Primary indicator Constituents in Waste Boundary Monitoring Well Samples

Four primary indicator constituents are identified for the Rockport CCR Landfill leachate: boron, sulfate, TDS and chloride. Six SSIs have been identified for chloride, one for TDS and one for fluoride. However, no SSIs were identified in waste boundary wells for either boron or sulfate. Given the predominance of boron and sulfate in the CCR Landfill leachate, and that neither of these constituents are elevated above background, it is concluded that Landfill leachate is not the source of the observed SSIs. This assumption is supported by a more in-depth review of the indicator constituents, presented below.

Boron

No SSIs have been identified for boron. Boron has been identified in background wells at concentrations ranging from <0.002 to 0.115 mg/L. Concentrations in waste boundary well samples range from <0.002 to 0.139 mg/L. Landfill leachate boron concentrations are much higher and range from 9.18 to 12.3 mg/L. The boron results are plotted graphically on **Exhibit 3-2**, which illustrates the range of results for leachate (at the left of the chart) compared to and background and waste boundary groundwater samples. It should be noted that the highest concentration of boron observed in waste boundary groundwater samples (0.139 mg/L) occurred in MW-16I and did not represent an SSI for that well.

Exhibit 3-2. CCR monitoring well and landfill leachate ponds boron concentrations

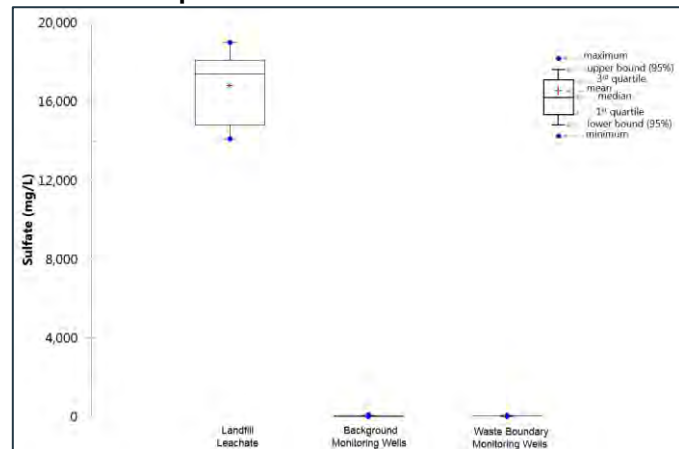


If a release of landfill leachate had occurred, boron concentrations in waste boundary well samples should be clearly higher than the range of background well results, and SSIs would likely be found in at least some of the monitoring wells with other identified SSIs.

Sulfate

No SSIs have been identified for sulfate. Sulfate has been identified in background wells at concentrations ranging from 1.6 to 87.1 mg/L. Concentrations in waste boundary well samples range from 6.2 to 54.7 mg/L. Landfill leachate sulfate concentrations are orders of magnitude higher and range from 14,100 to 19,000 mg/L. The sulfate results are plotted graphically on **Exhibit 3-3**, which clearly shows that leachate concentrations of sulfate are orders-of-magnitude higher than all groundwater samples, and that no discernable difference is present between the background and waste boundary samples. Furthermore, the highest monitoring well concentrations are seen in samples from background well MW-8I (62.3 to 87.1 mg/L).

Exhibit 3-3. CCR monitoring well and landfill leachate ponds sulfate concentrations



It is expected that a release of landfill leachate would elevate groundwater concentrations of all Appendix III constituents present in the leachate in relatively similar proportions. Even if all constituents were not exhibiting statistically significant increases, a pattern of related SSIs would be observed if the increases were caused by landfill leachate. Since all SSIs occurred in absence of a boron or sulfate SSI, and the highest groundwater sulfate concentrations are associated with a background well, it is concluded that the reported SSIs are caused by the natural variation in groundwater quality, potentially impacted by historical oil and gas operations which are assumed to have high chloride and TDS and little to no sulfate, and not by releases from the CCR Landfill.

3.2 Geochemical Evaluations

While the CCR rule requires the use of statistical analyses of samples collected from groundwater monitoring wells to assess potential impacts from CCR units (SSIs), the approach does not consider the site specific hydrogeochemical interactions that can often be complex due to simultaneous operations and natural variation within the context of the local hydrogeologic setting. Since geochemical evaluations rely on interpretation of graphical data, the discussion includes reduced size exhibits imbedded in the text. Full size exhibits are included in **Appendix B**. The major observations and conclusions from the geochemical evaluation are summarized in the sections below.

3.2.1 Indicator Parameter Cross-Plots

To aid in the interpretation of individual Appendix III and other potential indicator parameters for the assessment of potential releases from the CCR Landfill, ratios of selected Appendix III indicator parameters were calculated and plotted versus concentrations of the conservative ion chloride. The use of these plotting techniques typically provides groupings of end members (sources of water such as background

groundwater or landfill leachate), and potential trends of mixing that are not readily identifiable by analysis of individual indicator parameters on their own.

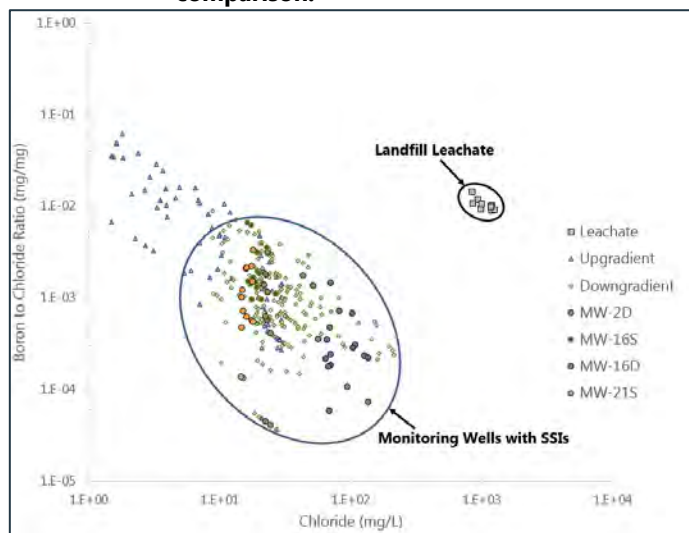
Plots of the B/Cl and SO₄/Cl ratios versus chloride in waste boundary monitoring wells show distinct end member groupings from that of the landfill leachate and support the conclusion that there are no discernable impacts from the CCR Landfill on any of the waste boundary monitoring wells. The graphics presented here include data for all wells in the CCR Landfill system and show that chloride concentrations tend to increase in groundwater moving downgradient from recharge areas represented by upgradient monitoring wells.

Boron to Chloride ratio Versus Chloride Concentration

The plotting of B/Cl versus chloride groundwater data shows primarily a single large cluster that trends perpendicular to the composition of leachate samples and is hypothesized as background and natural variability (**Exhibit 3-4**). The data are plotted on log-log scales due to the large range of concentrations and ratios making the separation in groupings appear closer than they are. The Landfill leachate clearly plots as a separate grouping of water quality having greater B/Cl ratios, while the monitoring well data plots along a trend of what can be described as natural variability. Background monitoring well MW-11S plots as upgradient recharge having lower chloride concentration and a higher B/Cl ratio.

Moving along the flow path to downgradient monitoring wells, this is followed by a trend of increasing chloride concentrations and salinity with decreasing B/Cl ratios due to geochemical evolution of groundwater and potential mixing with water associated with historic oil and gas operations and or storm water ponds. While chloride increases, boron does not increase at the same rate, resulting in the decreasing trend of B/Cl ratios as chloride concentrations and residence time increases. Thus, it is hypothesized that MW-11S represents an extreme end member of recent recharge, or relatively fresh groundwater, and after flow through the shallow overburden groundwater evolves geochemically to a lower B/Cl ratio, as chloride increases, approaching the larger background cluster values that represent older more mineralized groundwater without a significant source of boron in the aquifer matrix. The extreme end of the groundwater dataset trend is represented by MW-17I, MW-16D, and MW-2D due to higher chloride concentrations, but with lower B/Cl ratios. This plot supports that these wells are not impacted by CCR Landfill leachate but could be influenced by infiltration from the storm water holding ponds or flushing of salts from water holding ponds associated with historic oil and gas operations. If there were impacts from the landfill to groundwater, one would expect a trend of B/Cl ratios versus chloride moving from the groundwater trend toward the leachate values, but this does not occur.

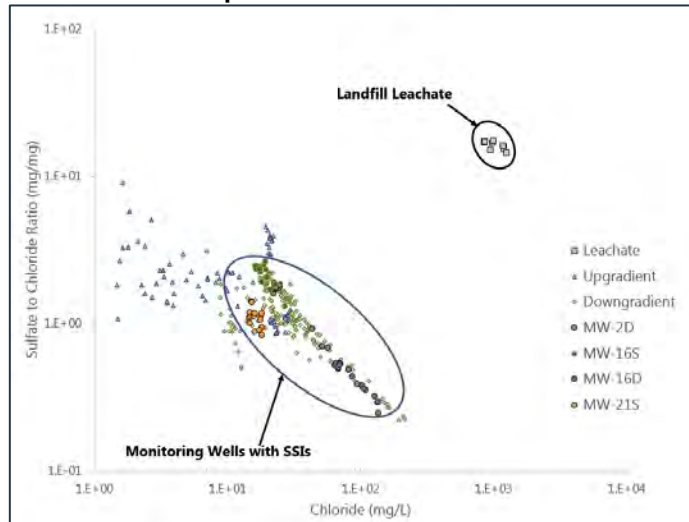
Exhibit 3-4. Boron to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.



Sulfate to Chloride Ratio Versus Chloride Concentration

Plotting of the SO_4/Cl ratio versus chloride shows similar results to the B/Cl ratios versus chloride concentration plot supporting the conclusion that there are no discernable impacts from the CCR Landfill on groundwater (**Exhibit 3-5**). The SO_4/Cl ratios for leachate group separately and are much higher than groundwater values. The SO_4/Cl ratios for leachate are typically around 15 mg/mg or higher, while groundwater ratios are below a value of 6 mg/mg. Similar to B/Cl ratios, the SO_4/Cl ratios versus chloride plot along a trend line of decreasing ratios as chloride and residence time increases. The extreme end of the groundwater data set trend is represented by MW-17I, MW-16D, and MW-2D variability due to higher chloride concentrations that is clearly different from leachate. Additionally, there is no trend of mixing of even small quantities of leachate with groundwater which would be shown by a deviation from the groundwater trend toward leachate, and the separation is distinct between downgradient groundwater and leachate.

Exhibit 3-5. Sulfate to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.



3.2.2 Isotope Analyses of CCR Related Water Quality and Materials

General Overview of Isotope Analyses

Water samples were collected from selected CCR Landfill monitoring wells and CCR Landfill leachate and submitted for isotope analyses of boron, strontium, and oxygen and hydrogen of water. The results of the isotope analyses serve as additional supporting lines of evidence for interpretations made using major ion and indicator parameter concentrations and reinforce the lack of leachate impacts to groundwater at the CCR Landfill.

Boron and its isotope ratio ($\delta^{11}\text{B}$) have been successfully used to identify groundwater pollution sources versus background or naturally occurring detections of constituents of concern (Davidson and Bassett 1993; Vengosh et al. 1994; Kendall et al., 1995; Buszka et al. 2007; Ruhl et al. 2014; Harkness et al. 2017). In particular, boron isotopes have been successfully used to assess CCR related impacts in groundwater. Similarly, strontium and its isotopes ($^{87}\text{Sr}/^{86}\text{Sr}$) have also been successfully used to identify different groundwater source end members, mixing, and to determine anthropogenic versus geogenic processes associated with constituents of concern and associated with CCR impacts to groundwater (Kendall and Bullen 1995; Ruhl et al. 2014; Meredith 2016; Harkness et al. 2017; Nigroa et al. 2017).

CCR Landfill Isotope Results

Stable isotope analyses are typically performed on a pair of isotopes (e.g. ^{11}B and ^{10}B , or ^{87}Sr and ^{86}Sr) and are reported as a ratio relative to internal standards, in per mil (‰) using Greek “delta” notation (δ). Deviations based on analysis of the standard are corrected for, to provide values that can be compared between different laboratories and equipment. Isotopes commonly reported relative to a standard include

boron (eq. 1), where the standard for boron is the National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) NIST SRM 951:

$$\delta^{11}B(\text{‰}) = \frac{\left(\frac{^{11}B}{^{10}B}\right)_{\text{Sample}} - \left(\frac{^{11}B}{^{10}B}\right)_{\text{Standard}}}{\left(\frac{^{11}B}{^{10}B}\right)_{\text{Standard}}} \times 1000 \quad \text{eq. 1}$$

Isotope ratios of strontium can be reported relative to a standard value but are commonly reported as the actual ratio $^{87}\text{Sr}/^{86}\text{Sr}$. The values for strontium reported here are the actual ratios, but they have been corrected to the National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) NIST SRM 987.

Background monitoring wells for the CCR Landfill show lower boron concentrations and higher $\delta^{11}\text{B}$ values compared to Landfill leachate samples (**Exhibit 3-7**). While only a limited number of background and waste boundary wells were tested (including MW-17I with a previous and current SSI, and MW-21S with a previously reported SSI), there is a clear distinction between all the CCR Landfill monitoring wells and the Landfill leachate which indicates that the wells represented are not impacted by the Landfill, and that boron in the monitoring wells is of a different source other than leachate.

In addition, while there is a variation in the leachate boron concentrations, the $\delta^{11}\text{B}$ values remain approximately equivalent. This supports the hypothesis that boron is $\delta^{11}\text{B}$ values in leachate are dominated by the CCR materials. The range of observed concentrations is related to the amount of water generating the leachate or potentially dilution by fresh water derived from stormwater runoff. The result is a range of boron concentrations having a similar $\delta^{11}\text{B}$ value distinctly different from groundwater in both background and downgradient monitoring wells.

Strontium isotope results also support the boron isotope, major ion, and indicator parameter interpretations that there are no identifiable impacts on groundwater from the landfill. There are noticeably lower strontium concentrations and ratios for all CCR Landfill monitoring wells sampled compared to Landfill leachate (**Exhibit 3-8**).

Exhibit 3-6. Boron isotope ratio ($\delta^{11}\text{B}$) versus boron concentration for CCR Landfill leachate and monitoring wells for comparison.

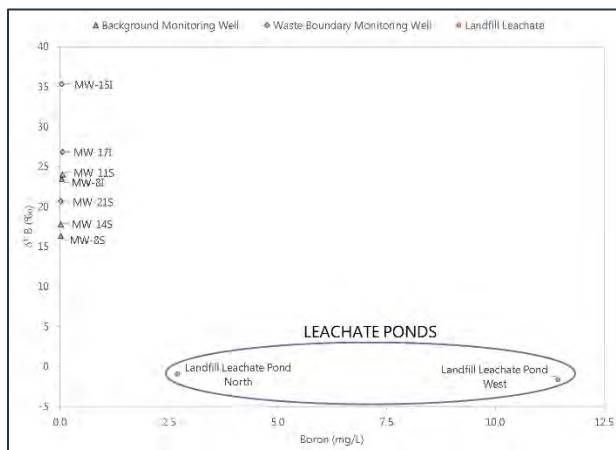
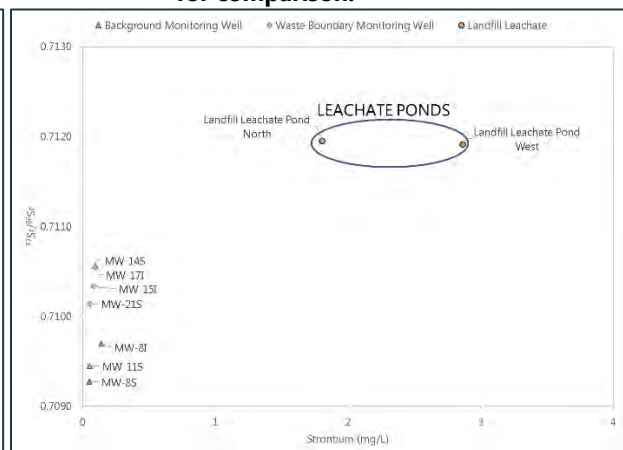


Exhibit 3-7. Strontium isotope ratio ($^{87}\text{Sr}/^{86}\text{Sr}$) versus strontium concentration for CCR Landfill leachate and monitoring wells for comparison.



3.3 Hydraulic Connection to the landfill

The groundwater monitoring network and the relationship of the wells to the regulated landfill are shown on **Figure 2**. Recent potentiometric flow data available for the site consistently indicate a local groundwater flow direction to the south and southeast as shown on **Figure 4**. As shown on this figure, several well clusters downgradient from the landfill are also downgradient of the borrow area storm water ponds. Groundwater monitored by the well clusters downgradient of the storm water ponds are concluded to be unaffected by potential releases from the landfill unit but maybe impacted by the storm water ponds which likely has water with higher salinity, TDS and chloride.

4.0 Summary

As summarized in **Exhibit 2-1** above, in the first semiannual detection monitoring event of 2020, SSIs were identified in only three of 16 downgradient monitoring wells, for the following Appendix III constituents (the number of SSIs is indicated in parentheses): chloride (3), calcium (1), fluoride (1), and TDS (2). The following statements summarize how the lines of evidence discussed above apply to each of the constituents with identified SSIs:

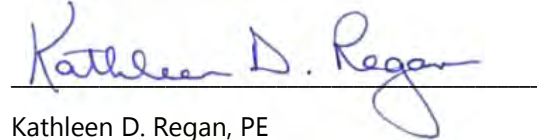
- Boron occurs naturally at low concentration in site groundwater, in similar concentrations in background and downgradient wells. Boron occurs at concentrations approximately three orders-of-magnitude in the CCR Landfill leachate as compared to site groundwater, and is a conservative ion, making it an excellent indicator for impacts from landfill leachate impacts in groundwater. If Landfill leachate were impacting groundwater, boron would be expected to be detected in multiple waste boundary wells and at statistically significant concentrations above background, but it does not and the boron that is present has been shown to be isotopically different.
- Sulfate is another common indicator for CCR leachate impacts, which also occurs naturally in site groundwater (at similar concentration ranges in background and downgradient wells) and is elevated in the CCR Landfill leachate at concentrations approximately three orders-of-magnitude above background monitoring wells. No SSIs for sulfate were determined in any of the waste boundary well samples.
- Chloride is a naturally occurring and conservative ion, which occurs in the CCR Landfill leachate at concentrations about two orders-of-magnitude above groundwater concentrations. Spatial trends can be observed in **Exhibits 3-4** and **3-5** and indicate that chloride concentrations tend to increase in groundwater moving downgradient from recharge areas. However, because the SSIs indicated for chloride are not associated with SSIs for boron and sulfate, the CCR Landfill leachate is not considered a source for the chloride detected in groundwater.
- The same conclusion can be drawn regarding calcium, TDS and fluoride, for which occasional SSIs are not consistently associated with boron, sulfate, or each other. The SSIs indicated for these constituents appear to be related to the natural variation in groundwater quality, along with a spatial trend of increasing TDS with distance from recharge area.

4.1 Conclusion

This ASD has demonstrated, through multiple lines of evidence, that the SSIs identified in the statistical analysis of the second detection monitoring event data are not the result of a release of leachate from the CCR Landfill. Therefore, the unit will continue in detection monitoring.

4.2 Professional Engineer Certification

I certify that the above described Alternative Source demonstration is appropriate for evaluating the groundwater monitoring data for the Rockport Plant CCR Landfill and that the requirements of 40 CFR 257.95(h)(8)(3)(ii) have been met.



30 October 2020

Kathleen D. Regan, PE
Indiana Registered Engineer PE1400182

Date

5.0 References

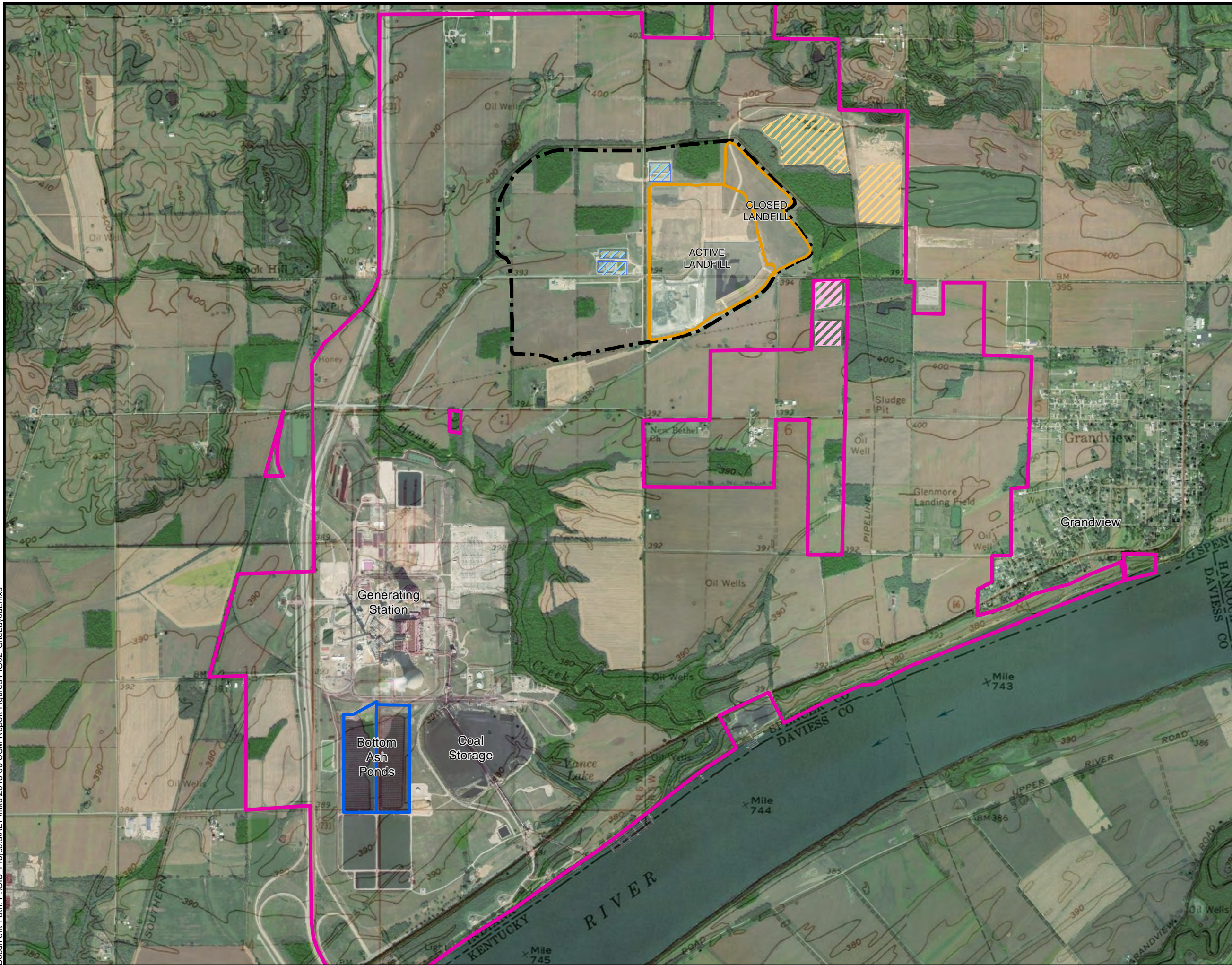
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Figures

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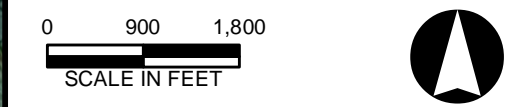


- Legend**
- Stormwater Ponds
 - Landfill Leachate Ponds
 - Grandview Wastewater Ponds
 - Property Boundary
 - Bottom Ash Ponds (BAP)
 - Landfill Area 1A (Active and Closed)
 - 1984 Landfill Permit Boundary (Area 1)

Data Sources

Date of Photography: 2016
 Source of Photography: U.S. Department of Agriculture, National Agriculture Imagery Program (NAIP)

USGS Rockport and Lewisport (IN/KY) Topographic Quadrangle Maps



SITE LAYOUT

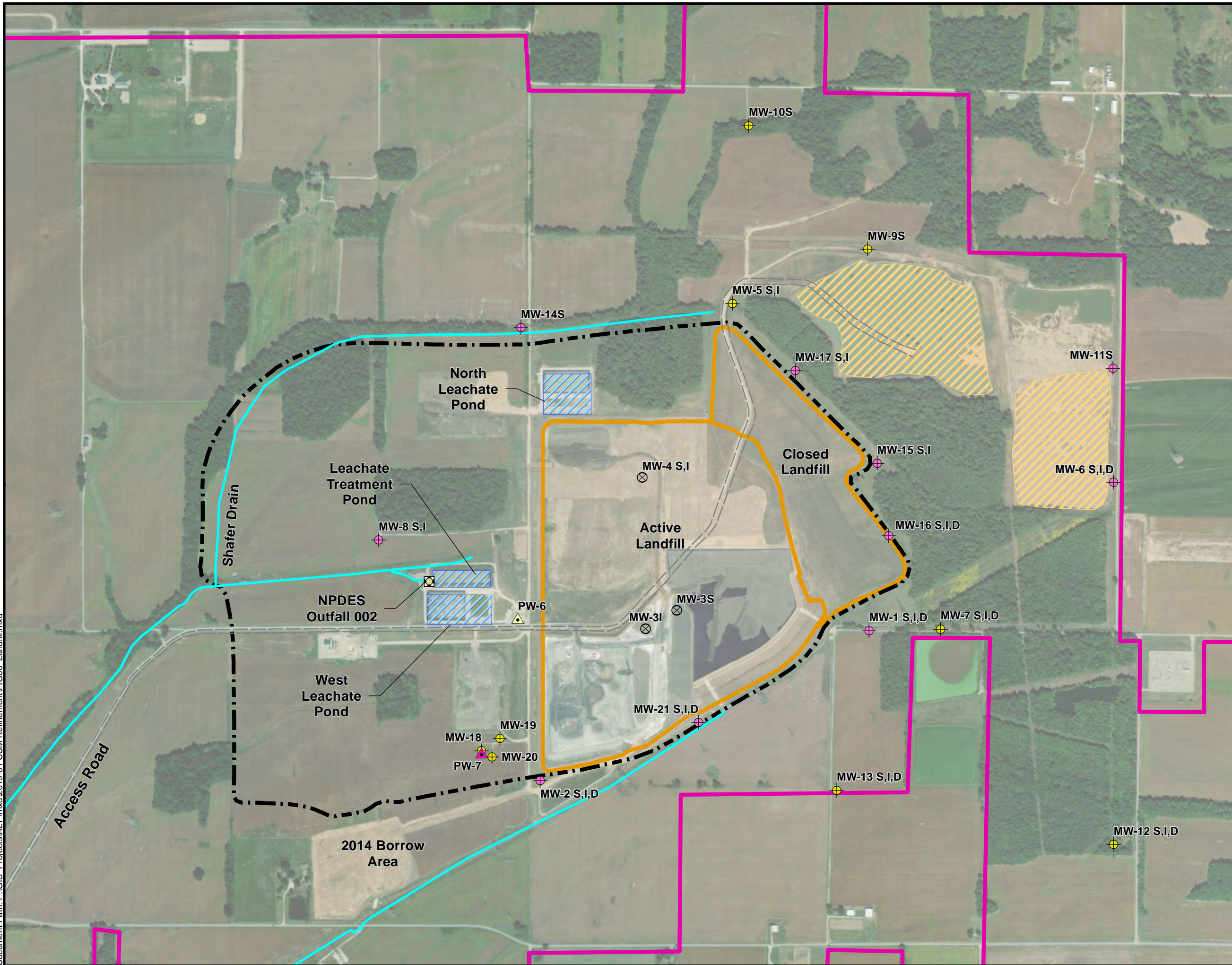
AEP - ROCKPORT, IN
PROJECT NUMBER: 7650202784

SCALE	1" = 1,800'	FIG. 1
DATE	9/4/2018	
DRAWN BY	TMR	
APPROVED BY	KDR	

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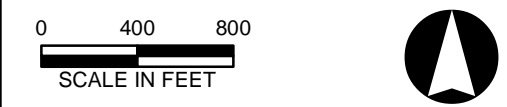


- Legend**
- Landfill - Monitoring Well
 - Landfill - CCR Monitoring Well
 - Landfill - Augmentation Water Supply Well
 - Landfill - Dust Control Water Supply Well
 - Abandoned Monitoring Well
 - NPDES Outfall 002
 - Access Road
 - Drains / Ditches
 - Stormwater Ponds
 - Landfill Leachate Ponds
 - Property Boundary
 - 1984 Landfill Permit Boundary (Area 1)
 - Landfill Area 1A (Active and Closed)

Data Sources

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: USGS Rockport and Lewisport (IN/KY) Topographic Quadrangle Maps, 1964, photorevised 1982

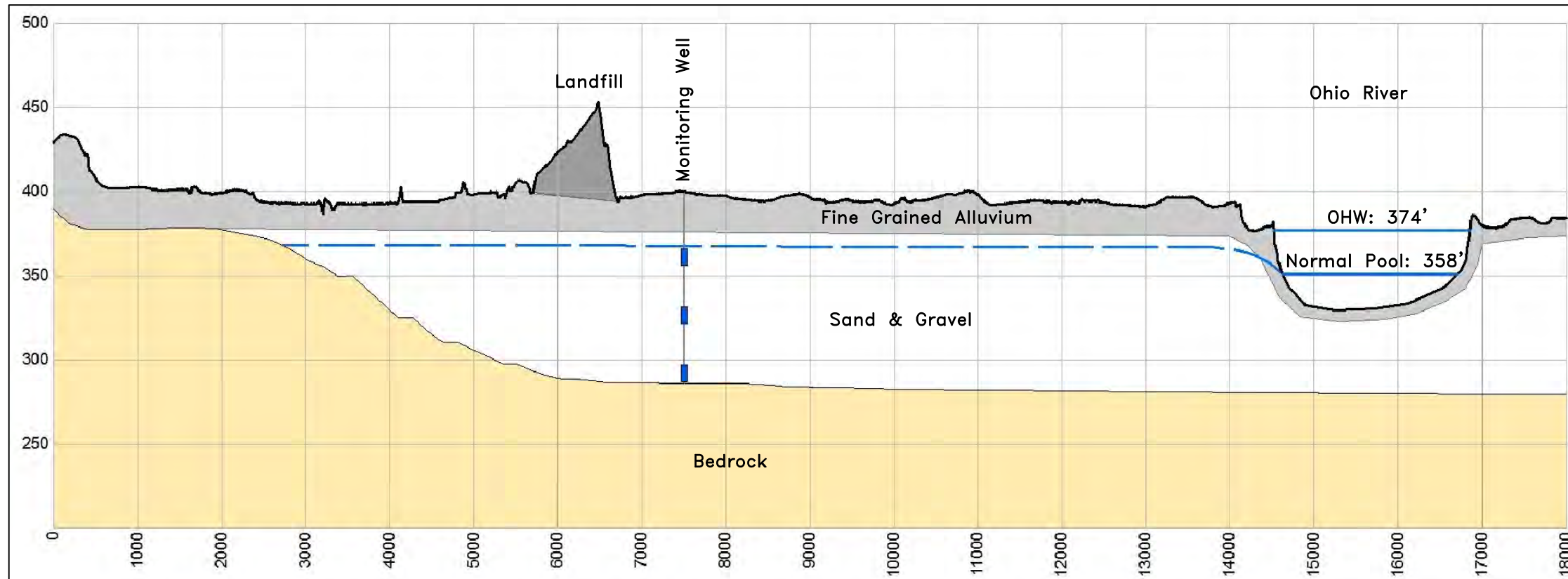


LANDFILL LAYOUT
AEP - ROCKPORT, IN
PROJECT NUMBER: 7650202784

SCALE	1" = 800'	FIG. 2
DATE	3/6/2019	
DRAWN BY	TMR	
APPROVED BY	KDR	

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Lexington, Kentucky 40509
Phone: (859) 255-3308



SCALE: As Shown
VERTICAL EXAGGERATION: 4X



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Lexington, KY 40509
Phone: (859) 255-3308

**CCR LANDFILL
AEP - ROCKPORT, INDIANA**

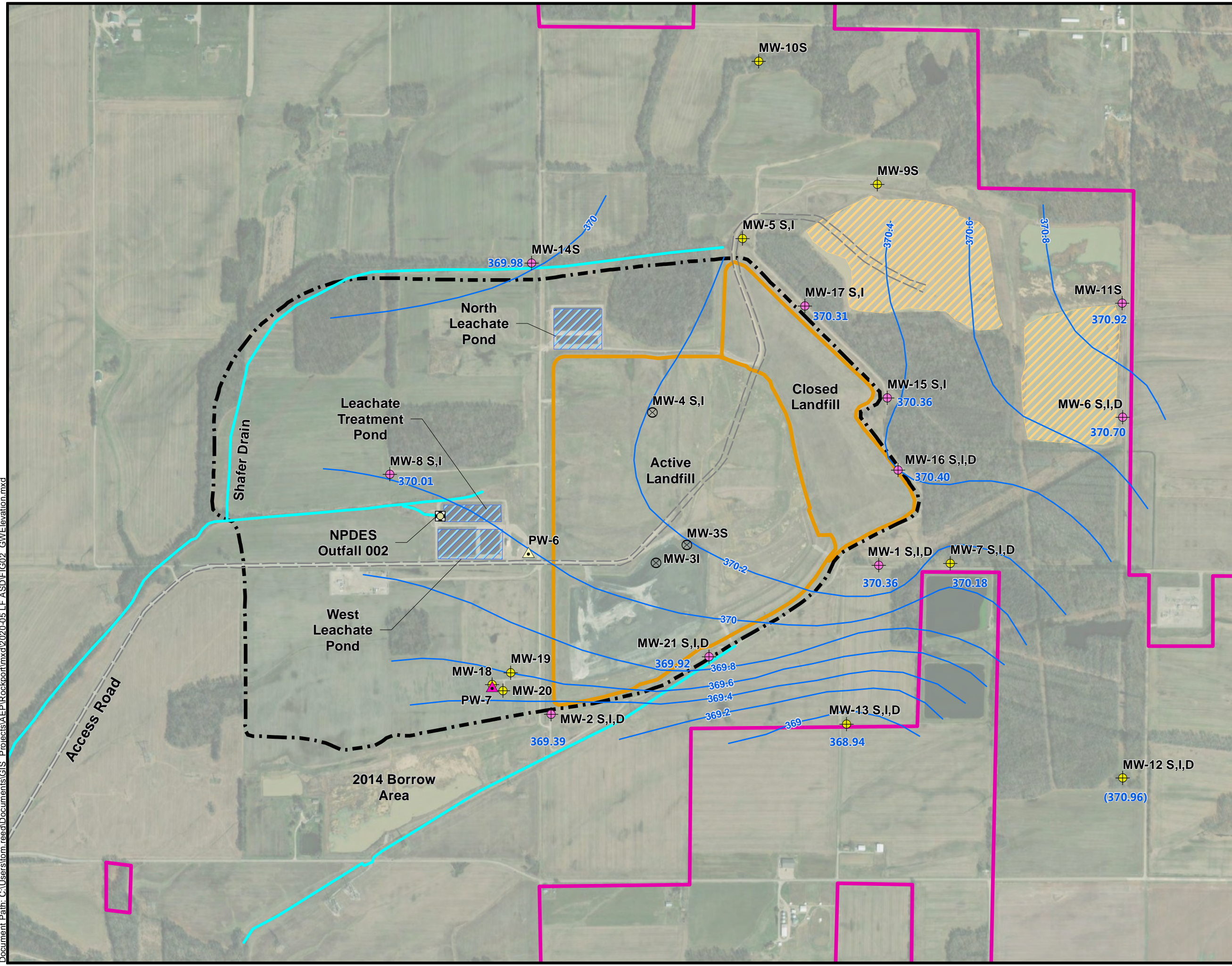
GENERALIZED CROSS-SECTION

PROJECT NUMBER: 7650202784

SCALE	As Shown
DATE	9/28/2017
DRAWN BY	TMR
APPROVED BY	ALD

**FIG
3**

Document Path: C:\Users\stom.ree\Documents\GIS - Projects\AEP\Rockport\mxd\2020-05 LF ASD\FIG02_GWElevation.mxd



- Legend**
- ⊕ Landfill - Monitoring Well
 - ⊕ Landfill - CCR Monitoring Well
 - ▲ Landfill - Augmentation Water Supply Well
 - ▲ Landfill - Dust Control Water Supply Well
 - ⊗ Abandoned Monitoring Well
 - NPDES Outfall 002
 - Groundwater Elevation Contour (05/19/2020), contour interval: 0.2 feet
 - Access Road
 - Drains / Ditches
 - Stormwater Ponds
 - Landfill Leachate Ponds
 - Property Boundary
 - 1984 Landfill Permit Boundary (Area 1)
 - Landfill Area 1A (Active and Closed)

Notes

Groundwater elevations in parentheses were considered anomalous and were not used in contouring.

