

Annual Groundwater Monitoring Report

Southwestern Electric Power Company

Flint Creek Power Plant

Landfill CCR Management Unit

Gentry, Arkansas

January 2022

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An **AEP** Company

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I. Overview

This *Annual Groundwater Monitoring Report* (Report) has been prepared to report the status of activities for the preceding year for an existing CCR unit at Southwestern Electric Power Company's, a wholly-owned subsidiary of American Electric Power Company (AEP), Flint Creek Power Plant. The USEPA's CCR rules require that the Annual Groundwater Monitoring Report be posted to the operating record for the preceding year no later than January 31, 2022.

In general, the following activities were completed:

- The CCR unit was in Assessment monitoring at the beginning and end of 2021;
- Groundwater samples were collected on March 1, 2021 and March 2, 2021 in accordance with 40 CFR 257.95(b) and analyzed for all Appendix IV constituents. Groundwater samples were collected on June 21, 2021 and June 22, 2021 in accordance with 40 CFR 257.95(d)(1), and analyzed for all Appendix III constituents and those Appendix IV constituents that were detected during the previous sampling in accordance with 40 CFR 257.95(b) in March 2021. Groundwater samples were collected on October 20, 2021 and October 21, 2021 in accordance with 40 CFR 257.95(d)(1), and analyzed for all Appendix III constituents and those Appendix IV constituents that were detected during the previous sampling in accordance with 40 CFR 257.95(b) in March 2021. All sampling was performed in accordance with 40 CFR 257.95 *et seq.*, and AEP's *Groundwater Sampling and Analysis Plan (2016)*;
- Groundwater data underwent various validation tests, including tests for completeness, valid values, transcription errors, and consistent units;
- Statistical analysis of assessment monitoring samples collected in October 2020 was completed in March 2021. Statistical analysis of assessment monitoring samples collected in March and June 2021 was completed in October 2021.
- Statistical analysis of the assessment monitoring events of October 2020 and of March and June 2021 determined that no statistically significant levels (SSLs) above the groundwater protection standards were detected.
- No alternative source demonstrations (ASDs) relative to the Appendix IV SSLs above the groundwater protection standard were conducted.

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

- A map, aerial photograph or a drawing showing the CCR management unit(s), all groundwater monitoring wells and monitoring well identification numbers;

- 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 detection monitoring or assessment monitoring programs is included in Appendix 1;
- Statistical comparison of monitoring data to determine if there have been SSLs above the groundwater protection standards (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, for example the date and circumstances for transitioning from detection monitoring to assessment monitoring (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 regarding the rationale for the installation/decommission (Attached as Appendix 5, where applicable); and
- Other information required to be included in the annual report such as an alternate monitoring frequency, 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 figure that follows depicts the PE-certified groundwater monitoring network, the monitoring well locations and their corresponding identification numbers.

Landfill Monitoring Wells	
Upgradient	Downgradient
B-1B	B-2
B-4	B-6
B-5	B-9
B-7A	B-10
B-12	B-11
B-13	



III. Monitoring Wells Installed or Decommissioned

There were no monitoring wells installed or decommissioned in 2021. The network design, as summarized in the *Groundwater Monitoring Network Design Report* (2017) and as posted at the CCR web site for the Flint Creek Plant, 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.

IV. Groundwater Quality Data and Static Water Elevation Data, With Flow Rate and Direction and Discussion

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

V. Groundwater Quality Data Statistical Analysis

Statistical analysis of the assessment monitoring samples collected in October 2020 was completed on March 1, 2021. Statistical analysis of assessment monitoring samples collected in March and June 2021 was completed on October 20, 2021. Statistical analyses of samples collected during the October 2021 sampling event will be completed in 2022. No SSLs above the groundwater protection standards were identified during either March 2021 or the October 2021 analysis. The results of these statistical analyses are documented in the corresponding statistical analysis summary report, which is provided in Appendix 2.

VI. Alternate Source Demonstration

ASDs relative to Appendix IV SSLs above the groundwater protection standard were not necessary because no SSLs above the groundwater protection standards were identified from the completed sampling events required by 40 CFR 257.95(d)(1). A statement to this effect is provided in Appendix 3.

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

No transition between monitoring requirements occurred in 2021; the CCR unit remained in assessment monitoring. A statement to this effect is provided in Appendix 4.

The Flint Creek landfill monitoring program would return to detection monitoring if all Appendix III and IV constituents are below background values for two consecutive monitoring events. If one or more Appendix IV constituents exceed the corresponding groundwater protection standard due to a release from the landfill, and are not demonstrated to be caused by a source other than the CCR unit or resulting from error in sampling, analysis, statistical evaluation, or natural variation

in groundwater quality by means of an ASD, an assessment of corrective measures will be undertaken as required by 40 CFR 257.96.

Regarding defining an alternate monitoring frequency, the groundwater velocity and monitoring well production is high enough at this facility that no modification of the assessment monitoring schedule is necessary.

VIII. Other Information Required

The Flint Creek landfill has progressed from detection monitoring to its current status in assessment monitoring. All required information has been included in this annual groundwater monitoring report.

IX. Description of Any Problems Encountered in 2021 and Actions Taken

No significant problems were encountered. Through the use of low-flow purging and sampling methodology, samples representative of uppermost aquifer groundwater were obtained and the schedule was met to support this annual groundwater report preparation.

X. A Projection of Key Activities for the Upcoming Year

Key activities for 2022 include:

- Assessment monitoring on a semiannual schedule;
- Statistical evaluation of the assessment monitoring results to determine any statistically significant increases (or decreases with respect to pH) over an established groundwater protection standard, or whether the concentrations have returned below background concentrations;
- Responding to any new data received in light of CCR rule requirements;
- Preparation of the next annual groundwater report.

APPENDIX 1 - Groundwater Data Tables and Figures

Tables follow showing the groundwater monitoring data collected, the rate of groundwater flow each time groundwater was sampled, the number of samples collected per monitoring well, dates that the samples were collected, and whether each sample was collected as part of a detection monitoring or an assessment monitoring program. Figures follow showing the PE-certified groundwater monitoring network with the corresponding well identifications along with static water elevation data and groundwater flow directions each time groundwater was sampled in the form of annotated satellite images.

**Table 1 - Groundwater Data Summary: B-1B
Flint Creek - 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
5/24/2016	Background	0.02	90.8	3	0.5955 J1	8.1	22	296
7/19/2016	Background	0.02	92.4	4	0.4424 J1	7.1	25	281
9/14/2016	Background	0.02	96.3	3	0.4087 J1	7.0	24	296
10/5/2016	Background	0.02	89.3	5	0.4557 J1	7.5	25	294
11/7/2016	Background	0.02	86.5	4	< 0.083 U1	7.2	24	270
1/24/2017	Background	0.02	85.9	2	< 0.083 U1	7.7	22	276
3/6/2017	Background	0.02	88.7	2	< 0.083 U1	7.4	23	272
4/25/2017	Background	0.02041	88.1	4	0.53 J1	6.5	23	268
5/15/2017	Background	0.01982	85.5	3	0.4551 J1	6.8	20	240
6/12/2017	Background	0.02962	85.1	4	< 0.083 U1	6.3	21	276
8/29/2017	Detection	0.0579	83.3	3	0.416 J1	7.9	20	264
3/26/2018	Assessment	0.01493	89.6	2	0.098 J1	7.5	22	268
8/28/2018	Assessment	0.026	87.6	--	--	7.3	--	288
10/23/2018	Assessment	--	--	5.53	0.489 J1	--	14.8	--
3/12/2019	Assessment	0.02 J1	93.1	2.31	0.41	7.6	17.5	228
6/10/2019	Assessment	0.05 J1	92.4	2.31	0.49	6.6	20.7	266
8/27/2019	Assessment	< 0.02 U1	86.5	2	0.275 J1	7.4	20	312
3/24/2020	Assessment	--	--	2.39	0.40	7.1	21.8	258
6/24/2020	Assessment	< 0.02 U1	87.0	2.22	0.36	7.4	23.7	272
10/20/2020	Assessment	0.03 J1	85.5	2.23	0.37	7.7	24.5	293
3/1/2021	Assessment	--	--	--	--	7.0	--	--
3/2/2021	Assessment	--	--	--	0.42	--	--	--
6/21/2021	Assessment	0.014 J1	84.8	2.20	0.39	7.2	18.7	290
9/20/2021	Assessment	--	--	--	--	7.7	--	--
9/21/2021	Assessment	0.010 J1	86.1	2.23	0.37	--	19.2	290

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Due to limited groundwater volume, pH values for some sampling events were collected the day prior to collection of analytical samples.

Table 1 - Groundwater Data Summary: B-1B

Flint Creek - LF

Appendix IV Constituents

Geosyntec Consultants, Inc.

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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	112	0.0480724 J1	< 0.07 U1	0.801049 J1	0.441945 J1	3.583	0.5955 J1	< 0.68 U1	0.028	0.02301 J1	2.01197 J1	< 0.99 U1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	118	0.0361035 J1	< 0.07 U1	0.611765 J1	0.527203 J1	--	0.4424 J1	1.03545 J1	0.028	0.01793 J1	0.869973 J1	< 0.99 U1	< 0.86 U1
9/14/2016	Background	< 0.93 U1	< 1.05 U1	125	< 0.02 U1	< 0.07 U1	1	0.454131 J1	8.375	0.4087 J1	0.999779 J1	0.028	< 0.005 U1	0.612698 J1	< 0.99 U1	< 0.86 U1
10/5/2016	Background	< 0.93 U1	< 1.05 U1	122	0.0372394 J1	< 0.07 U1	0.984649 J1	0.750457 J1	8.79	0.4557 J1	1.03454 J1	0.041	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
11/7/2016	Background	< 0.93 U1	< 1.05 U1	131	0.033331 J1	0.0774505 J1	2	0.917319 J1	4.63	< 0.083 U1	1.03555 J1	0.027	0.00589 J1	0.297867 J1	< 0.99 U1	< 0.86 U1
1/24/2017	Background	< 0.93 U1	1.26762 J1	97	0.0223085 J1	< 0.07 U1	1	0.385362 J1	3.178	< 0.083 U1	< 0.68 U1	0.026	0.00757 J1	0.6452 J1	< 0.99 U1	< 0.86 U1
3/6/2017	Background	< 0.93 U1	< 1.05 U1	123	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.325089 J1	3.604	< 0.083 U1	< 0.68 U1	0.034	< 0.005 U1	0.561767 J1	< 0.99 U1	< 0.86 U1
4/25/2017	Background	1.27 J1	< 1.05 U1	112	0.04 J1	< 0.07 U1	0.85 J1	0.49 J1	3.841	0.53 J1	< 0.68 U1	0.02658	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
5/15/2017	Background	< 0.93 U1	< 1.05 U1	118	0.03 J1	< 0.07 U1	0.3 J1	0.49 J1	1.448	0.4551 J1	< 0.68 U1	0.02701	0.009 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
6/12/2017	Background	< 0.93 U1	1.43 J1	123	< 0.02 U1	< 0.07 U1	0.33 J1	0.47 J1	5.15	< 0.083 U1	< 0.68 U1	0.02717	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/26/2018	Assessment	< 0.93 U1	< 1.05 U1	108	< 0.02 U1	< 0.07 U1	1.22	0.21 J1	4.485	0.098 J1	0.8 J1	0.0266	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
8/28/2018	Assessment	0.08	0.33	112	0.02 J1	0.07	0.263	0.102	6.51	--	0.247	0.0278	< 0.005 U1	1.17	0.04 J1	0.01 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	0.489 J1	--	--	--	--	--	--
3/12/2019	Assessment	< 0.1 U1	0.4 J1	112	< 0.1 U1	< 0.05 U1	< 0.2 U1	< 0.1 U1	3.924	0.41	1.25	0.0264	< 0.005 U1	< 2 U1	< 0.2 U1	< 0.5 U1
6/10/2019	Assessment	0.03 J1	0.62	112	0.02 J1	0.02 J1	0.368	0.051	5.96	0.49	0.530	< 0.02 U1	< 0.005 U1	0.8 J1	< 0.03 U1	< 0.1 U1
8/27/2019	Assessment	0.11	0.57	114	< 0.02 U1	0.06	0.278	0.05 J1	4.73	0.275 J1	0.395	0.0231	< 0.005 U1	1 J1	< 0.03 U1	< 0.1 U1
3/24/2020	Assessment	0.12	0.34	116	< 0.02 U1	0.04 J1	0.07 J1	0.02 J1	5.38	0.40	0.06 J1	0.0242	< 0.002 U1	1 J1	0.08 J1	< 0.1 U1
6/24/2020	Assessment	0.03 J1	0.77	113	< 0.02 U1	0.02 J1	0.273	0.05 J1	4.558	0.36	0.07 J1	0.0243	< 0.002 U1	1 J1	0.04 J1	< 0.1 U1
10/20/2020	Assessment	0.04 J1	0.63	108	< 0.02 U1	0.01 J1	< 0.04 U1	0.072	5.16	0.37	0.07 J1	0.0229	< 0.002 U1	2.29	0.05 J1	0.1 J1
3/2/2021	Assessment	0.02 J1	0.67	102	0.03 J1	< 0.01 U1	0.1 J1	0.04 J1	4.629	0.42	< 0.05 U1	0.0247	< 0.002 U1	< 0.4 U1	< 0.03 U1	< 0.1 U1
6/21/2021	Assessment	< 0.02 U1	0.23	102	0.013 J1	0.007 J1	0.43	0.057	3.94	0.39	0.06 J1	0.0231	< 0.002 U1	0.3 J1	< 0.09 U1	< 0.04 U1
9/21/2021	Assessment	< 0.02 U1	0.28	111	0.008 P2, J1	< 0.004 U1	0.22	0.015 J1	5.07	0.37	< 0.05 U1	0.0243 P2	< 0.002 U1	1.0	< 0.09 U1	< 0.04 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

**Table 1 - Groundwater Data Summary: B-2
Flint Creek - 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
5/24/2016	Background	1.13	91.9	6	< 0.083 U1	7.0	619	1,212
7/19/2016	Background	1.33	59.9	7	0.3361 J1	6.7	464	936
9/14/2016	Background	1.19	62.6	7	< 0.083 U1	6.6	560	1,124
10/5/2016	Background	1.32	45.3	7	< 0.083 U1	5.9	339	741
11/8/2016	Background	1.82	27.5	6	< 0.083 U1	6.0	145	365
1/23/2017	Background	1.56	24	5	< 0.083 U1	5.8	119	296
3/7/2017	Background	1.04	32.1	5	< 0.083 U1	5.9	105	260
4/25/2017	Background	1.44	23.1	6	< 0.083 U1	6.3	179	400
5/15/2017	Background	1.33	20.7	6	< 0.083 U1	5.5	153	328
6/12/2017	Background	0.936	39.6	6	< 0.083 U1	5.9	109	278
8/29/2017	Detection	1.07	18	6	< 0.083 U1	6.0	116	270
12/21/2017	Detection	0.7	--	--	--	5.9	--	--
3/26/2018	Assessment	0.851	15.3	4	< 0.083 U1	6.7	138	324
8/27/2018	Assessment	0.702	56.3	--	--	6.7	--	532
10/23/2018	Assessment	--	--	10.8	< 0.083 U1	--	198	--
3/12/2019	Assessment	0.634	34.5	5.88	0.1 J1	6.9	129	376
6/11/2019	Assessment	0.697	14.2	4.16	0.06 J1	6.4	80.9	246
8/27/2019	Assessment	0.735	15.4	3	< 0.083 U1	5.9	65	230
12/9/2019	Assessment	--	--	--	--	6.6	--	--
3/24/2020	Assessment	--	--	2.81	0.07	5.7	68.1	168
6/24/2020	Assessment	0.355	30.7	5.36	0.09	6.2	84.9	252
10/19/2020	Assessment	0.504	33.9	4.10	0.07	5.5	110	304
3/1/2021	Assessment	--	--	--	0.11	6.1	--	--
6/21/2021	Assessment	0.480	23.0	3.68	0.11	5.7	60.9	230 P1
9/20/2021	Assessment	0.488	32.8	3.11	0.11	5.5	70.5	240

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

P1: The precision between duplicate results was above acceptance limits.

**Table 1 - Groundwater Data Summary: B-2
Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	94	0.131152 J1	< 0.07 U1	4	0.952324 J1	1.06	< 0.083 U1	< 0.68 U1	0.009	0.02106 J1	6	82	< 0.86 U1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	114	0.297284 J1	< 0.07 U1	6	2.18888 J1	--	0.3361 J1	1.98005 J1	0.005	0.00946 J1	2.74335 J1	50	< 0.86 U1
9/14/2016	Background	1.81571 J1	8	226	1	0.348046 J1	26	15	1.752	< 0.083 U1	13	0.021	0.027	2.59675 J1	49	0.98925 J1
10/5/2016	Background	< 0.93 U1	< 1.05 U1	73	0.168987 J1	< 0.07 U1	5	1.57645 J1	4.1	< 0.083 U1	1.52736 J1	0.016	< 0.005 U1	0.783837 J1	35	< 0.86 U1
11/8/2016	Background	1.15186 J1	17	543	3	0.870406 J1	37	31	3.87	< 0.083 U1	26	0.027	0.05	2.69221 J1	13	< 0.86 U1
1/23/2017	Background	1.32054 J1	2.57288 J1	214	0.763757 J1	< 0.07 U1	10	6	1.408	< 0.083 U1	4.36086 J1	0.007	0.01252 J1	0.832511 J1	9	< 0.86 U1
3/7/2017	Background	6	< 1.05 U1	70	0.157872 J1	< 0.07 U1	2	0.632449 J1	1.372	< 0.083 U1	< 0.68 U1	0.005	< 0.005 U1	0.478127 J1	20	< 0.86 U1
4/25/2017	Background	< 0.93 U1	1.39 J1	97.47	0.22 J1	0.08 J1	3.44	1.24 J1	1.881	< 0.083 U1	1.32 J1	0.00242	< 0.005 U1	0.77 J1	9.94	< 0.86 U1
5/15/2017	Background	1.17 J1	1.77 J1	51.22	0.17 J1	< 0.07 U1	2.49	0.47 J1	1.429	< 0.083 U1	0.8 J1	0.00161	< 0.005 U1	0.34 J1	9.52	< 0.86 U1
6/12/2017	Background	< 0.93 U1	1.08 J1	79.45	0.17 J1	0.09 J1	3.76	1.67 J1	1.839	< 0.083 U1	0.8 J1	0.00287	< 0.005 U1	2.1 J1	20.57	< 0.86 U1
3/26/2018	Assessment	1.6 J1	1.44 J1	62.23	0.15 J1	< 0.07 U1	2.15	0.62 J1	2.018	< 0.083 U1	< 0.68 U1	0.0023	< 0.005 U1	< 0.29 U1	8.63	0.88 J1
8/27/2018	Assessment	0.02 J1	0.67	62.7	0.062	0.05	2.17	0.371	2.403	--	0.332	0.00172	0.005 J1	4.42	27.3	0.066
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	< 0.1 U1	0.4 J1	63.9	0.1 J1	0.06 J1	2.83	0.2 J1	1.93	0.1 J1	0.2 J1	0.00188	< 0.005 U1	< 2 U1	14.3	< 0.5 U1
6/11/2019	Assessment	< 0.02 U1	0.18	38.5	0.208	0.04 J1	1.57	0.069	0.959	0.06 J1	< 0.05 U1	< 0.02 U1	< 0.005 U1	0.4 J1	6.7	< 0.1 U1
8/27/2019	Assessment	< 0.02 U1	0.22	41.3	0.149	0.03 J1	1.75	0.105	0.888	< 0.083 U1	0.08 J1	0.00128	< 0.005 U1	0.5 J1	6.8	< 0.1 U1
3/24/2020	Assessment	0.02 J1	0.16	36.0	0.130	0.03 J1	1.37	0.053	1.077	0.07	< 0.05 U1	0.00109	< 0.002 U1	0.8 J1	5.2	< 0.1 U1
6/24/2020	Assessment	< 0.02 U1	0.21	71.6	0.07 J1	0.03 J1	1.74	0.055	1.974	0.09	< 0.05 U1	0.00132	< 0.002 U1	2 J1	8.4	< 0.1 U1
10/19/2020	Assessment	0.02 J1	0.26	73.0	0.08 J1	0.04 J1	1.56	0.131	1.715	0.07	0.1 J1	0.00126	< 0.002 U1	1 J1	12.3	< 0.1 U1
3/1/2021	Assessment	0.04 J1	0.24	46.6	0.08 J1	0.02 J1	1.35	0.136	1.498	0.11	0.1 J1	0.000946	< 0.002 U1	1 J1	5.7	< 0.1 U1
6/21/2021	Assessment	0.02 J1	0.17	51.0	0.090	0.022	1.35	0.092	0.57	0.11	0.08 J1	0.0010	< 0.002 U1	1.2	5.81	0.04 J1
9/20/2021	Assessment	0.02 J1	0.23	61.1	0.052 P2	0.014 J1	1.45	0.108	1.37	0.11	0.07 J1	0.00090 P2	< 0.002 U1	1.9	8.37	< 0.04 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

**Table 1 - Groundwater Data Summary: B-4
Flint Creek - 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
5/24/2016	Background	0.03	8.23	8	< 0.083 U1	7.0	14	92
7/19/2016	Background	0.03	8.86	9	< 0.083 U1	6.7	12	75
9/14/2016	Background	0.03	19.4	8	< 0.083 U1	6.8	8	128
10/5/2016	Background	0.02	8.22	10	< 0.083 U1	6.2	13	78
11/7/2016	Background	0.04	13.3	9	< 0.083 U1	6.7	10	72
1/24/2017	Background	0.04	23.6	8	< 0.083 U1	6.8	5	84
3/7/2017	Background	0.02	22.8	8	< 0.083 U1	7.1	5	52
4/25/2017	Background	0.0382	32.4	9	< 0.083 U1	6.9	8	86
5/15/2017	Background	0.03844	15.5	8	< 0.083 U1	7.2	10	88
6/13/2017	Background	0.0588	7.13	9	< 0.083 U1	7.4	11	76
8/29/2017	Detection	0.04762	5.5	8	< 0.083 U1	7.2	8	60
3/26/2018	Assessment	0.03141	6.06	5	< 0.083 U1	7.4	10	72
8/28/2018	Assessment	0.030	8.23	--	--	7.6	--	44
10/23/2018	Assessment	--	--	9.61	< 0.083 U1	--	13.6	--
3/12/2019	Assessment	0.036	3.37	4.58	0.02 J1	7.5	12.1	68
6/11/2019	Assessment	0.07 J1	3.50	3.74	0.02 J1	7.5	13.4	60
8/28/2019	Assessment	0.056	2.92	3	< 0.083 U1	6.0	11	66
3/23/2020	Assessment	--	--	2.14	0.02 J1	6.7	15.4	58
6/24/2020	Assessment	0.107	2.93	1.92	0.02 J1	6.6	15.3	57
10/19/2020	Assessment	0.070	2.61	2.33	0.02 J1	6.2	11.2	64
3/1/2021	Assessment	--	--	--	0.03 J1	6.0	--	--
6/22/2021	Assessment	0.10	3.2	2.38	0.02 J1	5.6	12.4	70
9/20/2021	Assessment	0.030 J1	49.8	4.50	0.03 J1	6.3	5.88	110

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: B-4
Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	49	0.205178 J1	< 0.07 U1	1	0.36974 J1	0.734	< 0.083 U1	< 0.68 U1	< 0.00013 U1	0.01529 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	49	0.211526 J1	< 0.07 U1	1	0.15016 J1	--	< 0.083 U1	< 0.68 U1	0.002	0.00738 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
9/14/2016	Background	< 0.93 U1	< 1.05 U1	65	0.037683 J1	< 0.07 U1	2	0.4142 J1	8.344	< 0.083 U1	1.16564 J1	0.001	< 0.005 U1	< 0.29 U1	< 0.99 U1	0.918935 J1
10/5/2016	Background	< 0.93 U1	< 1.05 U1	71	0.439546 J1	< 0.07 U1	5	2.34157 J1	3.969	< 0.083 U1	1.65693 J1	0.009	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
11/7/2016	Background	< 0.93 U1	1.75787 J1	62	0.382027 J1	0.130549 J1	4	1.2283 J1	0.351	< 0.083 U1	0.943091 J1	0.003	0.00809 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/24/2017	Background	2.63622 J1	< 1.05 U1	60	0.210311 J1	< 0.07 U1	2	0.749001 J1	0.945	< 0.083 U1	< 0.68 U1	0.001	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/7/2017	Background	1.09461 J1	< 1.05 U1	51	0.24192 J1	< 0.07 U1	1	0.605358 J1	1.588	< 0.083 U1	< 0.68 U1	0.003	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/25/2017	Background	< 0.93 U1	< 1.05 U1	63.66	0.08 J1	< 0.07 U1	0.91 J1	0.28 J1	0.679	< 0.083 U1	0.87 J1	0.00083 J1	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
5/15/2017	Background	< 0.93 U1	< 1.05 U1	70.02	0.09 J1	< 0.07 U1	0.99 J1	< 0.14 U1	2.89	< 0.083 U1	< 0.68 U1	0.00077 J1	0.005 J1	< 0.29 U1	1.11 J1	< 0.86 U1
6/13/2017	Background	4.52 J1	1.18 J1	49.29	0.22 J1	0.08 J1	0.82 J1	0.19 J1	3.373	< 0.083 U1	< 0.68 U1	0.00119	< 0.005 U1	< 0.29 U1	< 0.99 U1	0.9 J1
3/26/2018	Assessment	2.1 J1	< 1.05 U1	46.33	0.09 J1	< 0.07 U1	0.99 J1	0.18 J1	2.309	< 0.083 U1	< 0.68 U1	0.00114	< 0.005 U1	< 0.29 U1	1.94 J1	< 0.86 U1
8/28/2018	Assessment	0.01 J1	0.17	40.5	0.208	0.13	1.03	0.184	0.3669	--	0.184	0.00110	< 0.005 U1	0.07 J1	0.8	0.03 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	< 0.1 U1	< 0.2 U1	34.3	0.2 J1	0.1 J1	1.26	< 0.1 U1	0.2946	0.02 J1	< 0.1 U1	0.00123	< 0.005 U1	< 2 U1	0.6 J1	< 0.5 U1
6/11/2019	Assessment	< 0.02 U1	0.06 J1	31.2	0.215	0.05 J1	1.03	0.04 J1	0.68	0.02 J1	< 0.05 U1	< 0.02 U1	< 0.005 U1	< 0.4 U1	0.7	< 0.1 U1
8/28/2019	Assessment	< 0.02 U1	0.06 J1	31.1	0.204	0.04 J1	1.11	0.084	1.053	< 0.083 U1	< 0.05 U1	0.000925	< 0.005 U1	< 0.4 U1	0.8	< 0.1 U1
3/23/2020	Assessment	0.03 J1	0.25	35.7	0.198	0.14	0.724	0.133	0.404	0.02 J1	0.396	0.000877	< 0.002 U1	< 0.4 U1	0.5	< 0.1 U1
6/24/2020	Assessment	< 0.02 U1	0.06 J1	38.7	0.169	0.04 J1	0.805	0.059	0.646	0.02 J1	< 0.05 U1	0.000964	0.002 J1	< 0.4 U1	0.5	< 0.1 U1
10/19/2020	Assessment	< 0.02 U1	0.05 J1	28.7	0.204	0.03 J1	0.847	0.04 J1	1.898	0.02 J1	< 0.05 U1	0.000934	< 0.002 U1	< 0.4 U1	0.5	< 0.1 U1
3/1/2021	Assessment	< 0.02 U1	0.09 J1	43.9	0.101	0.03 J1	0.744	0.04 J1	0.887	0.03 J1	< 0.05 U1	0.000761	< 0.002 U1	< 0.4 U1	0.4	< 0.1 U1
6/22/2021	Assessment	< 0.02 U1	0.09 J1	37.2	0.176	0.038	1.03	0.094	1.05	0.02 J1	0.23	0.00083	< 0.002 U1	< 0.1 U1	0.53	< 0.04 U1
9/20/2021	Assessment	0.61	0.14	42.2	0.074 P2	0.052	1.14	0.091	0.67	0.03 J1	3.89	0.00056 P2	< 0.002 U1	< 0.1 U1	0.40 J1	< 0.04 U1

Notes:
µg/L: micrograms per liter
mg/L: milligrams per liter
pCi/L: picocuries per liter
<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
--: Not analyzed
J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.
P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

**Table 1 - Groundwater Data Summary: B-5
Flint Creek - 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
5/24/2016	Background	0.01	17.4	6	< 0.083 U1	5.1	189	424
7/19/2016	Background	0.01	16.2	7	< 0.083 U1	5.2	205	424
9/14/2016	Background	0.01	17.6	7	< 0.083 U1	6.4	187	372
10/4/2016	Background	0.01	18.7	12	0.2728 J1	6.5	197	404
11/8/2016	Background	0.02	15.9	9	< 0.083 U1	6.6	160	352.94
1/23/2017	Background	0.02	18	6	< 0.083 U1	5.6	212	404
3/7/2017	Background	0.02	16.9	6	< 0.083 U1	5.1	200	392
4/25/2017	Background	0.02255	17.6	7	< 0.083 U1	5.9	226	422
5/16/2017	Background	0.01833	18.3	7	< 0.083 U1	4.9	229	416
6/13/2017	Background	0.03663	17	8	< 0.083 U1	5.0	206	410
8/29/2017	Detection	0.03455	16.4	8	< 0.083 U1	5.4	199	376
3/28/2018	Assessment	0.01591	15.5	6	< 0.083 U1	5.4	169	372
8/28/2018	Assessment	0.014	16.5	--	--	5.5	--	396
10/23/2018	Assessment	--	--	10	< 0.083 U1	--	216	--
3/12/2019	Assessment	0.01 J1	16.2	8.30	0.07 J1	5.3	205	372
6/11/2019	Assessment	< 0.04 U1	17.9	7.02	0.08	5.7	271	438
8/28/2019	Assessment	< 0.02 U1	15.9	6	< 0.083 U1	5.0	219	402
3/23/2020	Assessment	--	--	7.75	0.07	4.7	255	418
6/24/2020	Assessment	< 0.02 U1	16.1	8.12	0.05 J1	5.5	249	406
10/19/2020	Assessment	< 0.02 U1	17.3	8.00	0.06	4.6	258	445
3/2/2021	Assessment	--	--	--	0.08	4.8	--	--
6/22/2021	Assessment	< 0.009 U1	15.6	9.16	0.07	4.9	248	410
9/21/2021	Assessment	< 0.009 U1	15.8	9.07	0.07	5.5	254	420

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: B-5
Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	49	0.538281 J1	0.130546 J1	3	0.63546 J1	0.7	< 0.083 U1	< 0.68 U1	0.003225069333	0.035	< 0.29 U1	36	1.07783 J1
7/19/2016	Background	< 0.93 U1	1.09501 J1	53	0.578371 J1	< 0.07 U1	2	0.670288 J1	--	< 0.083 U1	0.951208 J1	0.003	0.01341 J1	< 0.29 U1	37	< 0.86 U1
9/14/2016	Background	< 0.93 U1	< 1.05 U1	59	0.421905 J1	0.107531 J1	3	0.632453 J1	0.7219	< 0.083 U1	< 0.68 U1	0.003	0.01083 J1	< 0.29 U1	37	< 0.86 U1
10/4/2016	Background	< 0.93 U1	< 1.05 U1	70	0.70802 J1	0.0937694 J1	6	2.24689 J1	4.38	0.2728 J1	2.22182 J1	0.014	0.049	< 0.29 U1	39	< 0.86 U1
11/8/2016	Background	< 0.93 U1	< 1.05 U1	64	0.556725 J1	1	4	0.96226 J1	0.673	< 0.083 U1	< 0.68 U1	0.003	0.02149 J1	< 0.29 U1	33	< 0.86 U1
1/23/2017	Background	< 0.93 U1	< 1.05 U1	60	0.634776 J1	0.136621 J1	5	1.12636 J1	1.222	< 0.083 U1	< 0.68 U1	0.003	0.053	< 0.29 U1	38	1.02071 J1
3/7/2017	Background	< 0.93 U1	< 1.05 U1	42	0.548248 J1	< 0.07 U1	3	0.601941 J1	0.557	< 0.083 U1	< 0.68 U1	0.002	0.0138 J1	< 0.29 U1	36	< 0.86 U1
4/25/2017	Background	1.24 J1	1.87 J1	36.3	0.56 J1	0.15 J1	3.27	0.92 J1	0.698	< 0.083 U1	< 0.68 U1	0.003	0.013 J1	< 0.29 U1	37.33	< 0.86 U1
5/16/2017	Background	< 0.93 U1	1.16 J1	38.38	0.65 J1	0.08 J1	3.63	0.84 J1	4.934	< 0.083 U1	< 0.68 U1	0.00348	0.013 J1	< 0.29 U1	39.1	< 0.86 U1
6/13/2017	Background	< 0.93 U1	< 1.05 U1	37.52	0.6 J1	0.07 J1	3.33	0.63 J1	8.709	< 0.083 U1	< 0.68 U1	0.00323	0.008 J1	< 0.29 U1	36.88	< 0.86 U1
3/28/2018	Assessment	4.41 J1	< 1.05 U1	42.4	0.46 J1	0.27 J1	2.38	0.63 J1	0.721	< 0.083 U1	0.74 J1	0.00263	0.015 J1	< 0.29 U1	35.97	1.16 J1
8/28/2018	Assessment	0.04 J1	0.88	45.0	0.525	0.19	3.01	0.414	1.501	--	0.482	0.00223	0.096	0.06 J1	38.7	0.070
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	0.2 J1	0.62	80.5	0.638	0.56	2.89	0.477	0.969	0.07 J1	0.833	0.00274	0.028	< 2 U1	39.2	< 0.5 U1
6/11/2019	Assessment	< 0.02 U1	0.67	26.0	0.376	0.18	3.00	0.349	1.27	0.08	0.203	< 0.02 U1	0.007 J1	< 0.4 U1	39.0	< 0.1 U1
8/28/2019	Assessment	< 0.02 U1	0.44	33.7	0.487	0.18	2.40	0.331	0.717	< 0.083 U1	0.1 J1	0.00215	0.006 J1	< 0.4 U1	37.5	< 0.1 U1
3/23/2020	Assessment	< 0.02 U1	0.33	22.4	0.491	0.16	2.35	0.271	0.6329	0.07	0.1 J1	0.00235	0.003 J1	< 0.4 U1	35.0	< 0.1 U1
6/24/2020	Assessment	< 0.02 U1	0.38	20.1	0.473	0.15	2.42	0.259	0.821	0.05 J1	0.1 J1	0.00232	0.004 J1	< 0.4 U1	35.0	< 0.1 U1
10/19/2020	Assessment	0.02 J1	0.43	19.1	0.502	0.16	2.41	0.291	2.622	0.06	0.2 J1	0.00226	0.005	< 0.4 U1	37.4	< 0.1 U1
3/2/2021	Assessment	< 0.02 U1	0.43	18.3	0.477	0.16	2.50	0.284	0.714	0.08	0.2 J1	0.00227	0.004 J1	< 0.4 U1	36.2	< 0.1 U1
6/22/2021	Assessment	< 0.02 U1	0.33	20.0	0.482	0.174	2.45	0.259	1.1	0.07	0.20	0.00232	0.004 J1	< 0.1 U1	38.6	< 0.04 U1
9/21/2021	Assessment	< 0.02 U1	0.40	18.7	0.480 P2	0.149	2.53	0.260	0.88	0.07	0.18 J1	0.00226 P2	0.006	< 0.1 U1	36.4	< 0.04 U1

Notes:
µg/L: micrograms per liter
mg/L: milligrams per liter
pCi/L: picocuries per liter
<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
- -: Not analyzed
J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.
P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

**Table 1 - Groundwater Data Summary: B-6
Flint Creek - 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
5/24/2016	Background	0.05	36.9	6	< 0.083 U1	6.7	19	180
7/19/2016	Background	0.06	49.5	8	< 0.083 U1	7.2	24	208
9/14/2016	Background	0.06	52.3	8	< 0.083 U1	6.6	38	232
10/5/2016	Background	0.06	44.7	8	< 0.083 U1	7.0	29	220
11/8/2016	Background	0.06	40	7	< 0.083 U1	6.9	29	208
1/24/2017	Background	0.08	51.9	7	< 0.083 U1	7.0	34	244
3/6/2017	Background	0.06	43	6	< 0.083 U1	7.0	24	178
4/25/2017	Background	0.05207	56.5	8	< 0.083 U1	6.2	37	238
5/15/2017	Background	0.04277	48.6	7	< 0.083 U1	6.5	24	206
6/12/2017	Background	0.05859	53.8	8	< 0.083 U1	6.6	26	252
8/28/2017	Detection	0.06251	37	8	0.2066 J1	7.0	16	162
12/21/2017	Detection	0.06498	--	--	--	7.0	--	--
3/26/2018	Assessment	0.04773	34	6	< 0.083 U1	6.4	13	156
8/28/2018	Assessment	0.050	34.6	--	--	6.4	--	144
10/23/2018	Assessment	--	--	12.2	< 0.083 U1	--	24.6	--
3/12/2019	Assessment	0.037	41.9	8.16	< 0.04 U1	6.9	17.1	100
6/10/2019	Assessment	0.05 J1	49.7	7.78	0.03 J1	6.8	21.7	188
8/27/2019	Assessment	0.03 J1	44.8	6	< 0.083 U1	6.6	36	250
3/24/2020	Assessment	--	--	7.31	0.02 J1	6.6	16.9	202
6/23/2020	Assessment	0.02 J1	37.8	7.25	0.02 J1	6.8	10.8	140
10/19/2020	Assessment	0.03 J1	43.8	7.52	0.02 J1	6.3	16.5	201
3/1/2021	Assessment	--	--	--	0.03 J1	6.6	--	--
6/21/2021	Assessment	0.029 J1	34.0	6.95	0.03 J1	6.1	9.93	150
9/20/2021	Assessment	0.027 J1	37.2	6.55	0.02 J1	5.8	13.3	160

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: B-6
Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	42	0.0329713 J1	< 0.07 U1	2	0.5336 J1	0.625	< 0.083 U1	< 0.68 U1	0.000846322 J1	0.0121 J1	< 0.29 U1	1.38371 J1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	60	0.169224 J1	< 0.07 U1	3	1.23508 J1	--	< 0.083 U1	0.848543 J1	0.002	0.00953 J1	0.863908 J1	3.30254 J1	< 0.86 U1
9/14/2016	Background	< 0.93 U1	< 1.05 U1	65	< 0.02 U1	< 0.07 U1	4	1.26649 J1	1.556	< 0.083 U1	1.53065 J1	0.002	< 0.005 U1	< 0.29 U1	3.35098 J1	< 0.86 U1
10/5/2016	Background	< 0.93 U1	3.63583 J1	87	0.559451 J1	0.268209 J1	11	4.75063 J1	7.58	< 0.083 U1	4.70003 J1	0.016	0.01261 J1	0.732328 J1	3.04012 J1	< 0.86 U1
11/8/2016	Background	< 0.93 U1	< 1.05 U1	58	0.134729 J1	0.116659 J1	5	1.68272 J1	0.846	< 0.083 U1	1.07347 J1	0.002	0.01235 J1	< 0.29 U1	2.02161 J1	< 0.86 U1
1/24/2017	Background	< 0.93 U1	< 1.05 U1	76	0.216535 J1	< 0.07 U1	6	2.57434 J1	1.415	< 0.083 U1	1.31013 J1	0.003	0.00759 J1	0.868445 J1	1.16358 J1	< 0.86 U1
3/6/2017	Background	< 0.93 U1	< 1.05 U1	55	0.140509 J1	< 0.07 U1	4	1.95733 J1	0.705	< 0.083 U1	2.18218 J1	0.004	0.00738 J1	0.328653 J1	1.0391 J1	< 0.86 U1
4/25/2017	Background	< 0.93 U1	1.89 J1	75.05	0.26 J1	0.16 J1	6.35	2.74 J1	0.671	< 0.083 U1	2.44 J1	0.0038	0.008 J1	0.62 J1	4.5 J1	< 0.86 U1
5/15/2017	Background	< 0.93 U1	1.49 J1	59.86	0.12 J1	< 0.07 U1	3.12	1.16 J1	13.943	< 0.083 U1	1.16 J1	0.00182	< 0.005 U1	0.43 J1	1.04 J1	< 0.86 U1
6/12/2017	Background	< 0.93 U1	1.5 J1	65.93	0.16 J1	< 0.07 U1	4.2	1.58 J1	1.14	< 0.083 U1	1.03 J1	0.00238	< 0.005 U1	0.5 J1	< 0.99 U1	1.16 J1
3/26/2018	Assessment	1.45 J1	1.46 J1	56.88	0.1 J1	0.27 J1	4.42	1.8 J1	1.055	< 0.083 U1	2.42 J1	0.00281	0.005 J1	0.58 J1	2.87 J1	1.32 J1
8/28/2018	Assessment	0.01 J1	0.14	41.3	0.007 J1	0.02 J1	1.73	0.022	0.567	--	0.005 J1	0.000415	0.007 J1	0.54	1.7	0.03 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	< 0.1 U1	0.61	48.3	< 0.1 U1	< 0.05 U1	2.32	0.597	0.571	< 0.04 U1	0.748	0.0009 J1	< 0.005 U1	< 2 U1	2.2	< 0.5 U1
6/10/2019	Assessment	0.08 J1	0.51	49.8	0.08 J1	0.08 J1	2.18	0.537	0.8101	0.03 J1	0.697	< 0.02 U1	< 0.005 U1	< 0.8 U1	2.4	< 0.2 U1
8/27/2019	Assessment	0.05 J1	0.36	48.6	0.04 J1	0.04 J1	1.96	0.387	0.347	< 0.083 U1	0.509	0.000518	< 0.005 U1	< 0.4 U1	2.4	< 0.1 U1
3/24/2020	Assessment	0.03 J1	0.37	47.3	0.04 J1	0.02 J1	1.53	0.291	3.448	0.02 J1	0.403	0.000636	0.002 J1	< 0.4 U1	1.6	< 0.1 U1
6/23/2020	Assessment	< 0.02 U1	0.15	41.6	< 0.02 U1	0.01 J1	1.19	0.053	0.457	0.02 J1	0.06 J1	0.000456	< 0.002 U1	< 0.4 U1	0.9	< 0.1 U1
10/19/2020	Assessment	< 0.02 U1	0.16	45.4	< 0.02 U1	0.01 J1	1.60	0.054	1.203	0.02 J1	0.06 J1	0.000407	< 0.002 U1	< 0.4 U1	1.6	< 0.1 U1
3/1/2021	Assessment	< 0.02 U1	0.20	41.6	< 0.02 U1	0.01 J1	1.66	0.123	0.147	0.03 J1	0.1 J1	0.000390	< 0.002 U1	< 0.4 U1	1.5	< 0.1 U1
6/21/2021	Assessment	< 0.02 U1	0.19	40.7	0.022 J1	0.018 J1	1.52	0.125	0.63	0.03 J1	0.15 J1	0.00055	< 0.002 U1	0.2 J1	1.07	< 0.04 U1
9/20/2021	Assessment	< 0.02 U1	0.17	37.9	0.009 P2, J1	< 0.004 U1	1.91	0.079	0.81	0.02 J1	0.07 J1	0.00037 P2	< 0.002 U1	0.2 J1	1.51	< 0.04 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

Table 1 - Groundwater Data Summary: B-7A

**Flint Creek - 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
5/24/2016	Background	0.02	95.1	3	< 0.083 U1	6.7	29	320
7/19/2016	Background	0.02	98.1	4	0.3892 J1	7.2	34	314
9/14/2016	Background	0.02	100	4	< 0.083 U1	7.2	33	304
10/5/2016	Background	0.02	97.1	5	0.3235 J1	7.6	33	312
11/8/2016	Background	0.02	100	4	< 0.083 U1	7.5	32	332
1/24/2017	Background	0.02	102	3	< 0.083 U1	7.3	34	314
3/6/2017	Background	0.02	105	3	< 0.083 U1	7.1	33	296
4/25/2017	Background	0.01786	101	5	< 0.083 U1	7.0	34	298
5/15/2017	Background	0.01605	107	4	< 0.083 U1	6.9	35	306
6/12/2017	Background	0.03032	106	5	< 0.083 U1	6.8	35	320
8/28/2017	Detection	0.03116	102	5	0.274 J1	--	33	304
3/26/2018	Assessment	0.01576	100	3	< 0.083 U1	7.1	33	300
8/28/2018	Assessment	0.018	105	--	--	7.7	--	314
10/23/2018	Assessment	--	--	7.28	< 0.083 U1	--	35.6	--
3/11/2019	Assessment	0.02 J1	99.6	3.43	0.24	7.5	30.7	336
6/10/2019	Assessment	< 0.04 U1	105	3.12	0.24	7.1	35.4	312
8/27/2019	Assessment	< 0.02 U1	102	2	0.144 J1	8.3	36	378
3/24/2020	Assessment	--	--	3.17	0.22	8.4	34.8	304
6/23/2020	Assessment	< 0.02 U1	93.4	3.13	0.19	8.2	35.5	286
10/19/2020	Assessment	< 0.02 U1	97.0	3.03	0.21	8.5	33.9	320
3/1/2021	Assessment	--	--	--	0.25	7.3	--	--
6/21/2021	Assessment	0.015 J1	93.0	3.23	0.25	7.4	33.5	320
9/21/2021	Assessment	0.011 J1	100	3.02	0.20	7.8	33.0	300

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: B-7A

Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	60	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.648714 J1	2.556	< 0.083 U1	< 0.68 U1	0.021	0.033	0.838425 J1	< 0.99 U1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	1.33211 J1	60	0.0763658 J1	< 0.07 U1	0.240969 J1	0.345176 J1	--	0.3892 J1	0.791157 J1	0.022	0.034	0.619545 J1	< 0.99 U1	1.98498 J1
9/14/2016	Background	< 0.93 U1	< 1.05 U1	69	< 0.02 U1	< 0.07 U1	0.354374 J1	0.39525 J1	3.54	< 0.083 U1	< 0.68 U1	0.021	0.00796 J1	0.476503 J1	< 0.99 U1	< 0.86 U1
10/5/2016	Background	< 0.93 U1	< 1.05 U1	66	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.842911 J1	7.97	0.3235 J1	< 0.68 U1	0.034	< 0.005 U1	0.68021 J1	< 0.99 U1	< 0.86 U1
11/8/2016	Background	< 0.93 U1	1.1401 J1	65	< 0.02 U1	< 0.07 U1	0.28162 J1	0.667484 J1	2.247	< 0.083 U1	< 0.68 U1	0.017	0.00705 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/24/2017	Background	< 0.93 U1	< 1.05 U1	65	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.352624 J1	2.311	< 0.083 U1	< 0.68 U1	0.015	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/6/2017	Background	< 0.93 U1	< 1.05 U1	62	< 0.02 U1	< 0.07 U1	0.432618 J1	0.458003 J1	3.154	< 0.083 U1	< 0.68 U1	0.022	0.00621 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/25/2017	Background	< 0.93 U1	< 1.05 U1	68.64	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.64 J1	1.934	< 0.083 U1	< 0.68 U1	0.01501	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
5/15/2017	Background	< 0.93 U1	1.25 J1	59.92	< 0.02 U1	< 0.07 U1	0.24 J1	0.56 J1	2.714	< 0.083 U1	< 0.68 U1	0.01509	0.008 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
6/12/2017	Background	< 0.93 U1	< 1.05 U1	56.32	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.43 J1	3.072	< 0.083 U1	1.74 J1	0.01452	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/26/2018	Assessment	1.28 J1	1.85 J1	51.94	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.24 J1	3.93	< 0.083 U1	< 0.68 U1	0.0191	< 0.005 U1	0.29 J1	< 0.99 U1	< 0.86 U1
8/28/2018	Assessment	0.02 J1	1.59	52.4	0.01 J1	0.03	0.071	0.400	2.861	--	0.156	0.0158	< 0.005 U1	0.63	0.04 J1	0.03 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/11/2019	Assessment	< 0.1 U1	3.15	74.8	< 0.1 U1	0.05 J1	1.95	0.351	1.962	0.24	0.2 J1	0.0200	< 0.005 U1	< 2 U1	< 0.2 U1	< 0.5 U1
6/10/2019	Assessment	0.06 J1	2.35	42.9	< 0.02 U1	0.02 J1	< 0.04 U1	0.074	2.561	0.24	0.1 J1	< 0.02 U1	< 0.005 U1	0.5 J1	< 0.03 U1	< 0.1 U1
8/27/2019	Assessment	0.15	2.93	49.0	< 0.02 U1	0.03 J1	0.2 J1	0.134	1.853	0.144 J1	0.1 J1	0.0164	< 0.005 U1	0.6 J1	0.04 J1	< 0.1 U1
3/24/2020	Assessment	0.07 J1	2.13	50.1	< 0.02 U1	0.17	0.09 J1	0.237	2.876	0.22	0.1 J1	0.0181	< 0.002 U1	0.7 J1	0.1 J1	< 0.1 U1
6/23/2020	Assessment	0.09 J1	3.75	48.5	< 0.02 U1	0.03 J1	0.1 J1	0.057	1.706	0.19	< 0.05 U1	0.0186	0.013	0.7 J1	0.07 J1	< 0.1 U1
10/19/2020	Assessment	0.08 J1	3.45	48.4	< 0.02 U1	0.05	0.1 J1	0.445	3.281	0.21	0.426	0.0180	0.004 J1	0.6 J1	< 0.03 U1	< 0.1 U1
3/1/2021	Assessment	0.05 J1	3.28	48.7	< 0.02 U1	0.02 J1	< 0.04 U1	< 0.02 U1	2.15	0.25	< 0.05 U1	0.0188	< 0.002 U1	0.5 J1	< 0.03 U1	< 0.1 U1
6/21/2021	Assessment	0.03 J1	4.95	49.0	0.010 J1	0.015 J1	0.37	1.34	2.67	0.25	0.14 J1	0.0178 P3	0.003 J1	0.5	< 0.09 U1	< 0.04 U1
9/21/2021	Assessment	0.04 J1	5.28	51.0	0.009 P2, J1	0.018 J1	0.23	0.951	2.26	0.20	0.23	0.0152 P2	< 0.002 U1	0.3 J1	< 0.09 U1	< 0.04 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

- -: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

P3: The precision on the matrix spike duplicate (MSD) was above acceptance limits.