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Source: USGS Rockport and Lewisport (IN/KY)



**POTENTIOMETRIC SURFACE
CONTOURS
19 MAY 2020**

AEP - ROCKPORT, IN

PROJECT NUMBER: 7650202784

SCALE	1" = 800'	FIG. (
DATE	10/29/2020	
DRAWN BY	TMR	
APPROVED BY	KDR	

wood.

2456 Fortune Drive, Suite 100
Lexington, Kentucky 40509
Phone: (859) 255-3308



wood.

Appendices



wood.

**Appendix A
Analytical Data Tables**

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-1S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/20/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/18/2017	10/4/2017	1/3/2018	6/6/2018	8/16/2018	11/14/2018	2/13/2019	4/1/2019
Field Parameters																		
Elevation	ft NGVD	--	--	369.45	369.29	368.81	368.29	367.61	367.69	367.66	368.33	368.01	366.11	369.43	369.91	368.71	369.68	370.56
pH	S.U.	--	7.09 - 8.14	8.14	7.2	7.09	7.34	7.4	7.1	7.19	7.26	7.08	7.64	7.48	7.3	7.48	7.46	7.35
Specific Conductance	µmhos/cm	--	--	687	612	703	657	470	300	567	536	635	686	590	658	535	530	892
Turbidity	NTU	--	--	0.23	1.5	0.34	0.65	1	2	0.63	0.78	0.4	1.31	1.12	0	0.56	0.8	1.15
Dissolved Oxygen	mg/L	--	--	3.37	4	2.82	3.46	5	4	2.48	2.72	3	3.06	0.61	4.59	2.3	1.1	1.09
Temperature	°C	--	--	15.04	18.9	19.09	15.17	14.8	15.7	16.81	15.81	15.63	12.81	16.23	15.38	14.7	14.9	14.6
ORP	mV	--	--	89.2	111	77.1	52.9	105	46	53.7	16.2	43.8	-20.8	-76.5	302	100.5	172	126.4
Laboratory Parameters																		
Antimony	µg/L	6	--	0.03	0.2	0.02	0.02	0.04	0.04	0.05	0.02	--	--	--	--	0.05	--	--
Arsenic	µg/L	10	--	0.43	0.69	0.38	0.38	0.43	0.76	0.5	0.39	--	--	--	--	0.34	--	--
Barium	µg/L	2000	--	18.5	21.9	17.2	17.9	17.7	36.5	22.3	17.3	--	--	--	--	17.8	--	--
Beryllium	µg/L	4	--	<0.01	0.16	<0.005	<0.005	<0.005	0.023	0.01	<0.004	--	--	--	--	0.03	--	--
Cadmium	µg/L	5	--	0.02	0.22	0.005	0.007	0.02	0.09	0.22	0.01	--	--	--	--	<0.01	--	--
Chromium	µg/L	100	--	0.3	0.7	0.3	0.207	0.72	1.38	0.552	0.255	--	--	--	--	0.25	--	--
Cobalt	µg/L	6	--	0.171	0.398	0.014	0.01	0.052	1.21	0.164	0.02	--	--	--	--	<0.02	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.15	0.74	--	0.09	--	1.3	--	--
Lead	µg/L	15	--	0.204	0.572	0.01	0.022	0.076	1.26	0.526	0.033	--	--	--	--	0.12	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--	--
Molybdenum	µg/L	100	--	0.65	0.8	0.68	0.74	0.59	0.97	1.64	0.64	--	--	--	--	0.6	--	--
Selenium	µg/L	50	--	1.1	1.1	0.9	0.9	1	1.1	1.1	1.2	--	--	--	--	0.8	--	--
Thallium	µg/L	2	--	<0.02	0.168	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	--	--	--	--	<0.1	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	4.5	--	0.7	--	2	--	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	19.5	19.7	22.4	--	19.5	--	19.7	--	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	5.55	4.29	--	3.8	--	1	--	--
Boron	mg/L	--	0.048	0.037	0.015	0.022	0.02	0.005	0.03	0.031	0.028	0.044	--	0.046	--	0.04	--	--
Calcium	mg/L	--	(79.5) 79	70.7	62.9	68	74.4	65	71.5	72.6	69.2	67.6	--	71.8	--	71.9	--	--
Lithium	mg/L	0.04	--	0.004	0.024	0.002	0.01	0.008	0.01	0.009	0.0007	--	--	--	--	0.03	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	27.3	26.9	26.9	25.6	--	26.8	--	26.8	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0015	--	--	0.0027	--	0.0022	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.32	1.24	1.16	1.15	--	1.19	--	1.16	--	--
Sodium	mg/L	--	--	--	--	--	--	--	40.6	35.2	39.6	36.1	--	31.2	--	35	--	--
Strontium	mg/L	--	--	--	--	--	--	--	0.11	0.12	0.105	0.104	--	0.11	--	0.108	--	--
Alkalinity	mg/L	--	--	--	--	--	--	--	278	273	271	269	--	250	--	273	--	--
Bromide	mg/L	--	--	--	--	--	--	--	0.086	0.108	0.104	0.109	--	0.106	--	0.1	--	--
Chloride	mg/L	--	(29.6) 33	29.6	31.1	31.4	31.9	32	30.7	31.3	30.4	33.1	39.9	34.9	37.3	38.1	40.4	38.5
Fluoride	mg/L	4	0.677	0.59	0.65	0.6	0.54	0.57	0.59	0.63	0.58	0.57	--	0.61	--	0.63	--	--
TDS	mg/L	--	(412.7) 419	392	392	411	398	392	384	402	406	396	--	386	--	410	--	--
Sulfate	mg/L	--	(36.95) 37	33.7	35.5	32.4	30.7	30.7	30.5	33.3	33.6	34.6	--	34.2	--	32.3	--	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	--	<0.07	--	--
Radium-228	pCi/L	--	--	-0.185	0.445	0.244	-0.00464	0.447	-0.172	-0.122	0.133	--	--	--	--	-0.0731	--	--
Radium-226	pCi/L	--	--	0.0665	0.374	-0.00261	0.296	0.487	0.0407	0.0324	0.176	--	--	--	--	0.108	--	--
Radium-226/228	pCi/L	5	--	-0.1185	0.819	0.24139	0.29136	0.934	-0.1313	-0.0896	0.309	--	--	--	--	0.108	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	--	0.4	--	1.65	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--	9	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--	0.8	--	6.24	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.049	0.014	--	<0.002	--	0.035	--	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0001	0.0002	<0.0001	0.0002	--	<0.0002	--	0.0026	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	5/23/2019	7/23/2019	2/18/2020	5/19/2020
Field Parameters							
Elevation	ft NGVD	--	--	371.82	372.42	370.36	370.78
pH	S.U.	--	7.09 - 8.14	7.91	7.36	7.12	7.04
Specific Conductance	µmhos/cm	--	--	593	618	1386	440
Turbidity	NTU	--	--	0.05	1.6	0.47	0
Dissolved Oxygen	mg/L	--	--	0.87	1.5	4.6	1.68
Temperature	°C	--	--	15.6	18.2	12.43	15.36
ORP	mV	--	--	-28.8	57	118.1	140
Laboratory Parameters							
Antimony	µg/L	6	--	0.02	--	--	--
Arsenic	µg/L	10	--	0.29	--	--	--
Barium	µg/L	2000	--	17.6	--	--	--
Beryllium	µg/L	4	--	<0.02	--	--	--
Cadmium	µg/L	5	--	<0.01	--	--	--
Chromium	µg/L	100	--	0.2	--	--	--
Cobalt	µg/L	6	--	<0.02	--	--	--
Copper	µg/L	--	--	0.13	--	--	--
Lead	µg/L	15	--	0.03	--	--	--
Mercury	µg/L	2	--	<0.002	--	--	--
Molybdenum	µg/L	100	--	1	--	--	--
Selenium	µg/L	50	--	0.7	--	--	--
Thallium	µg/L	2	--	<0.1	--	--	--
Zinc	µg/L	--	--	7.8	--	--	--
Silica (Dissolved)	mg/L	--	--	<0.06	--	--	--
Aluminum	µg/L	--	--	2	--	--	--
Boron	mg/L	--	0.048	<0.02	--	--	0.02
Calcium	mg/L	--	(79.5) 79	73.7	--	--	72
Lithium	mg/L	0.04	--	0.02	--	--	--
Magnesium	mg/L	--	--	26.7	--	--	--
Manganese	mg/L	--	--	0.001	--	--	--
Potassium	mg/L	--	--	1.24	--	--	--
Sodium	mg/L	--	--	25.8	--	--	--
Strontium	mg/L	--	--	0.106	--	--	--
Alkalinity	mg/L	--	--	303	--	--	--
Bromide	mg/L	--	--	0.1	--	--	--
Chloride	mg/L	--	(29.6) 33	33.7	30	--	34.7
Fluoride	mg/L	4	0.677	0.55	--	--	0.55
TDS	mg/L	--	(412.7) 419	388	--	442	350
Sulfate	mg/L	--	(36.95) 37	36.3	--	--	37.1
Sulfide	mg/L	--	--	<0.1	--	--	--
Radium-228	pCi/L	--	--	0.173	--	--	--
Radium-226	pCi/L	--	--	1.09	--	--	--
Radium-226/228	pCi/L	5	--	1.263	--	--	--
Copper (Dissolved)	µg/L	--	--	0.26	--	--	--
Zinc (Dissolved)	µg/L	--	--	0.7	--	--	--
Aluminum (Dissolved)	µg/L	--	--	<1	--	--	--
Iron (Dissolved)	mg/L	--	--	<0.003	--	--	--
Manganese (Dissolved)	mg/L	--	--	0.0004	--	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/20/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/18/2017	10/4/2017	6/6/2018	8/16/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.42	369.25	368.8	368.24	367.58	367.63	367.62	368.28	367.25	369.39	397.45
pH	S.U.	--	6.43 - 7.90	6.7	7	7.4	7.09	7.6	7.4	7.24	6.89	7.1	7.5	7.31
Specific Conductance	µmhos/cm	--	--	461	479	570	544	370	500	443	402	424	480	533
Turbidity	NTU	--	--	0.9	0.7	0.24	0.35	1	1	0.6	0.36	1	0.32	0
Dissolved Oxygen	mg/L	--	--	0.4	0.3	1.07	0	0.3	1	0.46	27.63	0.5	0.87	0.22
Temperature	°C	--	--	17.5	18.2	16.99	14.53	14.4	15.7	15.44	16.52	16.4	16.25	16.03
ORP	mV	--	--	-21	205	-2.1	4.4	10	36	-26.2	-118.8	-23	-102.2	253
Laboratory Parameters														
Antimony	µg/L	6	--	0.04	0.04	0.01	0.02	0.02	0.01	0.04	0.02	--	--	--
Arsenic	µg/L	10	--	0.86	0.78	0.92	0.8	0.82	0.69	0.89	0.86	--	--	--
Barium	µg/L	2000	--	85.5	86.1	84.9	93.4	90.5	76.7	85	94.3	--	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.004	<0.004	--	--	--
Cadmium	µg/L	5	--	0.08	0.1	0.02	0.02	0.02	0.05	0.01	0.007	--	--	--
Chromium	µg/L	100	--	0.2	1	0.2	0.051	0.39	0.686	0.155	0.112	--	--	--
Cobalt	µg/L	6	--	0.341	0.364	0.401	0.381	0.424	0.054	0.558	0.569	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.12	0.2	0.48	--
Lead	µg/L	15	--	0.851	1.25	0.156	0.059	0.099	0.427	0.068	0.137	--	--	--
Mercury	µg/L	2	--	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	2.47	2.85	2.89	3.27	3.33	1.82	2.87	2.85	--	--	--
Selenium	µg/L	50	--	<0.03	0.04	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	--	--	--
Thallium	µg/L	2	--	0.03	0.02	0.02	0.03	0.104	0.03	0.02	0.02	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	1	4.2	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	18.5	18.9	20.7	17.8	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	1	2	2.96	--
Boron	mg/L	--	0.093	0.075	0.014	0.018	0.015	0.004	0.045	0.049	0.047	0.018	0.11	0.056
Calcium	mg/L	--	(79.5) 71	67.4	60	64.5	63.9	60.9	66.9	65.7	64.8	68.1	66.4	--
Lithium	mg/L	0.04	--	0.005	0.022	0.007	0.005	0.005	0.006	0.008	0.0005	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	20.8	21.2	20.6	21.5	21	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.599	--	0.316	--
Potassium	mg/L	--	--	--	--	--	--	--	1.34	1.08	0.98	0.92	1.31	--
Sodium	mg/L	--	--	--	--	--	--	--	19.8	19.5	19.1	19.2	18.1	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0934	0.0926	0.086	0.0911	0.093	--
Alkalinity	mg/L	--	--	--	--	--	--	--	222	225	226	222	230	--
Bromide	mg/L	--	--	--	--	--	--	--	0.061	0.087	0.081	0.072	0.081	--
Chloride	mg/L	--	(29.6) 27.4	24.9	24.8	24.3	24.1	24.4	24.1	26.5	26.5	27.5	28.6	--
Fluoride	mg/L	4	0.428	0.37	0.4	0.37	0.31	0.33	0.35	0.38	0.34	0.37	0.42	--
TDS	mg/L	--	(412.7) 349	323	315	331	334	316	300	323	330	327	321	--
Sulfate	mg/L	--	(47.8) 48	44.3	46.7	42.4	40.7	41.4	41.2	43.8	43.3	44.1	42	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	--
Radium-228	pCi/L	--	--	0.0603	0.105	1.42	0.662	0.108	-0.0752	0.3	2.21	--	--	--
Radium-226	pCi/L	--	--	0.33	1.57	0.276	0.65	0.513	0.15	0.33	0.323	--	--	--
Radium-226/228	pCi/L	5	--	0.3903	1.675	1.696	1.312	0.621	0.0748	0.63	2.533	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.37	--	0.4	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.3	--	1	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.51	--	1	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.03	<0.0004	0.035	0.048	0.011	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.583	0.1	0.455	0.445	0.303	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/14/2018	2/13/2019	4/1/2019	5/23/2019	7/23/2019	9/11/2019	11/22/2019	5/19/2020	7/16/2020
Field Parameters												
Elevation	ft NGVD	--	--	368.74	369.73	370.51	371.86	372.45	--	370.95	370.40	370.81
pH	S.U.	--	6.43 - 7.90	7.75	7.5	7.37	7.01	7.21	7.25	7.05	7.22	7.44
Specific Conductance	µmhos/cm	--	--	425	443	802	503	493	481	491	566	575
Turbidity	NTU	--	--	0.61	1	1.06	0.06	2.1	0.58	1.7	0	2.96
Dissolved Oxygen	mg/L	--	--	0.19	2	1.28	0.73	0.57	0.26	2.1	0.28	1.64
Temperature	°C	--	--	14.68	14.7	14.6	16.79	16.4	17.5	14	15.23	17.24
ORP	mV	--	--	62.9	155	134.2	5.2	27	-35.8	-206	42	18
Laboratory Parameters												
Antimony	µg/L	6	--	<0.02	--	--	<0.02	--	--	<0.02	--	--
Arsenic	µg/L	10	--	0.82	--	--	0.73	--	--	0.71	--	--
Barium	µg/L	2000	--	85.6	--	--	83.8	--	--	11	--	--
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	--	--	<0.02	--	--
Cadmium	µg/L	5	--	0.02	--	--	<0.01	--	--	0.03	--	--
Chromium	µg/L	100	--	<0.04	--	--	0.04	--	--	0.2	--	--
Cobalt	µg/L	6	--	0.48	--	--	0.368	--	--	0.838	--	--
Copper	µg/L	--	--	0.22	--	--	0.08	--	--	0.5	--	--
Lead	µg/L	15	--	0.07	--	--	<0.02	--	--	0.291	--	--
Mercury	µg/L	2	--	--	--	--	<0.002	--	--	<0.002	--	--
Molybdenum	µg/L	100	--	2.96	--	--	2.38	--	--	3.1	--	--
Selenium	µg/L	50	--	<0.03	--	--	<0.03	--	--	<0.03	--	--
Thallium	µg/L	2	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Zinc	µg/L	--	--	1	--	--	0.9	--	--	3	--	--
Silica (Dissolved)	mg/L	--	--	18.2	--	--	18	--	--	17.5	--	--
Aluminum	µg/L	--	--	3	--	--	<1	--	--	<5	--	--
Boron	mg/L	--	0.093	0.05	--	--	0.02	--	--	0.01	0.02	--
Calcium	mg/L	--	(79.5) 71	65.5	--	--	67.7	--	--	66.7	71.2	--
Lithium	mg/L	0.04	--	0.03	--	--	<0.009	--	--	0.00355	--	--
Magnesium	mg/L	--	--	20.6	--	--	20.6	--	--	20.7	--	--
Manganese	mg/L	--	--	0.515	--	--	0.37	--	--	0.784	--	--
Potassium	mg/L	--	--	0.97	--	--	0.98	--	--	0.9	--	--
Sodium	mg/L	--	--	18.5	--	--	18.2	--	--	18.1	--	--
Strontium	mg/L	--	--	0.0882	--	--	0.0912	--	--	0.0917	--	--
Alkalinity	mg/L	--	--	227	--	--	243	--	--	210	--	--
Bromide	mg/L	--	--	0.08	--	--	0.09	--	--	0.08	--	--
Chloride	mg/L	--	(29.6) 27.4	28.8	30.1	34.1	33.1	30.6	33.5	35	37.7	35.4
Fluoride	mg/L	4	0.428	0.41	--	--	0.42	--	--	0.37	0.4	0.39
TDS	mg/L	--	(412.7) 349	308	--	--	341	--	--	348	323	340
Sulfate	mg/L	--	(47.8) 48	40.7	--	--	40.2	--	--	39.7	40.1	--
Sulfide	mg/L	--	--	<0.07	--	--	<0.1	--	--	<0.2	--	--
Radium-228	pCi/L	--	--	0.415	--	--	0.71	--	--	0.546	--	--
Radium-226	pCi/L	--	--	0.288	--	--	0.37	--	--	0.421	--	--
Radium-226/228	pCi/L	5	--	0.703	--	--	1.08	--	--	0.967	--	--
Copper (Dissolved)	µg/L	--	--	0.12	--	--	0.43	--	--	<0.2	--	--
Zinc (Dissolved)	µg/L	--	--	0.9	--	--	<0.7	--	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	<1	--	--	1	--	--	<5	--	--
Iron (Dissolved)	mg/L	--	--	0.053	--	--	0.034	--	--	0.05	--	--
Manganese (Dissolved)	mg/L	--	--	0.508	--	--	0.397	--	--	0.758	--	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-1D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/8/2016	7/19/2016	9/20/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.6	369.43	368.97	368.42	367.75	367.81	367.81	368.34	367.44	366.27
pH	S.U.	--	6.74 - 8.16	7.6	7.1	7.36	7.5	7.4	7.33	7.25	8.06	7.3	7.68
Specific Conductance	µmhos/cm	--	--	496	471	464	842	400	558	394	525	448	539
Turbidity	NTU	--	--	8.8	2	6.27	4	5	1.93	2.15	2.47	2	3.89
Dissolved Oxygen	mg/L	--	--	0.5	0.2	0.55	0.8	2	0.25	0.53	0.81	0.4	1.83
Temperature	°C	--	--	19.4	16.7	15.77	14.8	14.7	15.14	15.84	21.46	16.5	6.7
ORP	mV	--	--	63	220	92.8	252	182	49.6	132.7	152.8	-14	-5.3
Laboratory Parameters													
Antimony	µg/L	6	--	0.05	0.03	0.03	0.03	0.03	0.02	0.02	0.02	--	--
Arsenic	µg/L	10	--	1.29	0.73	1.07	0.65	0.77	0.58	0.75	0.59	--	--
Barium	µg/L	2000	--	255	147	160	147	162	139	142	139	--	--
Beryllium	µg/L	4	--	0.01	<0.005	0.007	<0.005	<0.005	<0.005	0.006	<0.004	--	--
Cadmium	µg/L	5	--	0.13	0.07	0.04	0.04	0.15	0.04	0.04	0.05	--	--
Chromium	µg/L	100	--	0.3	1.5	0.3	0.072	0.439	0.687	0.174	0.131	--	--
Cobalt	µg/L	6	--	3.64	0.373	0.836	0.329	0.577	0.173	0.44	0.212	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.93	1.02	--
Lead	µg/L	15	--	1.13	1.37	0.5	0.222	0.807	1.92	0.419	0.355	--	--
Mercury	µg/L	2	--	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	3.44	3.59	3.6	3.24	2.43	3.4	3.05	2.94	--	--
Selenium	µg/L	50	--	0.07	0.03	0.07	0.03	0.03	0.03	0.06	<0.03	--	--
Thallium	µg/L	2	--	0.04	0.02	0.056	0.02	0.05	0.03	0.04	0.03	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	4.5	4.5	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	18.9	19.4	21.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	8.08	14.6	--
Boron	mg/L	--	0.066	0.017	0.015	0.016	0.018	0.006	0.055	0.046	0.019	0.002	--
Calcium	mg/L	--	(79.5) 75	63.6	57.9	65.2	69.3	63.4	70	67.8	63.9	65.7	--
Lithium	mg/L	0.04	--	<0.0002	0.017	0.0005	0.004	0.007	0.007	0.009	0.002	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	21.9	22.2	20.7	20.9	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.511	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.13	1.13	0.89	0.89	--
Sodium	mg/L	--	--	--	--	--	--	--	19.4	19.3	18.8	18	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0985	0.101	0.0885	0.092	--
Alkalinity	mg/L	--	--	--	--	--	--	--	206	202	206	220	--
Bromide	mg/L	--	--	--	--	--	--	--	0.09	0.115	0.109	0.03	--
Chloride	mg/L	--	(29.6) 50	27.3	29.8	29.8	39.3	40.6	40.3	40.9	39.3	10.3	--
Fluoride	mg/L	4	0.321	0.28	0.3	0.28	0.29	0.26	0.26	0.28	0.24	0.85	0.31
TDS	mg/L	--	(412.7) 369	331	329	288	339	323	330	342	338	339	--
Sulfate	mg/L	--	(45.1) 45	40.2	40.6	32.3	33.6	36.4	37	39.5	39.6	10.4	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	0.558	0.06	0.525	0.566	0.315	0.0844	0.511	0.444	--	--
Radium-226	pCi/L	--	--	0.526	0.135	0.932	6.73	0.334	0.154	0.213	0.502	--	--
Radium-226/228	pCi/L	5	--	1.084	0.195	1.457	7.296	0.649	0.2384	0.724	0.946	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.58	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	4.2	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.052	0.012	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.553	0.62	0.486	0.616	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-1D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/7/2018	8/16/2018	11/14/2018	2/13/2019	5/23/2019	7/23/2019	11/22/2019	2/17/2020	5/19/2020
Field Parameters												
Elevation	ft NGVD	--	--	369.56	369.94	368.73	369.71	371.84	372.45	367.22	369.34	370.40
pH	S.U.	--	6.74 - 8.16	8.24	7.35	7.77	7.41	7.18	7.3	7.26	7.38	7.05
Specific Conductance	µmhos/cm	--	--	508	568	457	317	0.504	510	609	817	454
Turbidity	NTU	--	--	1.71	0	1.03	2	0.3	1.5	2.53	0.98	0
Dissolved Oxygen	mg/L	--	--	0.25	0.26	0.2	10	3.68	2.1	3.57	6.09	9.13
Temperature	°C	--	--	15.85	16.71	14.06	14	17.02	16.7	14.31	13.25	15.71
ORP	mV	--	--	-112	200	53	188	55.9	44	51.3	211.2	152
Laboratory Parameters												
Antimony	µg/L	6	--	--	--	0.03	--	0.05	--	0.04	--	--
Arsenic	µg/L	10	--	--	--	0.62	--	0.47	--	0.57	--	--
Barium	µg/L	2000	--	--	--	101	--	99.2	--	101	--	--
Beryllium	µg/L	4	--	--	--	<0.02	--	<0.02	--	<0.02	--	--
Cadmium	µg/L	5	--	--	--	0.02	--	0.02	--	0.03	--	--
Chromium	µg/L	100	--	--	--	0.07	--	0.1	--	0.2	--	--
Cobalt	µg/L	6	--	--	--	0.04	--	0.058	--	0.097	--	--
Copper	µg/L	--	--	0.55	--	0.75	--	0.83	--	0.4	--	--
Lead	µg/L	15	--	--	--	0.07	--	0.138	--	0.2	--	--
Mercury	µg/L	2	--	--	--	--	--	<0.002	--	<0.002	--	--
Molybdenum	µg/L	100	--	--	--	2	--	1	--	1	--	--
Selenium	µg/L	50	--	--	--	0.04	--	0.09	--	0.08	--	--
Thallium	µg/L	2	--	--	--	<0.1	--	<0.1	--	<0.1	--	--
Zinc	µg/L	--	--	2	--	1	--	65.9	--	2	--	--
Silica (Dissolved)	mg/L	--	--	17.9	--	19	--	17.8	--	18.5	--	--
Aluminum	µg/L	--	--	16.1	--	<1	--	4	--	<5	--	--
Boron	mg/L	--	0.066	0.103	0.02	0.1	<0.02	0.02	--	0.04	--	0.04
Calcium	mg/L	--	(79.5) 75	70.9	--	71.9	--	73.6	--	72.5	--	59.9
Lithium	mg/L	0.04	--	--	--	0.01	--	0.01	--	0.0038	--	--
Magnesium	mg/L	--	--	20.4	--	22.1	--	18.3	--	22.2	--	--
Manganese	mg/L	--	--	0.216	--	0.138	--	0.169	--	0.163	--	--
Potassium	mg/L	--	--	1.34	--	1.71	--	1.23	--	1.3	--	--
Sodium	mg/L	--	--	18.2	--	20.9	--	18.7	--	26	--	--
Strontium	mg/L	--	--	0.359	--	0.272	--	0.553	--	0.194	--	--
Alkalinity	mg/L	--	--	218	--	222	--	208	--	260	--	--
Bromide	mg/L	--	--	0.113	--	0.1	--	0.09	--	0.1	--	--
Chloride	mg/L	--	(29.6) 50	43.1	43.8	46.9	43.8	32.1	--	49.1	--	23.8
Fluoride	mg/L	4	0.321	0.3	--	0.3	--	0.27	--	0.27	--	0.3
TDS	mg/L	--	(412.7) 369	345	--	340	--	346	--	398	257	261
Sulfate	mg/L	--	(45.1) 45	39.5	--	39.8	--	45.3	39.2	41.2	--	23.3
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	<0.1	--	<0.2	--	--
Radium-228	pCi/L	--	--	--	--	0.295	--	0.55	--	0.197	--	--
Radium-226	pCi/L	--	--	--	--	0.0679	--	0.652	--	0.11	--	--
Radium-226/228	pCi/L	5	--	--	--	0.3629	--	1.202	--	0.307	--	--
Copper (Dissolved)	µg/L	--	--	0.98	--	0.78	--	0.8	--	2.19	--	--
Zinc (Dissolved)	µg/L	--	--	11.8	--	2	--	2	--	3	--	--
Aluminum (Dissolved)	µg/L	--	--	2	--	5.05	--	3	--	<5	--	--
Iron (Dissolved)	mg/L	--	--	<0.002	--	0.02	--	<0.003	--	<0.02	--	--
Manganese (Dissolved)	mg/L	--	--	0.0605	--	0.144	--	0.148	--	0.131	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/9/2017	5/9/2017	7/19/2017	10/4/2017	6/6/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.34	369.03	369.02	368.77	366.24	368.15	368.06	368.22	366.68	369.94
pH	S.U.	--	6.30 - 8.44	6.4	7.68	7.63	7.34	7.65	7.66	7.12	7.46	7.17	7.62
Specific Conductance	µmhos/cm	--	--	423	465	440	459	341	522	354	409	509	470
Turbidity	NTU	--	--	3.1	1.85	0.51	0.96	0.74	1.31	2.68	4.81	1.55	1.84
Dissolved Oxygen	mg/L	--	--	2.8	1.85	4.67	3.91	4.18	3.63	4.52	2.62	2.63	4.66
Temperature	°C	--	--	17.5	16.34	15.81	16.03	15.1	15.73	15.67	16.06	16.42	16.48
ORP	mV	--	--	34	64	90.4	-19	165	13.1	165.7	-5.9	26.6	59.1
Laboratory Parameters													
Antimony	µg/L	6	--	<0.02	0.02	0.04	0.02	0.02	0.02	0.04	0.12	--	--
Arsenic	µg/L	10	--	0.97	1.09	0.94	0.94	0.92	0.95	0.95	0.96	--	--
Barium	µg/L	2000	--	16	14	12.4	12.4	11	12.3	12.3	13.6	--	--
Beryllium	µg/L	4	--	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.01	0.01	0.02	0.02	0.09	0.009	0.01	0.03	--	--
Chromium	µg/L	100	--	0.4	0.6	0.3	0.337	0.329	0.67	0.37	0.41	--	--
Cobalt	µg/L	6	--	0.177	0.09	0.017	0.019	0.014	0.051	0.064	0.121	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.33	0.2	1.58
Lead	µg/L	15	--	0.158	0.105	0.101	0.022	0.063	0.042	0.047	0.243	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	2.03	2.39	2.07	1.91	2.14	1.92	1.75	1.81	--	--
Selenium	µg/L	50	--	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.3	--	--
Thallium	µg/L	2	--	<0.02	<0.01	<0.01	<0.01	0.074	<0.01	<0.01	0.03	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	3.3	5.3
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	28.6	28.8	31.9	26.7
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	36.6	14.7	15.3
Boron	mg/L	--	0.109	<0.002	0.015	0.014	0.018	0.004	0.069	0.084	0.052	0.045	0.073
Calcium	mg/L	--	(79.5) 66	59.4	51.6	57.4	62.4	51.6	57.9	59	53.3	60.7	57
Lithium	mg/L	0.04	--	0.0004	0.018	0.005	0.008	0.009	0.0007	0.002	0.005	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	21.2	21.9	19.5	22.8	21.3
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0124	--	0.0063
Potassium	mg/L	--	--	--	--	--	--	--	0.73	0.81	0.65	0.64	0.68
Sodium	mg/L	--	--	--	--	--	--	--	13.4	14	11.8	16.3	22.1
Strontium	mg/L	--	--	--	--	--	--	--	0.0837	0.0855	0.0756	0.0888	0.0906
Alkalinity	mg/L	--	--	--	--	--	--	--	174	191	188	207	215
Bromide	mg/L	--	--	--	--	--	--	--	0.02	0.071	0.116	0.06	0.063
Chloride	mg/L	--	(29.6) 24	21.5	21.8	23.8	21.8	21.2	21	20.8	19.6	21.2	25.3
Fluoride	mg/L	4	0.299	0.26	0.29	0.26	0.26	0.25	0.26	0.26	0.23	0.25	0.29
TDS	mg/L	--	(412.7) 343	298	265	301	316	284	285	321	308	323	329
Sulfate	mg/L	--	(35.08) 35	26	27.6	26.2	24.1	25.9	26.6	30.3	33.8	30	28.9
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4
Radium-228	pCi/L	--	--	-0.035	0.54	0	0.228	0.343	0.0555	-0.0726	0.631	--	--
Radium-226	pCi/L	--	--	--	0.12	0.172	0.143	0.311	0.465	0.434	0.0617	--	--
Radium-226/228	pCi/L	5	--	-0.035	0.66	0.172	0.371	0.654	0.5205	0.3614	0.6927	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	0.27
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	0.6
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	2
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.053	0.013	<0.002
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.0001	<0.0001	<0.0001	0.0021	0.0003