Table 1 - Groundwater Data Summary: B-9

**Flint Creek - 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
5/24/2016	Background	0.01	81	5	< 0.083 U1	7.2	14	234
7/19/2016	Background	0.00947041 J1	83	5	0.3556 J1	7.4	14	204
9/14/2016	Background	0.00711941 J1	99.6	7	< 0.083 U1	7.6	18	239
10/4/2016	Background	0.00768136 J1	98.6	8	0.1884 J1	7.4	21	246
11/7/2016	Background	0.01	94.3	6	< 0.083 U1	7.9	25	240
1/23/2017	Background	0.02	99.8	5	< 0.083 U1	6.6	19	234
3/7/2017	Background	0.01	88.5	6	< 0.083 U1	6.4	21	228
4/26/2017	Background	0.01036	87.7	6	0.31 J1	6.8	19	224
5/16/2017	Background	0.009500 J1	98.5	6	< 0.083 U1	7.5	21	198
6/12/2017	Background	0.02369	124	6	< 0.083 U1	7.0	22	270
8/28/2017	Detection	0.02463	106	6	0.2389 J1	7.2	25	224
3/28/2018	Assessment	0.00998 J1	86.1	6	< 0.083 U1	7.9	28	260
8/27/2018	Assessment	0.010	144	--	--	7.7	--	272
10/23/2018	Assessment	--	--	7.22	< 0.083 U1	--	36.7	--
3/12/2019	Assessment	0.01 J1	97.3	3.68	0.1 J1	8.1	34.3	278
6/11/2019	Assessment	< 0.04 U1	99.7	3.69	0.13	7.7	37.6	248
8/27/2019	Assessment	< 0.02 U1	128	3	< 0.083 U1	7.2	37	310
3/24/2020	Assessment	--	--	3.70	0.09	6.9	29.8	264
6/24/2020	Assessment	< 0.02 U1	91.0	4.04	0.07	7.6	30.7	274
10/20/2020	Assessment	< 0.02 U1	88.7	5.39	0.07	6.9	26.2	279
3/2/2021	Assessment	--	--	--	0.09	7.0	--	--
6/21/2021	Assessment	0.01 J1	80.9	4.23	0.09	6.7	28.6	270
9/21/2021	Assessment	< 0.009 U1	86.4	5.20	0.07	6.6	25.7	260

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1 - Groundwater Data Summary: B-9
Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	128	0.0475927 J1	< 0.07 U1	2	0.648715 J1	0.25	< 0.083 U1	< 0.68 U1	0.005	0.01472 J1	0.871853 J1	< 0.99 U1	1.51586 J1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	139	0.0706417 J1	< 0.07 U1	2	0.520418 J1	--	0.3556 J1	0.756023 J1	0.003	0.01407 J1	< 0.29 U1	< 0.99 U1	1.04447 J1
9/14/2016	Background	< 0.93 U1	< 1.05 U1	143	< 0.02 U1	< 0.07 U1	3	1.03431 J1	3.039	< 0.083 U1	< 0.68 U1	0.002	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
10/4/2016	Background	< 0.93 U1	< 1.05 U1	135	< 0.02 U1	< 0.07 U1	4	1.7825 J1	0.893	0.1884 J1	0.693028 J1	0.016	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
11/7/2016	Background	< 0.93 U1	< 1.05 U1	136	0.0202009 J1	< 0.07 U1	3	1.48231 J1	0.569	< 0.083 U1	< 0.68 U1	0.003	0.00774 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/23/2017	Background	< 0.93 U1	< 1.05 U1	154	0.03324 J1	< 0.07 U1	3	1.21896 J1	0.618	< 0.083 U1	< 0.68 U1	0.003	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/7/2017	Background	1.39106 J1	< 1.05 U1	142	< 0.02 U1	< 0.07 U1	2	0.886686 J1	2.009	< 0.083 U1	< 0.68 U1	0.009	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/26/2017	Background	< 0.93 U1	1.13 J1	144	< 0.02 U1	< 0.07 U1	2.52	0.93 J1	0.989	0.31 J1	0.79 J1	0.00316	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
5/16/2017	Background	< 0.93 U1	1.68 J1	142	0.03 J1	< 0.07 U1	2.56	0.83 J1	9.472	< 0.083 U1	< 0.68 U1	0.00311	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
6/12/2017	Background	< 0.93 U1	1.11 J1	150	0.04 J1	< 0.07 U1	4.01	1.32 J1	1.795	< 0.083 U1	< 0.68 U1	0.00343	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/28/2018	Assessment	< 0.93 U1	< 1.05 U1	177	< 0.02 U1	< 0.07 U1	0.91 J1	0.36 J1	2.06	< 0.083 U1	< 0.68 U1	0.0041	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
8/27/2018	Assessment	0.11	1.29	139	0.034	0.06	1.74	2.33	1.12	--	1.08	0.00241	< 0.005 U1	0.54	0.8	0.04 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	< 0.1 U1	0.85	175	< 0.1 U1	< 0.05 U1	0.6 J1	0.2 J1	0.629	0.1 J1	0.2 J1	0.00528	< 0.005 U1	< 2 U1	< 0.2 U1	< 0.5 U1
6/11/2019	Assessment	< 0.1 U1	0.90	166	< 0.1 U1	< 0.05 U1	1.11	0.2 J1	0.1572	0.13	< 0.2 U1	< 0.02 U1	< 0.005 U1	36.1	0.4 J1	< 0.5 U1
8/27/2019	Assessment	0.09 J1	1.67	188	0.02 J1	0.08	1.61	0.827	1.258	< 0.083 U1	0.509	0.00409	< 0.005 U1	0.4 J1	0.5	< 0.1 U1
3/24/2020	Assessment	0.03 J1	0.77	151	< 0.02 U1	0.01 J1	0.932	0.411	1.696	0.09	0.08 J1	0.00356	< 0.002 U1	< 0.4 U1	0.4	< 0.1 U1
6/24/2020	Assessment	0.05 J1	1.04	147	< 0.02 U1	0.01 J1	1.35	0.362	0.843	0.07	0.242	0.00264	< 0.002 U1	< 0.4 U1	0.5	< 0.1 U1
10/20/2020	Assessment	0.03 J1	0.56	154	< 0.02 U1	< 0.01 U1	0.436	0.133	1.204	0.07	0.06 J1	0.00257	< 0.002 U1	< 0.4 U1	0.4	< 0.1 U1
3/2/2021	Assessment	0.02 J1	0.50	157	< 0.02 U1	< 0.01 U1	0.539	0.074	0.703	0.09	< 0.05 U1	0.00280	< 0.002 U1	< 0.4 U1	0.3	< 0.1 U1
6/21/2021	Assessment	0.02 J1	0.46	148	< 0.007 U1	0.009 J1	0.71	0.123	1.24	0.09	< 0.05 U1	0.00272	< 0.002 U1	0.3 J1	0.34 J1	< 0.04 U1
9/21/2021	Assessment	0.03 J1	0.52	158 M1, P3	< 0.007 P2, U1	< 0.004 U1	0.66	0.100	0.96	0.07	< 0.05 U1	0.00264 P2	< 0.002 U1	0.3 J1	0.36 J1	< 0.04 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.

P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

P3: The precision on the matrix spike duplicate (MSD) was above acceptance limits.

**Table 1 - Groundwater Data Summary: B-10
Flint Creek - 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
5/24/2016	Background	0.02	77.6	7	< 0.083 U1	8.4	30	275
7/19/2016	Background	0.01	82.5	8	< 0.083 U1	7.4	30	252
9/14/2016	Background	0.02	104	8	< 0.083 U1	7.3	31	275
10/4/2016	Background	0.02	82.9	9	0.2319 J1	7.0	39	308
11/7/2016	Background	0.03	116	8	< 0.083 U1	8.0	30	268
1/23/2017	Background	0.03	77.1	7	< 0.083 U1	7.1	33	276
3/7/2017	Background	0.02	84.8	6	< 0.083 U1	6.6	29	268
4/25/2017	Background	0.01728	77.4	8	0.3 J1	6.6	26	266
5/15/2017	Background	0.03169	80.6	8	< 0.083 U1	6.8	35	284
6/12/2017	Background	0.04007	75.6	9	< 0.083 U1	6.5	31	296
8/28/2017	Detection	0.0448	72.8	9	0.3304 J1	7.4	28	256
3/26/2018	Assessment	0.00862 J1	76.6	6	< 0.083 U1	8.0	25	244
8/27/2018	Assessment	0.028	64.4	--	--	7.6	--	254
10/23/2018	Assessment	--	--	11.7	< 0.083 U1	--	26.4	--
3/12/2019	Assessment	0.028	72.4	9.68	0.1 J1	8.4	21.4	226
6/10/2019	Assessment	< 0.04 U1	80.4	9.24	0.11	7.4	26.1	260
8/27/2019	Assessment	< 0.02 U1	70.8	7	< 0.083 U1	7.3	26	268
3/24/2020	Assessment	--	--	9.41	0.10	7.2	26.1	252
6/23/2020	Assessment	--	--	--	--	7.8	--	--
6/24/2020	Assessment	< 0.02 U1	76.5	10.1	0.08	--	27.8	234
10/20/2020	Assessment	< 0.02 U1	86.0	10.3	0.08	6.6	26.8	257
3/2/2021	Assessment	--	--	--	0.09	7.1	--	--
6/22/2021	Assessment	< 0.009 U1	78.1	10.7	0.09	6.9	27.0	260
9/20/2021	Assessment	--	--	--	--	6.6	--	--
9/21/2021	Assessment	< 0.009 U1	80.5	10.4	0.1	--	28.9	250

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Due to limited groundwater volume, pH values for some sampling events were collected the day prior to collection of analytical samples.

Table 1 - Groundwater Data Summary: B-10

Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	77	0.0283721 J1	< 0.07 U1	2	0.567956 J1	0.3279	< 0.083 U1	< 0.68 U1	0.004	0.01767 J1	1.07659 J1	< 0.99 U1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	78	0.0513816 J1	< 0.07 U1	2	0.487304 J1	--	< 0.083 U1	< 0.68 U1	0.002	0.02255 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
9/14/2016	Background	< 0.93 U1	1.73638 J1	102	< 0.02 U1	< 0.07 U1	16	1.45899 J1	0.625	< 0.083 U1	1.5658 J1	0.003	< 0.005 U1	0.405665 J1	< 0.99 U1	< 0.86 U1
10/4/2016	Background	< 0.93 U1	< 1.05 U1	76	< 0.02 U1	< 0.07 U1	1	0.616894 J1	1.305	0.2319 J1	< 0.68 U1	0.016	< 0.005 U1	0.98229 J1	< 0.99 U1	< 0.86 U1
11/7/2016	Background	< 0.93 U1	6	103	0.350438 J1	0.413058 J1	37	5	1.066	< 0.083 U1	2.57815 J1	0.005	0.01543 J1	1.18188 J1	< 0.99 U1	< 0.86 U1
1/23/2017	Background	< 0.93 U1	< 1.05 U1	82	0.049146 J1	< 0.07 U1	1	1.02071 J1	0.618	< 0.083 U1	< 0.68 U1	0.003	< 0.005 U1	1.261 J1	< 0.99 U1	< 0.86 U1
3/7/2017	Background	< 0.93 U1	< 1.05 U1	77	< 0.02 U1	< 0.07 U1	2	0.814652 J1	1.119	< 0.083 U1	< 0.68 U1	0.01	< 0.005 U1	1.02218 J1	< 0.99 U1	< 0.86 U1
4/25/2017	Background	< 0.93 U1	1.5 J1	69.33	< 0.02 U1	< 0.07 U1	0.26 J1	0.65 J1	0.668	0.3 J1	< 0.68 U1	0.00287	< 0.005 U1	0.92 J1	< 0.99 U1	< 0.86 U1
5/15/2017	Background	< 0.93 U1	< 1.05 U1	82.92	< 0.02 U1	< 0.07 U1	0.59 J1	0.76 J1	1.294	< 0.083 U1	< 0.68 U1	0.00357	< 0.005 U1	1.55 J1	< 0.99 U1	< 0.86 U1
6/12/2017	Background	< 0.93 U1	< 1.05 U1	76.25	< 0.02 U1	< 0.07 U1	0.39 J1	1.17 J1	2.477	< 0.083 U1	< 0.68 U1	0.00358	< 0.005 U1	1.28 J1	< 0.99 U1	< 0.86 U1
3/26/2018	Assessment	< 0.93 U1	< 1.05 U1	81.96	< 0.02 U1	< 0.07 U1	1.37	0.44 J1	1.869	< 0.083 U1	1.12 J1	0.00156	< 0.005 U1	0.78 J1	< 0.99 U1	1.36 J1
8/27/2018	Assessment	0.10	2.80	74.8	0.02 J1	0.03	0.889	1.60	0.887	--	0.189	0.00308	0.005 J1	3.52	0.3	0.03 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	0.1 J1	0.67	79.1	< 0.1 U1	0.05 J1	0.9 J1	0.299	0.86	0.1 J1	0.3 J1	0.00167	< 0.005 U1	< 2 U1	0.3 J1	< 0.5 U1
6/10/2019	Assessment	0.2 J1	0.3 J1	78.3	< 0.1 U1	< 0.05 U1	0.3 J1	< 0.1 U1	1.128	0.11	< 0.2 U1	< 0.02 U1	< 0.005 U1	10 J1	0.5 J1	< 0.5 U1
8/27/2019	Assessment	0.11	0.46	79.1	< 0.02 U1	0.02 J1	0.385	0.128	1.344	< 0.083 U1	0.05 J1	0.00169	0.016 J1	1 J1	0.4	< 0.1 U1
3/24/2020	Assessment	0.05 J1	0.37	83.5	< 0.02 U1	0.02 J1	0.429	0.03 J1	1.05	0.10	< 0.05 U1	0.00133	< 0.002 U1	0.6 J1	0.4	< 0.1 U1
6/24/2020	Assessment	0.10	0.38	78.8	< 0.02 U1	0.02 J1	0.781	0.102	1.355	0.08	0.08 J1	0.00144	< 0.002 U1	0.8 J1	0.5	< 0.1 U1
10/20/2020	Assessment	0.18	0.80	82.2	0.04 J1	0.04 J1	2.07	1.18	1.748	0.08	0.641	0.00140	0.002 J1	0.7 J1	0.6	< 0.1 U1
3/2/2021	Assessment	0.08 J1	0.36	81.7	< 0.02 U1	0.03 J1	0.649	0.095	0.953	0.09	0.09 J1	0.00127	< 0.002 U1	0.5 J1	0.4	< 0.1 U1
6/22/2021	Assessment	0.11	0.31	82.3	< 0.007 U1	0.030	0.76	0.086	1.09	0.09	0.14 J1	0.00124	< 0.002 U1	0.5	0.44 J1	< 0.04 U1
9/21/2021	Assessment	0.18	0.57	79.8	0.021 P2, J1	0.024	2.30	0.654	1.68	0.1	0.32	0.00132 P2	< 0.002 U1	0.5	0.55	< 0.04 U1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

**Table 1 - Groundwater Data Summary: B-11
Flint Creek - 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
5/24/2016	Background	0.171	10.5	4	< 0.083 U1	5.7	26	182
7/19/2016	Background	0.238	13.3	5	< 0.083 U1	6.2	41	144
9/14/2016	Background	0.207	14.7	6	< 0.083 U1	6.6	33	120
10/4/2016	Background	0.19	13	6	< 0.083 U1	6.4	36	156
11/7/2016	Background	0.188	11.3	5	< 0.083 U1	6.5	36	106
1/23/2017	Background	0.214	18.2	4	< 0.083 U1	6.1	39	128
3/7/2017	Background	0.199	12.6	3	< 0.083 U1	5.5	37	112
4/26/2017	Background	0.253	16.2	6	< 0.083 U1	5.9	45	130
5/16/2017	Background	0.453	13.6	6	< 0.083 U1	5.3	62	142
6/13/2017	Background	0.508	14.9	6	< 0.083 U1	5.4	60	184
8/28/2017	Detection	0.266	9.65	6	< 0.083 U1	5.3	43	108
12/21/2017	Detection	0.227	--	--	--	6.7	--	--
3/28/2018	Assessment	0.465	12.2	4	< 0.083 U1	5.4	53	136
8/27/2018	Assessment	0.281	10.8	--	--	5.9	--	100
10/23/2018	Assessment	--	--	6.93	< 0.083 U1	--	47.7	--
3/12/2019	Assessment	0.409	11.6	4.03	0.04 J1	5.8	44.9	104
6/10/2019	Assessment	0.548	17.0	3.73	0.04 J1	5.9	54.7	82
8/27/2019	Assessment	0.605	15.4	3	< 0.083 U1	5.8	59	138
3/24/2020	Assessment	--	--	3.27	0.04 J1	6.4	47.6	144
6/23/2020	Assessment	0.255	12.3	4.33	0.02 J1	6.0	32.7	104
10/20/2020	Assessment	0.327	14.1	3.39	0.03 J1	5.3	37.4	143
3/2/2021	Assessment	--	--	--	0.03 J1	5.3	--	--
6/21/2021	Assessment	0.277	11.4	7.00	0.03 J1	5.9	35.1	130
9/21/2021	Assessment	0.375	12.2	6.82	0.03 J1	5.1	41.6	120

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: B-11

Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	139	0.899874 J1	1	13	3.28467 J1	1.311	< 0.083 U1	4.23401 J1	0.006	0.02458 J1	0.362121 J1	< 0.99 U1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	7	187	2	2	22	6	--	< 0.083 U1	9	0.018	0.02442 J1	0.590003 J1	1.89587 J1	< 0.86 U1
9/14/2016	Background	< 0.93 U1	32	494	6	4	108	25	8.05	< 0.083 U1	49	0.079	0.097	3.32649 J1	< 0.99 U1	1.00112 J1
10/4/2016	Background	< 0.93 U1	3.13751 J1	163	1	1	16	4.44532 J1	2.161	< 0.083 U1	6	0.02	< 0.005 U1	0.370625 J1	1.95476 J1	< 0.86 U1
11/7/2016	Background	< 0.93 U1	< 1.05 U1	99	0.259911 J1	0.649573 J1	2	0.824023 J1	0.874	< 0.083 U1	< 0.68 U1	0.004	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/23/2017	Background	< 0.93 U1	< 1.05 U1	121	0.136215 J1	0.418062 J1	2	0.286943 J1	1	< 0.083 U1	< 0.68 U1	0.003	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/7/2017	Background	< 0.93 U1	< 1.05 U1	97	0.249082 J1	0.477646 J1	2	0.554259 J1	12.993	< 0.083 U1	< 0.68 U1	0.003	< 0.005 U1	< 0.29 U1	2.72028 J1	< 0.86 U1
4/26/2017	Background	< 0.93 U1	< 1.05 U1	138	0.38 J1	0.56 J1	5.16	1.24 J1	0.512	< 0.083 U1	0.83 J1	0.00566	< 0.005 U1	< 0.29 U1	1.52 J1	< 0.86 U1
5/16/2017	Background	< 0.93 U1	1.16 J1	129	0.39 J1	0.15 J1	3.27	0.97 J1	0.911	< 0.083 U1	< 0.68 U1	0.00329	< 0.005 U1	< 0.29 U1	2.68 J1	< 0.86 U1
6/13/2017	Background	< 0.93 U1	< 1.05 U1	127	0.41 J1	0.13 J1	3.67	1.08 J1	2.655	< 0.083 U1	1.23 J1	0.00334	< 0.005 U1	< 0.29 U1	1.15 J1	< 0.86 U1
3/28/2018	Assessment	4.89 J1	< 1.05 U1	124	0.34 J1	0.16 J1	0.99 J1	0.48 J1	1.183	< 0.083 U1	1 J1	0.00181	< 0.005 U1	< 0.29 U1	4.37 J1	< 0.86 U1
8/27/2018	Assessment	0.01 J1	0.25	94.9	0.365	0.15	1.36	0.159	1.551	--	0.097	0.00255	< 0.005 U1	0.08 J1	2.4	0.03 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	< 0.1 U1	0.90	119	0.622	0.1 J1	1.95	0.372	0.451	0.04 J1	0.935	0.00221	< 0.005 U1	< 2 U1	3.5	< 0.5 U1
6/10/2019	Assessment	< 0.04 U1	0.36	111	0.316	0.08 J1	0.884	0.162	1.121	0.04 J1	0.2 J1	0.03 J1	< 0.005 U1	< 0.8 U1	3.1	< 0.2 U1
8/27/2019	Assessment	< 0.02 U1	0.55	131	0.317	0.10	1.36	0.256	0.455	< 0.083 U1	0.416	0.00130	< 0.005 U1	< 0.4 U1	4.1	< 0.1 U1
3/24/2020	Assessment	< 0.02 U1	0.20	101	0.162	0.07	0.542	0.094	1.437	0.04 J1	< 0.05 U1	0.000878	< 0.002 U1	< 0.4 U1	3.0	< 0.1 U1
6/23/2020	Assessment	< 0.02 U1	0.13	91.1	0.275	0.07	0.763	0.084	0.835	0.02 J1	< 0.05 U1	0.00128	< 0.002 U1	< 0.4 U1	2.0	< 0.1 U1
10/20/2020	Assessment	< 0.02 U1	0.14	84.9	0.219	0.05	0.919	0.085	2.095	0.03 J1	< 0.05 U1	0.00151	< 0.002 U1	< 0.4 U1	2.3	< 0.1 U1
3/2/2021	Assessment	< 0.02 U1	0.14	103	0.333	0.09	1.08	0.121	0.968	0.03 J1	< 0.05 U1	0.00192	< 0.002 U1	< 0.4 U1	2.1	< 0.1 U1
6/21/2021	Assessment	< 0.02 U1	0.13	101	0.301	0.102	0.99	0.098	0.72	0.03 J1	0.05 J1	0.00112	< 0.002 U1	< 0.1 U1	2.00	< 0.04 U1
9/21/2021	Assessment	< 0.02 U1	0.13	90.5	0.270 P2	0.058	0.92	0.098	1.22	0.03 J1	< 0.05 U1	0.00168 P2	< 0.002 U1	< 0.1 U1	2.38	< 0.04 U1

Notes:
 µg/L: micrograms per liter
 mg/L: milligrams per liter
 pCi/L: picocuries per liter
 <: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
 -: Not analyzed
 J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.
 P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