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/13/2018	2/13/2019	4/1/2019	5/22/2019	7/23/2019	9/11/2019	11/14/2019	5/18/2020	7/16/2020
Field Parameters												
Elevation	ft NGVD	--	--	367.91	368.87	369.97	371.02	371.37	370.52	370.86	369.39	377.69
pH	S.U.	--	6.30 - 8.44	7.53	7.77	7.72	7.66	7.45	7.33	7.54	7.43	7.55
Specific Conductance	µmhos/cm	--	--	425	451	491	500	486	473	657	462	584
Turbidity	NTU	--	--	2.15	0.8	1.51	1.08	1.7	0.83	0.2	1.64	0.53
Dissolved Oxygen	mg/L	--	--	3.7	3.1	4.7	5.77	1.3	1.78	3.59	2.3	3.24
Temperature	°C	--	--	14.51	14.6	14.5	15.93	16.2	16.4	15.18	16.64	14.96
ORP	mV	--	--	23	71	-17.9	-3.2	55	7.7	4	27	48
Laboratory Parameters												
Antimony	µg/L	6	--	0.04	--	--	0.03	--	--	<0.02	--	--
Arsenic	µg/L	10	--	0.82	--	--	0.78	--	--	0.76	--	--
Barium	µg/L	2000	--	16.5	--	--	18	--	--	19.3	--	--
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	--	--	<0.02	--	--
Cadmium	µg/L	5	--	0.11	--	--	0.08	--	--	<0.01	--	--
Chromium	µg/L	100	--	0.1	--	--	0.1	--	--	0.255	--	--
Cobalt	µg/L	6	--	<0.02	--	--	0.02	--	--	<0.02	--	--
Copper	µg/L	--	--	0.28	--	--	0.56	--	--	<0.2	--	--
Lead	µg/L	15	--	0.04	--	--	0.133	--	--	<0.05	--	--
Mercury	µg/L	2	--	--	--	--	<0.002	--	--	<0.002	--	--
Molybdenum	µg/L	100	--	2	--	--	2	--	--	1	--	--
Selenium	µg/L	50	--	0.2	--	--	1	--	--	1.1	--	--
Thallium	µg/L	2	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Zinc	µg/L	--	--	89.4	--	--	7.5	--	--	<0.7	--	--
Silica (Dissolved)	mg/L	--	--	26.8	--	--	25	--	--	25.2	--	--
Aluminum	µg/L	--	--	7.27	--	--	6.68	--	--	<5	--	--
Boron	mg/L	--	0.109	0.06	--	--	<0.02	--	--	0.03	0.02	--
Calcium	mg/L	--	(79.5) 66	54.7	--	--	51.3	--	--	59.2	53.7	--
Lithium	mg/L	0.04	--	<0.009	--	--	<0.009	--	--	0.00413	--	--
Magnesium	mg/L	--	--	20.9	--	--	19	--	--	20.4	--	--
Manganese	mg/L	--	--	0.0025	--	--	0.0017	--	--	0.001	--	--
Potassium	mg/L	--	--	0.68	--	--	0.66	--	--	0.7	--	--
Sodium	mg/L	--	--	23.7	--	--	26	--	--	32.9	--	--
Strontium	mg/L	--	--	0.086	--	--	0.0803	--	--	0.0909	--	--
Alkalinity	mg/L	--	--	207	--	--	220	--	--	221	--	--
Bromide	mg/L	--	--	<0.04	--	--	<0.04	--	--	0.08	--	--
Chloride	mg/L	--	(29.6) 24	24.8	26.5	26.1	26.4	26.8	26.6	27.3	28.9	28.7
Fluoride	mg/L	4	0.299	0.28	--	--	0.3	--	--	0.28	0.34	0.33
TDS	mg/L	--	(412.7) 343	272	--	--	352	339	--	336	344	347
Sulfate	mg/L	--	(35.08) 35	24.7	--	--	26.2	--	--	27.8	24.9	--
Sulfide	mg/L	--	--	<0.1	--	--	<0.1	--	--	<0.2	--	--
Radium-228	pCi/L	--	--	0.146	--	--	0.54	--	--	0.161	--	--
Radium-226	pCi/L	--	--	0.0173	--	--	0.0674	--	--	0.0407	--	--
Radium-226/228	pCi/L	5	--	0.1633	--	--	0.6074	--	--	0.2017	--	--
Copper (Dissolved)	µg/L	--	--	1.84	--	--	0.87	--	--	1.84	--	--
Zinc (Dissolved)	µg/L	--	--	5	--	--	4	--	--	2	--	--
Aluminum (Dissolved)	µg/L	--	--	1	--	--	5.16	--	--	<5	--	--
Iron (Dissolved)	mg/L	--	--	0.003	--	--	0.003	--	--	<0.02	--	--
Manganese (Dissolved)	mg/L	--	--	0.0005	--	--	0.0009	--	--	<0.0005	--	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-2I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	1/3/2018	6/6/2018	8/16/2018
Field Parameters															
Elevation	ft NGVD	--	--	369.26	368.97	368.94	368.7	366.31	368.06	368.01	368.16	366.64	365.54	369.85	369.32
pH	S.U.	--	6.43 - 8.69	7.89	7.14	7.45	7.26	7.7	7.64	8.42	6.98	7.16	7.84	7.55	7.52
Specific Conductance	µmhos/cm	--	--	581	542	513	495	370	557	383	431	553	568	802	614
Turbidity	NTU	--	--	2.02	1.41	0.94	1.83	3.99	16	24.3	6.25	10.3	1.3	0.91	0
Dissolved Oxygen	mg/L	--	--	1.54	7.64	1.96	3.62	--	10.86	1.97	22.85	0.71	1.12	1.1	0.06
Temperature	°C	--	--	15.88	15.93	17.11	15.97	14.38	14.74	15.42	16.34	15.68	11.06	15.3	16.03
ORP	mV	--	--	65.9	29.8	-29.6	-11.6	161.9	-52.8	156.9	-180.6	-63.4	-51.8	-55.4	-46
Laboratory Parameters															
Antimony	µg/L	6	--	0.06	0.06	0.07	0.13	0.1	0.1	0.15	0.11	--	--	--	--
Arsenic	µg/L	10	--	0.64	0.68	0.55	0.61	0.65	0.74	0.9	0.76	--	--	--	--
Barium	µg/L	2000	--	78.5	84	67.1	60.1	59.4	58.4	59.3	62.9	--	--	--	--
Beryllium	µg/L	4	--	<0.005	0.006	<0.005	<0.005	<0.005	0.01	0.022	0.02	--	--	--	--
Cadmium	µg/L	5	--	0.03	0.05	0.05	0.07	0.16	0.22	0.09	0.05	--	--	--	--
Chromium	µg/L	100	--	0.2	0.6	0.1	0.143	0.154	1.01	0.829	0.567	--	--	--	--
Cobalt	µg/L	6	--	0.606	0.76	0.415	0.26	0.28	0.581	1.28	0.995	--	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	2.21	1.82	--	0.2	--
Lead	µg/L	15	--	0.208	0.454	0.178	0.231	0.383	0.588	1.39	1.19	--	--	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	--	--	--	--
Molybdenum	µg/L	100	--	4.91	5	4.21	3.14	2.07	2.06	2.17	2.07	--	--	--	--
Selenium	µg/L	50	--	0.7	0.7	0.6	0.4	0.2	0.2	0.4	0.2	--	--	--	--
Thallium	µg/L	2	--	0.051	0.04	0.04	0.02	0.03	0.03	0.04	0.064	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	4.4	3.4	--	20.8	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	16.3	16.8	18.9	--	16.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	315	244	--	9.39	--
Boron	mg/L	--	0.043	0.019	0.009	0.025	0.013	<0.002	0.024	0.034	0.025	0.03	--	0.052	0.03
Calcium	mg/L	--	(79.5) 78	74	67.5	66.8	73.9	63.9	71.5	71	68.9	72.5	--	72.7	--
Lithium	mg/L	0.04	--	0.005	0.021	0.002	0.006	0.007	0.005	0.007	<0.0002	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	22.8	23.6	22.8	23.7	--	23.7	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.463	--	--	0.564	--
Potassium	mg/L	--	--	--	--	--	--	--	1.09	1.2	1.01	1.05	--	1.14	--
Sodium	mg/L	--	--	--	--	--	--	--	14.7	15.3	15.8	16.8	--	16.9	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0919	0.0977	0.0885	0.0946	--	0.0959	--
Alkalinity	mg/L	--	--	--	--	--	--	--	223	218	236	252	--	254	--
Bromide	mg/L	--	--	--	--	--	--	--	0.05	0.071	0.072	0.075	--	0.077	--
Chloride	mg/L	--	(29.6) 32	28.6	29.7	28	25.8	27.1	25.8	28.6	29.7	29.8	28.8	31.8	31.5
Fluoride	mg/L	4	0.371	0.3	0.33	0.31	0.36	0.3	0.31	0.31	0.28	0.28	--	0.32	--
TDS	mg/L	--	(412.7) 375	332	363	330	326	314	312	343	346	343	--	356	--
Sulfate	mg/L	--	(48.53) 49	42.9	54.7	41.1	36.9	39.2	39.2	42.4	44.1	45.5	--	43.2	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	--
Radium-228	pCi/L	--	--	-0.0463	0.62	0.241	0.137	0.648	0.146	0.163	0.195	--	--	--	--
Radium-226	pCi/L	--	--	0.398	0.342	0.267	0.288	0.197	0.289	0.328	0.341	--	--	--	--
Radium-226/228	pCi/L	5	--	0.3517	0.962	0.508	0.425	0.845	0.435	0.491	0.536	--	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	--	1.96	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.3	--	--	21.7	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--	154	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.053	0.016	0.03	0.054	--	0.238	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.258	0.331	0.333	0.323	--	0.563	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/13/2018	2/13/2019	5/22/2019	11/14/2019	5/18/2020
Field Parameters								
Elevation	ft NGVD	--	--	367.97	368.87	371.17	371.18	369.44
pH	S.U.	--	6.43 - 8.69	7.2	7.55	7.34	7.39	7.8
Specific Conductance	µmhos/cm	--	--	434	435	481	576	420
Turbidity	NTU	--	--	17.03	2.8	0	4.1	2.08
Dissolved Oxygen	mg/L	--	--	0.13	10	0.71	0.33	5.14
Temperature	°C	--	--	14.25	14.3	16.09	15.93	15.94
ORP	mV	--	--	36.8	-17	-83.8	-115	-58
Laboratory Parameters								
Antimony	µg/L	6	--	0.02	--	0.03	0.05	--
Arsenic	µg/L	10	--	0.49	--	0.4	0.39	--
Barium	µg/L	2000	--	95	--	102	90.8	--
Beryllium	µg/L	4	--	<0.02	--	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.04	--	0.003	0.12	--
Chromium	µg/L	100	--	0.327	--	0.06	0.1	--
Cobalt	µg/L	6	--	0.492	--	0.347	0.141	--
Copper	µg/L	--	--	1.52	--	0.24	<0.2	--
Lead	µg/L	15	--	0.467	--	0.143	0.07	--
Mercury	µg/L	2	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	2	--	2.13	2.14	--
Selenium	µg/L	50	--	0.2	--	0.05	0.9	--
Thallium	µg/L	2	--	<0.1	--	<0.1	<0.1	--
Zinc	µg/L	--	--	35.2	--	7.4	1	--
Silica (Dissolved)	mg/L	--	--	16.9	--	15.9	15	--
Aluminum	µg/L	--	--	91.9	--	6.25	<5	--
Boron	mg/L	--	0.043	0.05	<0.02	<0.02	0.01	<0.02
Calcium	mg/L	--	(79.5) 78	64.8	--	64.3	63.4	61.9
Lithium	mg/L	0.04	--	<0.009	--	<0.009	0.00402	--
Magnesium	mg/L	--	--	21.2	--	20.4	19.4	--
Manganese	mg/L	--	--	0.576	--	0.699	0.272	--
Potassium	mg/L	--	--	0.89	--	0.92	0.9	--
Sodium	mg/L	--	--	15.3	--	13.5	13.2	--
Strontium	mg/L	--	--	0.0864	--	0.083	0.0803	--
Alkalinity	mg/L	--	--	247	--	241	208	--
Bromide	mg/L	--	--	0.06	--	0.05	0.04	--
Chloride	mg/L	--	(29.6) 32	27.9	31.5	25.4	23.3	24.4
Fluoride	mg/L	4	0.371	0.32	--	0.32	0.33	0.36
TDS	mg/L	--	(412.7) 375	308	--	328	296	297
Sulfate	mg/L	--	(48.53) 49	39	--	39.2	39.3	40.5
Sulfide	mg/L	--	--	<0.1	--	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.291	--	0.451	0.191	--
Radium-226	pCi/L	--	--	0.258	--	0.194	0.0689	--
Radium-226/228	pCi/L	5	--	0.549	--	0.645	0.2599	--
Copper (Dissolved)	µg/L	--	--	0.2	--	0.64	1.08	--
Zinc (Dissolved)	µg/L	--	--	2	--	0.9	2	--
Aluminum (Dissolved)	µg/L	--	--	<1	--	1	<5	--
Iron (Dissolved)	mg/L	--	--	0.037	--	0.02	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.565	--	0.643	0.251	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-2D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	6/7/2018	8/16/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.22	368.96	368.9	368.68	366.41	368.04	367.96	367.95	366.6	369.84	369.25
pH	S.U.	--	6.45 -8.63	7.86	7.47	7.29	7.1	7.4	7.39	7.3	8.51	7.24	7.55	7.33
Specific Conductance	µmhos/cm	--	--	586	524	551	516	386	568	388	516	428	460	830
Turbidity	NTU	--	--	2.31	3.15	3.5	0.79	3.45	2.67	2.32	1.72	1.82	5.05	0
Dissolved Oxygen	mg/L	--	--	0.45	0.31	1.77	0.31	5.47	0.79	0.87	0.45	0.84	6.83	0.74
Temperature	°C	--	--	15.8	15.79	19.32	15.58	14.22	14.45	15.65	16.06	15.71	15.35	17.83
ORP	mV	--	--	-2.7	-168.3	45	-0.7	206.9	-87.3	143.6	-24.8	-41	32.3	-24
Laboratory Parameters														
Antimony	µg/L	6	--	0.03	0.06	0.02	0.02	0.03	0.03	0.04	0.02	--	--	--
Arsenic	µg/L	10	--	0.78	0.82	0.81	0.61	0.62	0.59	0.65	0.62	--	--	--
Barium	µg/L	2000	--	185	195	180	172	157	160	159	169	--	--	--
Beryllium	µg/L	4	--	<0.005	0.006	0.007	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	--
Cadmium	µg/L	5	--	0.12	0.12	0.07	0.1	0.26	0.09	0.08	0.08	--	--	--
Chromium	µg/L	100	--	0.2	0.4	0.3	0.05	0.277	0.562	0.188	0.162	--	--	--
Cobalt	µg/L	6	--	0.473	0.439	0.425	0.212	0.327	0.252	0.335	0.353	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.16	1.96	2.09	--
Lead	µg/L	15	--	0.648	0.359	0.247	0.021	0.378	0.045	0.144	0.075	--	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	2.11	2.16	1.97	2.09	1.8	2.13	1.9	1.89	--	--	--
Selenium	µg/L	50	--	<0.03	<0.03	0.05	0.09	0.08	0.03	0.06	0.04	--	--	--
Thallium	µg/L	2	--	0.02	0.02	0.03	0.01	0.02	0.02	0.02	0.02	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	6	3.5	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.5	17.9	20.5	17.4	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	17.5	20.7	70.5	--
Boron	mg/L	--	0.074	<0.002	0.01	0.013	0.014	<0.002	0.03	0.027	0.073	0.041	0.076	0.038
Calcium	mg/L	--	(79.5) 81	75.6	65.8	66.7	73.9	64.2	74.2	70.8	64.7	67.7	78.6	--
Lithium	mg/L	0.04	--	0.002	0.018	0.002	0.007	0.007	0.008	0.011	0.0006	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	24.3	23.9	21.9	22.6	26.4	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.657	--	0.943	--
Potassium	mg/L	--	--	--	--	--	--	--	1.17	1.21	1.32	1.1	1.28	--
Sodium	mg/L	--	--	--	--	--	--	--	17.3	16.9	16	15.8	16.4	--
Strontium	mg/L	--	--	--	--	--	--	--	0.104	0.104	0.0894	0.0952	0.111	--
Alkalinity	mg/L	--	--	--	--	--	--	--	249	248	261	248	263	--
Bromide	mg/L	--	--	--	--	--	--	--	0.06	0.079	0.156	0.083	0.073	--
Chloride	mg/L	--	(29.6) 25	24.2	24.2	22.8	22.2	22.3	21.7	23.1	23	22.4	43.1	93.0 ?
Fluoride	mg/L	4	0.222	0.19	0.21	0.2	0.19	0.19	0.2	0.21	0.18	0.2	0.22	--
TDS	mg/L	--	(412.7) 358	341	339	338	327	318	318	343	340	332	361	--
Sulfate	mg/L	--	(46.44) 46	42.1	44.2	39.6	35.4	38.3	37.6	40.5	40.5	42.3	39.8	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	--
Radium-228	pCi/L	--	--	0.0495	0.195	0.451	0.473	0.506	1.11	0.0264	0.257	--	--	--
Radium-226	pCi/L	--	--	-0.0267	0.133	-0.00345	1.77	0.772	0.185	0.429	0.115	--	--	--
Radium-226/228	pCi/L	5	--	0.0228	0.328	0.44755	2.243	1.278	1.295	0.4554	0.372	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.11	--	0.12	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.8	--	0.5	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.14	--	2.75	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.055	0.017	0.005	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.565	0.602	0.662	0.619	0.621	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-2D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/12/2018	2/13/2019	5/22/2019	7/24/2019	9/11/2019	11/14/2019	2/18/2020	5/18/2020	7/15/2020
Field Parameters												
Elevation	ft NGVD	--	--	367.91	368.89	371.01	371.37	-----	371.11	-----	369.47	370.67
pH	S.U.	--	6.45 -8.63	7.36	7.32	7.25	6.28	7.15	7.3	7.08	7.76	7.26
Specific Conductance	µmhos/cm	--	--	464	391	803	834	705	726	1377	617	781
Turbidity	NTU	--	--	5.4	2.1	1.25	3	1.9	9.2	2.13	2.92	0.88
Dissolved Oxygen	mg/L	--	--	0.86	0.37	2.29	0.9	0.58	0.3	0.57	0.07	0
Temperature	°C	--	--	14.61	13.7	15.57	15.8	16.5	14.94	12.75	15.06	15.56
ORP	mV	--	--	-25.4	-164	-71.2	8	-109	-73	-76.4	-90	-40
Laboratory Parameters												
Antimony	µg/L	6	--	0.03	--	<0.02	--	--	0.04	--	--	--
Arsenic	µg/L	10	--	0.58	--	0.53	--	--	0.62	--	--	--
Barium	µg/L	2000	--	190	--	248	--	--	193	--	--	--
Beryllium	µg/L	4	--	<0.02	--	<0.02	--	--	<0.02	--	--	--
Cadmium	µg/L	5	--	0.17	--	0.3	--	--	0.19	--	--	--
Chromium	µg/L	100	--	0.2	--	<0.04	--	--	0.334	--	--	--
Cobalt	µg/L	6	--	0.5	--	0.488	--	--	0.537	--	--	--
Copper	µg/L	--	--	0.22	--	0.18	--	--	0.4	--	--	--
Lead	µg/L	15	--	0.14	--	0.129	--	--	0.416	--	--	--
Mercury	µg/L	2	--	--	--	<0.002	--	--	<0.002	--	--	--
Molybdenum	µg/L	100	--	2	--	2	--	--	2.28	--	--	--
Selenium	µg/L	50	--	<0.03	--	<0.03	--	--	0.04	--	--	--
Thallium	µg/L	2	--	<0.1	--	<0.1	--	--	<0.1	--	--	--
Zinc	µg/L	--	--	0.9	--	533	--	--	2	--	--	--
Silica (Dissolved)	mg/L	--	--	17.8	--	17.1	--	--	16.5	--	--	--
Aluminum	µg/L	--	--	15.4	--	3	--	--	10	--	--	--
Boron	mg/L	--	0.074	0.07	--	<0.02	--	--	0.02	--	<0.02	--
Calcium	mg/L	--	(79.5) 81	72.4	--	98.5	114	103	76.9	--	88.7	--
Lithium	mg/L	0.04	--	<0.009	--	0.02	--	--	0.00298	--	--	--
Magnesium	mg/L	--	--	24.5	--	32.2	--	--	24.7	--	--	--
Manganese	mg/L	--	--	0.717	--	0.941	--	--	0.855	--	--	--
Potassium	mg/L	--	--	0.99	--	1.2	--	--	1	--	--	--
Sodium	mg/L	--	--	14.8	--	20.7	--	--	16.9	--	--	--
Strontium	mg/L	--	--	0.102	--	0.138	--	--	0.108	--	--	--
Alkalinity	mg/L	--	--	247	--	261	--	--	252	--	--	--
Bromide	mg/L	--	--	<0.04	--	0.08	--	--	0.06	--	--	--
Chloride	mg/L	--	(29.6) 25	51.3	40.9	135	156	110	56.5	76.3	93.6	96.2
Fluoride	mg/L	4	0.222	0.2	--	0.18	--	SSI ↓	0.18	--	0.21	0.2
TDS	mg/L	--	(412.7) 358	348	--	531	540	443	356	--	399	411
Sulfate	mg/L	--	(46.44) 46	36.1	--	33.3	--	--	38.9	--	36.2	--
Sulfide	mg/L	--	--	<0.1	--	<0.1	--	--	<0.2	--	--	--
Radium-228	pCi/L	--	--	0.0387	--	0.553	--	--	0.803	--	--	--
Radium-226	pCi/L	--	--	0.245	--	0.207	--	--	0.334	--	--	--
Radium-226/228	pCi/L	5	--	0.2837	--	0.76	--	--	1.137	--	--	--
Copper (Dissolved)	µg/L	--	--	0.11	--	0.39	--	--	1.64	--	--	--
Zinc (Dissolved)	µg/L	--	--	1	--	3	--	--	2	--	--	--
Aluminum (Dissolved)	µg/L	--	--	<1	--	1	--	--	<5	--	--	--
Iron (Dissolved)	mg/L	--	--	0.007	--	0.009	--	--	<0.02	--	--	--
Manganese (Dissolved)	mg/L	--	--	0.702	--	0.948	--	--	0.8	--	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-5S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/13/2018
Field Parameters				
Elevation	ft NGVD	--	--	392.55
pH	S.U.	--	7.56	7.56
Specific Conductance	µmhos/cm	--	--	1202
Turbidity	NTU	--	--	0.43
Dissolved Oxygen	mg/L	--	--	1.09
Temperature	°C	--	--	12.53
ORP	mV	--	--	71.3
Laboratory Parameters				
Antimony	µg/L	6	--	0.1
Arsenic	µg/L	10	--	0.85
Barium	µg/L	2000	--	158
Beryllium	µg/L	4	--	<0.02
Cadmium	µg/L	5	--	0.08
Chromium	µg/L	100	--	<0.04
Cobalt	µg/L	6	--	8.15
Copper	µg/L	--	--	0.43
Lead	µg/L	15	--	0.05
Mercury	µg/L	2	--	--
Molybdenum	µg/L	100	--	1
Selenium	µg/L	50	--	0.8
Thallium	µg/L	2	--	<0.1
Zinc	µg/L	--	--	5
Silica (Dissolved)	mg/L	--	--	21.5
Aluminum	µg/L	--	--	2
Boron	mg/L	--	0.102	0.102
Calcium	mg/L	--	86.3	86.3
Lithium	mg/L	0.04	--	<0.009
Magnesium	mg/L	--	--	22.2
Manganese	mg/L	--	--	0.522
Potassium	mg/L	--	--	1.78
Sodium	mg/L	--	--	188
Strontium	mg/L	--	--	0.3
Alkalinity	mg/L	--	--	229
Bromide	mg/L	--	--	1.05
Chloride	mg/L	--	364	364
Fluoride	mg/L	4	0.21	0.21
TDS	mg/L	--	840	840
Sulfate	mg/L	--	41.2	41.2
Sulfide	mg/L	--	--	<0.1
Radium-228	pCi/L	--	--	0.915
Radium-226	pCi/L	--	--	0.799
Radium-226/228	pCi/L	5	--	1.714
Copper (Dissolved)	µg/L	--	--	0.11
Zinc (Dissolved)	µg/L	--	--	6.1
Aluminum (Dissolved)	µg/L	--	--	2
Iron (Dissolved)	mg/L	--	--	0.01
Manganese (Dissolved)	mg/L	--	--	0.555

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-6S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/18/2016	9/20/2016	11/16/2016	1/10/2017	3/8/2017	5/8/2017	7/18/2017	10/3/2017	6/5/2018	8/15/2018	9/26/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.59	368.99	368.14	367.39	367.54	367.81	368.48	367.6	369.94	370.04	368.35
pH	S.U.	--	7.9	7.5	7.4	8.1	7.9	7.9	7.6	7.7	7.3	7.52	7.7	7.9
Specific Conductance	µmhos/cm	--	--	401	430	741	360	300	441	292	347	330	483	321
Turbidity	NTU	--	--	1	0.5	1	2	1	1	1	1	0.47	0	8
Dissolved Oxygen	mg/L	--	--	7.1	5.7	1	6	5	5	7	7	5.82	8.1	5.1
Temperature	°C	--	--	16.8	19	15	14.8	14.7	15.5	15.2	16.4	16.28	16	15.5
ORP	mV	--	--	53	71	258	146	36	49	74	0.3	-9.3	155	133
Laboratory Parameters														
Antimony	µg/L	6	--	0.03	0.03	0.03	0.03	0.03	0.03	0.02	--	--	0.03	0.03
Arsenic	µg/L	10	--	0.26	0.26	0.26	0.28	0.26	0.28	0.27	--	--	0.25	0.25
Barium	µg/L	2000	--	13.6	13.6	14.1	14.8	15.8	15.4	14.3	--	--	14.8	13.5
Beryllium	µg/L	4	--	0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	<0.004	<0.02
Cadmium	µg/L	5	--	0.25	0.02	0.02	0.008	0.05	0.009	0.04	--	--	0.06	0.04
Chromium	µg/L	100	--	0.4	0.3	0.2	0.599	1.37	0.583	0.291	--	--	0.42	0.265
Cobalt	µg/L	6	--	0.052	0.019	0.027	0.045	0.049	0.061	0.026	--	--	0.039	<0.02
Copper	µg/L	--	--	--	--	--	--	--	--	0.37	0.31	0.46	0.42	0.29
Lead	µg/L	15	--	0.074	0.034	0.05	0.032	0.113	0.083	0.056	--	--	0.247	0.03
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--
Molybdenum	µg/L	100	--	3.28	3.34	2.8	2.93	3.29	2.73	4.36	--	--	2.22	2.37
Selenium	µg/L	50	--	0.3	0.2	0.3	0.4	0.7	0.8	0.4	--	--	0.4	0.2
Thallium	µg/L	2	--	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	--	--	0.01	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	1	0.5	2.5	1	0.7
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	14.4	14.6	16.9	15.4	15.2	16.8
Aluminum	µg/L	--	--	--	--	--	--	--	--	8.57	17.8	10.4	13.8	3
Boron	mg/L	--	0.012	0.014	0.012	0.028	0.006	0.032	0.051	0.078	0.094	0.09	0.101	0.08
Calcium	mg/L	--	46.1	46.3	44.4	50.8	47.8	53.2	50.3	47	44.8	45.2	52.8	44.1
Lithium	mg/L	0.04	--	0.015	0.004	0.006	0.014	0.009	0.011	<0.0002	--	--	0.005	0.02
Magnesium	mg/L	--	--	--	--	--	--	23.3	23.5	20.9	19.8	19.3	24	18.8
Manganese	mg/L	--	--	--	--	--	--	--	--	0.0007	--	0.0024	0.0021	<0.0002
Potassium	mg/L	--	--	--	--	--	--	0.7	0.75	0.82	0.78	0.57	0.91	0.71
Sodium	mg/L	--	--	--	--	--	--	38.9	34.9	26.3	23.2	15.6	25.6	26.1
Strontium	mg/L	--	--	--	--	--	--	0.0661	0.067	0.0574	0.0548	0.0555	0.065	0.051
Alkalinity	mg/L	--	--	--	--	--	--	260	272	241	249	237	267	241
Bromide	mg/L	--	--	--	--	--	--	<0.02	0.072	<0.05	0.04	0.03	0.04	<0.04
Chloride	mg/L	--	8.44	8.35	6.04	7.04	7.03	3.32	8.68	4.88	3.28	2.38	11.9	6.83
Fluoride	mg/L	4	0.73	0.79	0.73	0.69	0.65	0.25	0.69	0.57	0.71	0.89	0.81	0.84
TDS	mg/L	--	294	290	266	279	287	296	305	274	261	225	277	261
Sulfate	mg/L	--	18.8	18.3	10.9	14.3	14	6.9	17.5	9.6	7.5	3.8	15.6	9.8
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.4	<0.1
Radium-228	pCi/L	--	--	0.101	0.798	-0.249	0.501	0.297	-0.337	0.954	--	--	0.328	0.367
Radium-226	pCi/L	--	--	0	0.0671	0.202	0.0815	-0.00471	0.12	-0.0229	--	--	0.0553	0.089
Radium-226/228	pCi/L	5	--	0.101	0.8651	-0.047	0.5825	0.29229	-0.217	0.954	--	--	0.3833	0.456
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	1.85	--	0.4	2.17	1.86
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.2	--	0.9	3.1	3
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	4.34	--	1	2.51	109
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.023	<0.002	0.003	0.163
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	<0.0001	<0.0001	0.0002	0.0007	0.0015	<0.0002	0.0121

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-6S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/1/2018	11/14/2018	12/12/2018	5/23/2019	11/14/2019	5/19/2020
Field Parameters									
Elevation	ft NGVD	--	--	368.89	368.72	368.4	372.52	370.42	370.70
pH	S.U.	--	7.9	7.31	7.91	7.46	7.42	7.29	7.67
Specific Conductance	µmhos/cm	--	--	430	221	464	473	452	373
Turbidity	NTU	--	--	0.51	0.4	0.53	1.4	0.21	5.46
Dissolved Oxygen	mg/L	--	--	7.53	5.5	4.42	6.4	5.85	7.17
Temperature	°C	--	--	15.04	14.4	14.71	16.6	14.4	15.47
ORP	mV	--	--	115.3	126	196	70	291.1	150
Laboratory Parameters									
Antimony	µg/L	6	--	0.02	0.03	0.03	0.03	0.03	--
Arsenic	µg/L	10	--	0.23	0.23	0.24	0.22	0.23	--
Barium	µg/L	2000	--	12.1	11.8	13.4	15.9	15	--
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.01	<0.01	<0.01	0.03	<0.01	--
Chromium	µg/L	100	--	0.221	0.218	0.212	0.285	0.284	--
Cobalt	µg/L	6	--	<0.02	<0.02	<0.02	<0.02	<0.02	--
Copper	µg/L	--	--	0.17	0.18	0.26	0.51	<0.2	--
Lead	µg/L	15	--	<0.02	0.02	<0.02	0.04	<0.05	--
Mercury	µg/L	2	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	2.38	2.18	2.2	2	2	--
Selenium	µg/L	50	--	0.2	0.2	0.4	0.6	0.4	--
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	<0.7	1	2	<0.7	<0.7	--
Silica (Dissolved)	mg/L	--	--	15.3	15.2	15.9	15.8	15	--
Aluminum	µg/L	--	--	2	5.28	3	2	<5	--
Boron	mg/L	--	0.012	0.04	0.04	0.102	0.02	0.01	<0.02
Calcium	mg/L	--	46.1	42.3	38.8	46.8	52.5	47.8	43.1
Lithium	mg/L	0.04	--	<0.009	0.01	<0.009	0.02	0.00645	--
Magnesium	mg/L	--	--	19.3	17.5	20.8	22.9	20	--
Manganese	mg/L	--	--	0.0007	0.0002	0.0003	0.0003	<0.0005	--
Potassium	mg/L	--	--	0.5	0.92	0.86	0.62	0.4	--
Sodium	mg/L	--	--	22	20.2	23.3	25.5	29.6	--
Strontium	mg/L	--	--	0.0519	0.0524	0.0595	0.691	0.0627	--
Alkalinity	mg/L	--	--	230	242	247	264	262	--
Bromide	mg/L	--	--	<0.04	<0.04	<0.04	<0.04	<0.04	--
Chloride	mg/L	--	8.44	3.52	3.91	6.48	9.64	5.36	1.49
Fluoride	mg/L	4	0.73	0.86	0.88	0.88	0.95	0.9	1.02
TDS	mg/L	--	294	225	196	240	315	277	214
Sulfate	mg/L	--	18.8	4.9	5.2	10	16.8	12	1.6
Sulfide	mg/L	--	--	<0.1	<0.07	<0.07	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.354	0.387	-0.368	0.343	-0.011	--
Radium-226	pCi/L	--	--	0.0398	0.0239	0.0533	0.0431	0.0416	--
Radium-226/228	pCi/L	5	--	0.3938	0.4109	0.0533	0.3861	0.0416	--
Copper (Dissolved)	µg/L	--	--	0.14	0.53	0.17	1.22	0.4	--
Zinc (Dissolved)	µg/L	--	--	0.7	<0.7	2	1	0.9	--
Aluminum (Dissolved)	µg/L	--	--	1	2	8.1	1	<5	--
Iron (Dissolved)	mg/L	--	--	<0.003	0.005	0.01	<0.003	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.0003	<0.0002	0.0007	0.0002	<0.0005	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-6I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/25/2018	10/31/2018	11/15/2018	12/12/2018	5/23/2019	11/14/2019	5/20/2020
Field Parameters										
Elevation	ft NGVD	--	--	369.18	368.75	368.62	368.48	372.32	370.28	370.42
pH	S.U.	--	7.6	7.8	7.25	7.35	7.44	7.66	7.32	7.49
Specific Conductance	µmhos/cm	--	--	332	467	344	458	453	374	431
Turbidity	NTU	--	--	6.5	0.76	0.74	0.25	0.36	0.46	0.4
Dissolved Oxygen	mg/L	--	--	1.7	0.27	2.78	0.79	1.02	2.15	2.34
Temperature	°C	--	--	16.4	15.9	14.2	14.71	16.5	14.4	14.57
ORP	mV	--	--	149	24.9	140.5	163	168.8	301.7	188
Laboratory Parameters										
Antimony	µg/L	6	--	0.25	0.25	0.25	0.23	0.23	0.2	--
Arsenic	µg/L	10	--	0.2	0.2	0.19	0.19	0.19	0.19	--
Barium	µg/L	2000	--	31.9	32.2	31.9	30.5	35.8	28.5	--
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.11	0.01	0.01	0.01	0.01	0.02	--
Chromium	µg/L	100	--	0.05	0.1	<0.04	0.05	0.07	0.222	--
Cobalt	µg/L	6	--	0.313	0.452	0.42	0.362	0.436	0.525	--
Copper	µg/L	--	--	2.36	0.78	0.92	1.21	0.6	0.7	--
Lead	µg/L	15	--	0.05	0.118	<0.02	<0.02	<0.02	<0.05	--
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	5.31	4.7	4.46	4.17	4.4	4.43	--
Selenium	µg/L	50	--	0.6	0.7	0.8	0.6	0.6	0.4	--
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	--
Zinc	µg/L	--	--	3	<0.7	0.7	2	1	1	--
Silica (Dissolved)	mg/L	--	--	19.9	18.1	18.8	18.6	18.1	16.6	--
Aluminum	µg/L	--	--	6.57	5.88	5.54	3	4	<5	--
Boron	mg/L	--	0.06	0.06	0.04	0.03	0.06	<0.02	0.01	<0.02
Calcium	mg/L	--	42.2	43.1	42.4	43.1	47.2	47.4	44.7	50.8
Lithium	mg/L	0.04	--	0.01	<0.009	0.034	<0.009	0.01	0.0054	--
Magnesium	mg/L	--	--	13.9	15.1	14.6	16.1	15.7	14	--
Manganese	mg/L	--	--	0.185	0.24	0.247	0.249	0.272	0.276	--
Potassium	mg/L	--	--	0.93	0.76	0.78	0.88	1.13	0.8	--
Sodium	mg/L	--	--	35.7	35.9	32.9	32.7	29.9	26.6	--
Strontium	mg/L	--	--	0.0482	0.0528	0.0549	0.061	0.0622	0.0582	--
Alkalinity	mg/L	--	--	267	259	246	257	278	227	--
Bromide	mg/L	--	--	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	--
Chloride	mg/L	--	5.18	2.91	3.47	3.94	3.84	2.7	2.26	3.09
Fluoride	mg/L	4	0.89	0.88	0.86	0.86	0.86	0.85	0.89	0.94
TDS	mg/L	--	281	274	245	248	245	268	224	229
Sulfate	mg/L	--	9.9	5.4	4.9	6.3	7.3	4.1	4.1	7.1
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.218	0.216	0.675	0.488	0.496	0.296	--
Radium-226	pCi/L	--	--	0.35	0.323	0.638	0.489	0.557	0.215	--
Radium-226/228	pCi/L	5	--	0.568	0.539	1.313	0.977	1.053	0.511	--
Copper (Dissolved)	µg/L	--	--	2.79	1.09	0.86	0.74	2.58	0.5	--
Zinc (Dissolved)	µg/L	--	--	4	1	<0.7	<0.7	3	0.9	--
Aluminum (Dissolved)	µg/L	--	--	30.9	1	8.05	4	4	<5	--
Iron (Dissolved)	mg/L	--	--	0.064	<0.003	0.003	0.004	0.003	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.254	0.232	0.246	0.231	0.256	0.238	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-6D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/25/2018	10/31/2018	11/14/2018	12/12/2018	5/23/2019	11/14/2019	5/18/2020
Field Parameters										
Elevation	ft NGVD	--	--	369.15	368.72	369.6	368.44	372.31	370.23	370.6
pH	S.U.	--	7.5	7.7	7.21	7.54	7.4	7.55	7.73	7.34
Specific Conductance	µmhos/cm	--	--	369	521	365	513	681	730	539
Turbidity	NTU	--	--	9	0	8.4	0.25	1.2	1.2	0.44
Dissolved Oxygen	mg/L	--	--	0.4	0.34	0.42	0.15	0.9	2.19	9.55
Temperature	°C	--	--	16.2	16	13.5	15.07	18.6	14.1	14.64
ORP	mV	--	--	155	54.3	131	110	145	126.6	127
Laboratory Parameters										
Antimony	µg/L	6	--	0.02	0.03	0.03	0.02	<0.02	0.05	--
Arsenic	µg/L	10	--	0.89	1.3	1.05	0.93	0.94	1.08	--
Barium	µg/L	2000	--	77.1	75.7	73.6	76.5	112	76	--
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.03	0.01	0.02	0.01	0.01	0.01	--
Chromium	µg/L	100	--	0.04	0.346	0.2	0.05	0.08	0.09	--
Cobalt	µg/L	6	--	0.392	0.806	0.598	0.404	0.578	0.429	--
Copper	µg/L	--	--	0.45	1.18	1.6	1.64	0.17	0.5	--
Lead	µg/L	15	--	<0.02	0.205	0.167	<0.02	<0.02	<0.05	--
Mercury	µg/L	2	--	--	--	--	--	0.002	<0.002	--
Molybdenum	µg/L	100	--	3.23	2.79	2.83	3.02	2.81	3.13	--
Selenium	µg/L	50	--	7.3	8.5	8.2	4.3	0.09	9.3	--
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	<0.7	2	73.1	2	<0.7	<0.7	--
Silica (Dissolved)	mg/L	--	--	19.5	17.5	17.6	18	18.2	16.5	--
Aluminum	µg/L	--	--	2	142	70.3	3	1	6	--
Boron	mg/L	--	0.094	0.05	0.03	0.05	0.115	0.03	0.02	<0.02
Calcium	mg/L	--	61.9	61.7	57.2	53.1	60.1	78.9	62	62.4
Lithium	mg/L	0.04	--	0.02	0.009	0.01	<0.009	0.01	0.00722	--
Magnesium	mg/L	--	--	16.8	16.9	15.2	17.1	22.1	17.4	--
Manganese	mg/L	--	--	0.147	0.145	0.156	0.144	0.278	0.12	--
Potassium	mg/L	--	--	1.2	1.04	1.43	1.47	1.29	1.05	--
Sodium	mg/L	--	--	29	27.8	26.5	29	35.5	30	--
Strontium	mg/L	--	--	0.0919	0.093	0.0927	0.102	0.14	0.0949	--
Alkalinity	mg/L	--	--	260	260	266	271	305	265	--
Bromide	mg/L	--	--	<0.04	<0.04	<0.04	<0.04	0.07	<0.04	--
Chloride	mg/L	--	12.3	10.9	10.2	10	10.8	25.1	12.2	15.6
Fluoride	mg/L	4	0.39	0.41	0.41	0.42	0.42	0.36	0.41	0.43
TDS	mg/L	--	331	310	295	276	296	408	310	311
Sulfate	mg/L	--	27.3	24.1	23	22.2	23.6	39.5	25.4	29.8
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.29	0.21	0.275	-0.0272	0.586	0.179	--
Radium-226	pCi/L	--	--	0.295	0.122	0.102	0.423	0.543	0.108	--
Radium-226/228	pCi/L	5	--	0.585	0.332	0.377	0.423	0.423	0.423	--
Copper (Dissolved)	µg/L	--	--	1.27	0.44	0.7	0.5	0.53	0.4	--
Zinc (Dissolved)	µg/L	--	--	2	0.9	2	2	1	2	--
Aluminum (Dissolved)	µg/L	--	--	31.6	3	2	45.3	15.6	10	--
Iron (Dissolved)	mg/L	--	--	0.082	<0.003	0.004	0.117	0.007	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.127	0.137	0.135	0.142	0.263	0.123	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-7S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/30/2018	11/14/2018	12/12/2018	5/22/2019
Field Parameters								
Elevation	ft NGVD	--	--	369.5	368.76	368.68	368.47	371.91
pH	S.U.	--	7.4	7.4	7.33	7.31	7.3	8.39
Specific Conductance	µmhos/cm	--	--	417	611	455	629	527
Turbidity	NTU	--	--	106	104	42.6	44	4.77
Dissolved Oxygen	mg/L	--	--	0.4	0.32	0.7	0.23	0.65
Temperature	°C	--	--	15.4	15.01	13.9	14.43	14.69
ORP	mV	--	--	106	85.4	48.2	92	0.1
Laboratory Parameters								
Antimony	µg/L	6	--	0.14	0.15	0.06	0.09	0.02
Arsenic	µg/L	10	--	1.48	2.01	0.7	1.06	0.11
Barium	µg/L	2000	--	18.7	24.3	12.9	15.4	8.42
Beryllium	µg/L	4	--	0.101	0.127	0.05	0.07	<0.02
Cadmium	µg/L	5	--	0.05	0.06	0.02	0.05	0.02
Chromium	µg/L	100	--	2.08	2.45	0.831	1.48	0.1
Cobalt	µg/L	6	--	6.48	9.82	3.47	4.98	0.255
Copper	µg/L	--	--	4.4	5.36	1.91	2.76	0.51
Lead	µg/L	15	--	4.69	6.69	2.38	3.56	0.205
Mercury	µg/L	2	--	--	--	--	--	<0.002
Molybdenum	µg/L	100	--	<0.4	<0.4	<0.4	<0.4	<0.4
Selenium	µg/L	50	--	0.6	0.8	0.3	0.4	0.2
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	7.9	9.5	14	5	39.1
Silica (Dissolved)	mg/L	--	--	20.8	18.7	18.6	19.3	18.4
Aluminum	µg/L	--	--	1520	1850	681	1170	39.3
Boron	mg/L	--	0.079	0.04	0.07	0.135	0.08	0.03
Calcium	mg/L	--	70.2	73.7	68.3	66.2	67.1	62.4
Lithium	mg/L	0.04	--	0.02	0.01	<0.009	<0.009	<0.009
Magnesium	mg/L	--	--	25.4	25.7	24.3	24.6	21.7
Manganese	mg/L	--	--	0.334	0.49	0.182	0.248	0.0145
Potassium	mg/L	--	--	1.33	1.39	1.81	1.3	0.87
Sodium	mg/L	--	--	17.9	19.1	18.9	18.7	17
Strontium	mg/L	--	--	0.083	0.0857	0.0883	0.0874	0.0803
Alkalinity	mg/L	--	--	256	261	255	261	242
Bromide	mg/L	--	--	0.09	0.09	0.09	0.09	0.1
Chloride	mg/L	--	32.8	32.2	33.5	33.2	33.6	35.4
Fluoride	mg/L	4	0.52	0.54	0.53	0.54	0.55	0.55
TDS	mg/L	--	358	370	358	354	353	353
Sulfate	mg/L	--	32	32.2	33.1	33.1	33.7	34.1
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1
Radium-228	pCi/L	--	--	0.48	0.601	0.254	0.191	0.27
Radium-226	pCi/L	--	--	0.271	0.245	0.211	0.507	0.0334
Radium-226/228	pCi/L	5	--	0.751	0.846	0.465	0.698	0.3034
Copper (Dissolved)	µg/L	--	--	1.01	0.07	1.62	0.2	0.17
Zinc (Dissolved)	µg/L	--	--	2	<0.7	3	<0.7	<0.7
Aluminum (Dissolved)	µg/L	--	--	311	3	2	3	2
Iron (Dissolved)	mg/L	--	--	0.618	0.004	0.005	0.007	<0.003
Manganese (Dissolved)	mg/L	--	--	0.0797	0.0021	0.0012	0.0026	0.0009

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-7I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/30/2018	11/15/2018	12/12/2018	5/22/2019
Field Parameters								
Elevation	ft NGVD	--	--	369.01	368.51	368.5	368.27	371.73
pH	S.U.	--	7.4	7.5	7.3	7.03	7.27	8.4
Specific Conductance	µmhos/cm	--	--	419	613	460	645	573
Turbidity	NTU	--	--	19	14.4	7.05	19.9	1.6
Dissolved Oxygen	mg/L	--	--	0.3	0.36	0.95	0.21	0.7
Temperature	°C	--	--	15.5	15.17	13.78	14.46	15.1
ORP	mV	--	--	57	-19.2	68.4	44	-71.2
Laboratory Parameters								
Antimony	µg/L	6	--	0.02	0.03	<0.02	<0.02	0.02
Arsenic	µg/L	10	--	0.28	0.43	0.24	0.26	0.23
Barium	µg/L	2000	--	175	230	162	147	116
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.05	0.06	0.03	0.03	0.35
Chromium	µg/L	100	--	0.2	0.315	0.09	0.07	0.09
Cobalt	µg/L	6	--	3.07	8.34	1.11	1.67	1.1
Copper	µg/L	--	--	0.55	1.45	0.59	0.76	0.4
Lead	µg/L	15	--	0.45	0.6	0.05	0.145	0.228
Mercury	µg/L	2	--	--	--	--	--	<0.002
Molybdenum	µg/L	100	--	4.2	4.31	<0.4	3.45	3.63
Selenium	µg/L	50	--	0.05	0.09	0.05	0.05	0.04
Thallium	µg/L	2	--	<0.1	0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	2	15.1	1	2	3
Silica (Dissolved)	mg/L	--	--	20.5	18.1	18.5	18.8	18.4
Aluminum	µg/L	--	--	74.1	304	69.9	39.5	27.7
Boron	mg/L	--	0.07	0.04	0.06	0.09	0.08	0.03
Calcium	mg/L	--	75.3	75.4	68.8	68.8	73.7	73.7
Lithium	mg/L	0.04	--	0.01	<0.009	<0.009	<0.009	<0.009
Magnesium	mg/L	--	--	21.9	21.7	21.4	22.8	21.5
Manganese	mg/L	--	--	2.76	4	1.08	2.89	0.821
Potassium	mg/L	--	--	1.22	0.97	1.57	1.19	1.08
Sodium	mg/L	--	--	19.8	20.1	21.5	21.3	18.1
Strontium	mg/L	--	--	0.0928	0.0932	0.1	0.103	0.11
Alkalinity	mg/L	--	--	236	237	233	229	232
Bromide	mg/L	--	--	0.1	0.1	0.1	0.1	0.1
Chloride	mg/L	--	45	45.8	48.2	47.6	48.8	49
Fluoride	mg/L	4	0.33	0.34	0.34	0.35	0.35	0.33
TDS	mg/L	--	312	348	338	354	347	376
Sulfate	mg/L	--	38.4	38.9	38.9	39	39.1	43.1
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1
Radium-228	pCi/L	--	--	-0.0705	0.369	0.123	0.089	0.643
Radium-226	pCi/L	--	--	4.16	0.513	0.605	0.934	0.155
Radium-226/228	pCi/L	5	--	4.16	0.882	0.728	1.023	0.798
Copper (Dissolved)	µg/L	--	--	0.93	0.24	1.56	0.72	0.15
Zinc (Dissolved)	µg/L	--	--	2	0.9	3	2	2
Aluminum (Dissolved)	µg/L	--	--	1	10.6	2	137	2
Iron (Dissolved)	mg/L	--	--	<0.003	0.01	0.006	0.128	<0.003
Manganese (Dissolved)	mg/L	--	--	0.172	0.51	0.243	3.9	0.121

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-7D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/31/2018	11/15/2018	12/12/2018	5/22/2019
Field Parameters								
Elevation	ft NGVD	--	--	369.08	368.65	368.57	368.35	371.82
pH	S.U.	--	7.2	7.5	6.91	7.26	7.18	7.91
Specific Conductance	µmhos/cm	--	--	419	617	444	622	549
Turbidity	NTU	--	--	10.8	1.02	5.96	0	0.01
Dissolved Oxygen	mg/L	--	--	0.7	3.72	11.3	0.52	2
Temperature	°C	--	--	15.2	14.79	13.32	15.23	16.25
ORP	mV	--	--	57	26.4	26.4	-5	-40.4
Laboratory Parameters								
Antimony	µg/L	6	--	0.04	0.03	0.04	0.06	0.02
Arsenic	µg/L	10	--	0.91	0.8	0.87	0.85	0.72
Barium	µg/L	2000	--	286	283	268	320	284
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.02	0.02	0.04	<0.01	<0.01
Chromium	µg/L	100	--	0.2	0.334	0.1	0.1	0.07
Cobalt	µg/L	6	--	2.52	2.46	2.24	2.24	1.88
Copper	µg/L	--	--	0.34	0.44	0.57	1.59	0.08
Lead	µg/L	15	--	0.1	0.164	0.101	0.144	<0.02
Mercury	µg/L	2	--	--	--	--	--	<0.002
Molybdenum	µg/L	100	--	4.09	9.76	7.38	5.43	3.49
Selenium	µg/L	50	--	0.05	0.05	0.03	<0.03	<0.03
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	2	4	3	5.1
Silica (Dissolved)	mg/L	--	--	216	19.2	19.9	19.8	19.2
Aluminum	µg/L	--	--	31.4	56.7	16.5	<1	1
Boron	mg/L	--	0.06	0.04	0.05	0.07	0.04	0.02
Calcium	mg/L	--	80.1	79.2	75	62.8	77.4	76.7
Lithium	mg/L	0.04	--	<0.009	0.01	0.02	<0.009	<0.009
Magnesium	mg/L	--	--	25	25.8	21	25.7	24.3
Manganese	mg/L	--	--	1.89	1.66	1.34	1.51	1.49
Potassium	mg/L	--	--	1.22	1.07	1.39	1.25	0.94
Sodium	mg/L	--	--	14.2	15.4	12.9	15.3	13.9
Strontium	mg/L	--	--	0.137	0.141	0.125	0.146	0.138
Alkalinity	mg/L	--	--	273	293	296	300	296
Bromide	mg/L	--	--	0.09	0.08	0.08	0.08	0.009
Chloride	mg/L	--	17.3	17.5	17.2	16.9	17.2	19.1
Fluoride	mg/L	4	0.27	0.26	0.26	0.26	0.27	0.26
TDS	mg/L	--	359	358	3.46	340	344	371
Sulfate	mg/L	--	36.9	36.3	36	35.4	35.5	35.2
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.07	<0.1
Radium-228	pCi/L	--	--	0.36	0.202	0.548	0.159	0.89
Radium-226	pCi/L	--	--	0.983	0.107	0.45	0.717	0.265
Radium-226/228	pCi/L	5	--	1.343	0.309	0.998	0.876	1.155
Copper (Dissolved)	µg/L	--	--	0.55	0.17	2.01	0.18	0.77
Zinc (Dissolved)	µg/L	--	--	2	2	4	1	3
Aluminum (Dissolved)	µg/L	--	--	6.36	6.44	2	3	2
Iron (Dissolved)	mg/L	--	--	0.103	0.081	0.08	0.093	0.072
Manganese (Dissolved)	mg/L	--	--	1.76	1.6	1.47	1.35	1.5

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-8S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/19/2016	9/21/2016	11/17/2016	1/9/2017	3/7/2017	5/9/2017	7/18/2017	10/4/2017	12/12/2017	6/5/2018	11/13/2018	5/23/2019	11/21/2019	5/19/2020
Field Parameters																	
Elevation	ft NGVD	--	--	369.78	369.44	369.25	368.53	368.39	368.39	368.81	367.5	366.59	369.59	368.9	371.48	371.51	370.01
pH	S.U.	--	7.3	7.2	7.1	7.9	7.6	7.6	7.4	7.4	7.75	7.7	7.59	7.58	7.38	7.43	6.29
Specific Conductance	µmhos/cm	--	--	516	540	811	450	260	444	410	395	460	400	354	440	495	567
Turbidity	NTU	--	--	1.1	2	2	3	4	8	1	2.46	6	3.48	2.6	0.69	53.7	0
Dissolved Oxygen	mg/L	--	--	3.2	3.6	1	2	4	2	3.2	3.12	0.8	2.1	3.8	6.54	6.51	4.63
Temperature	°C	--	--	20.7	21.6	16.2	14	14.2	15.6	15.8	16.57	14.1	15.05	14.4	16.17	12.82	14.81
ORP	mV	--	--	29	18	275	131	50	50	65	29.9	-17	-33.7	158	54.2	110.9	164
Laboratory Parameters																	
Antimony	µg/L	6	--	0.3	0.02	0.03	0.02	0.04	0.03	0.02	--	--	--	0.05	<0.02	0.04	--
Arsenic	µg/L	10	--	1.78	1.33	1.26	1.56	1.53	2.09	1.19	--	--	--	1.61	1.52	1.97	--
Barium	µg/L	2000	--	13.1	12.2	10.9	13.8	14.5	16.9	10.9	--	--	--	10.4	9.22	16.6	--
Beryllium	µg/L	4	--	0.232	<0.005	<0.005	0.006	0.009	0.01	<0.004	--	--	--	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.31	0.02	0.05	0.01	0.26	0.09	0.13	--	--	--	0.03	<0.01	0.03	--
Chromium	µg/L	100	--	0.6	0.4	0.156	1.04	0.881	0.423	0.277	--	--	--	0.578	0.235	0.378	--
Cobalt	µg/L	6	--	0.453	0.125	0.113	0.447	0.433	0.981	0.052	--	--	--	0.207	0.058	0.669	--
Copper	µg/L	--	--	--	--	--	--	--	--	0.18	0.12	--	0.25	1.7	0.13	0.5	--
Lead	µg/L	15	--	0.364	0.066	0.065	0.19	0.278	0.389	0.038	--	--	--	0.152	0.03	0.33	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.015	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	1.1	0.8	0.71	0.77	1.56	0.75	0.83	--	--	--	0.9	0.9	0.5	--
Selenium	µg/L	50	--	0.6	0.2	0.2	0.2	0.2	0.3	0.2	--	--	--	0.5	0.6	1	--
Thallium	µg/L	2	--	0.276	0.03	<0.01	0.01	0.17	<0.01	<0.01	--	--	--	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	--	--	--	--	--	--	0.7	0.6	--	1	3	2	2	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	21.5	21.2	24.7	--	21.7	21.4	<0.06	20.9	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	7.37	10.6	--	53	31	8.03	164	--
Boron	mg/L	--	0.01	0.012	0.011	0.032	<0.002	0.043	0.028	0.022	0.016	--	0.058	0.04	<0.02	0.01	<0.02
Calcium	mg/L	--	42.7	41.5	42.7	42.9	45.8	44.8	42.9	44.4	39.8	--	42.3	35.6	35.9	39	42.2
Lithium	mg/L	0.04	--	0.025	0.001	0.002	0.002	0.006	0.006	0.001	--	--	--	<0.009	0.02	0.00311	--
Magnesium	mg/L	--	--	--	--	--	--	19.6	20	20	17.6	--	18.8	16	16.1	16.9	--
Manganese	mg/L	--	--	--	--	--	--	--	--	0.0021	--	--	0.0323	0.0154	0.0033	0.0413	--
Potassium	mg/L	--	--	--	--	--	--	0.91	0.89	0.77	0.65	--	0.82	0.88	0.76	1	--
Sodium	mg/L	--	--	--	--	--	--	41.2	40.5	42.1	43.2	--	40.1	34.6	37.4	39.7	--
Strontium	mg/L	--	--	--	--	--	--	0.0562	0.0564	0.0543	0.0494	--	0.0555	0.0464	0.0458	0.0478	--
Alkalinity	mg/L	--	--	--	--	--	--	162	181	167	171	--	181	159	150	173	--
Bromide	mg/L	--	--	--	--	--	--	0.03	0.062	0.04	0.06	--	<0.02	<0.04	<0.04	0.1	--
Chloride	mg/L	--	23.7	23.5	22.1	21.1	20.8	21.4	22.8	22.7	22.4	22.5	23.8	22.9	23.6	23.1	27.2
Fluoride	mg/L	4	0.56	0.56	0.54	0.55	0.47	0.52	0.52	0.47	0.52	0.56	0.59	0.57	0.58	0.49	0.5
TDS	mg/L	--	345	321	332	322	300	320	319	319	317	--	324	288	312	324	342
Sulfate	mg/L	--	26.5	26.4	23.4	21.7	22.1	21.7	21.8	22.3	23.1	24.9	21.2	19.5	20.4	20	23.8
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.1	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.455	1.16	0.343	0.394	0.26	-0.175	1.5	--	--	--	0.346	0.113	0.0252	--
Radium-226	pCi/L	--	--	0.122	0.131	0.147	0.282	0.0561	0.127	0.153	--	--	--	0.137	0.0183	0.296	--
Radium-226/228	pCi/L	5	--	0.577	1.291	0.49	0.676	0.3161	-0.048	1.653	--	--	--	0.483	0.1313	0.3212	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.96	--	--	0.44	0.29	0.48	<0.2	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.5	--	--	0.7	2	2	0.7	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2	--	--	1	1	7.36	10	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.004	<0.0004	<0.0004	0.014	--	0.002	0.003	0.007	<0.02	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	0.0002	0.0004	0.0002	0.0004	--	0.0012	0.0006	0.0007	<0.0005	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-8I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/19/2016	9/21/2016	11/17/2016	1/9/2017	3/6/2017	5/9/2017	7/18/2017	10/4/2017	12/12/2017	6/4/2018	11/14/2018	5/23/2019	11/22/2019	5/19/2020
Field Parameters																	
Elevation	ft NGVD	--	--	370.06	369.7	369.51	368.84	368.68	368.68	369.07	367.78	366.87	369.85	367.78	371.38	371.37	369.87
pH	S.U.	--	7.2	7.2	7.44	7.6	7.6	7.4	7.2	7.3	7.56	7.9	7.68	7.22	7.22	6.73	7.83
Specific Conductance	µmhos/cm	--	--	580	455	968	420	80	507	485	471	390	619	453	607	525	601
Turbidity	NTU	--	--	9	3.29	1	5	10	2	1	6.26	1	3.18	9	2.4	8	0
Dissolved Oxygen	mg/L	--	--	0.6	0.17	0.8	1	4.5	0.3	0.2	0.31	9.7	2.46	0.37	2.53	1.3	0
Temperature	°C	--	--	21	15.39	17.1	14	14.4	15	16.2	15.51	14.4	17.42	13.8	19.41	13.6	15.09
ORP	mV	--	--	-60	-63.9	-1	29	25	52	-15	-67.4	111	-75.3	190	-8.1	-185	21
Laboratory Parameters																	
Antimony	µg/L	6	--	0.27	0.07	0.1	0.08	0.08	0.08	0.07	--	--	--	0.17	0.17	0.16	--
Arsenic	µg/L	10	--	11.5	2.08	1.39	2.58	2.78	2.09	1.31	--	--	--	3.41	1.07	1.6	--
Barium	µg/L	2000	--	70.1	57	58.4	54.9	56.9	57.8	60.4	--	--	--	57.9	63.8	58.5	--
Beryllium	µg/L	4	--	0.119	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	--	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.28	0.02	0.04	0.02	0.04	0.05	0.02	--	--	--	0.15	0.02	0.08	--
Chromium	µg/L	100	--	0.5	0.1	0.055	0.817	0.511	0.23	0.077	--	--	--	0.07	0.05	0.1	--
Cobalt	µg/L	6	--	0.961	0.643	0.646	0.671	0.656	0.77	0.672	--	--	--	1.01	0.55	0.741	--
Copper	µg/L	--	--	--	--	--	--	--	--	0.11	0.13	--	0.42	1.45	0.2	0.5	--
Lead	µg/L	15	--	0.242	0.02	0.032	0.025	0.032	0.054	0.01	--	--	--	0.111	<0.02	<0.05	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	3	2.34	2.47	2.31	2.73	2.29	2.58	--	--	--	2.7	2.72	2.43	--
Selenium	µg/L	50	--	7.5	2.7	3	2.3	2.9	4.5	4.7	--	--	--	2.5	3.7	1.4	--
Thallium	µg/L	2	--	0.166	0.03	0.03	0.04	0.05	0.03	0.03	--	--	--	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	--	--	--	--	--	--	0.7	0.9	--	3.2	9.2	21.9	3	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	14.6	14.7	17.1	--	16.4	14.1	<0.06	13.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	2	1	--	0.8	8.7	<1	<5	--
Boron	mg/L	--	0.017	0.016	0.017	0.028	0.006	0.083	0.045	0.026	0.096	--	0.044	0.06	0.03	0.02	0.02
Calcium	mg/L	--	72	67.9	67.4	77.5	79.5	74.7	71.9	72.2	74.7	--	76.7	67.7	70.7	66.9	68.8
Lithium	mg/L	0.04	--	0.007	0.008	0.009	0.005	0.01	0.001	<0.0002	--	--	--	0.02	0.02	0.00419	--
Magnesium	mg/L	--	--	--	--	--	--	22.3	22.9	22.2	22.5	--	23.5	21.4	22.4	20.7	--
Manganese	mg/L	--	--	--	--	--	--	--	--	0.357	--	--	0.32	0.509	0.407	0.443	--
Potassium	mg/L	--	--	--	--	--	--	1.84	1.73	1.48	2.02	--	1.6	2.28	1.76	1.76	--
Sodium	mg/L	--	--	--	--	--	--	29.4	28.5	29.7	28.6	--	32.5	31.5	31.6	29.2	--
Strontium	mg/L	--	--	--	--	--	--	0.146	0.148	0.14	0.146	--	0.152	0.139	0.138	0.129	--
Alkalinity	mg/L	--	--	--	--	--	--	245	246	247	237	--	268	250	250	268	--
Bromide	mg/L	--	--	--	--	--	--	0.04	0.065	0.062	0.064	--	0.05	<0.04	<0.04	<0.04	--
Chloride	mg/L	--	21.7	22	21.5	21.3	20.9	20.7	21.2	20.9	20.1	19.3	20.9	20.6	21	19.7	20.4
Fluoride	mg/L	4	0.35	0.34	0.29	0.29	0.25	0.28	0.28	0.25	0.27	0.29	0.29	0.33	0.34	0.3	0.32
TDS	mg/L	--	370	358	376	387	371	391	376	379	378	--	407	390	371	381	357
Sulfate	mg/L	--	87.5	86.3	79.2	77.5	80	80.3	81.9	83.4	85.9	87.1	79	68.2	62.3	68.3	61.7
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.07	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.4275	0.157	0.42	1.1	0.372	0.45	0.616	--	--	--	0.354	0.43	0.479	--
Radium-226	pCi/L	--	--	0.824	0.521	0.746	0.725	0.643	0.561	0.463	--	--	--	0.676	0.663	0.723	--
Radium-226/228	pCi/L	5	--	1.2515	0.678	1.166	1.825	1.015	1.011	1.079	--	--	--	1.03	1.093	1.202	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.52	--	--	0.27	0.17	0.45	<0.2	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.4	--	--	16.8	<0.7	2	0.9	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	2.46	--	--	<0.8	<1	2	<5	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	0.36	0.405	0.35	0.515	--	1.08	0.213	0.334	0.333	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	0.349	0.39	0.324	0.363	--	0.31	0.358	0.368	--	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-11S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/18/2016	9/20/2016	11/16/2016	1/9/2017	3/7/2017	5/19/2017	7/18/2017	10/3/2017	12/12/2017	6/5/2018	11/14/2018	5/23/2019	11/15/2019	5/20/2020
Field Parameters																	
Elevation	ft NGVD	--	--	369.93	369.4	368.47	367.7	367.51	367.92	368.57	367.86	366.6	369.69	369.27	373.25	371.21	
pH	S.U.	--	7.9	7.3	7.3	8.4	8.1	7.9	7.78	7.7	7.2	8.3	7.21	7.55	7.71	7.76	7.4
Specific Conductance	µmhos/cm	--	--	272	330	433	200	70	307	386	267	260	360	309	440	533	435
Turbidity	NTU	--	--	0.81	0.4	1	0.8	0.3	2.64	0.4	0.5	0.6	0.39	0.2	1	1.97	0.18
Dissolved Oxygen	mg/L	--	--	9.3	7.4	2	7	7	6.99	6.1	8	19.4	6.94	6.9	9	5.53	8.95
Temperature	°C	--	--	16.1	22.4	14.7	14.8	15	15.7	17.1	15.4	13.4	14.97	13.25	17.3	15.3	13.75
ORP	mV	--	--	24	167	227	126	47	75.6	73	-13	73	-2.7	152	240	114.7	216
Laboratory Parameters																	
Antimony	µg/L	6	--	0.04	0.04	0.05	0.04	0.04	0.04	<0.05	--	--	--	0.05	0.05	0.04	--
Arsenic	µg/L	10	--	0.53	0.42	0.45	0.52	0.52	0.48	0.5	--	--	--	0.38	0.36	0.43	--
Barium	µg/L	2000	--	9.79	11.3	7.91	6.52	7.09	7.73	8.16	--	--	--	12.5	13.7	10.8	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.02	--	--	--	<0.02	0.03	<0.02	--
Cadmium	µg/L	5	--	0.03	0.03	0.02	0.01	0.007	0.03	<0.02	--	--	--	0.03	0.02	<0.01	--
Chromium	µg/L	100	--	0.5	0.8	0.416	0.725	1.25	0.567	0.568	--	--	--	0.384	0.483	0.468	--
Cobalt	µg/L	6	--	0.043	0.029	0.027	0.022	0.027	0.03	0.02	--	--	--	<0.02	0.03	<0.02	--
Copper	µg/L	--	--	--	--	--	--	--	--	0.44	0.26	--	0.25	0.44	2.07	0.3	--
Lead	µg/L	15	--	0.02	0.046	0.027	0.02	0.02	0.023	0.06	--	--	--	0.03	<0.02	<0.05	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	0.002	0.002	<0.002	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	4.36	3.37	4.71	6.09	6.03	4.86	4.69	--	--	--	2.4	2.04	2.15	--
Selenium	µg/L	50	--	0.08	0.1	0.07	0.05	0.2	0.2	0.3	--	--	--	0.04	<0.03	0.06	--
Thallium	µg/L	2	--	0.01	0.01	0.02	0.01	0.01	0.01	0.2	--	--	--	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	--	--	--	--	--	--	7	<0.4	--	2	<0.7	<0.7	0.8	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	24.9	24.4	27.3	--	25.8	26.6	24.5	25	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	10	3.63	--	2	3	3	<5	--
Boron	mg/L	--	0.062	0.062	0.077	0.053	0.029	0.057	0.047	0.067	0.09	--	0.076	0.11	0.08	0.052	0.04
Calcium	mg/L	--	41.6	38.8	45.1	37.3	40.4	42.8	41.2	44.2	43.7	--	55.8	56.4	54.3	47.6	55.8
Lithium	mg/L	0.04	--	0.024	0.004	0.005	0.003	0.013	0.009	0.002	--	--	--	0.01	0.01	0.00669	--
Magnesium	mg/L	--	--	--	--	--	--	17.2	17.7	18.8	17.6	--	24.8	19.5	17.7	17	--
Manganese	mg/L	--	--	--	--	--	--	--	--	<0.0001	--	--	<0.0002	0.0004	<0.0002	0.0006	--
Potassium	mg/L	--	--	--	--	--	--	0.42	0.42	0.42	0.48	--	0.37	0.88	0.4	0.5	--
Sodium	mg/L	--	--	--	--	--	--	5.72	5.58	6.82	7.26	--	7.11	5.35	4.43	4.47	--
Strontium	mg/L	--	--	--	--	--	--	0.0508	0.0535	0.0532	0.0537	--	0.0706	0.0774	0.0707	0.0638	--
Alkalinity	mg/L	--	--	--	--	--	--	153	175	187	167	--	226	246	235	223	--
Bromide	mg/L	--	--	--	--	--	--	<0.02	<0.06	<0.02	<0.02	--	<0.02	<0.04	<0.4	<0.04	--
Chloride	mg/L	--	1.82	1.83	1.62	1.54	2.12	4.63	9.87	8.19	3.68	2.4	6.98	1.79	1.62	1.48	2.68
Fluoride	mg/L	4	0.74	0.76	0.73	0.92	0.96	1	0.86	0.75	0.89	0.82	0.62	0.72	0.82	0.77	0.58
TDS	mg/L	--	212	201	196	182	179	197	239	224	200	--	276	238	279	216	246
Sulfate	mg/L	--	10.9	10.6	5.3	4.1	7.6	13.7	16.4	15.6	9.3	8	21.7	5.9	14.7	2.7	13.5
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.07	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.231	0.741	0.179	1.96	0.0959	0.0337	0.771	--	--	--	0.419	0.805	1.72	--
Radium-226	pCi/L	--	--	0.584	-0.0127	0.109	0.141	0.0906	0.091	0.0225	--	--	--	0.217	0.0772	0.0737	--
Radium-226/228	pCi/L	5	--	0.815	0.7283	0.288	2.101	0.1865	0.1247	0.7935	--	--	--	0.636	0.8822	1.7937	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.82	--	--	0.63	0.71	0.26	0.3	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	9	--	--	2	1	<0.7	1	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	66.5	--	--	2.92	3	2	<5	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.014	--	0.008	0.04	0.004	<0.02	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	<0.0001	0.0002	0.0001	<0.0002	--	<0.002	0.0005	<0.0002	<0.0005	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-12S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	11/1/2018	11/14/2008	12/11/2018	5/22/2019	11/21/2019
Field Parameters									
Elevation	ft NGVD	--	--	367.81	367.96	367.93	368.21	372.14	368.42
pH	S.U.	--	7.2	5.9	7.6	6.83	7.12	7.31	7.52
Specific Conductance	µmhos/cm	--	--	522	551	517	816	757	728
Turbidity	NTU	--	--	9	1.14	2.14	23.7	13.8	5.1
Dissolved Oxygen	mg/L	--	--	0.2	3.13	0.36	0.29	0	10.83
Temperature	°C	--	--	14.5	14.05	13.16	13.36	14.8	12.81
ORP	mV	--	--	68	-34.8	184.2	-10	9	144.1
Laboratory Parameters									
Antimony	µg/L	6	--	0.06	0.03	0.17	0.06	0.07	0.19
Arsenic	µg/L	10	--	0.3	0.27	0.25	0.61	0.45	0.44
Barium	µg/L	2000	--	26.8	26.3	25.3	31	29.7	28.8
Beryllium	µg/L	4	--	<0.02	<0.02	<0.02	0.02	<0.02	<0.02
Cadmium	µg/L	5	--	0.06	0.05	0.13	0.04	0.09	0.09
Chromium	µg/L	100	--	0.276	0.1	0.1	0.639	0.476	0.315
Cobalt	µg/L	6	--	0.642	0.4783	0.439	1.23	0.924	0.955
Copper	µg/L	--	--	0.5	0.36	0.55	1.08	1.59	1.2
Lead	µg/L	15	--	0.34	0.08	0.08	0.904	0.538	0.526
Mercury	µg/L	2	--	--	--	--	--	0.002	<0.002
Molybdenum	µg/L	100	--	2	2	2	2	1	1
Selenium	µg/L	50	--	0.2	0.07	0.1	0.2	0.09	0.3
Thallium	µg/L	2	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	0.8	2	2	19.3	8.2
Silica (Dissolved)	mg/L	--	--	21.5	20	20	20.3	19.3	18.8
Aluminum	µg/L	--	--	45.2	8.53	3	291	119	106
Boron	mg/L	--	0.067	0.04	0.07	0.03	0.12	0.02	0.03
Calcium	mg/L	--	86.3	87	86.4	80.2	89.3	84.9	88.7
Lithium	mg/L	0.04	--	0.01	0.01	0.01	<0.009	0.01	0.00591
Magnesium	mg/L	--	--	31.6	33.7	30.5	33	30.3	32.3
Manganese	mg/L	--	--	0.0864	0.0758	0.0811	0.106	0.163	0.116
Potassium	mg/L	--	--	1.18	1.26	1.57	1.87	1.19	1.49
Sodium	mg/L	--	--	30.2	33.9	32.1	32.4	30.5	29.6
Strontium	mg/L	--	--	0.103	0.111	0.114	0.119	0.114	0.114
Alkalinity	mg/L	--	--	392	358	374	361	354	348
Bromide	mg/L	--	--	0.1	0.1	0.1	0.1	0.1	0.2
Chloride	mg/L	--	30.1	30.1	29.9	29.4	29.5	29.7	28.7
Fluoride	mg/L	4	0.35	0.36	0.36	0.37	0.36	0.38	0.32
TDS	mg/L	--	445	446	434	422	437	455	456
Sulfate	mg/L	--	37.2	37.1	37.1	36.4	36.7	37.4	37.8
Sulfide	mg/L	--	--	<0.1	<0.1	<0.07	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	0.562	0.306	0.941	0.569	0.568	0.613
Radium-226	pCi/L	--	--	0.5	0.202	0.244	0.314	0.379	0.226
Radium-226/228	pCi/L	5	--	1.062	0.508	1.185	0.883	0.947	0.839
Copper (Dissolved)	µg/L	--	--	0.66	0.38	1.41	0.7	0.33	1.96
Zinc (Dissolved)	µg/L	--	--	3	2	3	4	7.5	5
Aluminum (Dissolved)	µg/L	--	--	2	1	1	76.2	2	<5
Iron (Dissolved)	mg/L	--	--	0.025	0.01	0.006	0.238	0.05	<0.02
Manganese (Dissolved)	mg/L	--	--	0.0847	0.0797	0.0677	0.103	0.144	0.0388