Table 1 - Groundwater Data Summary: B-12

**Flint Creek - 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
5/24/2016	Background	0.02	63	10	< 0.083 U1	8.2	19	280
7/19/2016	Background	0.02	61.1	10	< 0.083 U1	7.6	15	216
9/14/2016	Background	0.02	70.5	11	< 0.083 U1	7.1	14	236
10/5/2016	Background	0.02	69.2	12	0.1908 J1	7.0	12	271
11/8/2016	Background	0.03	66.7	12	< 0.083 U1	6.9	14	308
1/24/2017	Background	0.02	67.1	9	< 0.083 U1	6.7	9	268
3/7/2017	Background	0.02	68.1	9	< 0.083 U1	6.3	11	248
4/25/2017	Background	0.02379	59.4	9	< 0.083 U1	6.4	10	282
5/15/2017	Background	0.023	61.5	10	< 0.083 U1	6.4	10	236
6/13/2017	Background	0.0347	59.4	10	< 0.083 U1	6.6	9	252
8/29/2017	Detection	0.03061	72	10	< 0.083 U1	7.2	12	248
3/26/2018	Assessment	0.02876	56.2	7	< 0.083 U1	7.8	6	176
8/28/2018	Assessment	0.016	56.4	--	--	7.9	--	258
10/23/2018	Assessment	--	--	13.2	< 0.083 U1	--	9.16	--
3/11/2019	Assessment	0.02 J1	58.0	11.0	0.06 J1	8.5	5.0	254
6/10/2019	Assessment	0.04 J1	60.9	10.6	0.06 J1	7.2	7.0	244
8/27/2019	Assessment	< 0.02 U1	59.6	8	< 0.083 U1	6.9	9	252
3/23/2020	Assessment	--	--	8.53	0.03 J1	6.7	6.1	210
6/23/2020	Assessment	< 0.02 U1	57.0	11.2	0.03 J1	7.3	6.2	238
10/19/2020	Assessment	< 0.02 U1	70.3	11.0	0.05 J1	6.6	9.5	266
3/1/2021	Assessment	--	--	--	0.05 J1	7.0	--	--
6/21/2021	Assessment	0.014 J1	53.0	9.33	0.04 J1	6.5	4.91	220
9/20/2021	Assessment	0.012 J1	58.2	8.75	0.05 J1	6.4	9.05	220

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: B-12

Flint Creek - 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
5/24/2016	Background	< 0.93 U1	< 1.05 U1	62	0.020013 J1	< 0.07 U1	0.98147 J1	3.36185 J1	0.28188	< 0.083 U1	0.779741 J1	0.000759267 J1	0.01713 J1	2.94917 J1	< 0.99 U1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	61	0.0839166 J1	< 0.07 U1	2	2.84565 J1	--	< 0.083 U1	1.17408 J1	0.001	0.0216 J1	3.86821 J1	< 0.99 U1	< 0.86 U1
9/14/2016	Background	< 0.93 U1	< 1.05 U1	70	< 0.02 U1	< 0.07 U1	2	2.53407 J1	1.953	< 0.083 U1	0.716221 J1	0.000874536 J1	< 0.005 U1	3.27157 J1	< 0.99 U1	< 0.86 U1
10/5/2016	Background	< 0.93 U1	< 1.05 U1	67	< 0.02 U1	< 0.07 U1	0.86698 J1	2.31495 J1	1.666	0.1908 J1	< 0.68 U1	0.014	< 0.005 U1	2.00891 J1	< 0.99 U1	< 0.86 U1
11/8/2016	Background	< 0.93 U1	8	123	1	0.465087 J1	22	23	1.743	< 0.083 U1	15	0.011	0.039	4.65502 J1	< 0.99 U1	< 0.86 U1
1/24/2017	Background	< 0.93 U1	< 1.05 U1	63	< 0.02 U1	< 0.07 U1	0.446889 J1	1.76121 J1	1.357	< 0.083 U1	< 0.68 U1	0.000559654 J1	< 0.005 U1	1.1441 J1	< 0.99 U1	< 0.86 U1
3/7/2017	Background	< 0.93 U1	< 1.05 U1	59	< 0.02 U1	< 0.07 U1	1	1.61975 J1	2.97	< 0.083 U1	0.903447 J1	0.006	< 0.005 U1	2.06812 J1	< 0.99 U1	< 0.86 U1
4/25/2017	Background	1.92 J1	1.23 J1	53.73	0.02 J1	< 0.07 U1	0.65 J1	1.34 J1	0.908	< 0.083 U1	< 0.68 U1	0.00106	0.006 J1	0.69 J1	< 0.99 U1	< 0.86 U1
5/15/2017	Background	< 0.93 U1	1.65 J1	59.7	0.07 J1	< 0.07 U1	1.57	1.95 J1	0.6398	< 0.083 U1	0.77 J1	0.00132	< 0.005 U1	0.58 J1	< 0.99 U1	< 0.86 U1
6/13/2017	Background	< 0.93 U1	< 1.05 U1	56.66	< 0.02 U1	< 0.07 U1	0.63 J1	1.3 J1	2.635	< 0.083 U1	< 0.68 U1	0.00085 J1	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/26/2018	Assessment	1.15 J1	< 1.05 U1	50.7	< 0.02 U1	< 0.07 U1	1.06	1.85 J1	0.867	< 0.083 U1	< 0.68 U1	0.00069 J1	< 0.005 U1	1.13 J1	< 0.99 U1	0.96 J1
8/28/2018	Assessment	0.15	0.43	48.8	0.042	0.03	0.993	2.51	0.891	--	0.535	0.000702	< 0.005 U1	1.11	0.4	0.03 J1
10/23/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/11/2019	Assessment	< 0.1 U1	0.3 J1	51.6	< 0.1 U1	< 0.05 U1	1.09	3.35	0.777	0.06 J1	0.5 J1	0.0008 J1	< 0.005 U1	< 2 U1	0.3 J1	< 0.5 U1
6/10/2019	Assessment	0.1 J1	0.29	54.2	< 0.04 U1	0.03 J1	0.585	2.49	0.5134	0.06 J1	0.3	< 0.02 U1	< 0.005 U1	< 0.8 U1	0.2 J1	< 0.2 U1
8/27/2019	Assessment	0.24	1.20	60.8	0.150	0.08	2.04	11.2	1.111	< 0.083 U1	2.65	0.00176	0.006 J1	0.4 J1	1.4	< 0.1 U1
3/23/2020	Assessment	0.05 J1	0.14	52.6	< 0.02 U1	0.02 J1	0.321	2.62	1.722	0.03 J1	0.07 J1	0.000768	< 0.002 U1	0.6 J1	0.1 J1	< 0.1 U1
6/23/2020	Assessment	0.07 J1	0.11	59.7	< 0.02 U1	0.02 J1	0.481	1.82	0.421	0.03 J1	< 0.05 U1	0.000828	< 0.002 U1	0.5 J1	0.1 J1	< 0.1 U1
10/19/2020	Assessment	0.16	0.14	62.9	< 0.02 U1	0.03 J1	0.601	2.26	1.611	0.05 J1	0.1 J1	0.00114	< 0.002 U1	0.7 J1	0.2	< 0.1 U1
3/1/2021	Assessment	0.07 J1	0.12	44.7	< 0.02 U1	0.02 J1	0.501	2.52	0.4501	0.05 J1	0.05 J1	0.000751	< 0.002 U1	0.5 J1	0.09 J1	< 0.1 U1
6/21/2021	Assessment	0.06 J1	0.1	54.6	0.009 J1	0.018 J1	0.68	2.81	4.62	0.04 J1	0.06 J1	0.00086	< 0.002 U1	0.4 J1	0.12 J1	< 0.04 U1
9/20/2021	Assessment	0.16	0.13	52.4	< 0.007 P2, U1	0.008 J1	0.75	2.39	0.74	0.05 J1	0.08 J1	0.00115 P2	< 0.002 U1	0.7	0.17 J1	< 0.04 U1

Notes:
 µg/L: micrograms per liter
 mg/L: milligrams per liter
 pCi/L: picocuries per liter
 <: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
 -: Not analyzed
 J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.
 P2: The precision on the laboratory control sample duplicate (LCSD) was above acceptance limits.

Table 1 - Groundwater Data Summary: B-13

**Flint Creek - 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
5/23/2016	Background	0.02	15.1	4	< 0.083 U1	6.9	20	108
7/19/2016	Background	0.03	14.7	3	< 0.083 U1	5.9	23	88
9/13/2016	Background	0.02	13	4	< 0.083 U1	5.1	18	68
10/5/2016	Background	0.02	13.6	5	< 0.083 U1	5.2	20	80
11/8/2016	Background	0.01	4.07	4	0.2121 J1	5.4	7	52
1/23/2017	Background	0.01	4.26	3	< 0.083 U1	6.2	7	44
3/7/2017	Background	0.02	10.1	3	< 0.083 U1	4.8	16	64
4/26/2017	Background	0.02539	15	4	< 0.083 U1	5.3	27	82
5/16/2017	Background	0.03198	20.1	4	< 0.083 U1	5.7	33	60
6/13/2017	Background	0.04236	20.2	5	< 0.083 U1	5.2	31	114
8/28/2017	Detection	0.02674	12.7	4	< 0.083 U1	5.0	22	72
3/28/2018	Assessment	0.02271	14.8	2	< 0.083 U1	7.5	23	80
8/27/2018	Assessment	0.016	12.4	--	--	5.1	--	58
10/22/2018	Assessment	--	--	3.6	< 0.083 U1	--	21.1	--
3/12/2019	Assessment	0.02 J1	13.5	1.92	0.02 J1	7.1	21.3	82
6/10/2019	Assessment	< 0.04 U1	19.7	3.05	0.02 J1	6.9	20.7	98
8/28/2019	Assessment	< 0.02 U1	10.2	1	< 0.083 U1	5.4	18	64
3/23/2020	Assessment	--	--	1.82	0.02 J1	6.4	19.0	81
6/24/2020	Assessment	< 0.02 U1	16.3	1.93	0.01 J1	6.2	18.7	86
10/20/2020	Assessment	< 0.02 U1	13.0	1.63	0.02 J1	6.2	17.7	77
3/2/2021	Assessment	--	--	--	0.02 J1	5.8	--	--
6/21/2021	Assessment	0.015 J1	16.7	2.16	0.03 J1	6.4	18.2	90
9/21/2021	Assessment	0.012 J1	13.0	1.52	0.02 J1	5.6	16.4	60

Notes:

mg/L: milligrams per liter

SU: standard unit

<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.

In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.

--: Not analyzed

J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.

In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

Table 1 - Groundwater Data Summary: B-13

Flint Creek - 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
5/23/2016	Background	< 0.93 U1	< 1.05 U1	53	0.122524 J1	0.107623 J1	2	1.81817 J1	0.4473	< 0.083 U1	< 0.68 U1	< 0.00013 U1	0.02179 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
7/19/2016	Background	< 0.93 U1	< 1.05 U1	60	0.224239 J1	< 0.07 U1	4	1.60103 J1	--	< 0.083 U1	1.35024 J1	0.002	0.01382 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
9/13/2016	Background	< 0.93 U1	< 1.05 U1	54	< 0.02 U1	< 0.07 U1	3	1.45223 J1	1.939	< 0.083 U1	< 0.68 U1	0.002	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
10/5/2016	Background	< 0.93 U1	< 1.05 U1	61	0.237762 J1	< 0.07 U1	5	2.78529 J1	0.829	< 0.083 U1	1.81371 J1	0.011	< 0.005 U1	0.539075 J1	< 0.99 U1	< 0.86 U1
11/8/2016	Background	< 0.93 U1	< 1.05 U1	32	0.28466 J1	0.256467 J1	4	1.50224 J1	0.3576	0.2121 J1	1.58806 J1	0.002	0.00767 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/23/2017	Background	< 0.93 U1	< 1.05 U1	36	0.29327 J1	< 0.07 U1	3	1.48125 J1	0.733	< 0.083 U1	< 0.68 U1	0.002	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/7/2017	Background	< 0.93 U1	< 1.05 U1	44	0.142049 J1	< 0.07 U1	2	0.769644 J1	0.841	< 0.083 U1	< 0.68 U1	0.002	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/26/2017	Background	< 0.93 U1	1.92 J1	66.22	0.22 J1	0.1 J1	4.05	1.94 J1	0.844	< 0.083 U1	1.02 J1	0.00252	0.021 J1	< 0.29 U1	1.68 J1	< 0.86 U1
5/16/2017	Background	< 0.93 U1	< 1.05 U1	71.99	0.13 J1	< 0.07 U1	2.26	0.99 J1	0.918	< 0.083 U1	< 0.68 U1	0.00133	< 0.005 U1	< 0.29 U1	1.38 J1	< 0.86 U1
6/13/2027	Background	< 0.93 U1	< 1.05 U1	72.45	0.12 J1	< 0.07 U1	2.61	1.26 J1	2.577	< 0.083 U1	< 0.68 U1	0.00151	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/28/2018	Assessment	< 0.93 U1	< 1.05 U1	56.76	< 0.02 U1	< 0.07 U1	1.45	0.53 J1	0.92	< 0.083 U1	< 0.68 U1	0.00101	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
8/27/2018	Assessment	0.02 J1	0.13	48.3	0.113	0.05	0.611	0.210	0.530	--	0.149	0.000775	< 0.005 U1	0.08 J1	0.5	0.02 J1
10/22/2018	Assessment	--	--	--	--	--	--	--	--	< 0.083 U1	--	--	--	--	--	--
3/12/2019	Assessment	< 0.1 U1	0.62	55.4	0.2 J1	0.08 J1	1.76	1.08	0.882	0.02 J1	1.51	0.00115	< 0.005 U1	< 2 U1	0.8 J1	< 0.5 U1
6/10/2019	Assessment	< 0.02 U1	0.07 J1	55.1	0.05 J1	0.04 J1	0.379	0.03 J1	0.461	0.02 J1	< 0.05 U1	< 0.02 U1	< 0.005 U1	< 0.4 U1	0.5	< 0.1 U1
8/28/2019	Assessment	< 0.02 U1	0.17	47.1	0.151	0.05 J1	0.818	0.272	0.862	< 0.083 U1	0.221	0.000814	< 0.005 U1	< 0.4 U1	0.4	< 0.1 U1
3/23/2020	Assessment	< 0.02 U1	0.06 J1	49.0	0.06 J1	0.04 J1	0.459	0.03 J1	1.475	0.02 J1	< 0.05 U1	0.000578	< 0.002 U1	< 0.4 U1	0.4	< 0.1 U1
6/24/2020	Assessment	< 0.02 U1	0.08 J1	52.3	0.05 J1	0.07	0.460	0.051	0.4377	0.01 J1	0.07 J1	0.000504	< 0.002 U1	< 0.4 U1	0.5	< 0.1 U1
10/20/2020	Assessment	< 0.02 U1	0.06 J1	45.3	0.08 J1	0.05 J1	0.345	0.060	0.276	0.02 J1	0.05 J1	0.000604	< 0.002 U1	< 0.4 U1	0.4	< 0.1 U1
3/2/2021	Assessment	< 0.02 U1	0.1 J1	46.3	0.06 J1	0.03 J1	0.464	0.116	0.179	0.02 J1	0.1 J1	0.000582	< 0.002 U1	< 0.4 U1	0.5	< 0.1 U1
6/21/2021	Assessment	< 0.02 U1	0.18	54.1	0.065	0.036	0.99	0.245	0.51	0.03 J1	0.29	0.00056	< 0.002 U1	0.1 J1	0.49 J1	< 0.04 U1
9/21/2021	Assessment	< 0.02 U1	0.04 J1	46.1	0.064	0.035	0.55	0.029	0.6	0.02 J1	0.11 J1	0.00057	< 0.002 U1	< 0.1 U1	0.43 J1	< 0.04 U1

Notes:
 µg/L: micrograms per liter
 mg/L: milligrams per liter
 pCi/L: picocuries per liter
 <: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag. In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
 -: Not analyzed
 J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit. In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.

**Table 1: Residence Time Calculation Summary
Flint Creek Landfill**

CCR Management Unit	Monitoring Well	Well Diameter (inches)	2021-03		2021-06		2021-09	
			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	B-1B ^[3]	2.0	142	0.4	44	1.4	102	0.6
	B-2 ^[2]	2.0	141	0.4	91	0.7	74	0.8
	B-4 ^[1]	2.0	29	2.1	18	3.3	17	3.6
	B-5 ^[3]	2.0	41	1.5	47	1.3	23	2.7
	B-6 ^[2]	2.0	183	0.3	97	0.6	74	0.8
	B-7A ^[3]	2.0	118	0.5	81	0.8	118	0.5
	B-9 ^[2]	2.0	254	0.2	143	0.4	264	0.2
	B-10 ^[2]	2.0	117	0.5	94	0.6	107	0.6
	B-11 ^[2]	2.0	46	1.3	10	6.3	101	0.6
	B-12 ^[1]	2.0	75	0.8	29	2.1	22	2.7
	B-13 ^[1]	2.0	19	3.3	8	8.0	20	3.0

Notes:

[1] - Background Well

[2] - Downgradient Well

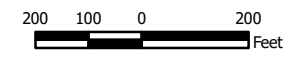
[3] - Crossgradient Well



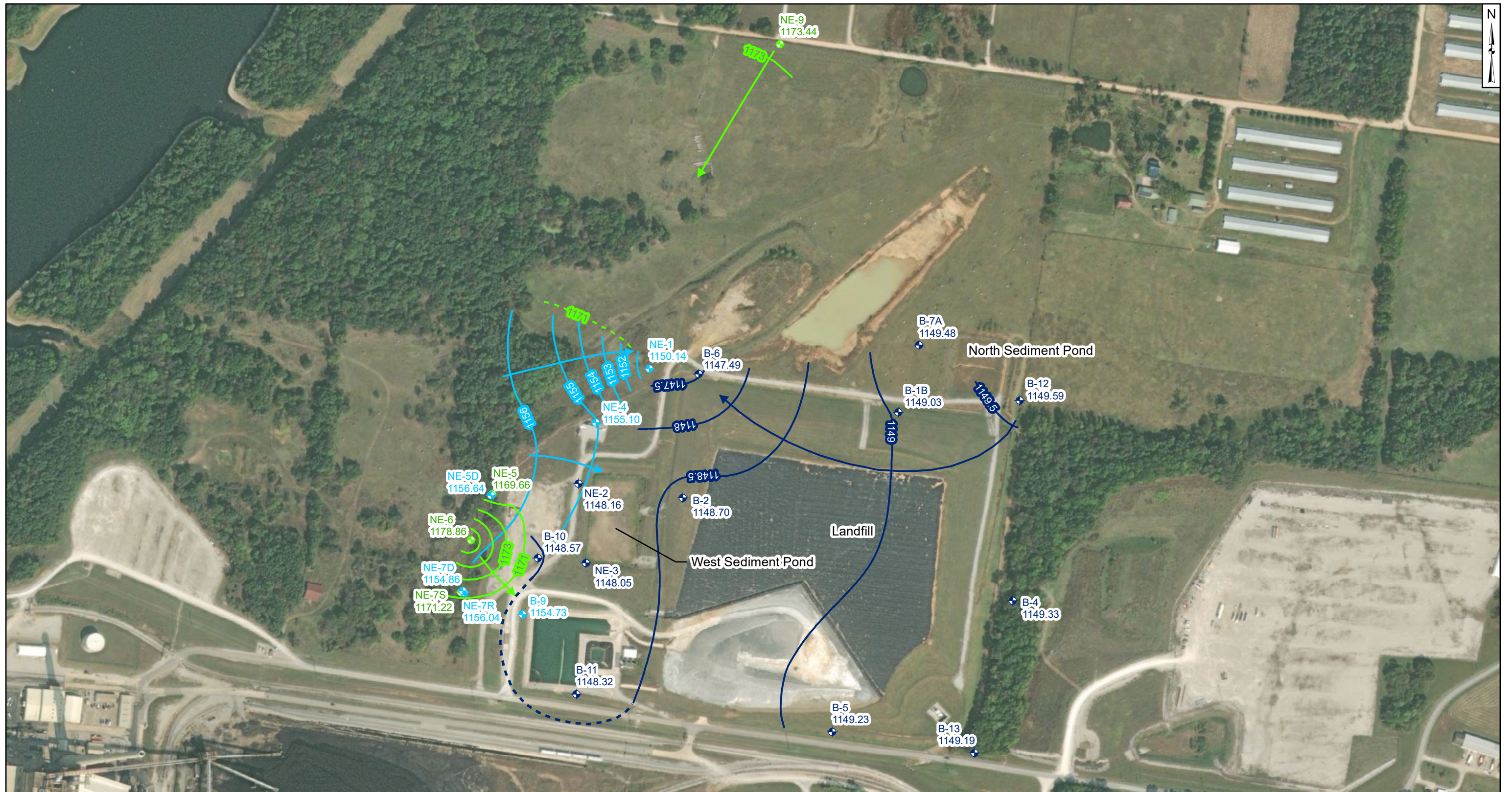
Monitoring Wells	Groundwater Elevation Contour
Shallow	Shallow
Intermediate	Shallow, Inferred
Deep	Shallow Flow Direction
	Intermediate
	Intermediate, Inferred
	Intermediate Flow Direction
	Deep
	Deep, Inferred
	Deep Flow Direction

Notes

- Monitoring well coordinates and water level data (collected on March 1, 2021) provided by AEP.
- Site features are based on information available in the Groundwater Monitoring Well Network for CCR Compliance (Terracon, 2016) provided by AEP.
- Locations of NE-5D, NE-7R, and NE-9 are approximate.
- Groundwater elevation units are feet above mean sea level.



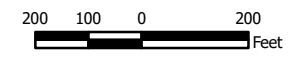
Potentiometric Surface Map March 2021	
AEP Flint Creek Plant - Landfill Gentry, Arkansas	
Geosyntec consultants	
Columbus, Ohio	2021/06/01
Figure 2	



Monitoring Wells	Groundwater Elevation Contour
Shallow	Shallow
Intermediate	Shallow, Inferred
Deep	Shallow Flow Direction
	Intermediate
	Intermediate, Inferred
	Intermediate Flow Direction
	Deep
	Deep, Inferred
	Deep Flow Direction

Notes

- Monitoring well coordinates and water level data (collected on June 22, 2021) provided by AEP.
- Site features are based on information available in the Groundwater Monitoring Well Network for CCR Compliance (Terracon, 2016) provided by AEP.
- Locations of NE-5D, NE-7R, and NE-9 are approximate.
- Groundwater elevation units are feet above mean sea level.



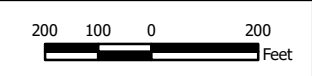
Potentiometric Surface Map June 2021	
AEP Flint Creek Plant - Landfill Gentry, Arkansas	
Geosyntec consultants	
Columbus, Ohio	2021/09/15
Figure 3	



Monitoring Wells	Groundwater Elevation Contour
Shallow	Shallow
Intermediate	Shallow, Inferred
Deep	Shallow Flow Direction
	Intermediate
	Intermediate, Inferred
	Intermediate Flow Direction
	Deep
	Deep, Inferred
	Deep Flow Direction

Notes

- Monitoring well coordinates and water level data (collected on September 20 - 21, 2021) provided by AEP.
- Site features are based on information available in the Groundwater Monitoring Well Network for CCR Compliance (Terracon, 2016) provided by AEP.
- Locations of NE-5D, NE-7R, and NE-9 are approximate.
- Groundwater elevation units are feet above mean sea level.



Potentiometric Surface Map September 2021		Figure 4
AEP Flint Creek Plant - Landfill Gentry, Arkansas		
Geosyntec consultants		
Columbus, Ohio	2021/12/06	

APPENDIX 2 - Statistical Analyses

The March and October 2021 statistical analysis summaries concluding that no SSLs were identified at the CCR unit follow.

STATISTICAL ANALYSIS SUMMARY
LANDFILL
Flint Creek Plant
Gentry, Arkansas

Submitted to



1 Riverside Plaza
Columbus, Ohio 43215-2372

Submitted by



engineers | scientists | innovators

941 Chatham Lane
Suite 103
Columbus, Ohio 43221

March 1, 2021

CHA8500

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LIST OF ACRONYMS AND ABBREVIATIONS

AEP	American Electric Power
CCR	Coal Combustion Residuals
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
GWPS	Groundwater Protection Standard
LCL	Lower Confidence Limit
LF	Landfill
LFB	Laboratory Fortified Blanks
LPL	Lower Prediction Limit
LRB	Laboratory Reagent Blanks
MCL	Maximum Contaminant Level
NELAP	National Environmental Laboratory Accreditation Program
QA	Quality Assurance
QC	Quality Control
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
SU	Standard Units
TDS	Total Dissolved Solids
UPL	Upper Prediction Limit
USEPA	United States Environmental Protection Agency
UTL	Upper Tolerance Limit

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 has been conducted at the Landfill (LF), an existing CCR unit at the Flint Creek Power Plant located in Gentry, Arkansas.

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron at the LF. An alternative source was not identified at the time, so assessment monitoring was initiated at the LF in April 2018 and has continued at the unit in 2020. During 2020, an annual sampling event for Appendix IV parameters required by 257.95(b) was completed in March, and semiannual sampling events for both Appendix III parameters and the Appendix IV parameters detected during the March sampling event, as required by 257.95(d)(1), were completed in June and October. Statistical analysis of the March and June events did not show statistically significant levels (SSLs) above groundwater protection standards (GWPSs), but also did not show a return to background levels, thus the CCR unit remained in assessment monitoring. This report summarizes statistical analysis results of the October 2020 semiannual assessment monitoring event.

Prior to conducting the statistical analyses, the 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 data usability.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. GWPSs were re-established for the Appendix IV parameters. Confidence intervals were calculated from the Appendix IV parameter data at the compliance wells to assess whether any were present at SSLs above the corresponding GWPS. No SSLs were identified; however, concentrations of Appendix III parameters remained above background. Thus, the unit will remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

SECTION 2

LANDFILL EVALUATION

2.1 Data Validation & QA/QC

During the October 2020 assessment monitoring sampling event, one set of samples was collected for analysis from each upgradient and downgradient well to meet the requirements of 257.95(d)(1) (October 2020). Samples from this sampling event were analyzed for all Appendix III and Appendix IV parameters. A summary of data collected during this assessment monitoring event may be found 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.9.6.27b statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues were noted which would impact data usability.

2.2 Statistical Analysis

Statistical analyses for the LF were conducted in accordance with the October 2020 *Statistical Analysis Plan* (Geosyntec, 2020). Time series plots and results for all completed statistical tests are provided in Attachment B.

The data obtained in October 2020 were screened for potential outliers; however, no outliers were identified (Attachment B).

2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix IV parameter in accordance with 40 CFR 257.95(h) and the *Statistical Analysis Plan* (Geosyntec 2020). The established GWPS was determined to be the greater value of the background concentration and the maximum contaminant level (MCL) or risk-based level specified in 40 CFR 257.95(h)(2) for each Appendix IV parameter. To determine background concentrations, an upper tolerance limit (UTL) was calculated using pooled data from the background wells collected during the background monitoring and assessment monitoring events. A tolerance limit was calculated parametrically with 95% coverage and 95% confidence for cobalt. Non-parametric tolerance limits were calculated for arsenic, barium, beryllium,

cadmium, chromium, combined radium, lead, and lithium due to apparent non-normal distributions. Non-parametric tolerance limits were calculated for antimony, fluoride, mercury, molybdenum, selenium, and thallium because greater than 50% of the data was composed of non-detect results. Tolerance limits and the final GWPSs are summarized in Table 2.

2.2.2 Evaluation of Potential Appendix IV SSLs

A confidence interval was constructed for each Appendix IV parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$); however, non-parametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the non-detect frequency was too high). An SSL was concluded if the lower confidence limit (LCL) exceeded the GWPS (i.e., if the entire confidence interval exceeded the GWPS). Calculated confidence limits are shown in Attachment B.

No SSLs were identified at the Flint Creek LF.

2.2.3 Evaluation of Potential Appendix III SSIs

Because no SSLs were identified, a review of the Appendix III results was also completed to assess whether concentrations of Appendix III parameters at the compliance wells exceeded background concentrations. Prediction limits were calculated for the Appendix III parameters to represent background values. Intrawell tests were used to evaluate potential SSIs for calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS), whereas an interwell test was used to evaluate a potential SSI for boron.

Prediction limits for the interwell tests were recalculated using data collected during the 2020 assessment monitoring events. New data were tested for outliers prior to being added to the background dataset. The updated boron prediction limit was calculated using a one-of-two retesting procedure, as during detection monitoring. This resulted in an updated prediction limit similar to the value calculated during detection monitoring, so the revised interwell prediction limit was used to evaluate a potential SSI for boron.

For the intrawell tests, insufficient data was available to compare against the existing background dataset, the prediction limits were not updated for the intrawell tests at this time. The intrawell prediction limits calculated in December 2019 (Geosyntec, 2019) were used to evaluate potential SSIs for calcium, chloride, fluoride, pH, sulfate, and TDS.

The Appendix III results were analyzed to assess whether concentrations of Appendix III parameters at the compliance wells exceeded background concentrations. Data collected during the October 2020 assessment monitoring event from each compliance well were compared to the prediction limits to assess whether the results are statistically above background limits. The results from these events and the prediction limits are summarized in Table 3. The following exceedances of the upper prediction limits (UPLs) were noted:

- Boron concentrations exceeded the interwell UPL of 0.107 mg/L at B-2 (0.504 mg/L), and B-11 (0.327 mg/L).
- The recorded pH value at B-7A (8.5 standard units [SU]) exceeded the intrawell UPL of 7.9 SU.
- The reported sulfate concentration exceeded the intrawell UPL of 243 mg/L at B-5 (258 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the October 2020 sample was above the UPL or below the lower prediction limit (LPL). Based on this evaluation, concentrations of Appendix III constituents appear to be above background concentrations and the unit will remain in assessment monitoring.

2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that impacted data usability. A review of outliers identified no potential outliers in the October 2020 data. GWPSs were re-established for the Appendix IV parameters. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval exceeded the GWPSs. No SSLs were identified.

The Appendix III results were evaluated to assess whether concentrations of Appendix III parameters exceeded background levels. Boron, pH, and sulfate results exceeded background levels at select downgradient wells.

Based on this evaluation, the Flint Creek LF CCR unit will remain in assessment monitoring.

TABLES

**Table 1 - Groundwater Data Summary
Flint Creek Plant - Landfill**

Parameter	Unit	B-1B	B-2	B-4	B-5	B-6	B-7A	B-9	B-10	B-11	B-12	B-13
		10/20/2020	10/19/2020	10/19/2020	10/19/2020	10/19/2020	10/19/2020	10/20/2020	10/20/2020	10/20/2020	10/19/2020	10/20/2020
Antimony	µg/L	0.04 J	0.02 J	0.1 U	0.02 J	0.1 U	0.08 J	0.03 J	0.18	0.1 U	0.16	0.1 U
Arsenic	µg/L	0.63	0.26	0.05 J	0.43	0.16	3.45	0.56	0.80	0.14	0.14	0.06 J
Barium	µg/L	108	73.0	28.7	19.1	45.4	48.4	154	82.2	84.9	62.9	45.3
Beryllium	µg/L	0.1 U	0.08 J	0.204	0.502	0.1 U	0.1 U	0.1 U	0.04 J	0.219	0.1 U	0.08 J
Boron	mg/L	0.03 J	0.504	0.070	0.05 U	0.03 J	0.05 U	0.05 U	0.05 U	0.327	0.05 U	0.05 U
Cadmium	µg/L	0.01 J	0.04 J	0.03 J	0.16	0.01 J	0.05	0.05 U	0.04 J	0.05	0.03 J	0.05 J
Calcium	mg/L	85.5	33.9	2.61	17.3	43.8	97.0	88.7	86.0	14.1	70.3	13.0
Chloride	mg/L	2.23	4.10	2.33	8.00	7.52	3.03	5.39	10.3	3.39	11.0	1.63
Chromium	µg/L	0.2 U	1.56	0.847	2.41	1.60	0.1 J	0.436	2.07	0.919	0.601	0.345
Cobalt	µg/L	0.072	0.131	0.04 J	0.291	0.054	0.445	0.133	1.18	0.085	2.26	0.060
Combined Radium	pCi/L	5.16	1.715	1.898	2.622	1.203	3.281	1.204	1.748	2.095	1.611	0.276
Fluoride	mg/L	0.37	0.07	0.02 J	0.06	0.02 J	0.21	0.07	0.08	0.03 J	0.05 J	0.02 J
Lead	µg/L	0.07 J	0.1 J	0.2 U	0.2 J	0.06 J	0.426	0.06 J	0.641	0.2 U	0.1 J	0.05 J
Lithium	mg/L	0.0229	0.00126	0.000934	0.00226	0.000407	0.0180	0.00257	0.00140	0.00151	0.00114	0.000604
Mercury	µg/L	0.005 U	0.005 U	0.005 U	0.005	0.005 U	0.004 J	0.005 U	0.002 J	0.005 U	0.005 U	0.005 U
Molybdenum	µg/L	2.29	1 J	2 U	2 U	2 U	0.6 J	2 U	0.7 J	2 U	0.7 J	2 U
Selenium	µg/L	0.05 J	12.3	0.5	37.4	1.6	0.2 U	0.4	0.6	2.3	0.2	0.4
Sulfate	mg/L	24.5	110	11.2	258	16.5	33.9	26.2	26.8	37.4	9.5	17.7
Thallium	µg/L	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total Dissolved Solids	mg/L	293	304	64	445	201	320	279	257	143	266	77
pH	SU	7.7	5.5	6.2	4.6	6.3	8.5	6.9	6.6	5.3	6.6	6.2

Notes:

mg/L: milligrams per liter

µg/L: micrograms per liter

SU: standard unit

pCi/L: picocuries per liter

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

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

**Table 2 - Groundwater Protection Standards
Flint Creek Plant - Landfill**

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.006		0.005	0.006
Arsenic, Total (mg/L)	0.010		0.0080	0.010
Barium, Total (mg/L)	2.00		0.131	2.00
Beryllium, Total (mg/L)	0.00400		0.00100	0.00400
Cadmium, Total (mg/L)	0.005		0.001	0.005
Chromium, Total (mg/L)	0.100		0.00600	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.00310	0.00600
Combined Radium, Total (pCi/L)	5.00		8.79	8.79
Fluoride, Total (mg/L)	4		1	4
Lead, Total (mg/L)	n/a	0.015	0.0050	0.015
Lithium, Total (mg/L)	n/a	0.0400	0.0410	0.0410
Mercury, Total (mg/L)	0.002		0.0001	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.050		0.039	0.050
Thallium, Total (mg/L)	0.002		0.002	0.002

Notes:

MCL = Maximum Contaminant Level

CCR = Coal Combustion Residual

GWPS = Groundwater Protection Standard

Calculated UTL (Upper Tolerance Limit) represents site-specific background values.

Grey cells indicate the GWPS is based upon calculated UTL, which is higher than either the MCL or CCR-Rule Specified value.

**Table 3 - Appendix III Data Summary
Flint Creek Plant - Landfill**

Analyte	Unit	Description	B-1B	B-2	B-5	B-6	B-7A	B-9	B-10	B-11
			10/20/2020	10/19/2020	10/19/2020	10/19/2020	10/19/2020	10/20/2020	10/20/2020	10/20/2020
Boron	mg/L	Interwell Background Value (UPL)	0.107							
		Analytical Result	0.03	0.504	0.02	0.03	0.02	0.02	0.02	0.327
Calcium	mg/L	Intrawell Background Value (UPL)	96.7	88.0	19.2	61.5	109	137	112	18.3
		Analytical Result	85.5	33.9	17.3	43.8	97.0	88.7	86.0	14.1
Chloride	mg/L	Intrawell Background Value (UPL)	5.84	9.83	11.6	12.2	6.87	8.31	11.5	7.73
		Analytical Result	2.23	4.10	8.00	7.52	3.03	5.39	10.3	3.39
Fluoride	mg/L	Intrawell Background Value (UPL)	0.707	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		Analytical Result	0.37	0.07	0.06	0.02	0.21	0.07	0.08	0.03
pH	SU	Intrawell Background Value (UPL)	8.4	7.3	6.8	7.4	7.9	8.5	8.8	7.0
		Intrawell Background Value (LPL)	6.2	5.2	4.3	6.1	6.5	6.2	5.9	4.8
		Analytical Result	7.7	5.5	4.6	6.3	8.5	6.9	6.6	5.3
Sulfate	mg/L	Intrawell Background Value (UPL)	28.1	803	243	42.3	37.1	37.6	39.4	65.7
		Analytical Result	24.5	110	258	16.5	33.9	26.2	26.8	37.4
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	317	1,410	447	292	339	293	315	193
		Analytical Result	293	304	445	201	320	279	257	143

Notes:

UPL: Upper prediction limit

LPL: Lower prediction limit

Bold values exceed the background value.

Background values are shaded gray.

ATTACHMENT A

Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

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

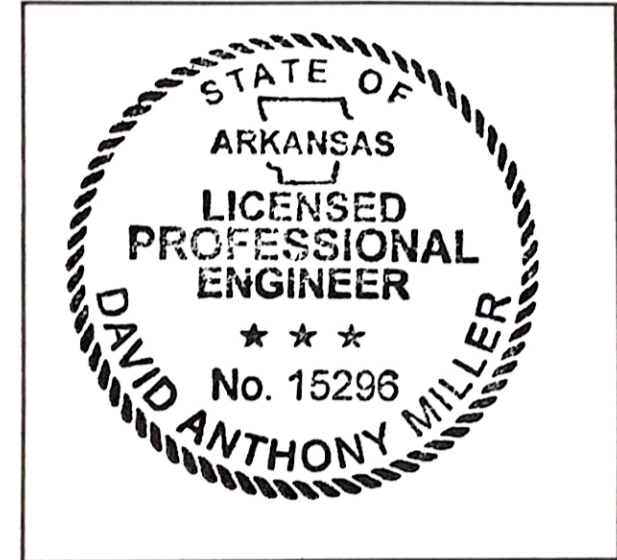
DAVID ANTHONY MILLER
Printed Name of Licensed Professional Engineer

David Anthony Miller
Signature

15296
License Number

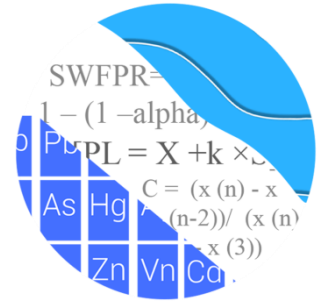
ARKANSAS
Licensing State

03.01.21
Date



ATTACHMENT B
Statistical Analysis Output

GROUNDWATER STATS CONSULTING



February 8, 2021

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

Re: Flint Creek Landfill - Assessment Monitoring & Background Update 2020

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide statistical analysis and background update of 2020 groundwater data for American Electric Power Inc.'s Flint Creek 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 the site for the CCR program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** B-1B, B-4, B-5, B-7A, B-12, and B-13
- **Downgradient wells:** B-2, B-6, B-9, B-10, and B-11

Data were sent electronically, and the analysis was reviewed by Dr. Jim Loftis, emeritus professor of Civil and Environmental Engineering at Colorado State University and Senior Adviser to Groundwater Stats Consulting. The statistical analysis was conducted according to the Statistical Analysis Plan and screening evaluation prepared by GSC and approved by Dr. Kirk Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to GSC.

The CCR program consists of the following constituents listed below. The terms “constituent” and “parameter” are interchangeable.

- **Appendix III** (Detection Monitoring) - boron, calcium, chloride, fluoride, pH, sulfate, and TDS
- **Appendix IV** (Assessment Monitoring) – antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium

Time series plots and box plots for Appendix III and IV parameters are provided for all wells (Figures A and B). Values which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the time series plots. A summary of flagged values follows this letter (Figure C). The time series plots are used to evaluate concentrations over time and between wells, to initially screen for suspected outliers and trends; while the box plots provide visual representation of variation within individual wells and between wells.

For regulatory comparison of current observations against statistical limits for Appendix III constituents, the annual site-wide false positive rate is based on the USEPA Unified Guidance (2009) recommendation of 10% (5% for each semi-annual sample event). Power curves are included with this report to demonstrate that the selected statistical method provides sufficient power to detect a change at any of the downgradient wells which complies with the USEPA Unified Guidance recommendation. The EPA suggests the selected statistical method should provide at least 55% power at 3 standard deviations or at least 80% power at 4 standard deviations. Power curves were based on the following:

Semi-Annual Sampling

1-of-2 resample plan

Constituents, $c=7$

Downgradient wells, $w=5$

Summary of Statistical Methods – Appendix III Parameters:

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

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. While the annual false positive rate associated with parametric limits is fixed at 10% as recommended by the EPA Unified Guidance (2009), the false positive rate associated with nonparametric limits is not fixed and depends upon the available background sample size, number of future comparisons, and verification resample plan. 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 as appropriate. Nondetects are handled as follows:

- 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, the reporting limit utilized for nondetects is the most recent practical quantification limit (PQL) as reported by the laboratory. There is no replacement of historical reporting limits with the most recent reporting limit. For several constituents, the most recent reporting limits are significantly lower than those reported historically. This is the most conservative approach for tolerance limits and confidence intervals at this site.
- 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 tolerance limits are used on data containing greater than 50% nondetects.

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 is necessary to accommodate these types of changes. In the intrawell case, data for all wells and constituents may be 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 the interwell case, prediction limits are updated with upgradient well data following each sampling event after careful screening for any new outliers. In some cases, deselecting the earlier portion of data may be necessary prior to construction of limits so that resulting statistical limits are conservative (i.e. lower) from a regulatory perspective and capable of rapidly detecting 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.

Summary of Background Screening Conducted in November 2017

Interwell prediction limits combined with a 1-of-2 verification strategy were recommended for boron; and intrawell prediction limits combined with a 1-of-2 verification strategy were recommended for calcium, chloride, fluoride, pH, sulfate, and TDS. All proposed background data were screened for outliers and trends during the background screening. The findings of those reports were submitted with that analysis. Interwell prediction limits utilize pooled upgradient well data for construction of statistical limits. During each sample event, upgradient well data are screened for any newly suspected outliers or obvious trending patterns using time series plots. Intrawell prediction limits utilize historical data within a given well for comparison of compliance data from the same well. As recommended in the EPA Unified Guidance (2009), the background data sets are periodically evaluated for the purpose of updating statistical limits, as described below.

Appendix III Background Update – Conducted in November 2019

Samples from all wells for parameters using intrawell prediction limits and from all upgradient wells for parameters using interwell prediction limits were evaluated using Tukey's outlier test and visual screening. A summary of Tukey's test results and flagged outliers were included with the November 2019 background update.

For constituents requiring intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through June 2017 to the new compliance samples at each well through March 2019 to evaluate whether the groups are statistically different at the 99% confidence level. When the test finds no statistically significant difference between the medians of the two groups, background data may be updated with compliance data. Although statistically significant differences were found for some well/constituent pairs using intrawell statistical methods, all background data were updated with compliance data because while the medians were slightly different, the more recent reported concentrations were similar to historical concentrations. A complete list of the Mann-Whitney test results and associated statistical explanations were included with the November 2019 Background Update report. Intrawell prediction limits were updated for each well and constituent using the updated background data through March 2019. A summary table and complete graphical results were included with the report.

For boron, which is tested using interwell prediction limits, the Sen's Slope/Mann-Kendall trend test was used on upgradient wells to determine whether concentrations are

statistically increasing, decreasing or stable. No statistically significant increasing or decreasing trends were noted. The interwell prediction limit, combined with a 1-of-2 resample plan, was updated using all available data from upgradient wells for the same time period for boron. Results were included with the November 2019 Background Update report.

Appendix III Background Update – Conducted in February 2021

Prior to updating background data during this analysis, Tukey's outlier test and visual screening were used to re-evaluate data for outliers at all upgradient wells for parameters utilizing interwell prediction limits, i.e. boron. (Figure C). Tukey's outlier test on pooled upgradient well data identified eleven values as outliers. Those values were similar to each other and not dramatically higher than the remaining observations. Therefore, no values were flagged in upgradient wells for Appendix III parameters.

As mentioned above, in the intrawell case, data for all wells and constituents will be re-evaluated when a minimum of 4 new data points are available. Calcium currently lacks sufficient data to update background; therefore, background data sets for all parameters utilizing intrawell prediction limits will be updated during the Spring 2021 sample event. Intrawell prediction limits currently use all historical data through March 2019, and a summary table of the limits follows this report (Figure D).

For boron, which is tested using interwell prediction limits, the Sen's Slope/Mann-Kendall trend test was used to test data in upgradient wells to determine whether concentrations are statistically increasing, decreasing or stable (Figure E). A statistically significant increasing trend was identified for boron in upgradient well B-4; however, the magnitude of the trend is fairly small relative to the range of concentrations in the pooled upgradient data. Therefore, all data from upgradient wells were used to construct interwell prediction limits for boron. As more data are collected, all upgradient well data will be re-evaluated for possible deselection of earlier portion of the record if the measurements no longer represent present-day groundwater quality conditions.

The interwell prediction limit for boron, combined with a 1-of-2 resample plan, was updated using all pooled upgradient data through October 2020. The summary table follows this letter (Figure F).

Evaluation of Appendix IV Parameters – October 2020

Prior to evaluating Appendix IV parameters, upgradient well data are screened through both visual screening and Tukey's outlier test for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits. All flagged values may be seen on the Outlier Summary following this letter (Figure C).

Tukey's outlier test identified outliers for barium, chromium, cobalt, combined radium 226 + 228, lithium, and selenium when pooled upgradient well data were evaluated; however, many of these values were of similar concentration to one another and thus, were not flagged as outliers. The highest value for chromium in well B-12 and the two highest values for cobalt in well B-12 were flagged in the database as outliers as they did not appear to represent the population at these wells and do not represent current conditions.

For the current analysis, downgradient well data through October 2020 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, a regulatory conservative approach is taken in that values that are marginally high relative to the rest of the data are retained unless there is particular justification for excluding them. Several outliers, however, were flagged for reasons listed below.

Several metals had higher reported concentrations in multiple wells during the September and November 2016 events which appear to be either a laboratory or sampling issue. Therefore, these values were flagged as outliers since they do not represent the population within these wells. Additionally, several reporting limits for the metals are significantly lower beginning in March 2019 than those reported historically. Nondetect values are not replaced with the most recent reporting limit in order to create conservative statistical limits from a regulatory perspective. For lithium, the reporting limit during the June 2019 event increased from a historical limit of 0.001 mg/L to 0.1 mg/L. Therefore, this value was flagged in all wells as it is higher than any measured concentrations, and therefore, provides no useful information.

Upper tolerance limits were used to calculate background limits from pooled upgradient well data through October 2020 for Appendix IV parameters (Figure G). For parametric limits a target of 95% confidence and 95% coverage is used.

The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. These background limits were compared to the Maximum Contaminant Levels (MCLs) and CCR Rule-Specified levels as shown in the

Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the confidence interval comparisons (Figure H).

Confidence intervals were then constructed on downgradient wells with data through October 2020 for each of the Appendix IV parameters and compared to the GWPS, i.e. the highest limit of the MCL, CCR Rule-Specified level, or background limit as discussed above). Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. Complete graphical results of the confidence intervals follow this letter (Figure I). No statistical exceedances were identified.

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

For Groundwater Stats Consulting,

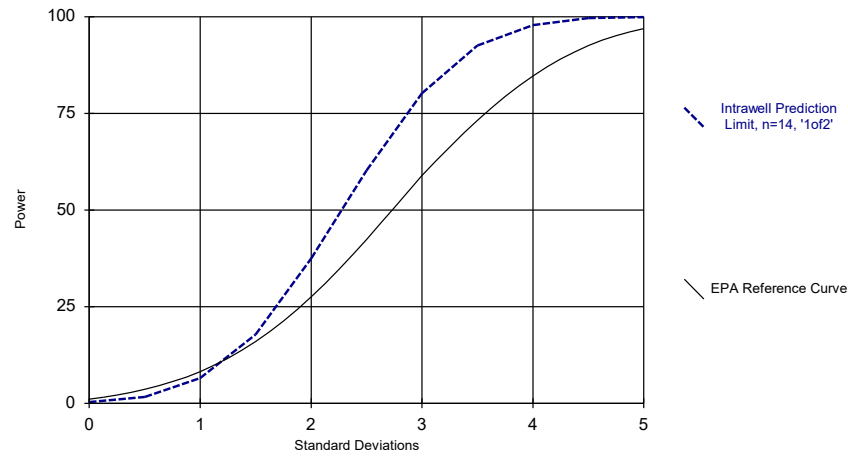


Andrew T. Collins
Project Manager



Kristina L. Rayner
Groundwater Statistician

Intrawell Power Curve

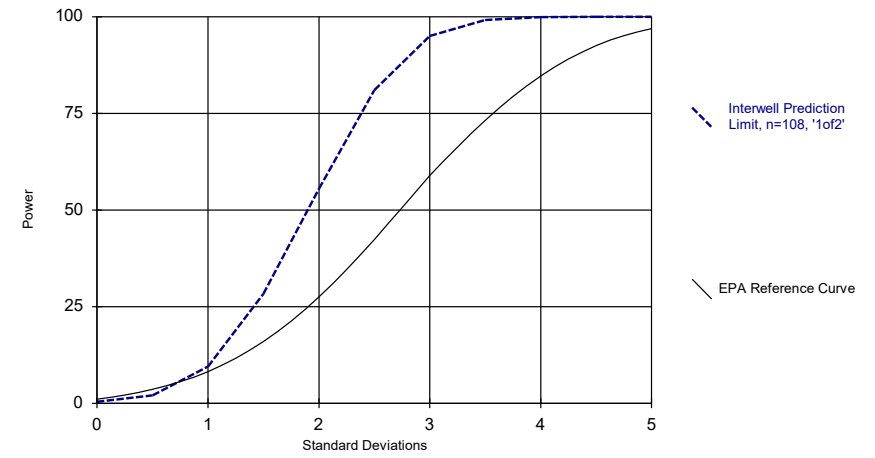


Kappa = 2.236, based on 5 compliance wells and 7 constituents, evaluated semi-annually (this report reflects annual total).