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-12I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	11/1/2018	11/14/2018	12/11/2018	5/22/2019	11/14/2019
Field Parameters									
Elevation	ft NGVD	--	--	369.85	367.84	367.81	368.16	371.95	368.3
pH	S.U.	--	0	7.15	7.74	7.01	7.12	7.27	7.33
Specific Conductance	µmhos/cm	--	--	662	622	579	901	882	811
Turbidity	NTU	--	--	1.48	8.76	2.54	2.3	39.5	3
Dissolved Oxygen	mg/L	--	--	1.2	2.68	9.27	1.99	0.2	2.59
Temperature	°C	--	--	15.21	13.94	12.9	12.92	14.8	13.7
ORP	mV	--	--	-35.1	-87.8	-54.9	-52	-57	-10.1
Laboratory Parameters									
Antimony	µg/L	6	--	<0.01	<0.02	<0.02	<0.02	0.12	0.03
Arsenic	µg/L	10	--	10.1	9.24	8.79	9.32	12.6	10.3
Barium	µg/L	2000	--	370	374	365	377	395	393
Beryllium	µg/L	4	--	0.006	<0.02	0.02	<0.02	0.04	<0.02
Cadmium	µg/L	5	--	<0.005	0.02	<0.01	0.17	0.16	0.02
Chromium	µg/L	100	--	0.101	0.289	0.05	0.2	1.32	0.2
Cobalt	µg/L	6	--	1.5	1.67	1.42	1.58	2.7	1.54
Copper	µg/L	--	--	1.15	1.23	0.44	0.56	8.39	1
Lead	µg/L	15	--	0.063	0.21	0.03	0.07	1.47	0.07
Mercury	µg/L	2	--	--	--	--	--	0.002	<0.002
Molybdenum	µg/L	100	--	2.92	2.87	2.87	3.13	2.8	3.01
Selenium	µg/L	50	--	0.04	0.06	<0.003	<0.03	0.1	<0.03
Thallium	µg/L	2	--	0.01	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	2	1	3	6.3	17.5
Silica (Dissolved)	mg/L	--	--	20.9	18.8	19.2	12.6	19	17.8
Aluminum	µg/L	--	--	48.8	64.6	5.87	5.67	581	10
Boron	mg/L	--	0.115	0.062	0.115	0.03	0.05	0.03	0.02
Calcium	mg/L	--	94.1	100	94.8	90.9	95.6	99.2	93.9
Lithium	mg/L	0.04	--	0.009	<0.009	0.03	0.01	0.01	0.00469
Magnesium	mg/L	--	--	32.5	32.6	30.5	31	31.5	29.9
Manganese	mg/L	--	--	1.17	1.2	1.08	1.12	2.13	1.08
Potassium	mg/L	--	--	2.03	2.43	2.28	2.26	2.13	1.9
Sodium	mg/L	--	--	43.2	45	43.9	42	45.7	49.4
Strontium	mg/L	--	--	0.134	0.138	0.144	0.142	0.15	0.14
Alkalinity	mg/L	--	--	433	448	433	441	458	431
Bromide	mg/L	--	--	0.139	0.1	0.1	0.1	0.1	0.1
Chloride	mg/L	--	33	34	33.9	33.7	33.1	33.4	32.8
Fluoride	mg/L	4	0.24	0.25	0.25	0.25	0.23	0.25	0.22
TDS	mg/L	--	499	506	493	484	485	532	484
Sulfate	mg/L	--	31.5	30.9	31	30.7	31	32.5	32.3
Sulfide	mg/L	--	--	<0.4	<0.1	<0.07	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	-0.0683	0.788	1.19	1.04	1.17	0.863
Radium-226	pCi/L	--	--	0.463	0.516	0.51	0.83	0.565	0.578
Radium-226/228	pCi/L	5	--	0.463	1.304	1.7	1.87	1.735	1.441
Copper (Dissolved)	µg/L	--	--	0.19	0.35	0.42	1.08	0.64	1.68
Zinc (Dissolved)	µg/L	--	--	1	10.2	2	8.1	1	3
Aluminum (Dissolved)	µg/L	--	--	2.36	5.95	2	3	16.6	<5
Iron (Dissolved)	mg/L	--	--	1.15	1.18	1.09	1.16	1.51	1.15
Manganese (Dissolved)	mg/L	--	--	1.12	1.16	1.06	1.16	1.11	1.14

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-12D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/30/2018	11/14/2018	12/11/2018	5/22/2019	11/15/2019
Field Parameters									
Elevation	ft NGVD	--	--	367.91	367.91	367.86	368.25	372.03	368.34
pH	S.U.	--	7.3	7.16	8.06	7.08	7.17	7.41	7.42
Specific Conductance	µmhos/cm	--	--	530	510	449	717	686	850
Turbidity	NTU	--	--	9.68	12.7	5.25	2.2	1.4	7.41
Dissolved Oxygen	mg/L	--	--	1.68	1.41	4.9	1.4	0.7	7.97
Temperature	°C	--	--	15.56	15.16	12	12.56	15.1	13.4
ORP	mV	--	--	-52.6	-90.9	-40.8	-69	-56	89.2
Laboratory Parameters									
Antimony	µg/L	6	--	0.02	0.06	<0.02	<0.02	0.02	0.25
Arsenic	µg/L	10	--	11.9	9.78	9.95	9.64	13.3	7.64
Barium	µg/L	2000	--	282	268	272	271	282	273
Beryllium	µg/L	4	--	0.006	<0.02	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	<0.005	0.05	<0.01	0.01	0.04	0.08
Chromium	µg/L	100	--	0.108	0.266	0.1	0.2	0.06	0.453
Cobalt	µg/L	6	--	0.462	0.538	0.378	0.4	0.554	0.679
Copper	µg/L	--	--	0.51	41	0.64	0.24	0.46	2.74
Lead	µg/L	15	--	0.127	0.329	0.111	0.05	0.02	0.502
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002
Molybdenum	µg/L	100	--	3.09	2.96	2.94	3.13	3.57	4.24
Selenium	µg/L	50	--	<0.03	0.07	<0.03	<0.03	<0.03	0.06
Thallium	µg/L	2	--	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	1	3	2	0.8	1	11.5
Silica (Dissolved)	mg/L	--	--	21.1	18.9	19.5	19.5	18.8	17.8
Aluminum	µg/L	--	--	14	53.9	26.1	5.83	3	105
Boron	mg/L	--	0.098	0.112	0.09	0.03	0.09	<0.02	<0.02
Calcium	mg/L	--	90.8	95.1	86.9	86.1	82.9	84.5	80.3
Lithium	mg/L	0.04	--	0.013	<0.009	<0.009	<0.009	0.02	0.00169
Magnesium	mg/L	--	--	30.3	29.6	28.5	26.7	26.5	27.2
Manganese	mg/L	--	--	0.989	0.902	0.878	0.743	0.979	0.933
Potassium	mg/L	--	--	1.16	0.89	1.34	1.45	0.76	0.8
Sodium	mg/L	--	--	10.5	11.3	11	10.2	9.06	9.66
Strontium	mg/L	--	--	0.161	0.161	0.171	0.158	0.147	0.142
Alkalinity	mg/L	--	--	373	353	371	384	368	347
Bromide	mg/L	--	--	0.081	0.08	0.07	0.07	0.07	0.1
Chloride	mg/L	--	16.1	17.2	17	16.6	16.7	15.9	16.1
Fluoride	mg/L	4	0.27	0.26	0.26	0.26	0.26	0.26	0.23
TDS	mg/L	--	328	386	381	374	380	393	376
Sulfate	mg/L	--	15.6	14.2	14.2	13.8	13.9	14.8	15.9
Sulfide	mg/L	--	--	<0.04	<0.1	<0.07	<0.1	<0.1	<0.2
Radium-228	pCi/L	--	--	0.643	0.405	0.589	1.69	0.698	0.529
Radium-226	pCi/L	--	--	0.702	0.454	0.608	0.766	0.548	0.574
Radium-226/228	pCi/L	5	--	1.345	0.859	1.197	2.456	1.246	1.103
Copper (Dissolved)	µg/L	--	--	0.35	0.21	0.12	0.44	0.25	<0.2
Zinc (Dissolved)	µg/L	--	--	3.3	2	1	1	0.7	4
Aluminum (Dissolved)	µg/L	--	--	7.24	2	2	5.13	1	<5
Iron (Dissolved)	mg/L	--	--	1.29	0.965	0.996	1.12	1.62	0.616
Manganese (Dissolved)	mg/L	--	--	0.994	0.88	0.801	0.832	1.03	0.906

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-13I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/31/2018	11/15/2018	12/11/2018	5/21/2019
Field Parameters								
Elevation	ft NGVD	--	--	368.83	368.45	368.41	368.31	371.99
pH	S.U.	--	7.5	7.36	8.12	7.21	7.36	7.54
Specific Conductance	µmhos/cm	--	--	411	397	451	555	522
Turbidity	NTU	--	--	2.14	0.93	0.31	0.45	1.4
Dissolved Oxygen	mg/L	--	--	0.37	1.15	8.64	0.57	0.4
Temperature	°C	--	--	15.71	15.25	13.17	14.13	16.5
ORP	mV	--	--	-15.8	-74.3	44.5	-72	-30
Laboratory Parameters								
Antimony	µg/L	6	--	0.02	<0.02	<0.02	0.04	<0.2
Arsenic	µg/L	10	--	1.74	1.66	1.6	1.84	2.41
Barium	µg/L	2000	--	149	139	141	144	151
Beryllium	µg/L	4	--	0.006	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	<0.005	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	100	--	0.04	0.1	0.06	0.07	<0.04
Cobalt	µg/L	6	--	0.5	0.554	0.477	0.574	0.577
Copper	µg/L	--	--	0.39	0.62	0.1	0.58	0.09
Lead	µg/L	15	--	0.01	0.04	<0.02	<0.02	<0.02
Mercury	µg/L	2	--	--	--	--	--	<0.002
Molybdenum	µg/L	100	--	4.49	4.23	4.09	4.29	4.11
Selenium	µg/L	50	--	<0.03	<0.03	<0.03	<0.03	<0.03
Thallium	µg/L	2	--	0.04	<0.1	<0.1	<0.1	<0.1
Zinc	µg/L	--	--	20.1	61.3	<0.7	2	<0.7
Silica (Dissolved)	mg/L	--	--	19.6	17.9	17.9	18.4	17.6
Aluminum	µg/L	--	--	2.54	10.6	2	<1	1
Boron	mg/L	--	0.042	0.09	0.05	<0.02	0.04	0.02
Calcium	mg/L	--	67.5	66	58.1	59.7	65.6	67.9
Lithium	mg/L	0.04	--	0.018	0.01	<0.009	<0.009	<0.009
Magnesium	mg/L	--	--	20.4	19.1	19.2	20.9	19.4
Manganese	mg/L	--	--	0.491	0.448	0.447	0.523	0.469
Potassium	mg/L	--	--	1.23	0.93	1.32	1.24	0.99
Sodium	mg/L	--	--	15.2	15.4	15.6	16.4	15.7
Strontium	mg/L	--	--	0.0781	0.0744	0.0834	0.0879	0.0831
Alkalinity	mg/L	--	--	231	228	231	241	235
Bromide	mg/L	--	--	0.04	<0.04	<0.04	<0.04	<0.04
Chloride	mg/L	--	20	20.6	20.5	20.3	20.4	20.1
Fluoride	mg/L	4	0.38	0.38	0.38	0.38	0.38	0.37
TDS	mg/L	--	297	319	305	310	310	318
Sulfate	mg/L	--	40.6	41.6	41.5	41.3	40.7	41.6
Sulfide	mg/L	--	--	<0.4	<0.1	<0.07	<0.07	<0.1
Radium-228	pCi/L	--	--	-0.268	0.658	0.682	0.3	0.76
Radium-226	pCi/L	--	--	0.456	0.509	0.669	0.589	0.646
Radium-226/228	pCi/L	5	--	0.456	1.167	1.351	0.889	1.406
Copper (Dissolved)	µg/L	--	--	0.11	0.39	0.2	0.2	0.15
Zinc (Dissolved)	µg/L	--	--	0.7	6.3	<0.7	3	<0.7
Aluminum (Dissolved)	µg/L	--	--	1	1	1	5	<1
Iron (Dissolved)	mg/L	--	--	0.185	0.189	0.193	0.26	0.278
Manganese (Dissolved)	mg/L	--	--	0.493	0.467	0.461	0.483	0.418

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-13D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	9/26/2018	10/31/2018	11/15/2018	12/11/2018	5/21/2019
Field Parameters								
Elevation	ft NGVD	--	--	368.79	368.43	368.39	368.29	371.95
pH	S.U.	--	7.4	7.03	8.11	7.17	7.29	7.45
Specific Conductance	µmhos/cm	--	--	406	382	427	540	524
Turbidity	NTU	--	--	5.34	10.6	4.66	3.22	2
Dissolved Oxygen	mg/L	--	--	1.34	1.4	5.45	0.51	1.7
Temperature	°C	--	--	16.29	14.99	12.18	14.06	18.7
ORP	mV	--	--	-71.4	-95.1	-48.5	-94	-48
Laboratory Parameters								
Antimony	µg/L	6	--	0.01	0.02	0.05	0.03	0.07
Arsenic	µg/L	10	--	6.44	5.62	7.55	5.3	20.8
Barium	µg/L	2000	--	206	204	198	219	265
Beryllium	µg/L	4	--	0.007	<0.02	<0.02	<0.02	<0.02
Cadmium	µg/L	5	--	<0.005	0.04	<0.01	<0.01	<0.01
Chromium	µg/L	100	--	0.071	0.353	0.209	0.06	0.2
Cobalt	µg/L	6	--	1.15	1.31	1.05	0.935	1.1
Copper	µg/L	--	--	0.26	1.02	0.55	0.28	1.11
Lead	µg/L	15	--	0.071	0.438	0.173	<0.02	0.07
Mercury	µg/L	2	--	--	--	--	--	<0.002
Molybdenum	µg/L	100	--	2.88	2.59	2.77	3.23	3.21
Selenium	µg/L	50	--	<0.03	0.1	0.07	<0.03	0.04
Thallium	µg/L	2	--	0.02	<0.1	>0.1	<0.1	<0.1
Zinc	µg/L	--	--	0.6	2	1	2	1
Silica (Dissolved)	mg/L	--	--	19.3	17.6	17.9	17.9	17.4
Aluminum	µg/L	--	--	21.8	162	58.8	2	12.4
Boron	mg/L	--	0.037	0.071	0.111	119	0.03	0.02
Calcium	mg/L	--	65.9	68.9	63.4	60.8	67.4	66.2
Lithium	mg/L	0.04	--	0.016	<0.009	<0.009	<0.009	<0.009
Magnesium	mg/L	--	--	21.8	21.7	20.1	22.5	19.7
Manganese	mg/L	--	--	0.762	0.669	0.648	0.677	0.997
Potassium	mg/L	--	--	1.06	1.14	1.45	1.16	0.82
Sodium	mg/L	--	--	11.2	11.6	11.4	11.2	9.25
Strontium	mg/L	--	--	0.0852	0.0867	0.0913	0.098	0.0882
Alkalinity	mg/L	--	--	231	243	223	252	237
Bromide	mg/L	--	--	0.05	<0.04	<0.04	<0.04	<0.04
Chloride	mg/L	--	16.3	17	16.9	16.6	16.5	15.9
Fluoride	mg/L	4	0.28	0.27	0.27	0.28	0.27	0.26
TDS	mg/L	--	287	296	299	296	305	303
Sulfate	mg/L	--	35.5	34.8	34.7	34.1	33.3	33.9
Sulfide	mg/L	--	--	<0.4	<0.1	<0.07	<0.07	<0.1
Radium-228	pCi/L	--	--	0.141	-0.293	-0.157	0.226	0.844
Radium-226	pCi/L	--	--	0.501	0.356	0.242	0.389	0.586
Radium-226/228	pCi/L	5	--	0.642	0.356	0.242	0.615	1.43
Copper (Dissolved)	µg/L	--	--	0.07	0.11	0.09	0.21	0.56
Zinc (Dissolved)	µg/L	--	--	0.5	1	<0.7	1	<0.7
Aluminum (Dissolved)	µg/L	--	--	11	3	2	20.5	1
Iron (Dissolved)	mg/L	--	--	1.29	0.915	0.995	1.13	0.866
Manganese (Dissolved)	mg/L	--	--	0.74	0.625	0.702	0.612	0.777

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-14S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	7/20/2016	9/21/2016	11/17/2016	1/9/2017	3/7/2017	5/19/2017	7/18/2017	10/4/2017	12/12/2017	6/5/2018	11/13/2018	5/23/2019	11/16/2019	5/19/2020
Field Parameters																	
Elevation	ft NGVD	--	--	370.07	369.7	369.34	368.92	368.49	368.63	369.88	368.43	368.41	368.94	369.27	371.36	371.63	369.98
pH	S.U.	--	7.2	7.1	7	7.7	7.5	7.4	6.95	7.3	7	7.6	7.55	7.55	7.15	7.51	7.68
Specific Conductance	µmhos/cm	--	--	576	640	955	530	80	441	496	488	490	450	309	604	655	550
Turbidity	NTU	--	--	3.9	6	1	2	0.7	2.07	1	0.5	1	0.6	0.2	0.61	9.8	0.52
Dissolved Oxygen	mg/L	--	--	3.8	3.3	1	3.4	3	3.82	3.7	4	10.2	5.42	6.9	2.57	0.455	3.22
Temperature	°C	--	--	18.7	22.6	15.2	14.4	13.9	14.54	15.9	15.3	13.5	14.98	13.25	17.01	12.4	15.74
ORP	mV	--	--	43	53	282	147	75	55.6	67	-23	133	-7.9	152	-203.7	-9	150
Laboratory Parameters																	
Antimony	µg/L	6	--	0.02	0.02	0.03	0.02	0.02	0.06	<0.05	--	--	--	<0.02	<0.02	0.03	--
Arsenic	µg/L	10	--	1.54	1.29	0.75	0.91	0.76	0.75	0.7	--	--	--	0.64	0.62	0.62	--
Barium	µg/L	2000	--	31	27.8	26.3	27	26.3	25	27	--	--	--	27	28.9	32.9	--
Beryllium	µg/L	4	--	0.008	0.005	<0.005	<0.005	<0.005	<0.004	<0.02	--	--	--	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.21	0.07	0.03	0.05	0.01	0.08	<0.02	--	--	--	0.05	0.01	<0.01	--
Chromium	µg/L	100	--	0.3	0.3	0.162	0.575	0.66	0.301	0.258	--	--	--	0.2	0.2	0.438	--
Cobalt	µg/L	6	--	0.573	0.333	0.088	0.187	0.083	0.065	0.03	--	--	--	0.03	0.03	0.04	--
Copper	µg/L	--	--	--	--	--	--	--	--	2.38	0.15	--	0.38	0.24	0.25	<0.2	--
Lead	µg/L	15	--	0.307	0.31	0.549	0.115	0.061	0.071	0.116	--	--	--	0.05	0.04	<0.05	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	1.51	1.43	1.26	1.62	1.84	1.35	1.67	--	--	--	1	1	1	--
Selenium	µg/L	50	--	1.4	1.2	1.2	1.1	1.1	1.2	1.3	--	--	--	1.1	0.9	0.9	--
Thallium	µg/L	2	--	<0.01	<0.01	0.02	0.054	0.055	0.01	0.07	--	--	--	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	--	--	--	--	--	--	9	0.8	--	1	1	<0.7	<0.7	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	20.3	20.2	23.3	--	20.4	20.2	<0.06	19.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	11.4	2	--	5.75	7.32	4	5	--
Boron	mg/L	--	0.011	0.008	0.01	0.008	<0.002	0.031	0.017	0.03	0.042	--	0.046	0.04	<0.02	0.01	<0.02
Calcium	mg/L	--	59.2	56.3	59.5	65.4	65.7	63.4	59.8	65.6	67	--	61.1	59.2	66.9	65.1	66.6
Lithium	mg/L	0.04	--	0.018	0.006	0.004	0.006	0.005	0.001	<0.0002	--	--	--	<0.009	0.01	0.00367	--
Magnesium	mg/L	--	--	--	--	--	--	27.6	28.1	29.3	29.9	--	27.4	26.4	30	29.8	--
Manganese	mg/L	--	--	--	--	--	--	--	--	0.0006	--	--	0.0014	0.0015	0.0008	0.002	--
Potassium	mg/L	--	--	--	--	--	--	0.5	0.54	0.49	0.59	--	0.51	0.55	0.53	0.5	--
Sodium	mg/L	--	--	--	--	--	--	33	29.4	30.1	29.9	--	29.2	24.9	23.3	23.7	--
Strontium	mg/L	--	--	--	--	--	--	0.101	0.102	0.103	0.106	--	0.101	0.0954	0.109	0.111	--
Alkalinity	mg/L	--	--	--	--	--	--	232	258	257	249	--	260	259	275	252	--
Bromide	mg/L	--	--	--	--	--	--	<0.02	<0.06	0.03	0.04	--	<0.02	<0.04	<0.04	<0.04	--
Chloride	mg/L	--	28.6	29.4	28.1	27.8	27.2	26.8	29.4	29.6	29.9	30	27.1	29	28.6	28.9	28.6
Fluoride	mg/L	4	0.39	0.39	0.36	0.35	0.33	0.36	0.37	0.33	0.34	0.34	0.39	0.37	0.37	0.38	0.33
TDS	mg/L	--	368	364	361	362	344	354	376	377	376	--	360	344	390	374	411
Sulfate	mg/L	--	34.9	36.5	32.5	29.1	30.7	29.9	32.3	33.1	34.8	35.5	29.4	30.8	32.4	32.8	32.5
Sulfide	mg/L	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.1	<0.1	<0.2	--
Radium-228	pCi/L	--	--	-0.343	0.769	0.693	0.601	-0.193	-0.019	1.73	--	--	--	0.334	0.271	1.1	--
Radium-226	pCi/L	--	--	0.594	0.131	0.413	0.179	0.0525	0.0316	0.153	--	--	--	0.0534	0.0483	0.112	--
Radium-226/228	pCi/L	5	--	0.251	0.9	1.106	0.78	-0.1405	0.0126	1.883	--	--	--	0.3874	0.3193	1.212	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	0.94	--	--	0.43	0.64	0.31	0.6	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	7	--	--	5.7	3	<0.7	1	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	11.3	--	--	1	<1	1	<5	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.016	--	0.002	<0.003	<0.003	<0.02	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	<0.0001	0.0021	0.0001	<0.0002	--	<0.0002	0.0005	<0.0002	<0.0005	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/7/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/7/2017	5/10/2017	7/19/2017	10/4/2017	6/5/2018	11/13/2018	5/23/2019	7/23/2019	9/11/2019	11/15/2019
Field Parameters																		
Elevation	ft NGVD	--	--	370	369.87	369.49	368.87	367.92	367.84	367.86	368.75	367.84	396.63	368.96	371.96	372.79	372.26	371.11
pH	S.U.	--	7.1 - 7.7	7.2	7.1	7.2	7.7	7.2	7.2	7.3	7.3	7.35	7.16	7.46	7.5	5.74	7.38	7.38
Specific Conductance	µmhos/cm	--	--	512	512	510	904	470	60	419	368	393	416	317	348	362	269	467
Turbidity	NTU	--	--	7.6	2.2	1	1	1	0.5	2	2	2.34	0.33	0.41	1.51	8.3	3	10
Dissolved Oxygen	mg/L	--	--	0.5	0.5	1	1	1	6	0.4	0.3	0.07	1.9	0.77	0.4	1	0	0
Temperature	°C	--	--	16.5	17.7	19.1	15.5	13.8	13.9	14.6	15.7	14.7	14.96	12.94	15.21	15.8	16.55	13.4
ORP	mV	--	--	57	124	181	-10	179	64	65	24	18.1	-37.7	19.3	-218	47	63	64
Laboratory Parameters																		
Antimony	µg/L	6	--	0.04	0.04	0.02	0.04	0.04	0.03	0.04	0.02	--	--	<0.02	0.02	--	--	0.03
Arsenic	µg/L	10	--	0.32	0.24	0.21	0.18	0.26	0.21	0.21	0.23	--	--	0.13	0.12	--	--	0.16
Barium	µg/L	2000	--	4.71	5.85	3.21	3.27	6.05	4.98	3.54	3.11	--	--	2.46	2.54	--	--	3.17
Beryllium	µg/L	4	--	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.004	--	--	<0.02	<0.02	--	--	<0.02
Cadmium	µg/L	5	--	0.14	0.25	0.05	0.05	0.06	0.04	0.05	0.05	--	--	0.04	0.1	--	--	0.06
Chromium	µg/L	100	--	0.2	1.7	0.5	0.058	0.493	0.934	0.198	0.096	--	--	0.05	0.08	--	--	0.1
Cobalt	µg/L	6	--	3.03	1.17	1.09	0.794	1.75	1.26	1.2	1.25	--	--	0.74	0.775	--	--	2.15
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.4	0.26	0.24	0.37	0.32	--	--	0.2
Lead	µg/L	15	--	0.286	0.101	0.098	0.037	0.039	0.024	0.062	0.083	--	--	0.03	0.05	--	--	0.1
Mercury	µg/L	2	--	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	<0.002	--	--	<0.002
Molybdenum	µg/L	100	--	2.52	2.89	2.54	1.57	0.78	1.17	2.08	2.87	--	--	2.54	3.47	--	--	2.18
Selenium	µg/L	50	--	0.4	0.7	0.5	0.3	0.3	0.5	0.5	0.2	--	--	0.1	0.06	--	--	0.2
Thallium	µg/L	2	--	0.03	<0.01	0.02	0.02	0.03	0.04	0.02	0.02	--	--	<0.1	<0.1	--	--	<0.1
Zinc	µg/L	--	--	--	--	--	--	--	--	--	3.5	1	21	2	2	--	--	2
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	13.1	12.7	15.8	13.1	12.4	<0.06	--	--	11.9
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	15.9	6.68	4.42	6.41	11.7	--	--	10
Boron	mg/L	--	0.15	0.011	0.012	0.008	<0.002	<0.002	0.084	0.077	0.073	0.095	0.078	0.04	<0.02	--	--	0.01
Calcium	mg/L	--	(79.5) 71	46.9	43.6	46.6	52.3	63.6	62.9	45.7	44.4	48.3	44.7	41.8	41.3	--	--	40.2
Lithium	mg/L	0.04	--	0.007	0.022	0.005	0.005	0.008	0.008	0.003	0.0009	--	--	<0.009	<0.009	--	--	0.00357
Magnesium	mg/L	--	--	--	--	--	--	--	28.2	19.3	17.2	18.5	16.9	15.1	13.9	--	--	15.1
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.489	--	0.391	0.444	0.452	--	--	0.743
Potassium	mg/L	--	--	--	--	--	--	--	1.07	1.11	1.03	1.27	0.93	1.16	0.68	--	--	0.8
Sodium	mg/L	--	--	--	--	--	--	--	35.5	44.7	39.2	42.3	35.9	27.2	17.3	--	--	19.7
Strontium	mg/L	--	--	--	--	--	--	--	0.0903	0.0711	0.061	0.0662	0.0638	0.0574	0.0502	--	--	0.0522
Alkalinity	mg/L	--	--	--	--	--	--	--	294	257	235	267	239	226	197	--	--	209
Bromide	mg/L	--	--	--	--	--	--	--	0.04	0.062	0.05	0.074	0.03	<0.04	<0.04	--	--	<0.04
Chloride	mg/L	--	(29.6) 26	21.2	18.7	18.9	18.3	21.9	16.1	14.1	11.8	13.3	8.84	8.78	8.88	--	--	9.48
Fluoride	mg/L	4	0.86	0.65	0.65	0.63	0.5	0.36	0.42	0.65	0.66	0.62	0.69	0.72	0.88	0.87	0.81	0.7
TDS	mg/L	--	(412.7) 407	338	319	329	338	374	342	294	263	300	274	232	207	--	--	234
Sulfate	mg/L	--	(33.67) 34	30.3	27.7	25.1	23.2	28.3	23.4	21	20.3	23.2	16.3	13.1	10.2	--	--	8.4
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.07	<0.1	--	--	<0.2
Radium-228	pCi/L	--	--	0.0335	-0.092	0.302	1.11	-0.0122	-0.108	0.106	-0.0928	--	--	0.482	0.439	--	--	1.47
Radium-226	pCi/L	--	--	0.384	--	0.116	0.139	0.189	0.0973	0.135	0.0916	--	--	-0.0262	0.282	--	--	0.0996
Radium-226/228	pCi/L	5	--	0.4175	-0.092	0.418	1.249	0.1768	-0.0107	0.241	0.0916	--	--	0.482	0.721	--	--	1.5696
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.37	--	0.51	1.59	0.53	--	--	2.06
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.6	--	1	2	<0.7	--	--	2
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	3.7	--	2	3	2	--	--	<5
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.014	<0.002	0.004	<0.003	--	--	<0.02
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.448	0.361	0.284	0.379	0.349	0.332	0.289	--	--	0.257