Analysis Run 2/3/2021 10:46 AM

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Interwell Power Curve

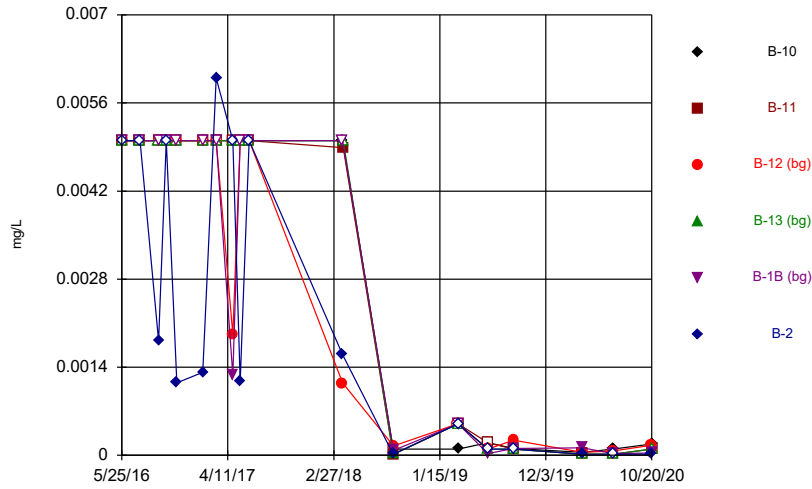


Kappa = 1.804, based on 5 compliance wells and 7 constituents, evaluated semi-annually (this report reflects annual total).

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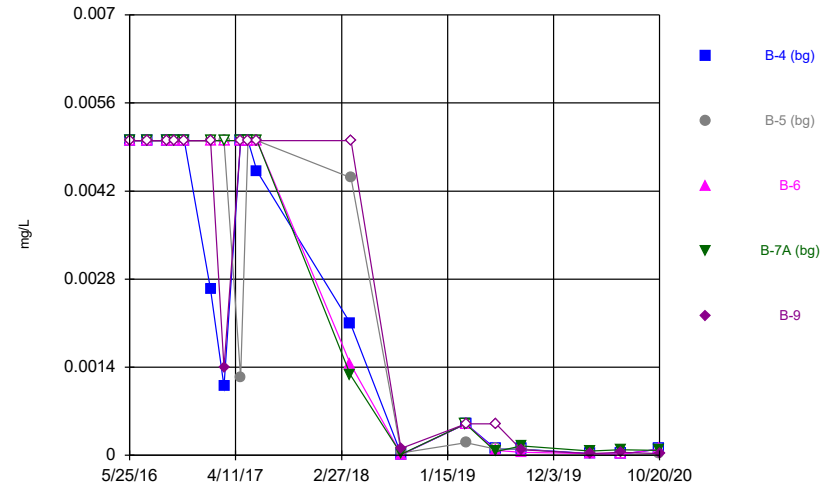
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



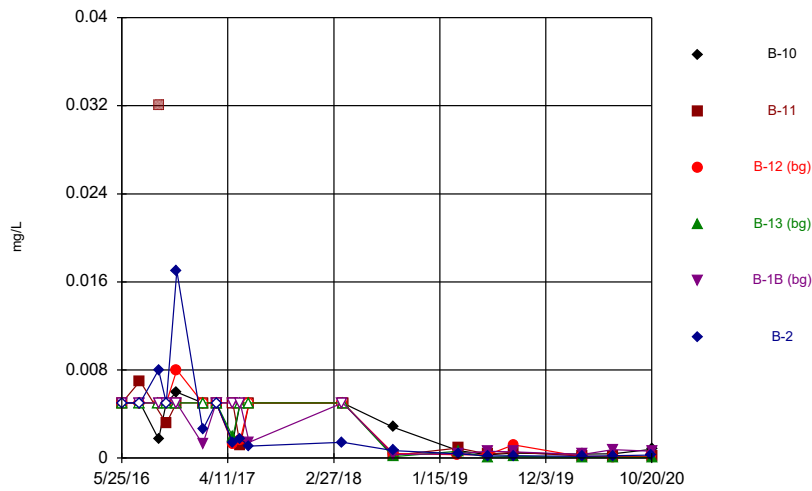
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Time Series



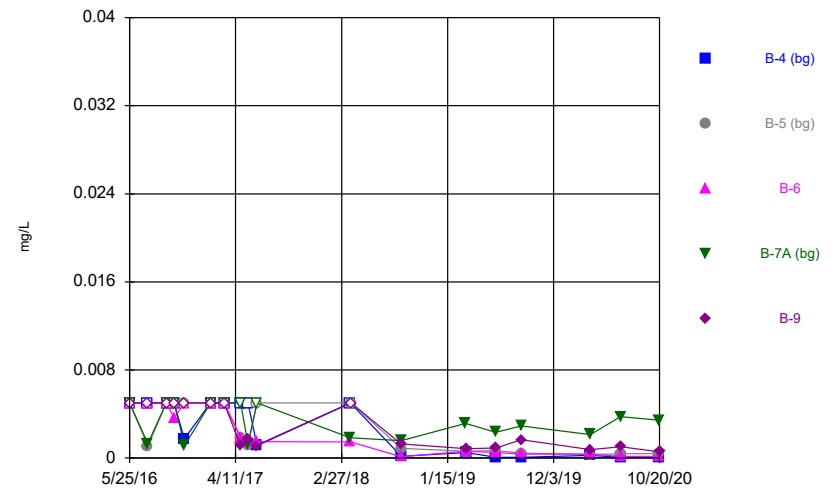
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



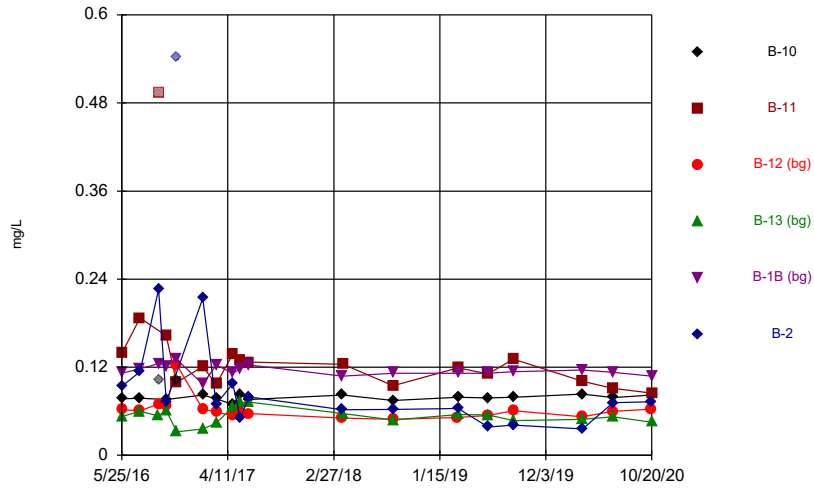
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



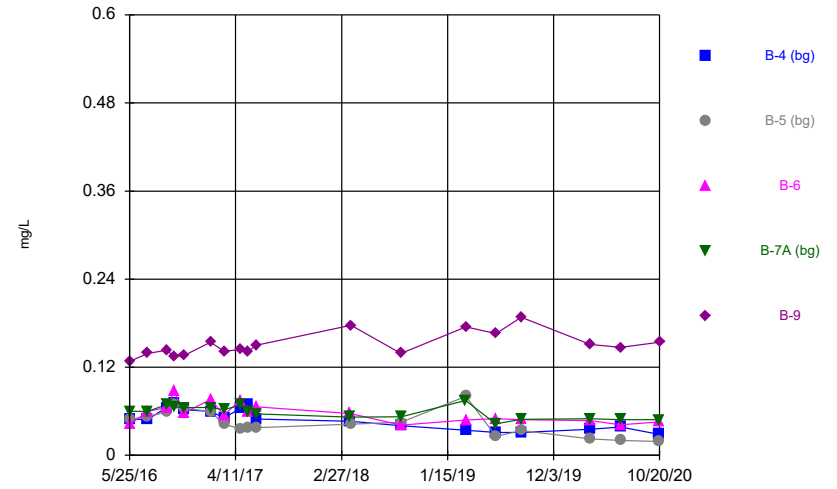
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



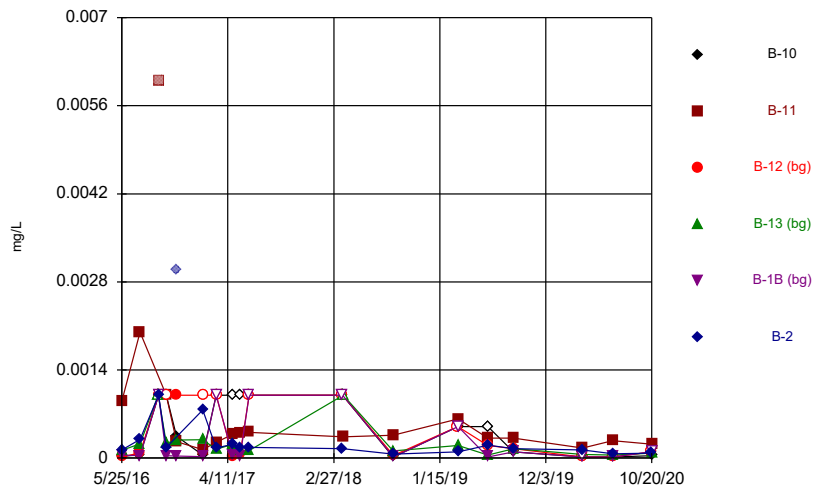
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Time Series



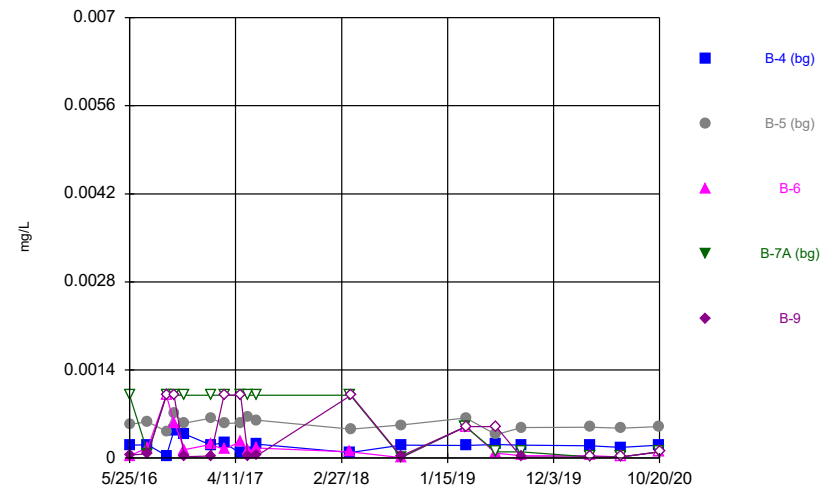
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Time Series



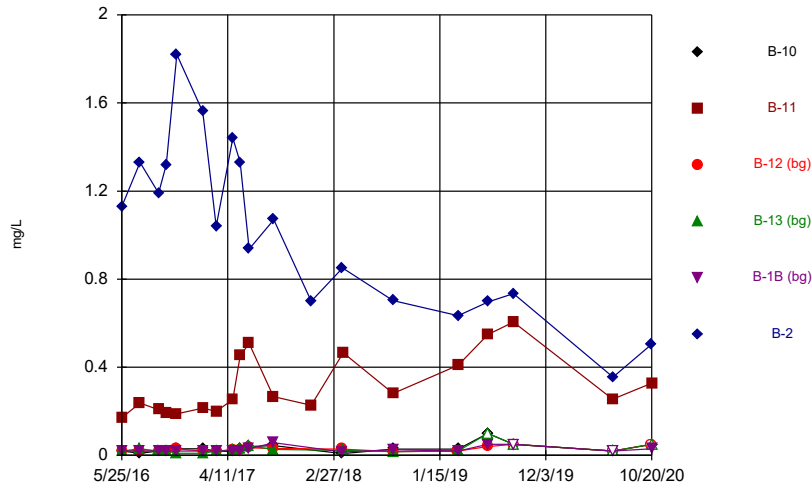
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



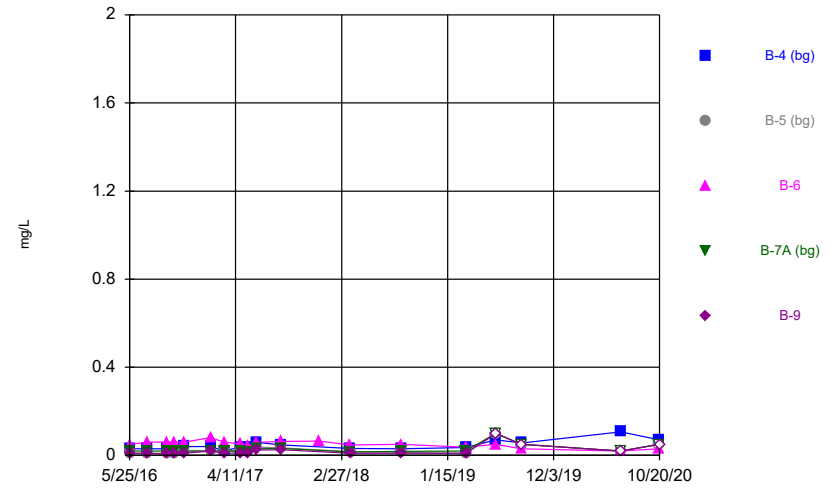
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



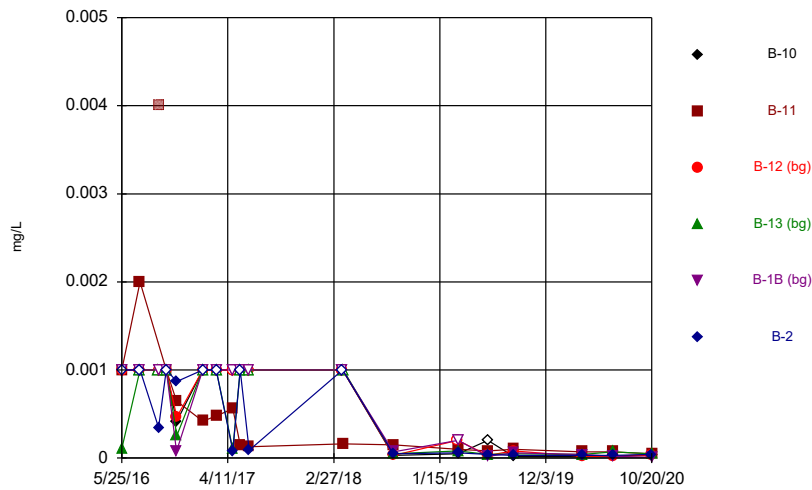
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Time Series



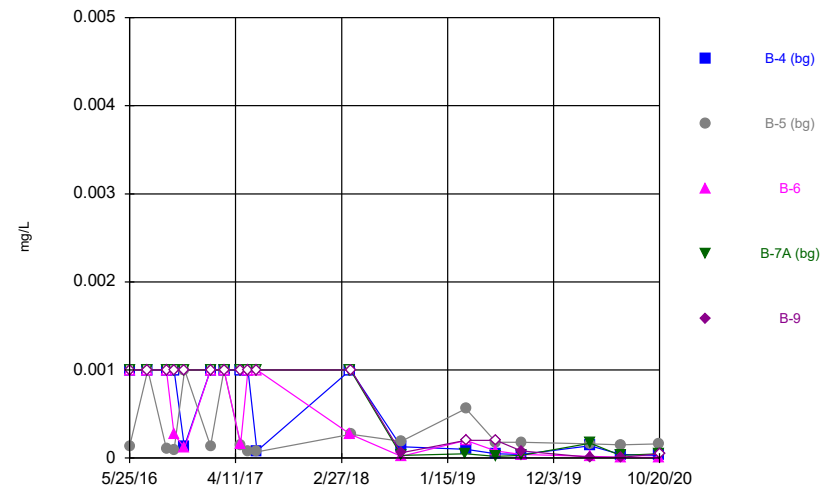
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Time Series



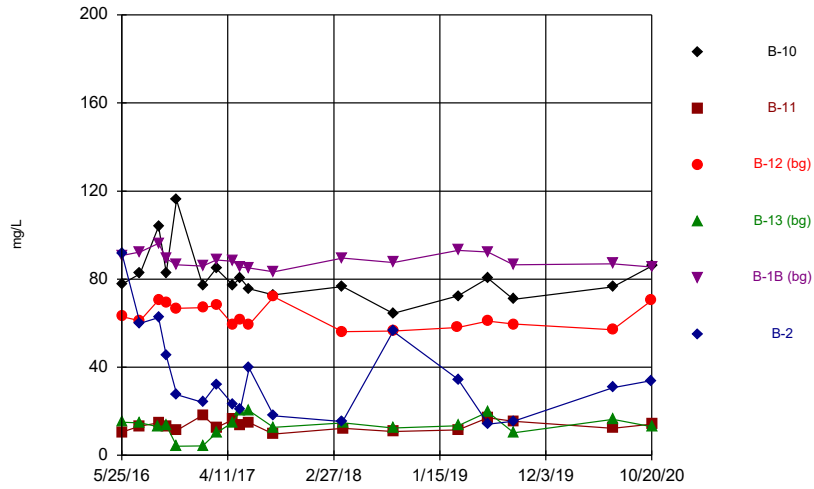
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Time Series



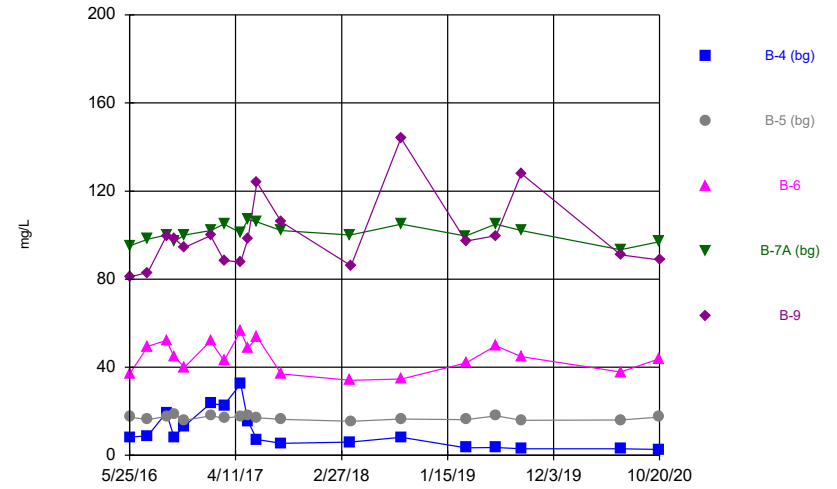
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Time Series



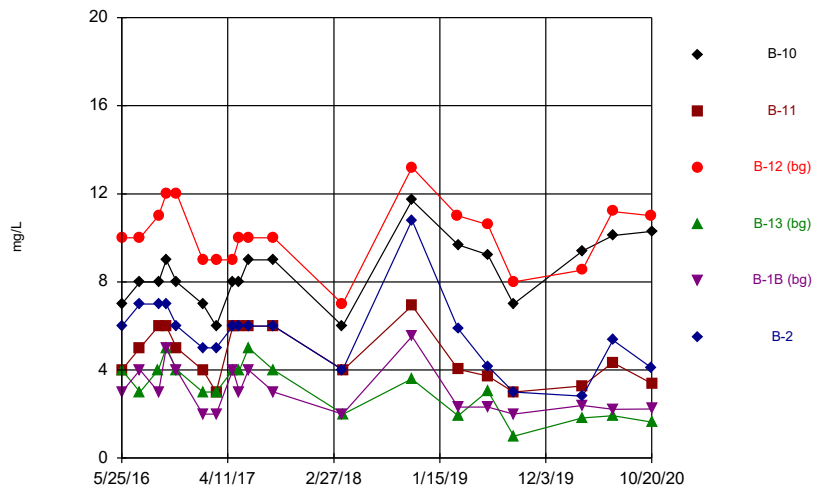
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Time Series



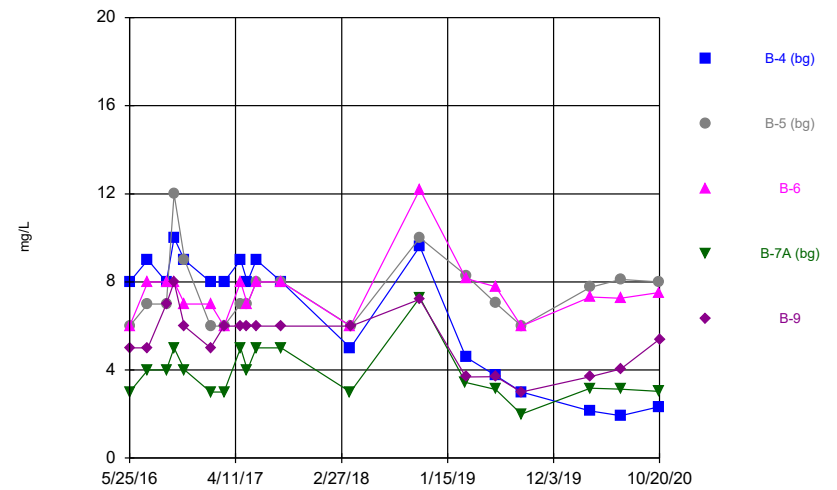
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Time Series



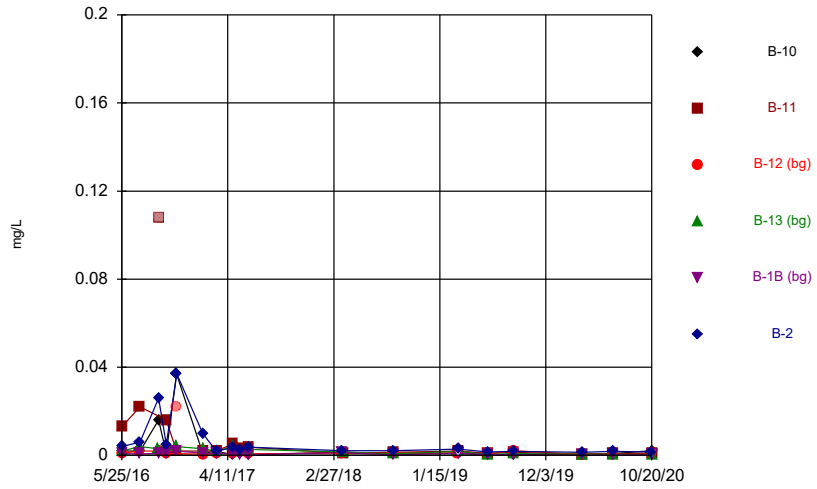
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



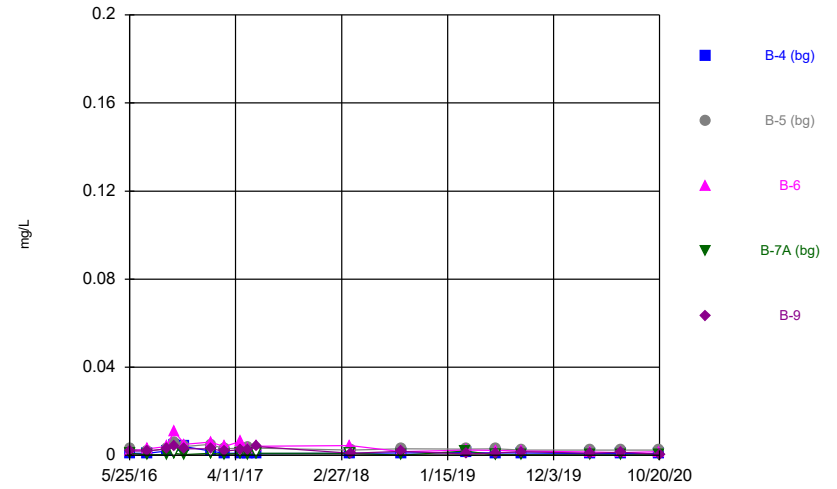
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



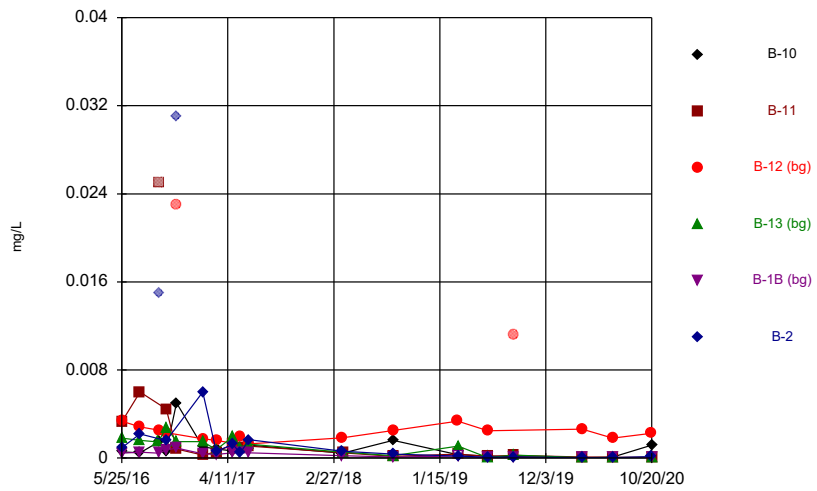
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Time Series



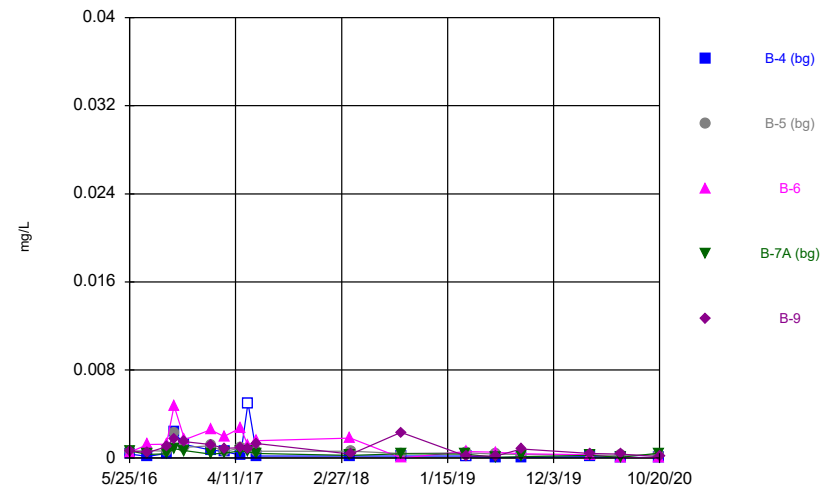
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Time Series



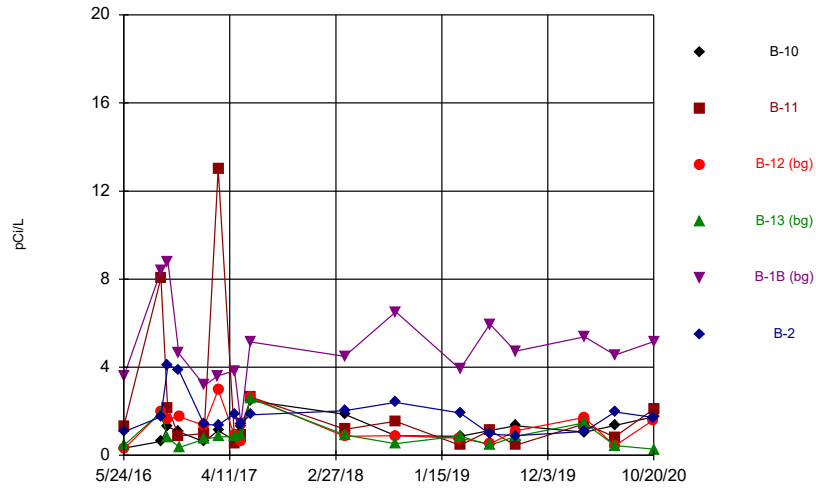
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Time Series



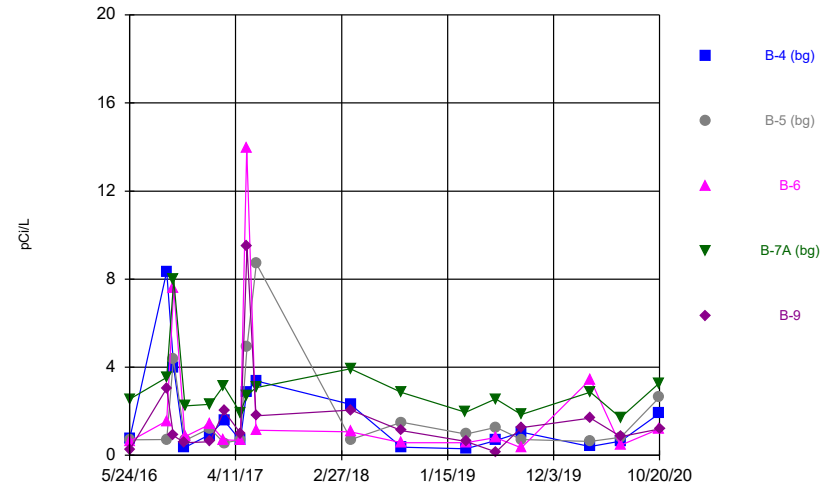
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Time Series



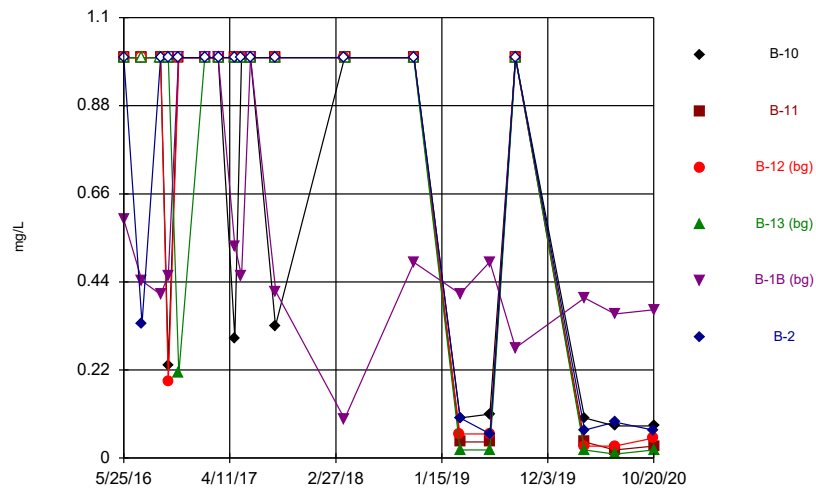
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Time Series



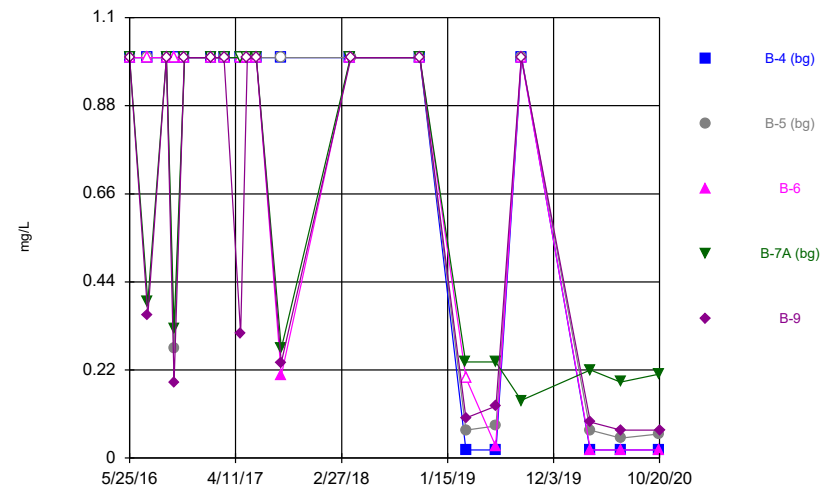
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



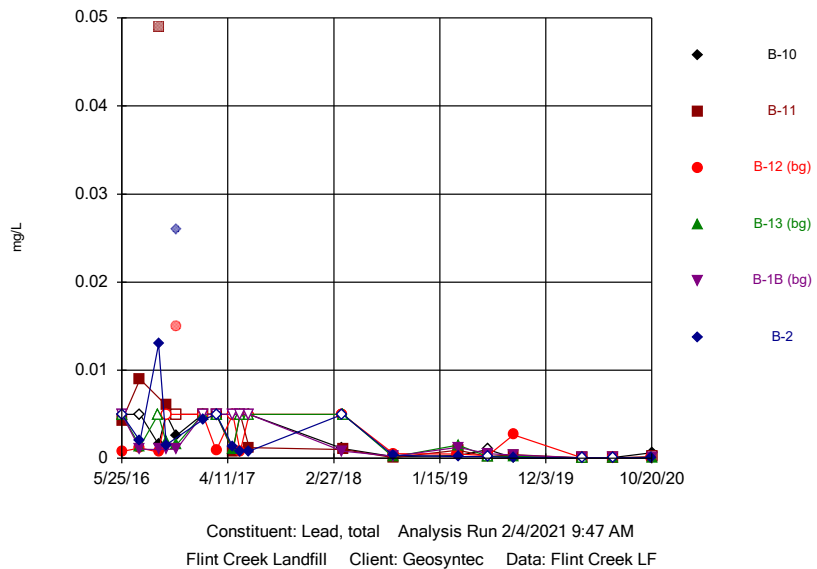
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Time Series

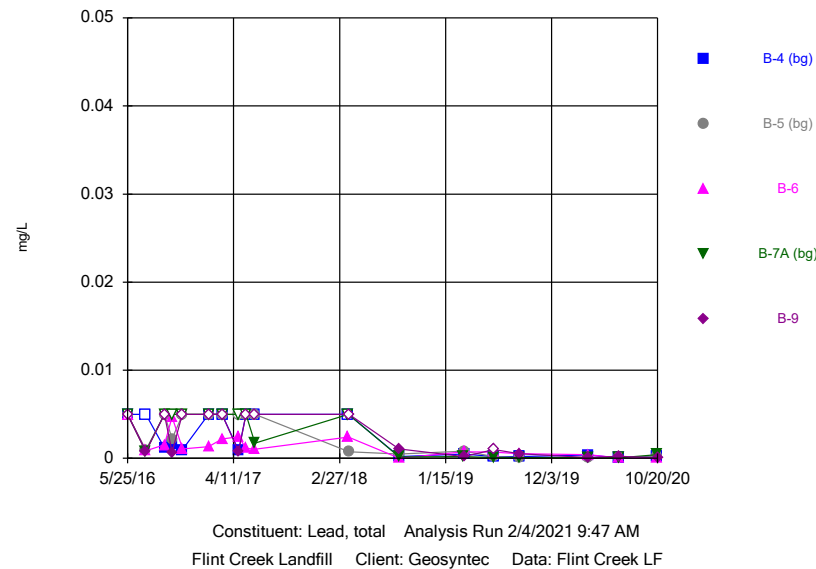


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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

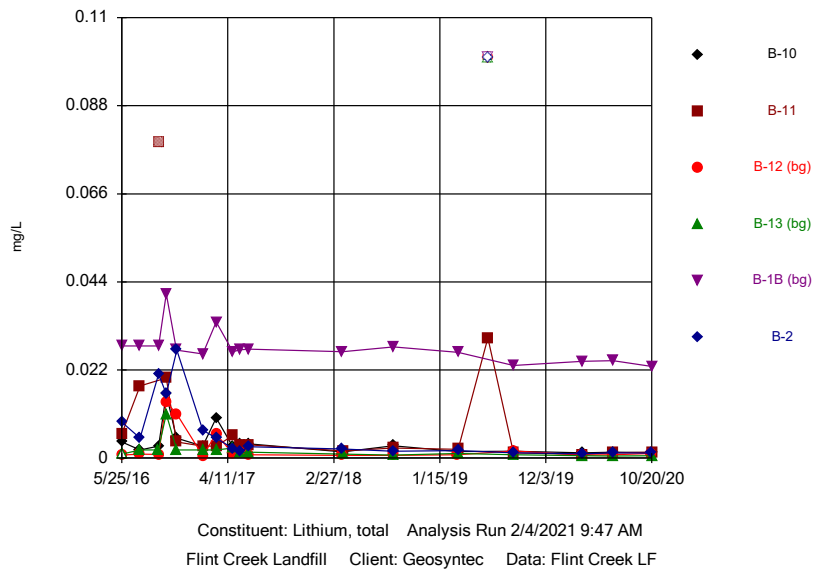
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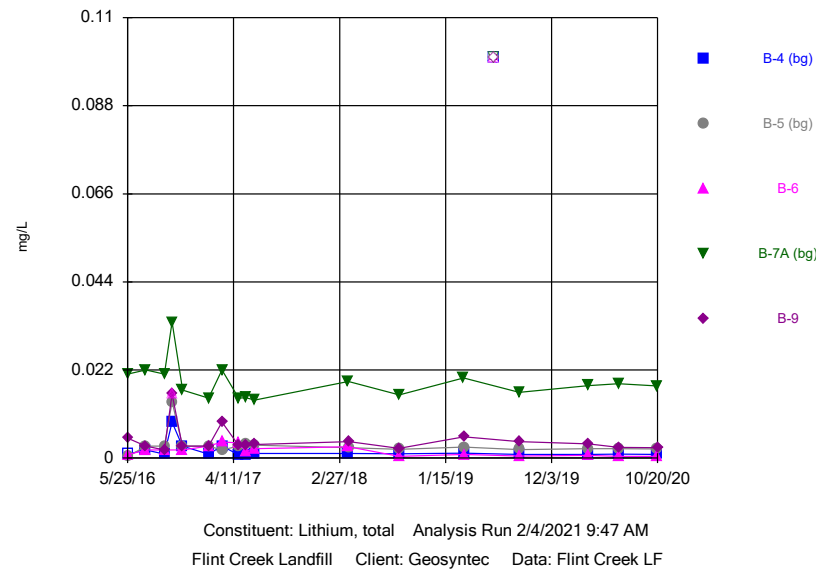
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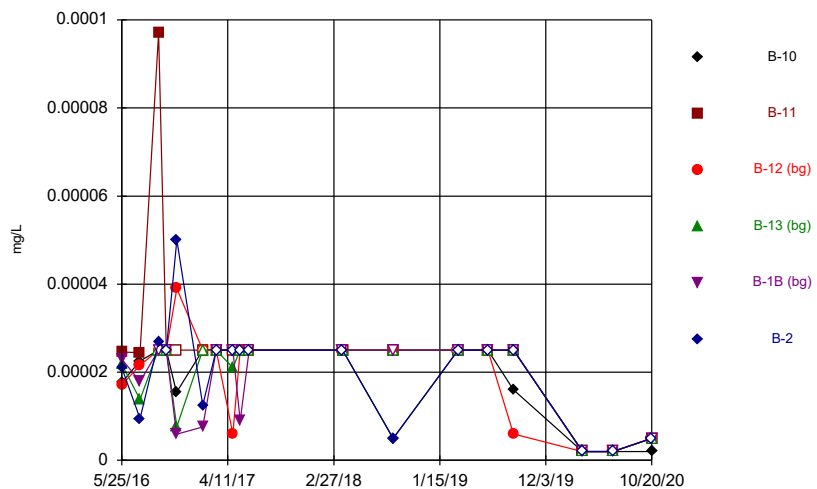
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Time Series

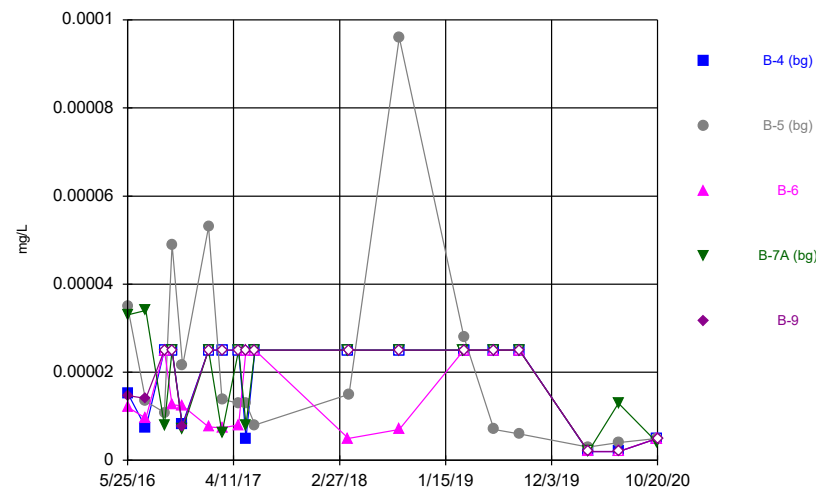


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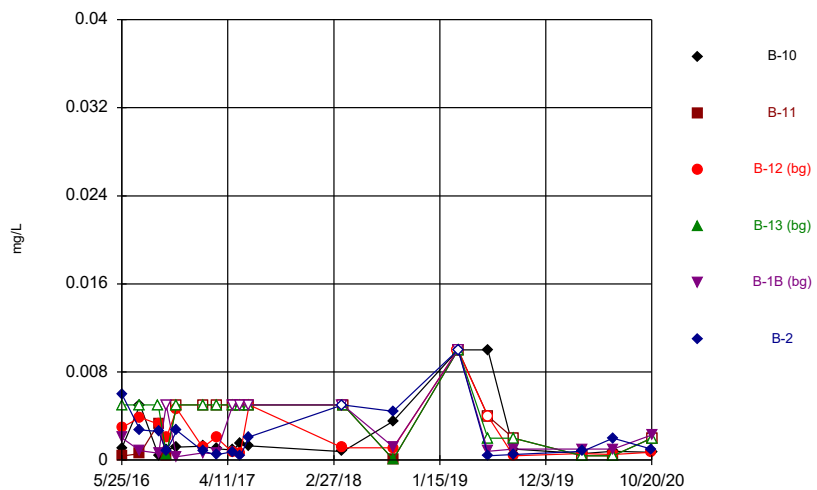
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



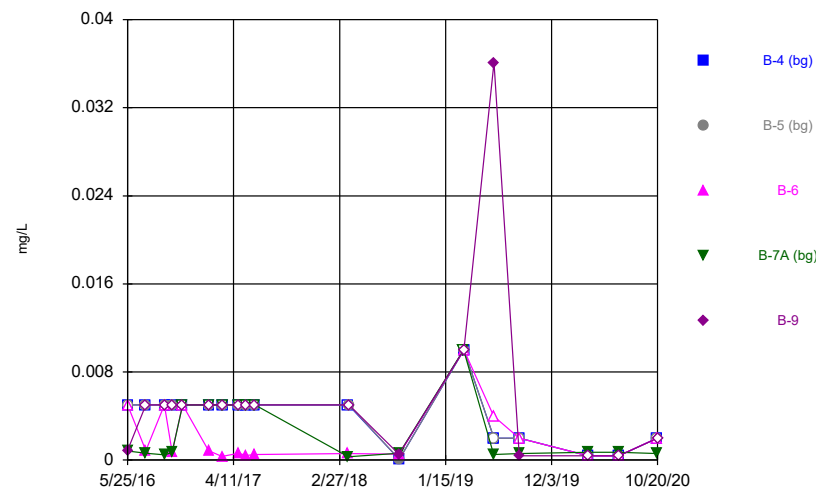
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Time Series



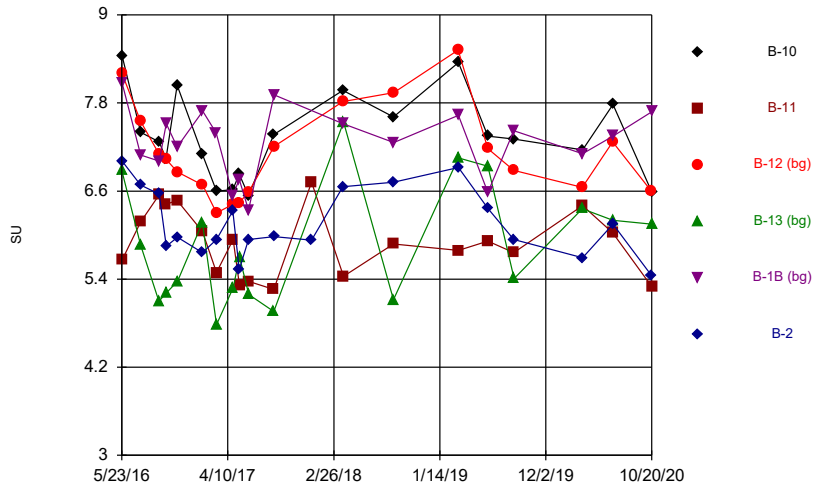
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Time Series



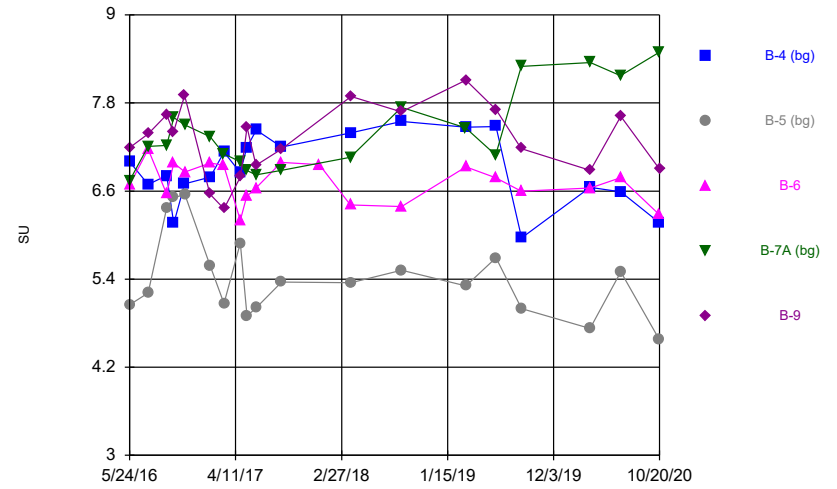
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



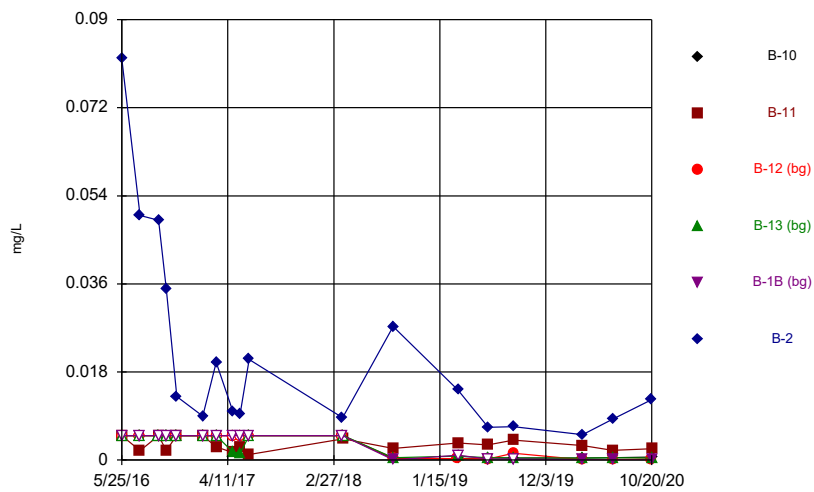
Constituent: pH, field Analysis Run 2/4/2021 9:47 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



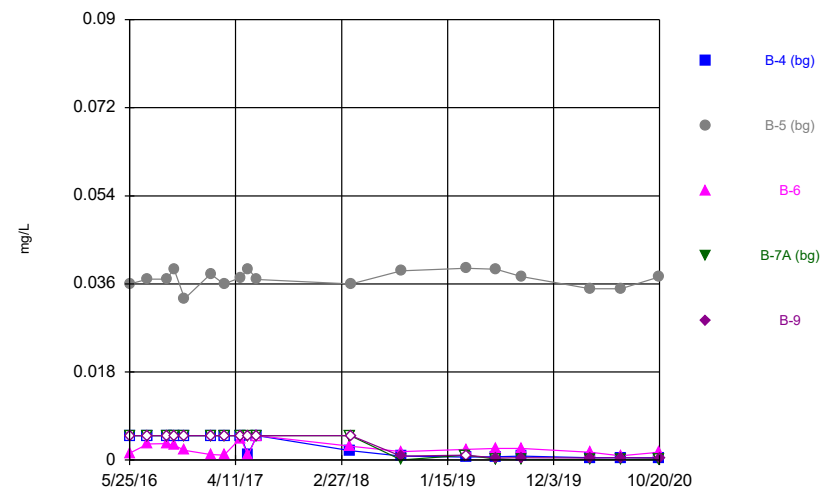
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