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	5/19/2020
Field Parameters				
Elevation	ft NGVD	--	--	370.36
pH	S.U.	--	7.1 - 7.7	7.55
Specific Conductance	µmhos/cm	--	--	400
Turbidity	NTU	--	--	0
Dissolved Oxygen	mg/L	--	--	0
Temperature	°C	--	--	14.71
ORP	mV	--	--	135
Laboratory Parameters				
Antimony	µg/L	6	--	--
Arsenic	µg/L	10	--	--
Barium	µg/L	2000	--	--
Beryllium	µg/L	4	--	--
Cadmium	µg/L	5	--	--
Chromium	µg/L	100	--	--
Cobalt	µg/L	6	--	--
Copper	µg/L	--	--	--
Lead	µg/L	15	--	--
Mercury	µg/L	2	--	--
Molybdenum	µg/L	100	--	--
Selenium	µg/L	50	--	--
Thallium	µg/L	2	--	--
Zinc	µg/L	--	--	--
Silica (Dissolved)	mg/L	--	--	--
Aluminum	µg/L	--	--	--
Boron	mg/L	--	0.15	<0.02
Calcium	mg/L	--	(79.5) 71	42.4
Lithium	mg/L	0.04	--	--
Magnesium	mg/L	--	--	--
Manganese	mg/L	--	--	--
Potassium	mg/L	--	--	--
Sodium	mg/L	--	--	--
Strontium	mg/L	--	--	--
Alkalinity	mg/L	--	--	--
Bromide	mg/L	--	--	--
Chloride	mg/L	--	(29.6) 26	10.3
Fluoride	mg/L	4	0.86	0.86
TDS	mg/L	--	(412.7) 407	218
Sulfate	mg/L	--	(33.67) 34	9.1
Sulfide	mg/L	--	--	--
Radium-228	pCi/L	--	--	--
Radium-226	pCi/L	--	--	--
Radium-226/228	pCi/L	5	--	--
Copper (Dissolved)	µg/L	--	--	--
Zinc (Dissolved)	µg/L	--	--	--
Aluminum (Dissolved)	µg/L	--	--	--
Iron (Dissolved)	mg/L	--	--	--
Manganese (Dissolved)	mg/L	--	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/7/2016	7/19/2016	9/21/2016	11/16/2016	1/10/2017	3/7/2017	5/10/2017	7/18/2017	10/4/2017	12/12/2017	1/3/2018
Field Parameters														
Elevation	ft NGVD	--	--	370	369.88	369.51	368.86	368.12	368.07	368.27	368.74	367.82	366.73	366.49
pH	S.U.	--	6.77 - 7.86	7.2	7.1	7.1	7.5	7.7	7.5	7.2	7.2	7.34	7.8	7.79
Specific Conductance	µmhos/cm	--	--	555	574	530	874	420	60	457	400	368	350	474
Turbidity	NTU	--	--	0.9	0.6	0.7	0.2	1	2	1	1	1.09	1	1.12
Dissolved Oxygen	mg/L	--	--	0.2	0.4	0.4	1.3	0.2	2	0.3	0.3	0.49	0.9	0.41
Temperature	°C	--	--	15.1	18.2	17.6	15.6	13.9	13.6	14.8	16.3	14.68	12.8	12.38
ORP	mV	--	--	52.5	-86	-54	259	-87	-42	51	-50	-79.7	-52	-77.2
Laboratory Parameters														
Antimony	µg/L	6	--	0.01	0.25	0.01	0.04	0.01	0.02	0.02	0.02	--	--	--
Arsenic	µg/L	10	--	25.2	27.9	21.1	23.6	20.2	20.4	20.2	23.6	--	--	--
Barium	µg/L	2000	--	118	132	119	107	91.2	88.9	86.1	94.8	--	--	--
Beryllium	µg/L	4	--	<0.005	0.165	<0.005	0.005	<0.005	<0.005	<0.004	<0.004	--	--	--
Cadmium	µg/L	5	--	0.02	0.23	0.009	0.06	0.005	0.03	0.03	0.02	--	--	--
Chromium	µg/L	100	--	0.2	0.5	0.1	0.132	0.35	0.7	0.134	0.089	--	--	--
Cobalt	µg/L	6	--	1.24	1.66	1.32	1.03	1	0.903	1.02	1.25	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.26	0.1	--	--
Lead	µg/L	15	--	0.026	0.254	0.026	0.213	0.01	0.065	0.09	0.082	--	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	5.76	6.74	5.75	6.73	7.63	7.91	6.52	5.58	--	--	--
Selenium	µg/L	50	--	<0.03	0.2	<0.03	<0.03	<0.03	0.07	0.04	<0.03	--	--	--
Thallium	µg/L	2	--	0.04	0.273	0.03	0.04	0.04	0.112	0.03	0.04	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	0.7	--	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	15	14	16.1	--	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	9.25	6.63	--	--
Boron	mg/L	--	0.072	0.06	0.032	0.03	0.022	0.019	0.047	0.038	0.05	0.08	--	0.04
Calcium	mg/L	--	(79.5) 54	44.1	44.6	46.1	51.4	46.5	51.1	46.6	43.9	44.6	--	--
Lithium	mg/L	0.04	--	0.005	0.018	0.004	0.004	0.011	0.006	0.002	<0.0002	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	13.3	12.7	11.1	11.2	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.134	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.01	1.02	0.94	1.05	--	--
Sodium	mg/L	--	--	--	--	--	--	--	62.3	56.1	51.8	45.4	--	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0865	0.088	0.0841	0.0871	--	--
Alkalinity	mg/L	--	--	--	--	--	--	--	229	239	224	202	--	--
Bromide	mg/L	--	--	--	--	--	--	--	0.084	0.101	0.081	0.067	--	--
Chloride	mg/L	--	(29.6) 70	59.3	53.8	43.4	44.9	48.3	38.5	32.7	27.1	23.7	22.8	--
Fluoride	mg/L	4	0.382	0.25	0.25	0.23	0.25	0.34	0.32	0.31	0.22	0.23	0.22	--
TDS	mg/L	--	(412.7) 398	380	356	334	340	351	331	322	300	287	--	--
Sulfate	mg/L	--	(47.44) 47	42.5	41	34	33.6	35.4	31.1	29.7	26.6	27.3	26.7	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	--
Radium-228	pCi/L	--	--	0.254	0.455	0.076	1.23	0.682	0.155	-0.367	1.49	--	--	--
Radium-226	pCi/L	--	--	0.609	0.636	0.428	0.517	0.187	0.71	0.189	0.153	--	--	--
Radium-226/228	pCi/L	5	--	0.863	1.091	0.504	1.747	0.869	0.865	-0.178	1.643	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.28	--	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.1	--	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.19	--	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.742	0.709	0.789	0.949	--	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.138	0.139	0.112	0.119	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-15I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2016	11/13/2018	5/23/2019	11/15/2019	5/19/2020
Field Parameters									
Elevation	ft NGVD	--	--	369.64	370.28	369.01	372.01	371.09	370.42
pH	S.U.	--	6.77 - 7.86	8.06	7.36	7.6	7.29	7.38	7.49
Specific Conductance	µmhos/cm	--	--	420	527	412	414	495	435
Turbidity	NTU	--	--	0.88	0	0.18	0.95	7	0
Dissolved Oxygen	mg/L	--	--	1.89	0.25	0.31	1.61	0	0
Temperature	°C	--	--	14.9	17.77	12.52	18.94	13.7	14.47
ORP	mV	--	--	-94	-63	-63.7	-207.7	-85	-39
Laboratory Parameters									
Antimony	µg/L	6	--	--	--	<0.02	<0.02	0.04	
Arsenic	µg/L	10	--	--	--	23.8	25.8	26.5	
Barium	µg/L	2000	--	--	--	93.3	95	88.9	
Beryllium	µg/L	4	--	--	--	<0.02	<0.02	<0.02	
Cadmium	µg/L	5	--	--	--	<0.01	0.01	0.05	
Chromium	µg/L	100	--	--	--	<0.04	0.06	0.1	
Cobalt	µg/L	6	--	--	--	1.12	1.12	1.07	
Copper	µg/L	--	--	0.15	--	0.12	0.1	0.6	
Lead	µg/L	15	--	--	--	0.03	<0.02	0.2	
Mercury	µg/L	2	--	--	--	--	<0.002	<0.002	
Molybdenum	µg/L	100	--	--	--	5.03	5.63	5.95	
Selenium	µg/L	50	--	--	--	0.04	<0.03	0.04	
Thallium	µg/L	2	--	--	--	<0.1	<0.1	<0.1	
Zinc	µg/L	--	--	2.5	--	0.8	7.9	2	
Silica (Dissolved)	mg/L	--	--	13.9	--	13.8	<0.06	12.5	
Aluminum	µg/L	--	--	4.24	--	7.01	3	21.2	
Boron	mg/L	--	0.072	0.066	--	0.07	0.03	0.03	0.03
Calcium	mg/L	--	(79.5) 54	47	--	39.9	47.8	45.2	49.2
Lithium	mg/L	0.04	--	--	--	<0.009	0.01	0.00289	
Magnesium	mg/L	--	--	11.8	--	9.98	11.7	11	
Manganese	mg/L	--	--	0.13	--	0.106	0.128	0.116	
Potassium	mg/L	--	--	0.96	--	1.21	0.9	0.9	
Sodium	mg/L	--	--	42	--	29.9	29.9	24.2	
Strontium	mg/L	--	--	0.0955	--	0.0827	0.0942	0.0887	
Alkalinity	mg/L	--	--	226	--	199	208	198	
Bromide	mg/L	--	--	0.071	--	0.06	0.04	<0.04	
Chloride	mg/L	--	(29.6) 70	25.1	--	23.7	18	16.9	19
Fluoride	mg/L	4	0.382	0.26	--	0.25	0.26	0.27	0.25
TDS	mg/L	--	(412.7) 398	279	--	248	260	248	253
Sulfate	mg/L	--	(47.44) 47	25.3	--	25.3	20.9	17.6	17.8
Sulfide	mg/L	--	--	<0.4	--	<0.07	<0.1	<0.2	
Radium-228	pCi/L	--	--	--	--	0.283	0.423	1.63	
Radium-226	pCi/L	--	--	--	--	0.0962	0.557	0.194	
Radium-226/228	pCi/L	5	--	--	--	0.3792	0.98	1.824	
Copper (Dissolved)	µg/L	--	--	0.36	--	0.2	0.83	<0.2	
Zinc (Dissolved)	µg/L	--	--	2	--	0.8	1	1	
Aluminum (Dissolved)	µg/L	--	--	1	--	1	2	<5	
Iron (Dissolved)	mg/L	--	--	0.879	--	0.848	0.826	0.623	
Manganese (Dissolved)	mg/L	--	--	0.126	--	0.121	0.116	0.118	

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/10/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.7	369.61	369.16	368.56	367.84	367.87	367.88	368.53	367.58	366.38
pH	S.U.	--	5.88 - 8.55	7.53	7.1	7.31	6.9	7.16	7.1	8.26	6.34	7.25	7.34
Specific Conductance	µmhos/cm	--	--	0.822	764	719	669	677	804	581	595	647	872
Turbidity	NTU	--	--	0.74	0.34	5.21	0.5	0.25	0.42	1.78	0.57	0.72	0.54
Dissolved Oxygen	mg/L	--	--	0.34	0.4	7.29	0.62	0.55	0.18	0.69	22.45	0.31	0.82
Temperature	°C	--	--	15.7	16.39	17.48	16.91	14.47	18.48	16.01	15.63	15.99	14.46
ORP	mV	--	--	112.4	56.2	153.4	233.5	83	56.1	177.3	-118.9	13.6	-12.2
Laboratory Parameters													
Antimony	µg/L	6	--	0.03	0.03	0.25	0.02	0.02	0.02	0.02	0.02	--	--
Arsenic	µg/L	10	--	0.37	0.37	0.38	0.34	0.42	0.31	0.39	0.33	--	--
Barium	µg/L	2000	--	32.3	29.9	29.5	25.3	25.1	25.7	29.8	25.6	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.03	0.03	0.1	0.006	0.008	0.004	0.01	0.04	--	--
Chromium	µg/L	100	--	0.2	0.5	0.3	1.03	0.081	0.463	0.196	0.101	--	--
Cobalt	µg/L	6	--	0.073	0.025	0.07	0.028	0.014	0.012	0.063	0.01	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.1	0.19	--
Lead	µg/L	15	--	0.074	0.057	0.182	<0.004	0.039	0.006	0.027	0.01	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	1.15	1.21	1.11	1.19	1.21	1.32	1.14	0.98	--	--
Selenium	µg/L	50	--	0.6	0.6	0.8	0.4	0.4	0.4	0.3	0.4	--	--
Thallium	µg/L	2	--	0.01	<0.01	<0.01	<0.01	0.02	0.02	0.01	0.01	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	2	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	24	24.1	27.6	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	2.1	7.43	--
Boron	mg/L	--	0.088	0.028	0.025	0.024	0.025	0.017	0.038	0.082	0.037	0.061	--
Calcium	mg/L	--	(79.5) 114	96.2	83	93.5	96.4	94.6	106	105	91.8	108	109
Lithium	mg/L	0.04	--	0.007	0.031	0.005	0.018	0.013	0.013	0.008	0.01	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	36.4	36.6	31.4	38.2	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0028	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.01	1.3	0.97	1.03	--
Sodium	mg/L	--	--	--	--	--	--	--	36.9	36.7	28.7	35.7	--
Strontium	mg/L	--	--	--	--	--	--	--	0.129	0.132	0.108	0.133	--
Alkalinity	mg/L	--	--	--	--	--	--	--	423	431	436	438	--
Bromide	mg/L	--	--	--	--	--	--	--	0.1	0.158	0.162	0.206	--
Chloride	mg/L	--	(29.6) 24	18.7	19	17.1	16.4	17.5	19.3	22.9	19.8	19.3	--
Fluoride	mg/L	4	0.506	0.44	0.46	0.38	0.3	0.35	0.36	0.38	0.33	0.41	--
TDS	mg/L	--	(412.7) 517	483	471	509	486	474	473	499	484	503	517
Sulfate	mg/L	--	(52.4) 52	46.9	50.1	42.1	38.3	39.2	39.6	42.3	40.7	45	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	-0.0274	0.34	-0.131	0.0963	1.8	0.169	-0.045	2.76	--	--
Radium-226	pCi/L	--	--	0.163	0.707	0.0255	0.198	0.193	0.113	0.145	0.0933	--	--
Radium-226/228	pCi/L	5	--	0.1356	1.047	-0.1055	0.2943	1.993	0.282	0.1	2.8533	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.1	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.9	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.051	0.015	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.0013	0.0145	0.0007	0.0127	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2018	11/14/2018	2/11/2019	5/22/2019	11/15/2019	5/19/2020	7/15/2020
Field Parameters											
Elevation	ft NGVD	--	--	369.62	370.12	368.86	369.84	371.94	370.84	370.40	370.95
pH	S.U.	--	5.88 - 8.55	7.23	7.07	7.02	7.12	7.1	7	7.54	7.06
Specific Conductance	µmhos/cm	--	--	770	920	720	570	774	961	675	823
Turbidity	NTU	--	--	2.2	0	0.3	1.3	0.18	4.2	1.54	2.35
Dissolved Oxygen	mg/L	--	--	7.8	0	1.35	0.41	0.34	0.39	0.48	1.63
Temperature	°C	--	--	15.73	17.04	14.2	14.4	14.54	12.05	15.03	18.03
ORP	mV	--	--	-36.9	147	142	183	-211.4	121	110	57
Laboratory Parameters											
Antimony	µg/L	6	--	--	--	0.05	--	0.03	0.03	--	--
Arsenic	µg/L	10	--	--	--	0.34	--	0.26	0.3	--	--
Barium	µg/L	2000	--	--	--	29.9	--	21.9	27.2	--	--
Beryllium	µg/L	4	--	--	--	<0.02	--	<0.02	<0.02	--	--
Cadmium	µg/L	5	--	--	--	0.08	--	0.01	0.05	--	--
Chromium	µg/L	100	--	--	--	0.07	--	0.1	0.09	--	--
Cobalt	µg/L	6	--	--	--	<0.02	--	<0.02	0.059	--	--
Copper	µg/L	--	--	1.19	--	1.46	--	0.66	0.3	--	--
Lead	µg/L	15	--	--	--	0.112	--	<0.02	0.07	--	--
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	--	--	0.9	--	0.9	0.8	--	--
Selenium	µg/L	50	--	--	--	3.2	--	0.6	1	--	--
Thallium	µg/L	2	--	--	--	<0.1	--	<0.1	<0.1	--	--
Zinc	µg/L	--	--	5	--	31.6	--	<0.7	0.8	--	--
Silica (Dissolved)	mg/L	--	--	24.9	--	24.9	--	23.3	22.3	--	--
Aluminum	µg/L	--	--	5.68	--	3	--	1	<5	--	--
Boron	mg/L	--	0.088	0.109	0.034	0.107	0.02	0.03	0.02	0.03	--
Calcium	mg/L	--	(79.5) 114	108	109	104	--	99.2	92.2	104	--
Lithium	mg/L	0.04	--	--	--	0.02	--	0.01	0.00639	--	--
Magnesium	mg/L	--	--	38.8	--	37.4	--	34.5	35.5	--	--
Manganese	mg/L	--	--	0.0062	--	0.004	--	0.0035	0.0115	--	--
Potassium	mg/L	--	--	1.1	--	1.28	--	0.95	0.9	--	--
Sodium	mg/L	--	--	38	--	44.4	--	29.4	29.6	--	--
Strontium	mg/L	--	--	0.137	--	0.138	--	0.21	0.118	--	--
Alkalinity	mg/L	--	--	463	--	510	--	478	445	--	--
Bromide	mg/L	--	--	0.118	--	0.1	--	0.08	0.1	--	--
Chloride	mg/L	--	(29.6) 24	17.3	--	16.2	--	18	20.7	26.7	25.8
Fluoride	mg/L	4	0.506	0.42	--	0.39	--	0.38	0.32	0.34	0.37
TDS	mg/L	--	(412.7) 517	520	533	548	517	493	497	470	489
Sulfate	mg/L	--	(52.4) 52	40.8	--	40.3	--	34.5	35.2	34.9	--
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	<0.1	<0.2	--	--
Radium-228	pCi/L	--	--	--	--	0.0697	--	0.299	0.179	--	--
Radium-226	pCi/L	--	--	--	--	0.0503	--	0.0904	0.0453	--	--
Radium-226/228	pCi/L	5	--	--	--	0.12	--	0.3894	0.2243	--	--
Copper (Dissolved)	µg/L	--	--	1.21	--	2.59	--	0.38	1.7	--	--
Zinc (Dissolved)	µg/L	--	--	5.2	--	4	--	<0.7	2	--	--
Aluminum (Dissolved)	µg/L	--	--	1	--	1	--	3	<5	--	--
Iron (Dissolved)	mg/L	--	--	0.004	--	<0.003	--	<0.003	<0.02	--	--
Manganese (Dissolved)	mg/L	--	--	0.0047	--	0.0023	--	<0.0027	0.0009	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/20/2016	9/21/2016	11/17/2016	1/11/2017	3/8/2017	5/19/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.79	369.62	369.18	368.57	367.84	367.87	367.87	368.58	367.58	366.39
pH	S.U.	--	6.73 - 7.90	7.69	7.56	7.37	7.08	7.36	7.28	6.96	7.2	7.46	7.68
Specific Conductance	µmhos/cm	--	--	957	870	867	702	674	779	569	665	644	821
Turbidity	NTU	--	--	0.42	0.46	1.37	1.4	0.18	1.41	2.27	3.15	0.7	1.9
Dissolved Oxygen	mg/L	--	--	0.29	8.08	0.68	0.53	0.46	0.34	0.21	0.29	0.28	0.38
Temperature	°C	--	--	16.2	16.86	15.43	15.64	14.71	15.19	15.48	15.99	15.71	13.08
ORP	mV	--	--	224.4	-158.9	54.7	242.3	86.1	53.5	49.8	-3.1	4.1	-25.6
Laboratory Parameters													
Antimony	µg/L	6	--	0.02	0.01	0.01	0.05	0.01	0.02	0.06	0.02	--	--
Arsenic	µg/L	10	--	0.71	0.75	0.75	0.67	0.72	0.68	0.7	0.73	--	--
Barium	µg/L	2000	--	267	267	262	234	220	221	206	238	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.06	0.03	0.03	0.05	0.04	0.03	0.08	0.03	--	--
Chromium	µg/L	100	--	0.1	0.2	0.1	0.082	0.085	0.422	0.204	0.118	--	--
Cobalt	µg/L	6	--	0.602	0.627	0.576	0.546	0.514	0.58	0.56	0.599	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.56	0.46	--
Lead	µg/L	15	--	0.023	0.025	0.023	0.053	0.01	0.034	0.153	0.065	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	1.02	1.02	1.03	0.93	1	1.17	0.91	1.07	--	--
Selenium	µg/L	50	--	0.2	0.2	0.1	0.2	0.1	0.2	0.4	0.2	--	--
Thallium	µg/L	2	--	0.085	0.06	0.074	0.069	0.071	0.075	0.075	0.07	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2.7	0.8	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	19.9	20	22.8	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	15.5	14	--
Boron	mg/L	--	0.107	0.031	0.027	0.026	0.024	0.015	0.1	0.032	0.044	0.05	--
Calcium	mg/L	--	(79.5) 114	110	93.9	95.9	96.2	89.3	101	86.7	91.3	84	71.9
Lithium	mg/L	0.04	--	0.005	0.005	0.006	0.013	0.01	0.013	0.01	0.003	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	27.6	24.7	25.6	23	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	1.03	--	--
Potassium	mg/L	--	--	--	--	--	--	--	2.9	2.47	2.62	3.21	--
Sodium	mg/L	--	--	--	--	--	--	--	46.2	41.4	50	69.2	--
Strontium	mg/L	--	--	--	--	--	--	--	0.155	0.139	0.14	0.135	--
Alkalinity	mg/L	--	--	--	--	--	--	--	368	376	369	359	--
Bromide	mg/L	--	--	--	--	--	--	--	0.1	0.152	0.154	0.206	--
Chloride	mg/L	--	(29.6) 114	80.4	86.8	90.2	59.1	44.1	39.3	37.9	50.2	70.8	71.2
Fluoride	mg/L	4	0.192	0.1	0.15	0.1	0.1	0.1	0.16	0.1	0.08	0.1	--
TDS	mg/L	--	(412.7) 589	539	532	544	508	481	460	461	465	495	487
Sulfate	mg/L	--	(43.51) 44	38.7	42.2	36.8	33	34	35.4	35.1	36.1	40.4	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	0.357	1	0.977	0.174	2.27	0.182	0.427	0.513	--	--
Radium-226	pCi/L	--	--	0.235	0.576	0.248	0.413	0.362	0.399	0.511	0.274	--	--
Radium-226/228	pCi/L	5	--	0.592	1.576	1.225	0.587	2.632	0.581	0.938	0.787	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.14	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.051	0.014	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	1.03	1.06	1.04	0.873	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2018	11/14/2018	2/11/2019	5/22/2019	11/15/2019	5/19/2020
Field Parameters										
Elevation	ft NGVD	--	--	369.62	370.06	368.78	369.77	371.86	370.76	370.89
pH	S.U.	--	6.73 - 7.90	7.37	7.23	7.3	7.4	7.31	7.35	7.79
Specific Conductance	µmhos/cm	--	--	720	797	545	476	641	659	481
Turbidity	NTU	--	--	0.89	0	0.41	0.8	0.2	1.1	1.22
Dissolved Oxygen	mg/L	--	--	0.46	0	0.95	0.36	0.25	0.01	0.12
Temperature	°C	--	--	15.93	15.56	14.42	14.5	14.58	12	14.85
ORP	mV	--	--	-68.4	120	148	122	-21107	137	114
Laboratory Parameters										
Antimony	µg/L	6	--	--	--	<0.02	--	<0.02	0.03	--
Arsenic	µg/L	10	--	--	--	0.66	--	0.64	0.72	--
Barium	µg/L	2000	--	--	--	153	--	151	126	--
Beryllium	µg/L	4	--	--	--	<0.02	--	<0.02	<0.02	--
Cadmium	µg/L	5	--	--	--	0.02	--	0.02	0.04	--
Chromium	µg/L	100	--	--	--	0.05	--	<0.04	0.1	--
Cobalt	µg/L	6	--	--	--	0.336	--	0.346	0.58	--
Copper	µg/L	--	--	0.62	--	0.45	--	0.46	1.34	--
Lead	µg/L	15	--	--	--	<0.02	--	0.02	0.1	--
Mercury	µg/L	2	--	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	--	--	1	--	1	1	--
Selenium	µg/L	50	--	--	--	0.2	--	0.1	0.4	--
Thallium	µg/L	2	--	--	--	<0.1	--	<0.1	<0.1	--
Zinc	µg/L	--	--	0.6	--	0.8	--	<0.7	1	--
Silica (Dissolved)	mg/L	--	--	19.8	--	18.5	--	18	17.2	--
Aluminum	µg/L	--	--	10.2	--	5	--	4	10	--
Boron	mg/L	--	0.107	0.046	--	0.139	0.02	0.03	0.02	0.02
Calcium	mg/L	--	(79.5) 114	82.9	61.6	53.7	--	56	41	51.9
Lithium	mg/L	0.04	--	--	--	<0.009	--	0.02	0.00427	--
Magnesium	mg/L	--	--	23.1	--	14.8	--	15.1	11.4	--
Manganese	mg/L	--	--	0.902	--	0.613	--	0.626	0.685	--
Potassium	mg/L	--	--	3.05	--	3.16	--	2.55	2.2	--
Sodium	mg/L	--	--	66	--	74.4	--	68.4	58.9	--
Strontium	mg/L	--	--	0.136	--	0.09	--	0.0898	0.0688	--
Alkalinity	mg/L	--	--	359	--	300	--	261	252	--
Bromide	mg/L	--	--	0.168	--	0.1	--	0.1	0.1	--
Chloride	mg/L	--	(29.6) 114	58.6	61.1	47.8	--	45.5	31.2	31.3
Fluoride	mg/L	4	0.192	0.17	--	0.17	--	0.17	0.14	0.14
TDS	mg/L	--	(412.7) 589	480	456	408	--	405	343	350
Sulfate	mg/L	--	(43.51) 44	38.7	--	32.5	--	33.2	25.2	25.8
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	<0.1	<0.2	--
Radium-228	pCi/L	--	--	--	--	0.483	--	0.269	0.482	--
Radium-226	pCi/L	--	--	--	--	0.162	--	0.156	0.212	--
Radium-226/228	pCi/L	5	--	--	--	0.645	--	0.425	0.694	--
Copper (Dissolved)	µg/L	--	--	0.57	--	1.43	--	1.14	0.3	--
Zinc (Dissolved)	µg/L	--	--	0.7	--	2	--	<0.7	1	--
Aluminum (Dissolved)	µg/L	--	--	0.8	--	1	--	1	<5	--
Iron (Dissolved)	mg/L	--	--	0.024	--	0.004	--	<0.003	<0.02	--
Manganese (Dissolved)	mg/L	--	--	0.849	--	0.616	--	0.615	0.447	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/20/2016	11/17/2016	1/11/2017	3/8/2017	5/10/2017	7/18/2017	10/4/2017	1/3/2018
Field Parameters													
Elevation	ft NGVD	--	--	369.85	369.68	369.23	368.64	367.91	367.94	367.96	368.64	367.68	366.47
pH	S.U.	--	6.04 - 9.13	6.8	7.31	7.26	7.29	7.48	7.44	7.54	9.03	7.6	7.74
Specific Conductance	µmhos/cm	--	--	519	582	538	613	525	614	436	597	516	692
Turbidity	NTU	--	--	1.8	0.24	0.31	0.55	0.4	0.81	1.74	0.41	2.95	1.85
Dissolved Oxygen	mg/L	--	--	0.4	--	1.33	0.55	0.49	0.11	0.29	0.32	0.21	0.47
Temperature	°C	--	--	16.8	16.96	16.04	15.1	14.55	15.2	15.46	15.62	15.77	13.14
ORP	mV	--	--	-19	23.5	35.7	108	14.6	2.1	36.6	108.9	-26.4	-36.7
Laboratory Parameters													
Antimony	µg/L	6	--	0.02	0.02	0.02	0.02	0.01	0.02	0.03	0.03	--	--
Arsenic	µg/L	10	--	0.48	0.4	0.31	0.32	0.34	0.31	0.33	0.39	--	--
Barium	µg/L	2000	--	240	246	221	217	210	224	212	247	--	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--
Cadmium	µg/L	5	--	0.08	0.08	0.02	0.05	0.02	0.01	0.07	0.1	--	--
Chromium	µg/L	100	--	0.3	0.4	0.1	1.21	0.112	0.188	0.151	0.141	--	--
Cobalt	µg/L	6	--	0.617	0.547	0.418	0.452	0.354	0.401	0.466	0.571	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	2.21	0.11	--
Lead	µg/L	15	--	0.078	0.04	0.021	0.066	0.008	0.022	0.07	0.103	--	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--
Molybdenum	µg/L	100	--	2.06	2.31	1.96	1.98	1.99	2.27	1.9	2.03	--	--
Selenium	µg/L	50	--	0.04	0.04	<0.03	<0.03	<0.03	0.05	<0.03	<0.03	--	--
Thallium	µg/L	2	--	0.03	0.069	0.02	0.02	0.02	0.04	0.02	0.02	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	12.8	52.4	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.1	17.6	20.3	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	6.2	3.72	--
Boron	mg/L	--	0.113	0.033	0.013	0.012	0.014	0.004	0.023	0.102	0.017	0.059	--
Calcium	mg/L	--	(79.5) 88	84.3	68.7	70.5	77.9	72.4	79.2	75.8	71.7	80.4	80.1
Lithium	mg/L	0.04	--	0.001	0.013	0.003	0.006	0.013	0.007	0.008	0.0006	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	22.4	22.2	21	23.3	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.975	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.12	1.54	0.97	1.33	--
Sodium	mg/L	--	--	--	--	--	--	--	22.3	21.6	22.1	24.7	--
Strontium	mg/L	--	--	--	--	--	--	--	0.142	0.143	0.128	0.146	--
Alkalinity	mg/L	--	--	--	--	--	--	--	202	210	215	195	--
Bromide	mg/L	--	--	--	--	--	--	--	0.15	0.204	<0.05	0.233	--
Chloride	mg/L	--	(29.6) 73	68.7	69.6	67.6	63.6	67.9	65.4	69.9	69.6	81.5	86
Fluoride	mg/L	4	0.251	0.2	0.22	0.22	0.17	0.21	0.22	0.22	0.17	0.22	--
TDS	mg/L	--	(412.7) 384	350	321	342	356	343	347	367	363	383	--
Sulfate	mg/L	--	(39.69) 40	36.4	37.4	33.4	33.2	34	35.3	37.2	36.8	40	37.9
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	-0.173	0.294	1.1	0.285	0.92	0.583	-0.121	0.222	--	--
Radium-226	pCi/L	--	--	0.0514	--	0.248	0.624	0.796	0.228	0.151	0.292	--	--
Radium-226/228	pCi/L	5	--	-0.1216	0.294	1.348	0.909	1.716	0.811	0.03	0.514	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.18	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.004	0.002	0.098	0.051	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.862	0.948	0.989	0.947	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-16D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/6/2018	8/16/2018	11/14/2018	2/11/2019	4/1/2019	5/22/2019	7/23/2019	9/11/2019	11/15/2019	2/18/2020	5/19/2020	7/15/2020
Field Parameters															
Elevation	ft NGVD	--	--	369.69	370.13	368.87	369.84	370.82	371.96	372.67	-----	370.78	369.44	370.44	370.98
pH	S.U.	--	6.04 - 9.13	7.32	7.26	7.35	7.37	7.28	7.31	7.02	7.28	7.31	7.17	7.7	7.22
Specific Conductance	µmhos/cm	--	--	690	782	607	510	945	755	731	813	1070	1869	799	969
Turbidity	NTU	--	--	0.9	0	0.35	1.4	0.91	0.3	1.9	0.43	0.3	0.2	0.39	0.41
Dissolved Oxygen	mg/L	--	--	0.44	0	0.94	1.48	0.64	0.26	0.5	0.36	0.01	0.42	0.18	0
Temperature	°C	--	--	15.94	15.88	14.45	13.2	13.5	14.43	15.9	17.5	14.4	11.76	14.81	17.56
ORP	mV	--	--	-70.7	-11	62.8	60	-16.7	-216.5	50	-52.5	45	109.3	-22	-3
Laboratory Parameters															
Antimony	µg/L	6	--	--	--	<0.02	--	--	0.02	--	--	0.02	--	--	--
Arsenic	µg/L	10	--	--	--	0.32	--	--	0.39	--	--	0.35	--	--	--
Barium	µg/L	2000	--	--	--	270	--	--	286	--	--	348	--	--	--
Beryllium	µg/L	4	--	--	--	<0.02	--	--	<0.02	--	--	<0.02	--	--	--
Cadmium	µg/L	5	--	--	--	0.04	--	--	<0.01	--	--	0.05	--	--	--
Chromium	µg/L	100	--	--	--	0.05	--	--	0.25	--	--	0.1	--	--	--
Cobalt	µg/L	6	--	--	--	0.472	--	--	0.64	--	--	0.632	--	--	--
Copper	µg/L	--	--	0.07	--	0.23	--	--	0.17	--	--	<0.2	--	--	--
Lead	µg/L	15	--	--	--	0.03	--	--	0.02	--	--	<0.05	--	--	--
Mercury	µg/L	2	--	--	--	--	--	--	<0.002	--	--	<0.002	--	--	--
Molybdenum	µg/L	100	--	--	--	2	--	--	2	--	--	2	--	--	--
Selenium	µg/L	50	--	--	--	0.03	--	--	<0.03	--	--	<0.03	--	--	--
Thallium	µg/L	2	--	--	--	<0.1	--	--	<0.1	--	--	<0.1	--	--	--
Zinc	µg/L	--	--	7.1	--	15.4	--	--	1	--	--	2	--	--	--
Silica (Dissolved)	mg/L	--	--	18.5	--	18.2	--	--	17.9	--	--	17.1	--	--	--
Aluminum	µg/L	--	--	2.86	--	1	--	--	2	--	--	<5	--	--	--
Boron	mg/L	--	0.113	0.033	--	0.07	--	--	0.03	--	--	0.03	--	0.03	--
Calcium	mg/L	--	(79.5) 88	90.2	83.8	84.1	--	--	88.5	95.6	109	100	--	108	102
Lithium	mg/L	0.04	--	--	--	<0.009	--	--	0.02	--	--	0.00427	--	--	--
Magnesium	mg/L	--	--	27.1	--	24.3	--	--	25.4	--	--	28.3	--	--	--
Manganese	mg/L	--	--	1.2	--	1	--	--	1.17	--	--	1.04	--	--	--
Potassium	mg/L	--	--	1.22	--	1.27	--	--	1.27	--	--	1.57	--	--	--
Sodium	mg/L	--	--	26.7	--	30	--	--	30.8	--	--	44.6	--	--	--
Strontium	mg/L	--	--	0.18	--	0.166	--	--	0.176	--	--	0.203	--	--	--
Alkalinity	mg/L	--	--	235	--	238	--	--	249	--	--	304	--	--	--
Bromide	mg/L	--	--	0.303	--	0.275	--	--	0.344	--	--	0.425	--	--	--
Chloride	mg/L	--	(29.6) 73	108	99.7	102	109	107	104	106	125	127	133	135	133
Fluoride	mg/L	4	0.251	0.22	--	0.21	--	--	0.2	--	--	0.17	--	0.17	0.2
TDS	mg/L	--	(412.7) 384	434	447	434	439	429	460	457	523	537	579	558	519
Sulfate	mg/L	--	(39.69) 40	38.6	--	38.6	--	--	38	--	--	40.8	38.9	40.1	--
Sulfide	mg/L	--	--	<0.4	--	<0.07	--	--	<0.1	--	--	<0.2	--	--	--
Radium-228	pCi/L	--	--	--	--	0.138	--	--	0.688	--	--	0.411	--	--	--
Radium-226	pCi/L	--	--	--	--	0.179	--	--	0.551	--	--	0.158	--	--	--
Radium-226/228	pCi/L	5	--	--	--	0.317	--	--	1.239	--	--	0.569	--	--	--
Copper (Dissolved)	µg/L	--	--	0.35	--	1.5	--	--	0.25	--	--	1.98	--	--	--
Zinc (Dissolved)	µg/L	--	--	1	--	3	--	--	<0.7	--	--	3	--	--	--
Aluminum (Dissolved)	µg/L	--	--	2	--	2	--	--	<1	--	--	<5	--	--	--
Iron (Dissolved)	mg/L	--	--	0.058	--	0.023	--	--	0.067	--	--	<0.02	--	--	--
Manganese (Dissolved)	mg/L	--	--	1.19	--	1	--	--	1.23	--	--	1.07	--	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-17S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/8/2016	7/20/2016	9/20/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/19/2017	10/4/2017	6/5/2018	11/13/2018	5/23/2019	11/15/2019	5/19/2020
Field Parameters																	
Elevation	ft NGVD	--	--	370.14	370.11	369.81	369.37	368.47	368.21	368.24	368.89	373.03	369.48	368.74	371.85	371.44	370.99
pH	S.U.	--	7.11 - 7.97	7.77	7.3	7.65	7.7	7.6	7.5	7.3	7.5	7.44	7.41	7.51	7.58	7.64	7.8
Specific Conductance	µmhos/cm	--	--	350	373	344	146	310	60	357	287	351	319	280	322	396	358
Turbidity	NTU	--	--	0.6	0.7	0.79	1	1	1	3	1	0.47	0.4	0.89	0	4	0.7
Dissolved Oxygen	mg/L	--	--	0.6	1.2	0.37	0.1	0.2	1	0.2	0.2	0.38	10.12	1.07	1.56	1.3	0
Temperature	°C	--	--	14.7	17.9	14.55	14.7	13.8	13.5	14.9	14.3	16.82	14.39	13.45	15	13.4	14.43
ORP	mV	--	--	80	44	49.4	-40	62	47	45	30	-50.3	-84.3	121	-48.2	38	23
Laboratory Parameters																	
Antimony	µg/L	6	--	0.01	0.03	0.02	0.03	0.03	0.04	0.04	0.02	--	--	0.02	0.02	0.02	--
Arsenic	µg/L	10	--	0.24	0.26	0.22	0.2	0.21	0.2	0.22	0.22	--	--	0.17	0.18	0.24	--
Barium	µg/L	2000	--	2.12	2.74	2.24	2.4	3.45	3.94	4.37	2.25	--	--	2.11	2.3	2.2	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.02	0.08	0.01	0.02	0.02	0.09	0.02	0.06	--	--	0.02	0.03	0.03	--
Chromium	µg/L	100	--	0.5	0.2	0.1	0.066	0.489	0.776	0.233	0.124	--	--	0.07	0.06	0.1	--
Cobalt	µg/L	6	--	0.047	0.105	0.034	0.029	0.04	0.076	0.138	0.053	--	--	0.05	0.04	0.157	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.38	0.69	0.23	0.21	0.39	0.5	--
Lead	µg/L	15	--	0.024	0.098	0.025	0.02	0.02	0.079	0.108	0.038	--	--	0.03	0.05	0.1	--
Mercury	µg/L	2	--	<0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	3.98	4.2	4.08	3.39	0.44	0.7	1.14	4.38	--	--	3.73	4.78	4.67	--
Selenium	µg/L	50	--	0.07	0.06	0.08	0.1	0.2	0.1	0.1	0.08	--	--	0.3	0.2	0.4	--
Thallium	µg/L	2	--	0.01	0.01	0.01	0.053	0.02	0.02	<0.01	0.03	--	--	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	5.7	0.7	<0.7	14.4	1	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	14	13.7	15.8	13.5	13.2	<0.06	12.2	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	9.55	10.2	4.01	2	17.4	21.3	--
Boron	mg/L	--	0.065	0.015	0.016	0.016	0.017	0.006	0.058	0.041	0.02	0.033	0.045	0.05	0.03	0.02	0.02
Calcium	mg/L	--	(79.5) 41	36.9	34.8	34.8	35.9	32.3	40	35.5	34.4	34.1	32.4	33.1	32.7	28.7	32.8
Lithium	mg/L	0.04	--	<0.0002	0.02	0.003	0.004	0.003	0.008	0.003	<0.0002	--	--	<0.009	0.01	0.00355	--
Magnesium	mg/L	--	--	--	--	--	--	--	19.2	17.5	13.7	12.9	13	13.7	12.9	11.2	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.0428	--	0.0311	0.0418	0.0377	0.179	--
Potassium	mg/L	--	--	--	--	--	--	--	0.88	0.79	0.49	0.47	0.5	0.59	0.62	0.6	--
Sodium	mg/L	--	--	--	--	--	--	--	42.5	35.3	31.9	27.7	24.5	25.8	26.5	26.8	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0566	0.0529	0.0363	0.0345	0.0357	0.0374	0.0347	0.031	--
Alkalinity	mg/L	--	--	--	--	--	--	--	231	221	196	189	188	202	193	174	--
Bromide	mg/L	--	--	--	--	--	--	--	0.02	0.05	<0.02	<0.02	0.04	<0.04	<0.04	<0.04	--
Chloride	mg/L	--	(29.6) 16	13.9	15.4	12.3	11.4	11	10.7	10.4	10.8	10.5	10.8	11.5	12	12.6	12.7
Fluoride	mg/L	4	1.08	0.85	0.86	0.73	0.7	0.48	0.46	0.58	0.82	0.89	0.98	0.91	1.08	0.96	0.95
TDS	mg/L	--	(412.7) 269	272	235	233	232	262	251	250	201	214	214	196	217	207	200
Sulfate	mg/L	--	(16.46) 16.5	14.3	14.8	10.9	10.5	10.7	12	13.1	10.2	10.7	9.5	8.4	7.7	6.2	6.5
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.1	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.783	-0.0129	0.027	0.791	-0.155	0.36	0.315	1.07	--	--	-0.0735	0.34	1.03	--
Radium-226	pCi/L	--	--	0.253	0.0439	0.0489	0.803	0.17	0.11	0.118	0.678	--	--	0.0202	0.0449	0.0579	--
Radium-226/228	pCi/L	5	--	1.036	0.031	0.0759	1.594	0.015	0.47	0.433	1.748	--	--	0.0202	0.0202	1.0879	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.35	--	0.56	0.7	2.05	<0.2	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	1	1	<0.7	0.9	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.2	--	6.2	2	1	<5	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	<0.0004	0.026	0.004	0.004	0.01	<0.02	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.0028	0.0013	0.0322	0.0881	0.0304	0.041	0.0332	0.0662	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-171

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/8/2016	7/20/2016	9/20/2016	11/16/2016	1/10/2017	3/7/2017	5/9/2017	7/19/2017	10/4/2017	12/12/2017	1/3/2018	6/5/2018	8/16/2018	9/26/2018
Field Parameters																	
Elevation	ft NGVD	--	--	370.09	370.13	369.82	369.12	368.47	368.23	368.25	368.89	368.07	367.23	366.84	369.46	370.64	370.06
pH	S.U.	--	6.82 - 7.96	7.55	7.2	7.1	7.8	7.5	7.5	7.2	7.3	7.37	7.49	7.8	7.36	7.48	7.48
Specific Conductance	µmhos/cm	--	--	839	914	1000	607	670	60	768	678	786	530	848	652	728	453
Turbidity	NTU	--	--	13.4	9.8	--	0.1	2	9	2	1	74.99	1.74	12	1.28	0	0.58
Dissolved Oxygen	mg/L	--	--	0.8	0.8	0.9	1.3	0.3	1	0.3	0.2	0.26	0.1	2.34	0.2	0.17	0.37
Temperature	°C	--	--	14.1	16.4	18.3	14.4	13.7	13.8	14.7	14.7	17.05	8.97	7.25	15.11	17.06	14.18
ORP	mV	--	--	116	-73	-40	204	-52	8	46	-59	-90.8	-54	-40.5	-99.8	-69	-77.9
Laboratory Parameters																	
Antimony	µg/L	6	--	0.07	0.05	0.04	0.03	0.02	0.02	0.02	0.02	--	--	--	--	--	--
Arsenic	µg/L	10	--	7.14	7.41	6.45	3.38	3.94	4.61	3.61	3.76	--	--	--	--	--	--
Barium	µg/L	2000	--	168	190	198	149	148	159	133	140	--	--	--	--	--	--
Beryllium	µg/L	4	--	0.02	0.006	<0.005	<0.005	<0.005	<0.005	<0.004	<0.004	--	--	--	--	--	--
Cadmium	µg/L	5	--	0.12	0.13	0.04	0.04	0.008	0.007	0.03	0.02	--	--	--	--	--	--
Chromium	µg/L	100	--	0.6	2.1	0.1	0.059	0.254	0.776	0.196	0.127	--	--	--	--	--	--
Cobalt	µg/L	6	--	1.24	0.778	0.472	0.37	0.391	0.406	0.394	0.372	--	--	--	--	--	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.26	0.24	--	--	0.52	--	--
Lead	µg/L	15	--	1.19	0.284	0.133	0.049	0.02	0.026	0.115	0.02	--	--	--	--	--	--
Mercury	µg/L	2	--	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	--	--
Molybdenum	µg/L	100	--	3.6	3.66	3.08	3.37	3.2	3.62	3.26	3.42	--	--	--	--	--	--
Selenium	µg/L	50	--	0.1	0.05	0.05	<0.03	<0.03	0.05	0.03	<0.03	--	--	--	--	--	--
Thallium	µg/L	2	--	0.03	0.02	0.02	0.056	0.02	0.02	0.01	0.05	--	--	--	--	--	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	4.3	30.8	--	--	2.4	--	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.1	17	19.8	--	--	16.5	--	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	3.39	21.5	--	--	5.91	--	--
Boron	mg/L	--	0.098	0.058	0.056	0.051	0.041	0.034	0.079	0.083	0.052	0.061	--	--	0.081	--	--
Calcium	mg/L	--	(79.5) 96	73.7	83.1	88.9	80	72.3	81.4	69.6	64.4	63	--	--	51.2	--	--
Lithium	mg/L	0.04	--	<0.0002	0.004	0.005	0.006	0.009	0.008	0.005	<0.0002	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	21	19.6	17.4	16.5	--	--	13.4	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.155	--	--	--	0.122	--	--
Potassium	mg/L	--	--	--	--	--	--	--	1.28	1.36	1.04	1.12	--	--	0.94	--	--
Sodium	mg/L	--	--	--	--	--	--	--	101	93.6	95.4	94.6	--	--	89.1	--	--
Strontium	mg/L	--	--	--	--	--	--	--	0.153	0.14	0.119	0.12	--	--	0.104	--	--
Alkalinity	mg/L	--	--	--	--	--	--	--	221	226	229	245	--	--	238	--	--
Bromide	mg/L	--	--	--	--	--	--	--	0.347	0.396	0.372	0.283	--	--	0.213	--	--
Chloride	mg/L	--	(29.6) 241	195	209	214	164	159	158	151	145	115	86	110	80.2	61.1	--
Fluoride	mg/L	4	0.656	0.57	0.56	0.52	0.56	0.56	0.58	0.61	0.63	0.66	0.76	0.65	0.87	0.98	1.03
TDS	mg/L	--	(412.7) 657	609	569	620	540	513	549	528	509	486	--	471	418	376	--
Sulfate	mg/L	--	(50.8) 51	43.1	49.3	48.1	44.1	43.2	44.9	43.5	44.7	46.6	44.8	--	41	--	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	--	<0.4	--	--
Radium-228	pCi/L	--	--	0.615	0.386	1	0.499	0.531	0.33	0.191	0.791	--	--	--	--	--	--
Radium-226	pCi/L	--	--	1.31	0.781	0.587	0.263	0.979	0.693	0.816	0.0231	--	--	--	--	--	--
Radium-226/228	pCi/L	5	--	1.925	1.167	1.587	0.762	1.51	1.023	1.007	0.8141	--	--	--	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.33	--	--	--	0.57	--	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.2	--	--	--	1	--	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2	--	--	--	2.64	--	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.896	0.909	0.741	0.603	--	--	0.546	--	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.185	0.188	0.141	0.144	--	--	0.113	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-17I

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/13/2018	2/11/2019	4/1/2019	5/23/2019	7/23/2019	9/11/2019	11/15/2019	5/19/2020
Field Parameters											
Elevation	ft NGVD	--	--	369.35	369.89	369.89	372.03	373.11	-----	371.60	370.47
pH	S.U.	--	6.82 - 7.96	7.55	7.68	7.68	7.51	6.65	7.63	7.44	7.94
Specific Conductance	µmhos/cm	--	--	450	391	391	570	488	363	654	487
Turbidity	NTU	--	--	7.42	6.9	6.9	3.67	6.4	5	7	1.02
Dissolved Oxygen	mg/L	--	--	0.76	0.47	0.47	0.91	1.1	0	0	0
Temperature	°C	--	--	12.6	13.5	13.5	17.85	14.8	15.49	13	14.72
ORP	mV	--	--	-77.4	-55	-55	-94.3	-5.3	-112	-87	-56
Laboratory Parameters											
Antimony	µg/L	6	--	0.02	--	--	0.02	--	--	0.06	--
Arsenic	µg/L	10	--	3.65	--	--	3.72	--	--	4.5	--
Barium	µg/L	2000	--	86.8	--	--	91.8	--	--	87.9	--
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	--	--	<0.02	--
Cadmium	µg/L	5	--	0.03	--	--	<0.01	--	--	0.05	--
Chromium	µg/L	100	--	<0.04	--	--	<0.04	--	--	0.1	--
Cobalt	µg/L	6	--	0.186	--	--	0.22	--	--	0.306	--
Copper	µg/L	--	--	0.26	--	--	0.07	--	--	0.5	--
Lead	µg/L	15	--	0.03	--	--	0.02	--	--	0.2	--
Mercury	µg/L	2	--	--	--	--	<0.002	--	--	<0.002	--
Molybdenum	µg/L	100	--	4.09	--	--	3.01	--	--	2.4	--
Selenium	µg/L	50	--	<0.03	--	--	<0.03	--	--	0.03	--
Thallium	µg/L	2	--	<0.1	--	--	<0.1	--	--	<0.1	--
Zinc	µg/L	--	--	2	--	--	15.1	--	--	2	--
Silica (Dissolved)	mg/L	--	--	15.8	--	--	<0.06	--	--	14	--
Aluminum	µg/L	--	--	2	--	--	1	--	--	7	--
Boron	mg/L	--	0.098	0.07	--	--	0.04	--	--	0.04	0.04
Calcium	mg/L	--	(79.5) 96	36.5	--	--	45.1	--	--	43.9	40.3
Lithium	mg/L	0.04	--	<0.009	--	--	0.01	--	--	0.00504	--
Magnesium	mg/L	--	--	9.44	--	--	11.8	--	--	12	--
Manganese	mg/L	--	--	0.0779	--	--	0.112	--	--	0.121	--
Potassium	mg/L	--	--	0.83	--	--	0.84	--	--	0.9	--
Sodium	mg/L	--	--	74.7	--	--	60.5	--	--	49.7	--
Strontium	mg/L	--	--	0.0796	--	--	0.098	--	--	0.103	--
Alkalinity	mg/L	--	--	231	--	--	201	--	--	205	--
Bromide	mg/L	--	--	0.1	--	--	0.2	--	--	2	--
Chloride	mg/L	--	(29.6) 241	50.1	--	--	60.2	--	--	41.2	32.8
Fluoride	mg/L	4	0.656	1.00	1.05	1.08	1.07	1.06	1.08	0.95	1.07
TDS	mg/L	--	(412.7) 657	328	--	--	352	--	--	309	273
Sulfate	mg/L	--	(50.8) 51	29.6	--	--	32.8	--	--	23.2	20.7
Sulfide	mg/L	--	--	<0.1	--	--	<0.1	--	--	<0.02	--
Radium-228	pCi/L	--	--	0.275	--	--	-0.107	--	--	1.33	--
Radium-226	pCi/L	--	--	0.351	--	--	0.403	--	--	0.184	--
Radium-226/228	pCi/L	5	--	0.626	--	--	0.403	--	--	1.514	--
Copper (Dissolved)	µg/L	--	--	1.62	--	--	1.24	--	--	2.03	--
Zinc (Dissolved)	µg/L	--	--	3	--	--	3	--	--	3	--
Aluminum (Dissolved)	µg/L	--	--	3	--	--	5.77	--	--	<5	--
Iron (Dissolved)	mg/L	--	--	0.348	--	--	0.418	--	--	0.364	--
Manganese (Dissolved)	mg/L	--	--	0.0765	--	--	0.106	--	--	0.114	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-21S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	12/12/2017	6/6/2018
Field Parameters														
Elevation	ft NGVD	--	--	369.38	369.28	368.85	368.52	367.76	366.84	367.86	368.72	367.13	366.24	369.54
pH	S.U.	--	5.99 - 9.07	6.6	7.54	7.59	7.5	7.32	7.6	8.86	7.23	7.53	8	7.77
Specific Conductance	µmhos/cm	--	--	387	450	454	501	410	540	344	398	402	390	400
Turbidity	NTU	--	--	2.5	0.91	0.78	0.46	1.03	2.6	0.71	2.28	3.31	6	2.1
Dissolved Oxygen	mg/L	--	--	2.3	4.37	5.67	4.46	6.66	4.2	3.36	32.59	4.01	6.2	3.36
Temperature	°C	--	--	16.4	17.49	18.53	18.78	15.15	14.9	16.27	18.01	16.21	14.9	16.2
ORP	mV	--	--	36	13.1	48.9	46.9	198.4	150	160.1	-167.7	76.7	56	43
Laboratory Parameters														
Antimony	µg/L	6	--	0.03	0.02	0.02	0.02	0.03	0.03	0.04	0.05	--	--	0.04
Arsenic	µg/L	10	--	0.53	0.47	0.46	0.43	0.47	0.49	0.47	0.42	--	--	0.45
Barium	µg/L	2000	--	18.5	19.6	19.4	19.1	19.3	21.9	17.7	21.9	--	--	18.5
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.004	<0.04	--	--	<0.004
Cadmium	µg/L	5	--	0.02	0.02	0.006	0.02	0.01	0.01	0.01	0.01	--	--	0.01
Chromium	µg/L	100	--	0.4	0.7	0.3	0.292	0.401	0.536	0.3	0.272	--	--	0.233
Cobalt	µg/L	6	--	0.104	0.033	0.03	0.023	0.022	0.053	0.027	0.006	--	--	0.02
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.27	0.35	--	0.52
Lead	µg/L	15	--	0.095	0.042	0.025	0.023	0.024	0.095	0.023	0.024	--	--	0.024
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	1.78	1.85	1.74	1.63	1.74	2	1.62	2.31	--	--	2.04
Selenium	µg/L	50	--	0.7	0.5	0.2	0.2	0.1	0.1	0.1	0.2	--	--	0.3
Thallium	µg/L	2	--	0.01	0.01	<0.01	<0.01	0.058	<0.01	<0.01	<0.01	--	--	<0.01
Zinc	µg/L	--	--	--	--	--	--	--	--	--	2	214	--	3.7
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	23.5	22.8	26.2	--	22.5
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	1	16.5	--	6.55
Boron	mg/L	--	0.046	0.002	0.011	0.007	0.015	0.002	0.018	0.033	0.034	0.027	--	0.039
Calcium	mg/L	--	(79.5) 62	55.1	52.8	52	60	54.4	59	56	55.9	59.8	--	52.8
Lithium	mg/L	0.04	--	0.003	0.013	0.003	0.009	0.007	0.002	0.005	<0.0002	--	--	0.005
Magnesium	mg/L	--	--	--	--	--	--	--	21.3	20.5	20.7	21.8	--	19.2
Manganese	mg/L	--	--	--	--	--	--	--	--	--	<0.0001	--	--	0.0008
Potassium	mg/L	--	--	--	--	--	--	--	0.6	0.69	0.57	0.61	--	0.58
Sodium	mg/L	--	--	--	--	--	--	--	18.9	16.6	20.6	19.3	--	15.5
Strontium	mg/L	--	--	--	--	--	--	--	0.0604	0.0601	0.58	0.061	--	0.0554
Alkalinity	mg/L	--	--	--	--	--	--	--	202	195	212	210	--	183
Bromide	mg/L	--	--	--	--	--	--	--	<0.02	0.03	0.061	<0.02	--	0.02
Chloride	mg/L	--	(29.6) 16	15	15.1	14.7	14.7	14.4	14.8	15.7	15.9	17.7	18	17.5
Fluoride	mg/L	4	0.689	0.61	0.064	0.62	0.63	0.54	0.58	0.6	0.54	0.6	0.6	0.66
TDS	mg/L	--	(412.7) 313	275	292	285	294	287	298	296	304	300	--	283
Sulfate	mg/L	--	23.6	21.2	21.1	17.4	14.9	15.9	16.5	17.6	18.8	20.1	21.1	18.7
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4
Radium-228	pCi/L	--	--	0.129	0.0598	0.213	0.14	1.71	-0.0315	0.0831	0.989	--	--	--
Radium-226	pCi/L	--	--	0.0309	0.513	0.239	0.344	0.357	0.0305	0.152	0.109	--	--	--
Radium-226/228	pCi/L	5	--	0.1599	0.5728	0.452	0.484	2.067	-0.001	0.2351	1.098	--	--	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.2	--	--	0.29
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	5.1	--	--	1
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	18.3	--	--	1
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.008	0.017	--	0.005
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0001	0.0001	0.0029	<0.0002	--	<0.0002

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-21S

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	11/14/2018	2/12/2019	4/1/2019	5/21/2019	11/14/2019	2/18/2020	5/19/2020	7/16/2020
Field Parameters											
Elevation	ft NGVD	--	--	368.42	370.37	371.3	371.43	370.65	369.05	369.92	400.27
pH	S.U.	--	5.99 - 9.07	7.34	7.74	7.8	7.59	7.54	7.53	8.11	7.93
Specific Conductance	µmhos/cm	--	--	380	318	404	424	530	856	347	416
Turbidity	NTU	--	--	1.67	2.8	2.45	0.29	2.8	8.71	0.65	0.46
Dissolved Oxygen	mg/L	--	--	9.55	7.1	3.89	5.26	7	6.64	5.6	7.8
Temperature	°C	--	--	14.14	15.2	14.3	15.98	15.5	11.8	12.23	15.6
ORP	mV	--	--	165.5	189	21.1	-194.8	121	132.4	136	141
Laboratory Parameters											
Antimony	µg/L	6	--	0.02	--	--	<0.02	0.03	--	--	--
Arsenic	µg/L	10	--	0.44	--	--	0.44	0.46	--	--	--
Barium	µg/L	2000	--	17.8	--	--	15.9	16.2	--	--	--
Beryllium	µg/L	4	--	<0.02	--	--	<0.02	<0.02	--	--	--
Cadmium	µg/L	5	--	0.01	--	--	0.01	0.01	--	--	--
Chromium	µg/L	100	--	0.232	--	--	0.287	0.418	--	--	--
Cobalt	µg/L	6	--	0.06	--	--	0.02	0.03	--	--	--
Copper	µg/L	--	--	0.53	--	--	0.13	0.4	--	--	--
Lead	µg/L	15	--	0.07	--	--	0.02	<0.05	--	--	--
Mercury	µg/L	2	--	--	--	--	<0.002	<0.002	--	--	--
Molybdenum	µg/L	100	--	2	--	--	2	2	--	--	--
Selenium	µg/L	50	--	0.3	--	--	0.1	0.1	--	--	--
Thallium	µg/L	2	--	<0.1	--	--	<0.1	<0.1	--	--	--
Zinc	µg/L	--	--	0.8	--	--	<0.7	<0.7	--	--	--
Silica (Dissolved)	mg/L	--	--	23.2	--	--	21.3	18.8	--	--	--
Aluminum	µg/L	--	--	17	--	--	5.26	10	--	--	--
Boron	mg/L	--	0.046	0.06	<0.02	--	<0.02	0.01	--	<0.02	--
Calcium	mg/L	--	(79.5) 62	55	--	--	52.5	50.4	--	49.1	--
Lithium	mg/L	0.04	--	0.03	--	--	<0.009	0.00321	--	--	--
Magnesium	mg/L	--	--	19.6	--	--	17	17.3	--	--	--
Manganese	mg/L	--	--	0.0041	--	--	0.0009	0.002	--	--	--
Potassium	mg/L	--	--	0.88	--	--	0.55	0.3	--	--	--
Sodium	mg/L	--	--	17.1	--	--	13	15.3	--	--	--
Strontium	mg/L	--	--	0.0553	--	--	0.0506	0.0508	--	--	--
Alkalinity	mg/L	--	--	193	--	--	167	171	--	--	--
Bromide	mg/L	--	--	<0.04	--	--	<0.04	<0.04	--	--	--
Chloride	mg/L	--	(29.6) 16	17.9	17.9	17.5	16	17.4	--	18	16.1
Fluoride	mg/L	4	0.689	0.66	--	--	0.65	0.73	0.79	0.76	0.77
TDS	mg/L	--	(412.7) 313	278	--	--	258	241	--	238	228
Sulfate	mg/L	--	23.6	17.0	--	--	14.1	15.8	--	15.1	--
Sulfide	mg/L	--	--	<0.07	--	--	<0.1	<0.2	--	--	--
Radium-228	pCi/L	--	--	0.0549	--	--	0.366	0.39	--	--	--
Radium-226	pCi/L	--	--	0.0246	--	--	-0.0257	0.0413	--	--	--
Radium-226/228	pCi/L	5	--	0.0795	--	--	0.366	0.4313	--	--	--
Copper (Dissolved)	µg/L	--	--	0.13	--	--	0.27	<0.2	--	--	--
Zinc (Dissolved)	µg/L	--	--	<0.7	--	--	<0.7	0.8	--	--	--
Aluminum (Dissolved)	µg/L	--	--	2	--	--	5	<5	--	--	--
Iron (Dissolved)	mg/L	--	--	<0.003	--	--	<0.003	<0.02	--	--	--
Manganese (Dissolved)	mg/L	--	--	<0.0002	--	--	<0.0002	<0.0005	--	--	--

**Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana**

MW-211

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	6/6/2018	11/13/2018	5/21/2019	11/14/2019	5/19/2020
Field Parameters																	
Elevation	ft NGVD	--	--	369.3	369.19	368.77	368.43	367.68	367.8	368.03	368.24	367	369.44	368.39	371.41	370.62	369.92
pH	S.U.	--	6.63 - 8.69	7.99	7.56	7.56	7.3	7.35	7.5	8.56	7.44	7.44	7.54	7.69	7.31	7.48	7.38
Specific Conductance	µmhos/cm	--	--	548	500	488	432	397	520	361	422	399	430	402	403	526	386
Turbidity	NTU	--	--	0.73	0.65	1.04	0.97	2.82	2.5	1.34	1.02	3.21	1.71	1.18	0	4	1.08
Dissolved Oxygen	mg/L	--	--	0.5	1.63	1.49	1.88	1.53	0.3	0.55	0.76	0.2	0.17	0.22	0.36	0.4	2.47
Temperature	°C	--	--	16.88	17.39	16.17	16.95	13.68	15.1	16.39	17.11	15.47	15.55	14.87	16.34	15.6	14.95
ORP	mV	--	--	-9.2	-185.2	-16.7	105.2	21.1	-3	160.7	2.1	-10.3	-13.4	8.7	67.5	31	109
Laboratory Parameters																	
Antimony	µg/L	6	--	0.02	0.02	0.02	0.02	0.02	0.03	0.05	0.03	--	0.02	<0.02	<0.02	0.05	--
Arsenic	µg/L	10	--	1.55	1.67	1.55	1.41	1.39	1.08	1.19	1.38	--	0.98	1.63	0.65	1.12	--
Barium	µg/L	2000	--	127	136	121	126	126	123	116	123	--	121	120	106	110	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.004	<0.004	--	<0.004	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.02	0.02	0.02	0.04	0.02	0.01	0.01	0.01	--	0.03	0.01	0.07	--	
Chromium	µg/L	100	--	0.1	0.2	0.1	0.386	1.04	0.349	0.125	0.143	--	0.061	0.1	0.1	0.2	--
Cobalt	µg/L	6	--	0.514	0.558	0.422	0.524	0.437	0.437	0.412	0.517	--	0.398	0.685	0.275	0.664	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.07	0.09	0.11	0.51	0.77	0.3	--
Lead	µg/L	15	--	0.02	0.021	0.046	0.035	<0.004	0.01	0.022	0.033	--	0.026	0.181	0.02	0.08	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	4.92	5.25	4.46	4.4	4.63	4.31	4.06	4.18	--	4.69	5.13	5.01	4.85	--
Selenium	µg/L	50	--	<0.03	0.05	0.03	0.09	0.07	0.07	0.05	0.05	--	<0.03	<0.03	<0.03	0.1	--
Thallium	µg/L	2	--	0.03	0.03	0.02	0.02	0.04	0.02	0.03	0.03	--	0.03	<0.1	<0.1	<0.1	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	0.6	0.9	1	11.1	1	1	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.8	18.1	19.7	17.6	17.7	16.6	15.4	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	4.55	2.56	3.39	17.2	6.03	10	--
Boron	mg/L	--	0.092	0.007	0.012	0.011	0.012	<0.002	0.028	0.027	0.08	0.029	0.034	0.08	<0.02	0.01	<0.02
Calcium	mg/L	--	(979.5) 73	69	64.7	65.1	68.4	59.5	66.5	62.9	60.1	63.9	66.5	61.5	62.4	56.5	58.5
Lithium	mg/L	0.04	--	<0.0002	0.019	0.004	0.006	0.005	0.007	0.008	0.004	--	0.007	<0.009	<0.009	0.00335	--
Magnesium	mg/L	--	--	--	--	--	--	--	20.9	20.1	18.4	20	21.2	19.3	17.5	16.8	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.428	--	0.476	0.535	0.371	0.582	--
Potassium	mg/L	--	--	--	--	--	--	--	0.92	1.08	1.26	0.8	0.9	1.21	0.82	0.7	--
Sodium	mg/L	--	--	--	--	--	--	--	16	15.4	13	15	15.5	14.7	13.3	14.4	--
Strontium	mg/L	--	--	--	--	--	--	--	0.0931	0.0922	0.0805	0.0889	0.096	0.0887	0.0829	0.0797	--
Alkalinity	mg/L	--	--	--	--	--	--	--	212	222	221	215	230	224	199	199	--
Bromide	mg/L	--	--	--	--	--	--	--	0.03	0.05	<0.02	0.04	0.04	<0.04	<0.04	<0.04	--
Chloride	mg/L	--	(79.5) 22	21.1	21.7	20.4	20	19.9	19.6	21	20.4	20.5	20.6	20.2	18.1	17.5	19.3
Fluoride	mg/L	4	0.38	0.33	0.36	0.34	0.34	0.3	0.32	0.34	0.3	0.31	0.38	0.36	0.36	0.38	0.35
TDS	mg/L	--	(412.7) 359	331	334	305	317	292	275	306	322	306	317	294	278	262	283
Sulfate	mg/L	--	50	46.2	47.9	43.2	40.4	41	39.6	42.4	43.6	45.7	44.6	43.4	36	35.5	38.8
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	<0.4	<0.1	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.126	0.036	0.676	0.0796	1.78	0.281	0.108	0.45	--	--	0.638	0.458	0.113	--
Radium-226	pCi/L	--	--	0.223	1.37	0.305	0.576	0.953	0.601	0.483	0.775	--	--	0.315	0.284	0.579	--
Radium-226/228	pCi/L	5	--	0.349	1.406	0.981	0.6556	2.733	0.882	0.591	1.225	--	--	0.953	0.742	0.692	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.09	--	0.11	0.23	0.21	<0.2	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.7	--	1	1	<0.7	1	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	1	--	<0.8	<1	4	<5	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	0.019	<0.0004	0.078	0.062	0.024	0.028	<0.003	<0.02	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.37	0.427	0.425	0.441	0.427	0.441	0.346	0.315	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

MW-21D

Parameter	Units	GWPS (MCL or RSL)	Appendix III UPL	6/9/2016	7/19/2016	9/21/2016	11/16/2016	1/11/2017	3/8/2017	5/9/2017	7/19/2017	10/4/2017	1/3-11/18	6/6/2018	11/13/2018	5/22/2019	11/14/2019	5/19/2020
Field Parameters																		
Elevation	ft NGVD	--	--	369.44	369.34	368.92	368.59	367.86	368.07	367.86	368.42	367.17	366.66	369.58	368.38	371.4	370.64	
pH	S.U.	--	6.71 - 8.73	8.14	7.76	7.69	7.47	7.19	7.6	7.44	8.48	7.48	7.03	7.65	7.66	7.47	7.41	7.55
Specific Conductance	µmhos/cm	--	--	591	544	478	585	441	60	493	531	449	564	470	451	511	670	449
Turbidity	NTU	--	--	2.82	0.48	1.93	0.33	3.09	1.9	1.42	0.55	1.01	1.11	2.43	1.87	0.87	11	1.18
Dissolved Oxygen	mg/L	--	--	0.53	0.17	0.49	0	1.82	0.2	0.22	0.47	0.31	18.7	0.18	0.33	1.88	0	0.66
Temperature	°C	--	--	15.24	16.81	15.93	15.25	12.99	15	16.7	17.58	16.26	14.93	15.45	14.15	15.44	16.2	14.87
ORP	mV	--	--	80.4	26.3	78.1	51.1	141.4	51	40	168.3	21.3	170.4	25.1	23.2	37.3	56	35
Laboratory Parameters																		
Antimony	µg/L	6	--	0.08	0.08	0.06	0.06	0.07	0.07	0.08	0.12	--	--	0.11	0.07	0.08	0.19	--
Arsenic	µg/L	10	--	1.07	1.06	0.95	0.86	0.99	0.92	0.97	1.04	--	--	0.84	0.89	1.04	1.08	--
Barium	µg/L	2000	--	241	240	226	206	220	220	216	226	--	--	218	201	202	203	--
Beryllium	µg/L	4	--	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.004	<0.004	--	--	0.005	<0.02	<0.02	<0.02	--
Cadmium	µg/L	5	--	0.02	0.03	0.02	0.03	0.02	0.02	0.04	0.02	--	--	0.13	0.02	0.03	0.16	--
Chromium	µg/L	100	--	0.2	0.3	0.1	0.05	0.124	0.433	0.165	0.11	--	--	0.091	0.06	<0.04	0.759	--
Cobalt	µg/L	6	--	0.216	0.21	0.195	0.171	0.202	0.182	0.208	0.203	--	--	0.196	0.224	0.234	0.397	--
Copper	µg/L	--	--	--	--	--	--	--	--	--	0.11	2.7	--	1.16	0.16	0.16	1.02	--
Lead	µg/L	15	--	0.107	0.075	0.066	0.056	0.091	0.092	0.118	0.089	--	--	0.229	0.1	0.09	0.776	--
Mercury	µg/L	2	--	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--	<0.002	<0.002	--
Molybdenum	µg/L	100	--	6.31	6.66	6.13	5.33	6.09	5.68	5.07	5.29	--	--	5.17	4.76	5.37	5.29	--
Selenium	µg/L	50	--	0.2	0.2	0.3	0.3	0.2	0.5	0.6	0.5	--	--	0.2	0.05	0.04	0.08	--
Thallium	µg/L	2	--	0.03	0.02	0.03	0.02	0.04	0.02	0.02	0.03	--	--	0.03	<0.1	<0.1	0.1	--
Zinc	µg/L	--	--	--	--	--	--	--	--	--	1	187	--	6.5	1	1	4	--
Silica (Dissolved)	mg/L	--	--	--	--	--	--	--	--	17.5	17.6	19.6	--	17.6	17	16.9	16	--
Aluminum	µg/L	--	--	--	--	--	--	--	--	--	6.79	14.1	--	17.2	9.86	5	65.5	--
Boron	mg/L	--	0.071	0.022	0.015	0.015	0.013	0.004	0.024	0.107	0.015	0.092	0.088	0.03	0.04	<0.02	0.01	0.02
Calcium	mg/L	--	(79.5) 83	74.2	60.6	70.4	74.7	67.3	76.2	71.5	70.9	67.8	--	70.7	62.1	69.3	69.4	69.2
Lithium	mg/L	0.04	--	0.002	0.025	0.005	0.007	0.009	0.005	0.013	0.0005	--	--	0.006	0.01	<0.009	0.0044	--
Magnesium	mg/L	--	--	--	--	--	--	--	25	24.3	23.9	22.7	--	23.6	21.3	23.1	22.3	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--	0.592	--	--	0.596	0.634	0.717	0.803	--
Potassium	mg/L	--	--	--	--	--	--	--	2.11	2.41	2.44	3.91	--	1.97	3.95	2.81	3.49	--
Sodium	mg/L	--	--	--	--	--	--	--	18.1	17.2	19.7	20.8	--	15.7	17.7	15.1	17.2	--
Strontium	mg/L	--	--	--	--	--	--	--	0.144	0.142	0.144	0.168	--	0.147	0.191	0.189	0.21	--
Alkalinity	mg/L	--	--	--	--	--	--	--	247	271	277	262	--	268	268	286	266	--
Bromide	mg/L	--	--	--	--	--	--	--	<0.05	0.08	0.07	<0.05	--	0.05	0.05	0.04	0.05	--
Chloride	mg/L	--	(29.6) 20	19.2	19.6	18.9	19.1	19.4	18.9	19.9	19.5	18.5	--	19.9	18.8	19.1	19.2	19.9
Fluoride	mg/L	4	0.407	0.36	0.38	0.36	0.33	0.36	0.33	0.35	0.3	0.32	--	0.4	0.34	0.36	0.32	0.26
TDS	mg/L	--	(412.7) 365	328	299	315	346	332	304	339	332	339	--	347	314	348	323	328
Sulfate	mg/L	--	43.22	39.2	41	35.5	32	34.4	35.1	37.1	36.5	37.4	--	38.4	35.2	36.8	38.6	33.3
Sulfide	mg/L	--	--	--	--	--	--	--	--	--	<0.4	--	--	<0.4	<0.07	<0.1	<0.2	--
Radium-228	pCi/L	--	--	0.441	0.77	0.604	0.688	0.722	0.518	0.0415	0.501	--	--	--	1.47	0.59	0.525	--
Radium-226	pCi/L	--	--	0.126	0.658	0.23	0.39	0.422	0.42	0.408	0.355	--	--	--	0.469	0.669	0.403	--
Radium-226/228	pCi/L	5	--	0.567	1.428	0.834	1.078	1.144	0.938	0.4495	0.856	--	--	--	1.939	1.259	0.928	--
Copper (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	0.39	--	--	0.08	1.33	0.85	<0.2	--
Zinc (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.4	--	--	0.7	3	3	1	--
Aluminum (Dissolved)	µg/L	--	--	--	--	--	--	--	--	--	2.16	--	--	2	1	2	<5	--
Iron (Dissolved)	mg/L	--	--	--	--	--	--	--	<0.0004	<0.0004	0.053	0.016	--	<0.002	0.007	0.005	<0.02	--
Manganese (Dissolved)	mg/L	--	--	--	--	--	--	--	0.616	0.625	0.62	0.646	--	0.567	0.657	0.684	0.611	--

Table A-1
Summary of Analytical Data
CCR Landfill
Rockport Plant, Rockport, Indiana

Notes:

GWPS - Groundwater Protection Standard

MCL - USEPA Maximum Contaminant Levels

RSL - USEPA Generic Tables for Residential Tapwater, May 2018, TR=1E-06, THQ=1.0

Field Parameter Units

ft NGVD - Feet, National Geodetic Vertical Datum of 1929 (also known as mean sea level (MSL))

°C - degrees Celcius

S.U. - Standard Units

µmhos/cm - micromhos per centimeter

mg/L - milligrams per liter

ORP - milliVolts (mV)

NTU - Nephelometric Turbidity Units

Laboratory Parameter Units

pCi/L picoCuries per Liter

Prepared by: kdr 10/23/2020

Checked by: tmr 10/30/2020

Table A-2
Summary of Leachate Pond Data
CCR Landfill
Rockport Plant, Rockport, Indiana

Source: American Electric Power

Parameter	Unit	Combined North/West Leachate Pond			North Leachate Pond					West Leachate Pond
		7/13/2016	7/19/2016	1/24/2017	7/13/2016	7/19/2016	9/14/2016	1/24/2017	9/29/2017	9/29/2017
Boron	mg/L	1.19	2.17	2.77	0.634	0.684	0.818	2.07	2.7	11.44
Calcium	mg/L	22.8	41.3	149	19.9	22.5	21.8	80.8	-	-
Chloride	mg/L	38.5	63.7	191	17.3	19.7	9.31	18.4	-	-
Fluoride	mg/L	0.27	0.41	0.32	0.25	0.2	0.57	0.23	-	-
Total Dissolved Solids	mg/L	918	1870	1870	332	434	310	656	-	-
Sulfate	mg/L	617	1180	1020	168	254	97.6	365	-	-
pH	SU	-	-	-	-	-	-	-	-	-

Notes:

mg/L: milligrams per liter

SU: standard unit

-: Not sampled

Laboratory data reports incorrectly identified Combined North/West Leachate Pond as North/South Leachate Pond. There is no South Leachate Pond.

Prepared by: kdr 6/1/2020

Checked by: tmr 6/1/2020

Table A-3
Summary of Isotope Data
CCR Landfill
Rockport Plant, Rockport, Indiana

Sample Identifier	B (mg/L)	$\delta^{11}\text{B}$	Sr (mg/L)	$^{87}\text{Sr}/^{86}\text{Sr}$
Landfill Leachate Pond North	2.7	-0.93	1.80	0.711955
Landfill Leachate Pond West	11.4	-1.64	2.86	0.711919
MW-17I	0.058	26.86	0.093	0.710547
MW-8I	0.037	23.51	0.140	0.709697
MW-8S	0.020	16.33	0.048	0.709272
MW-11S	0.060	24.01	0.052	0.709447
MW-14S	0.017	17.78	0.094	0.710566
MW-15I	0.042	35.32	0.082	0.710333
MW-21S	0.016	20.66	0.055	0.710142

Note: monitoring well boron concentrations are averages of first eight rounds of sampling.



wood.

Appendix B
Full Size Geochemical Exhibits

Exhibit 3-4. Boron to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.

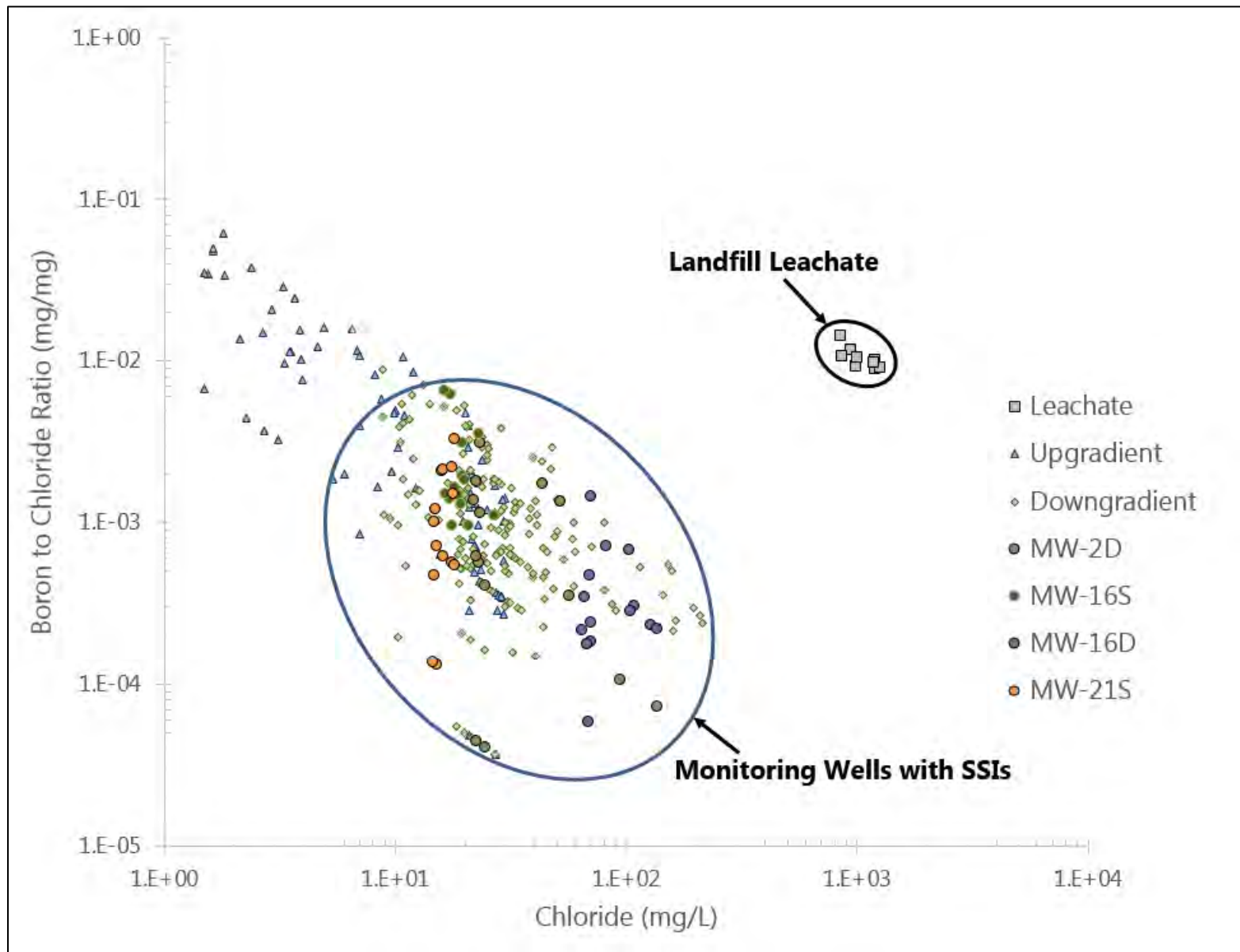


Exhibit 3-5. Sulfate to chloride ratio versus chloride concentration for CCR Landfill groundwater monitoring wells and leachate for comparison.

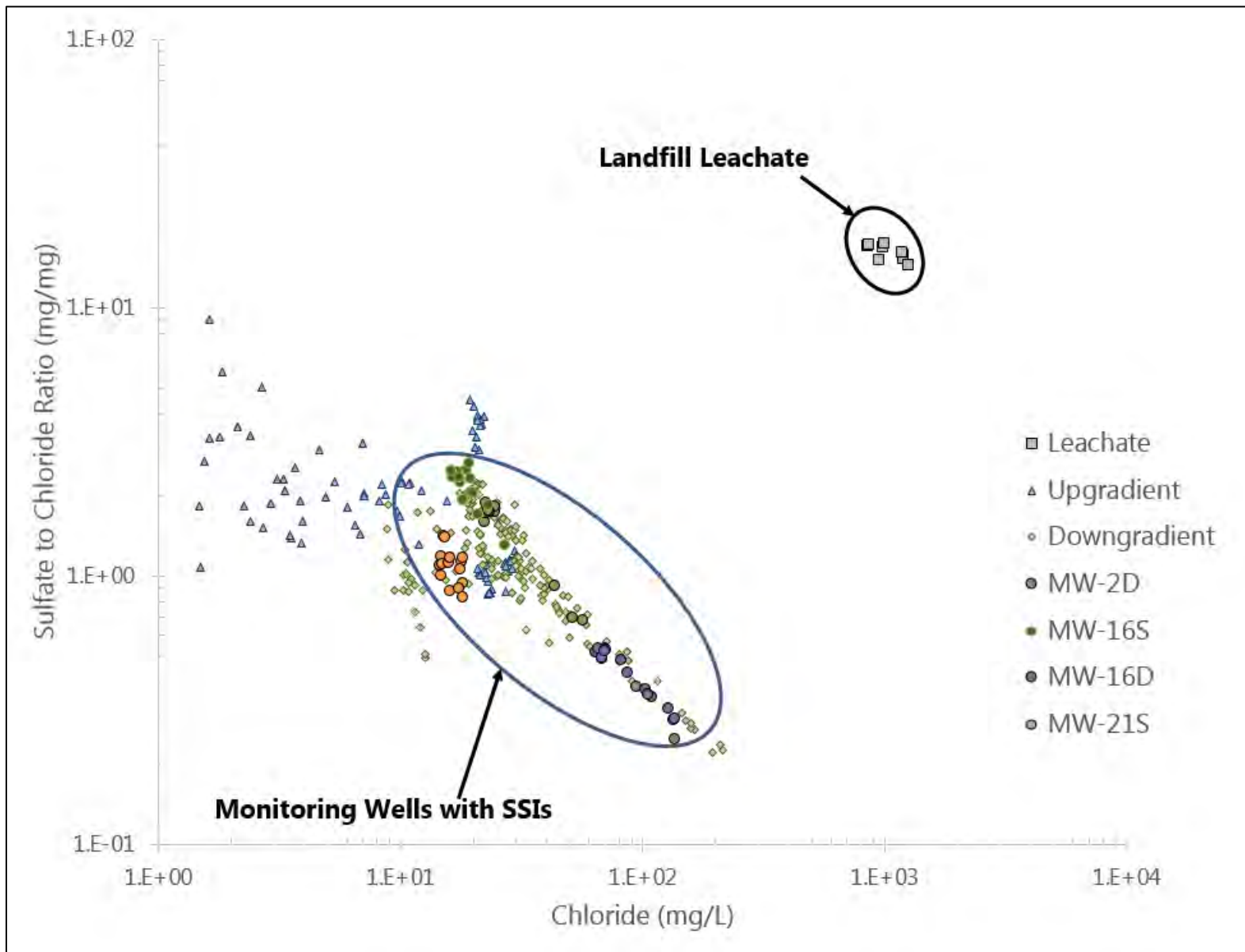


Exhibit 3-6. Boron isotope ratio ($\delta^{11}\text{B}$) versus boron concentration for CCR Landfill leachate and monitoring wells for comparison.

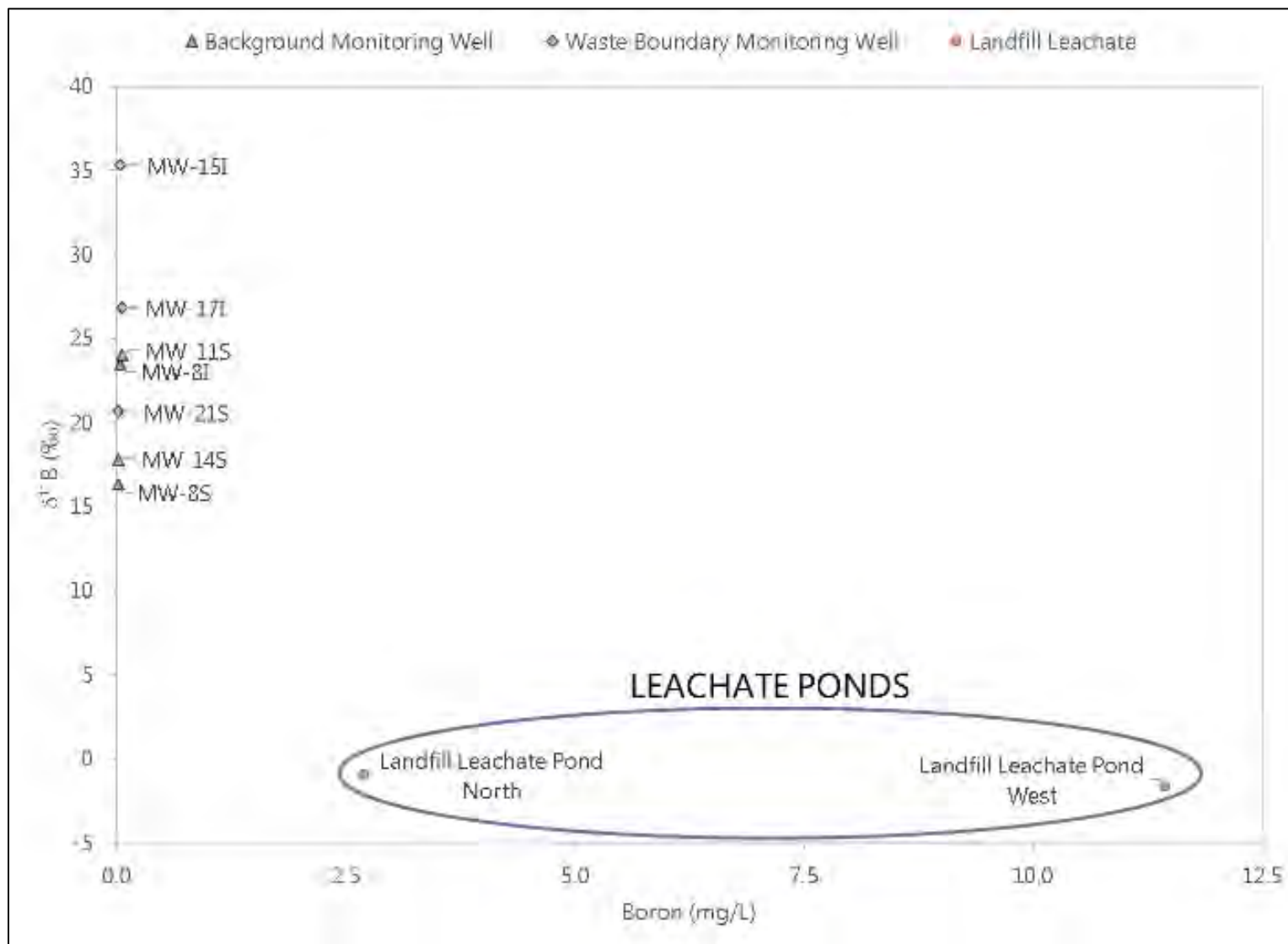
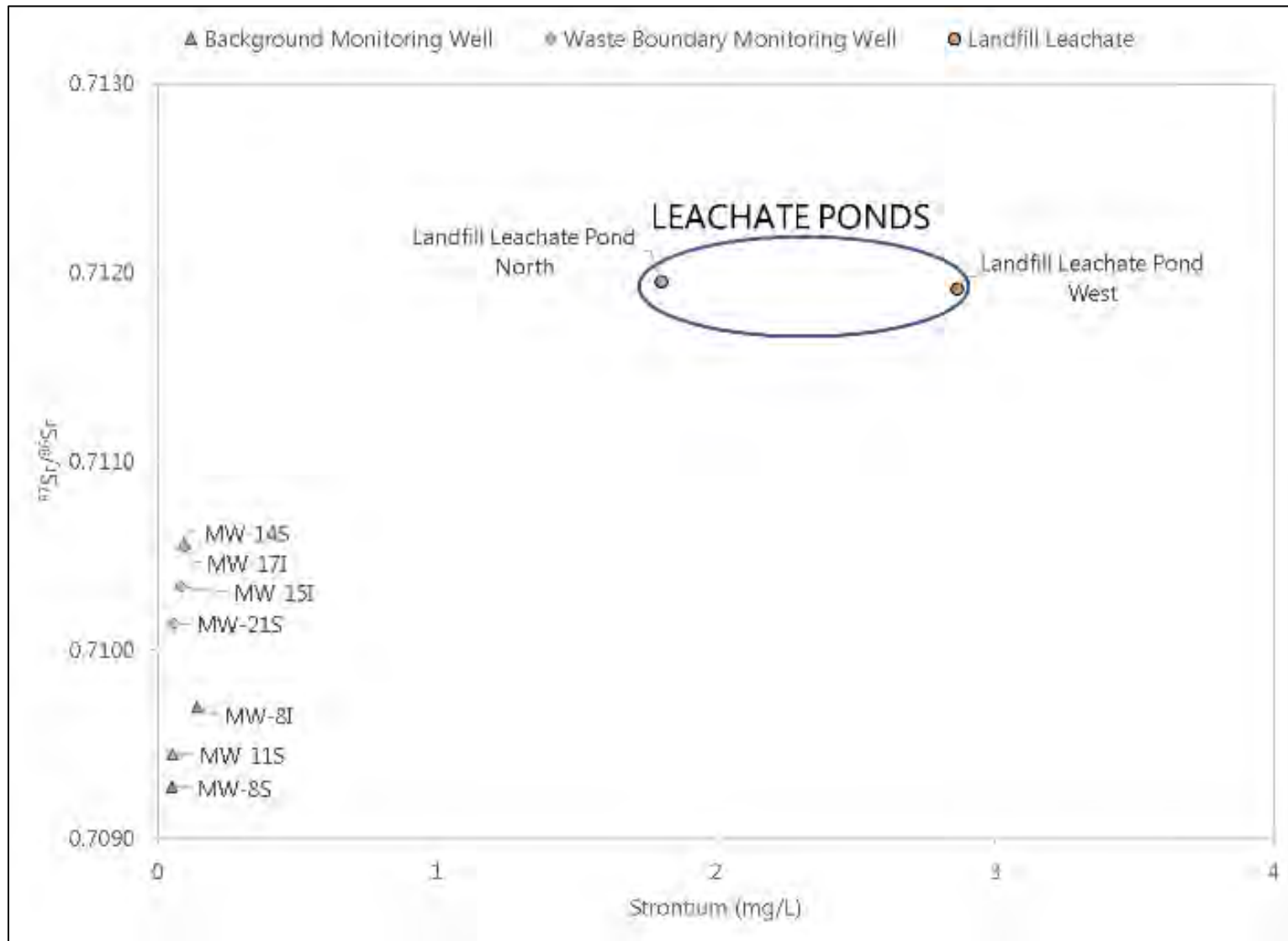


Exhibit 3-7. Strontium isotope ratio ($^{87}\text{Sr}/^{86}\text{Sr}$) versus strontium concentration for CCR Landfill leachate and monitoring wells for comparison.



APPENDIX 4 – Notices for Monitoring Program Transitions

No monitoring program transitions have been necessary at this time.

APPENDIX 5 – Well Installation/Decommissioning Logs

There were no wells installed or decommissioned in 2020.