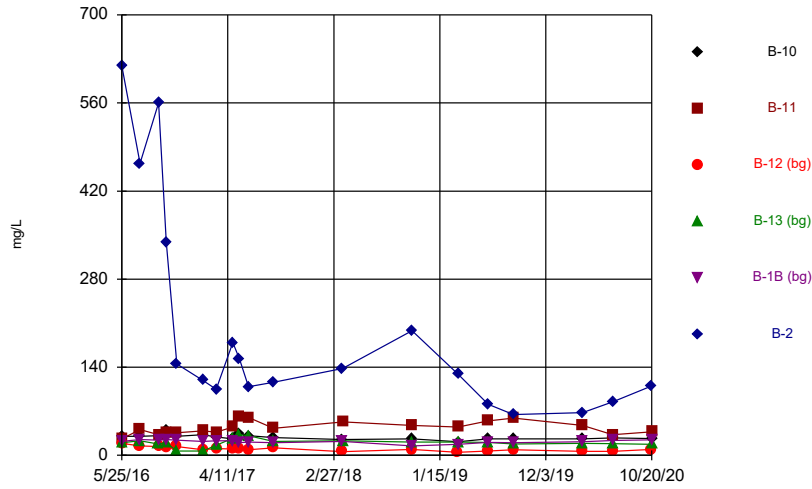
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



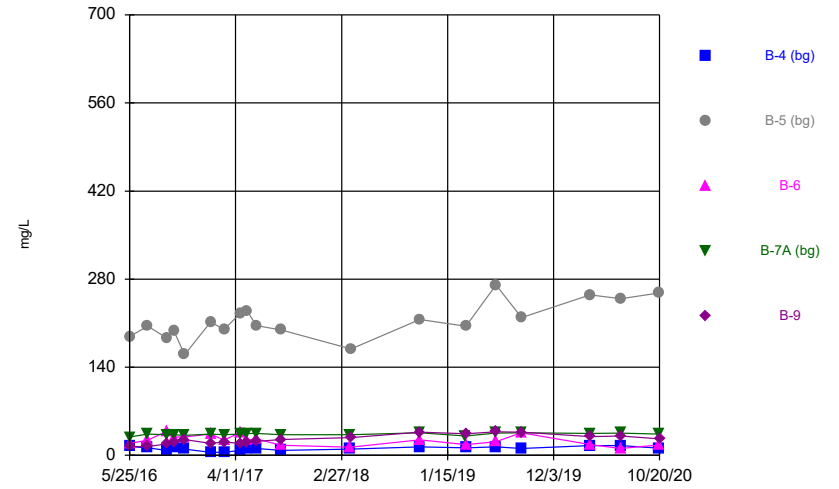
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Time Series



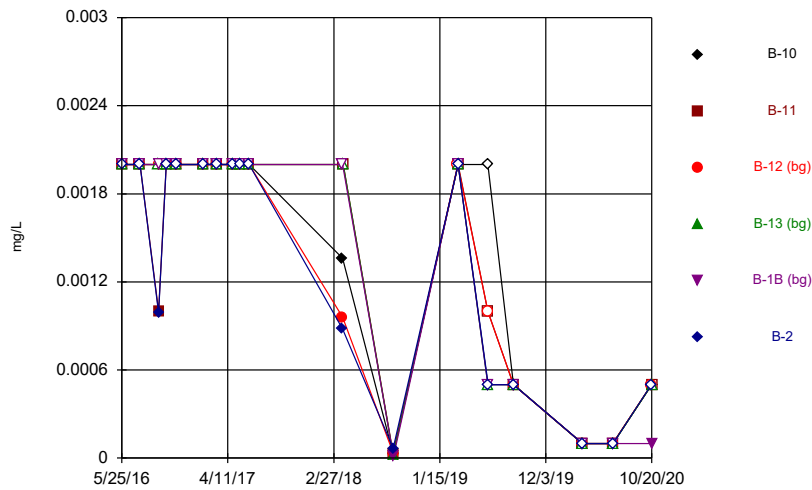
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



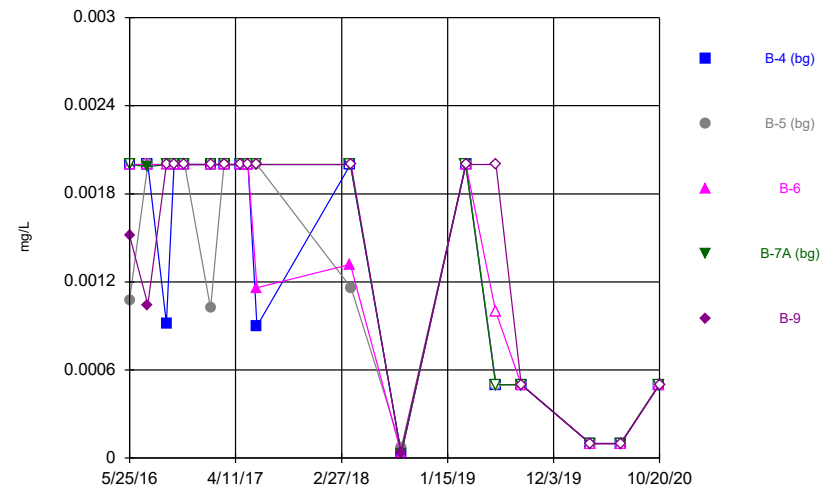
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



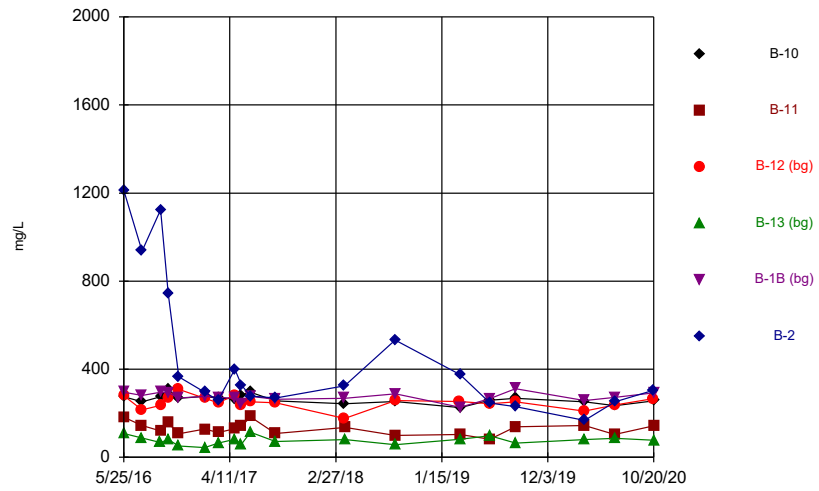
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Time Series



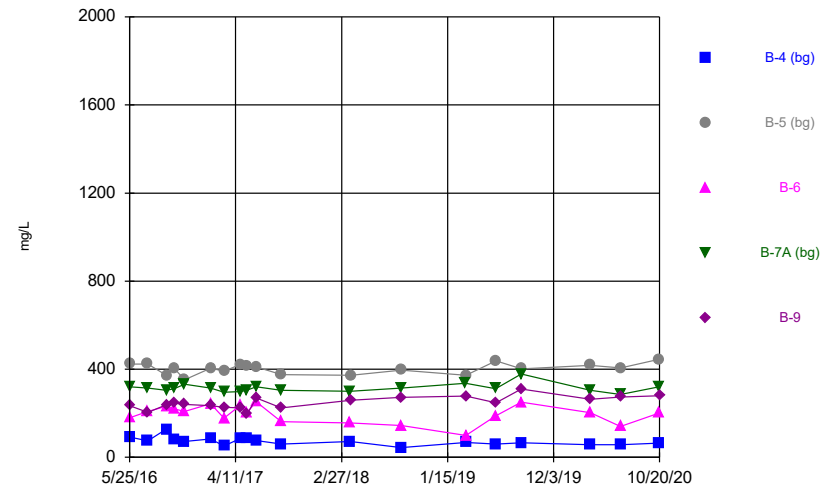
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



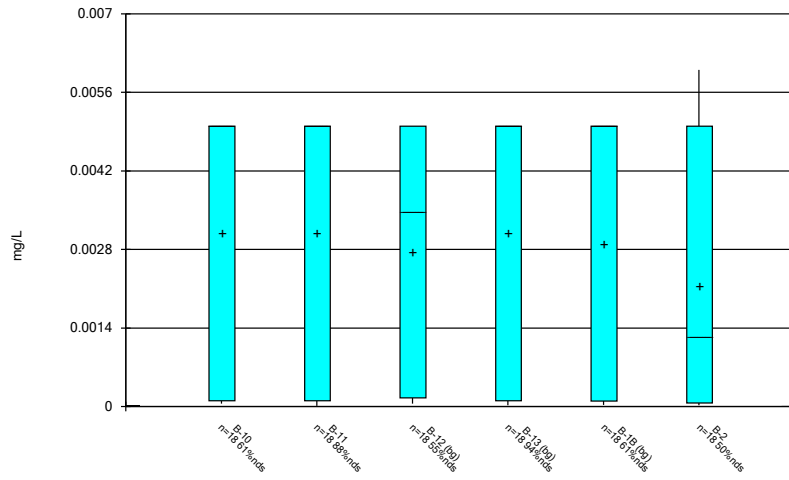
Constituent: Total Dissolved Solids [TDS] Analysis Run 2/4/2021 9:47 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Time Series



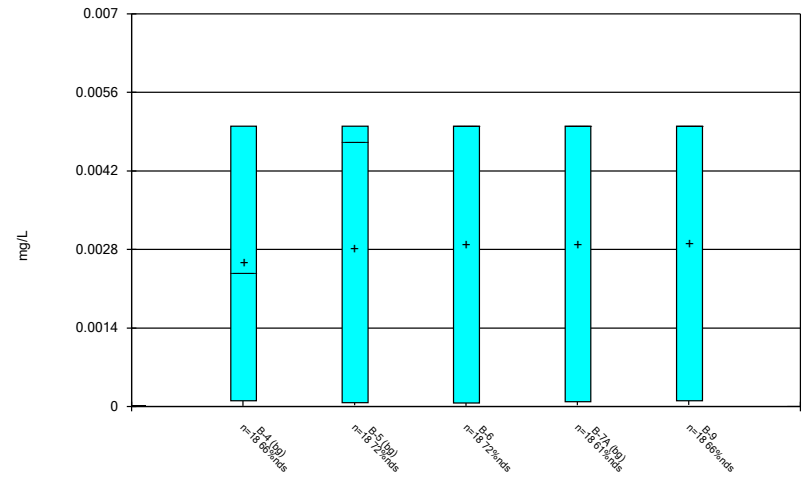
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



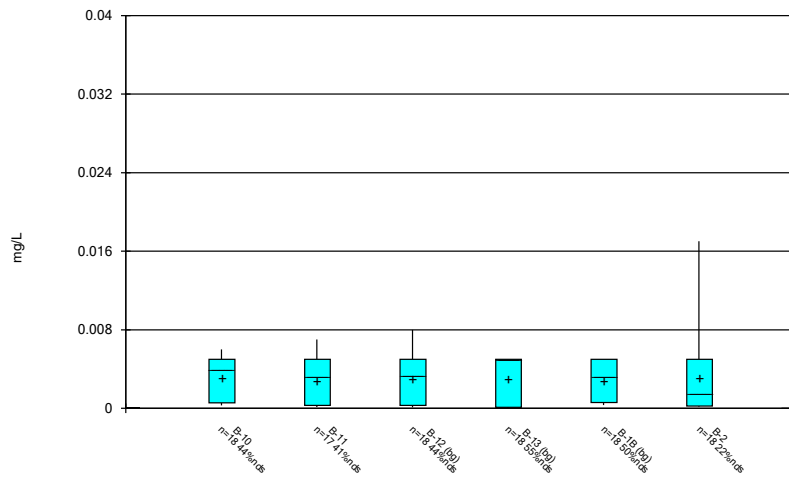
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



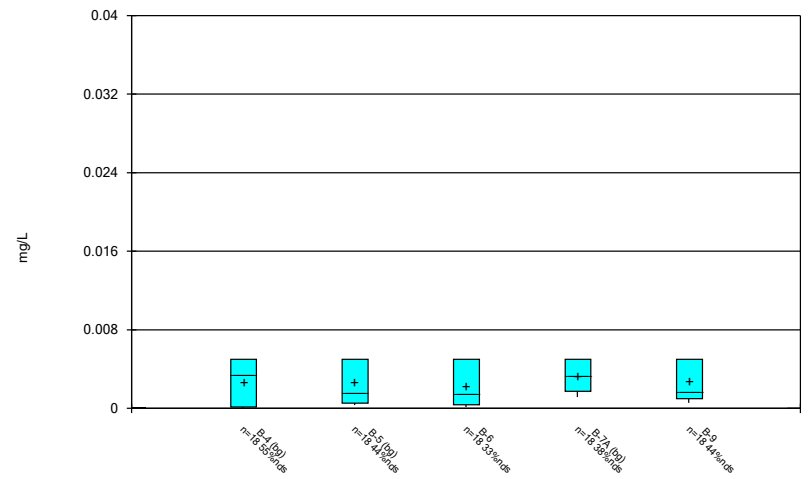
Constituent: Antimony, total Analysis Run 2/4/2021 9:48 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



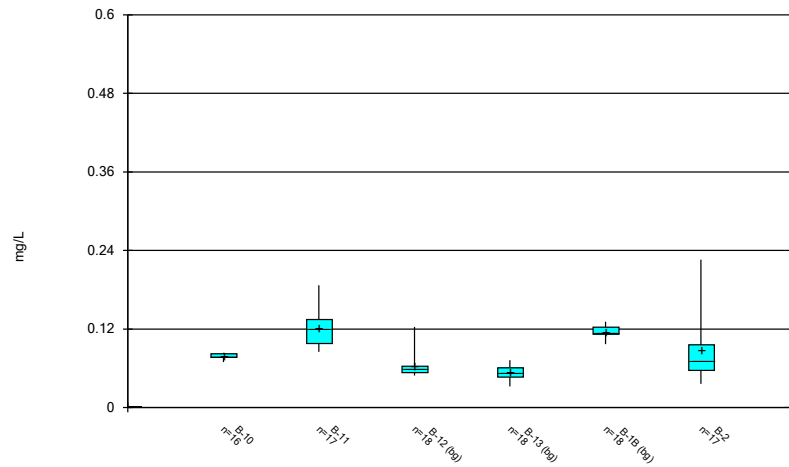
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



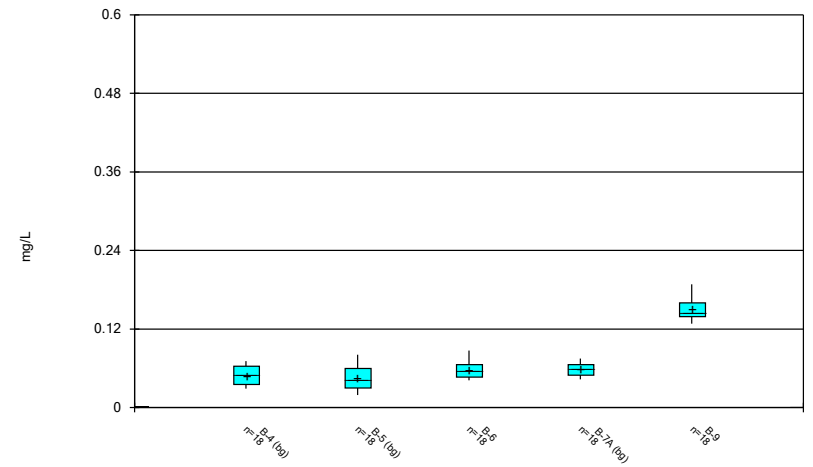
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



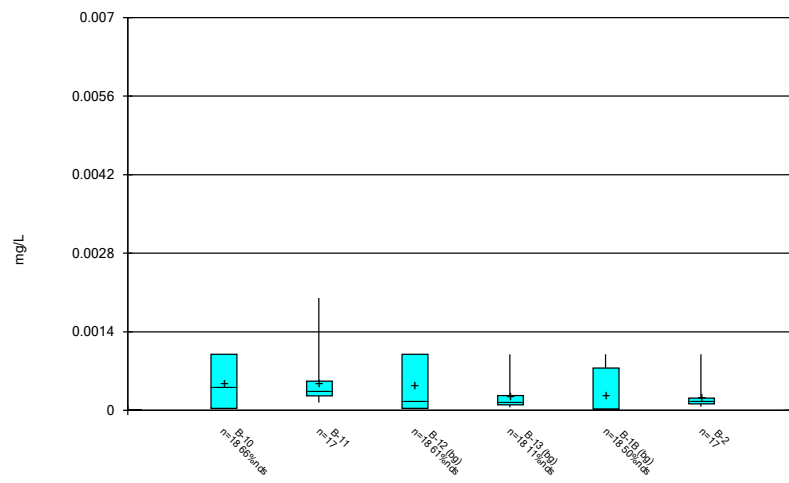
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Box & Whiskers Plot



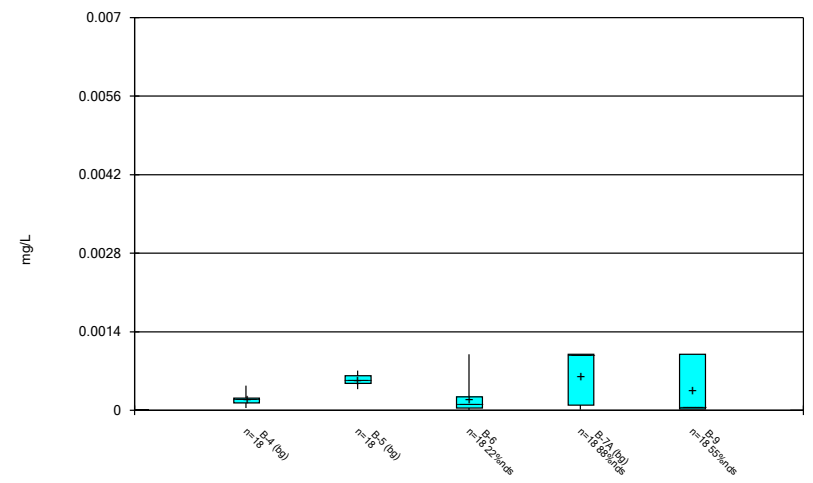
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



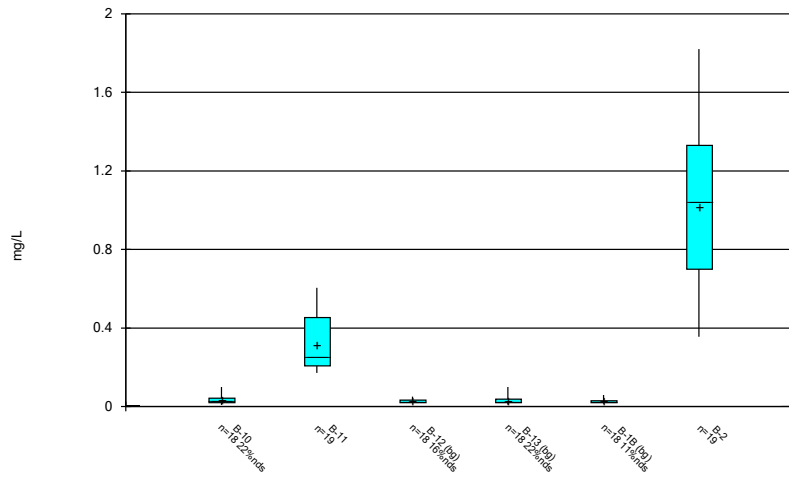
Constituent: Beryllium, total Analysis Run 2/4/2021 9:48 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



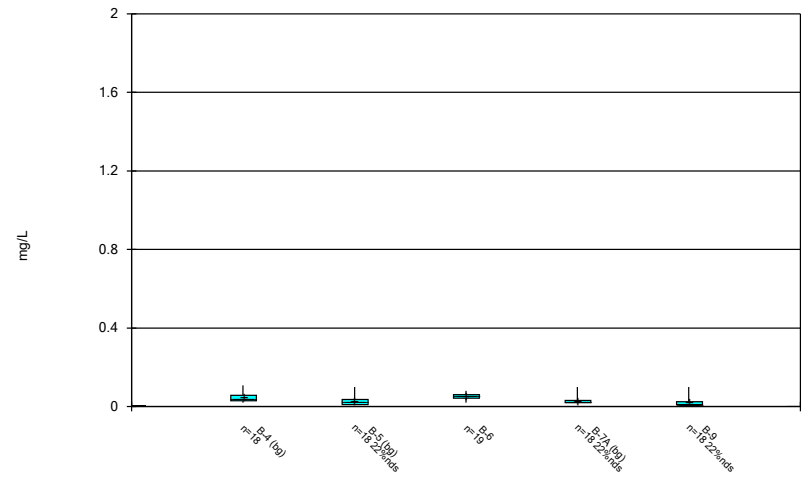
Constituent: Beryllium, total Analysis Run 2/4/2021 9:48 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



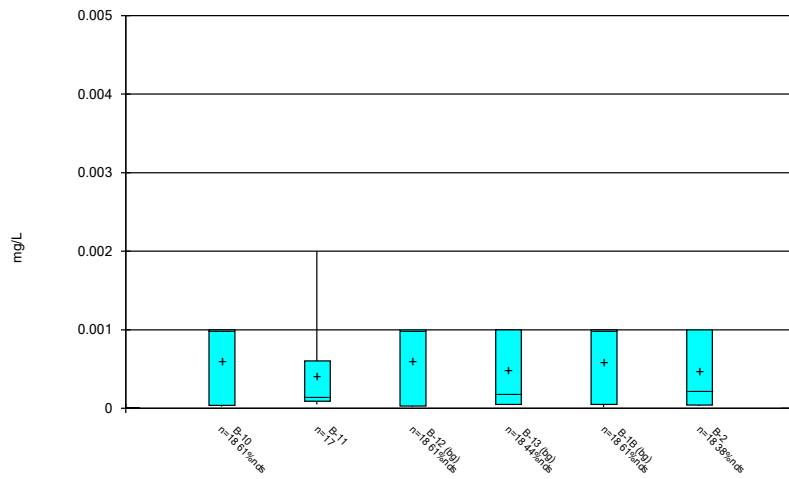
Constituent: Boron, total Analysis Run 2/4/2021 9:48 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



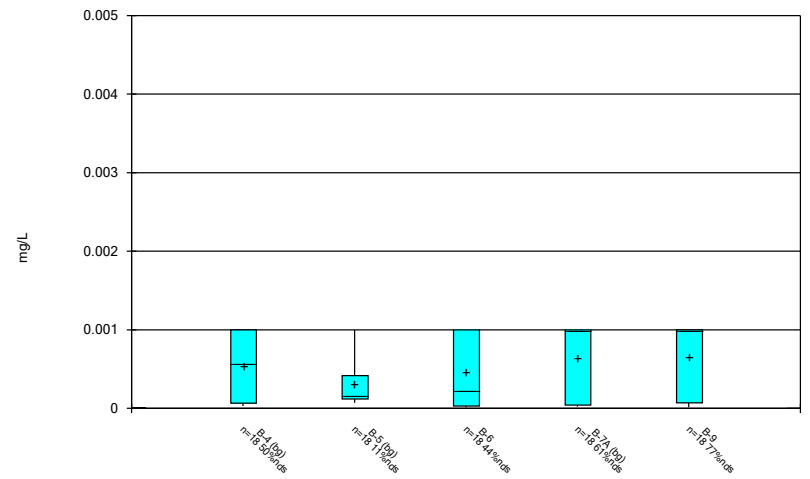
Constituent: Boron, total Analysis Run 2/4/2021 9:48 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



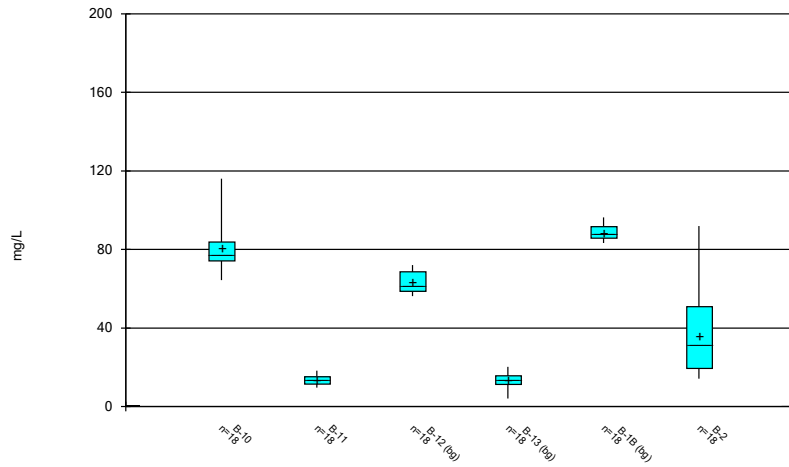
Constituent: Cadmium, total Analysis Run 2/4/2021 9:48 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



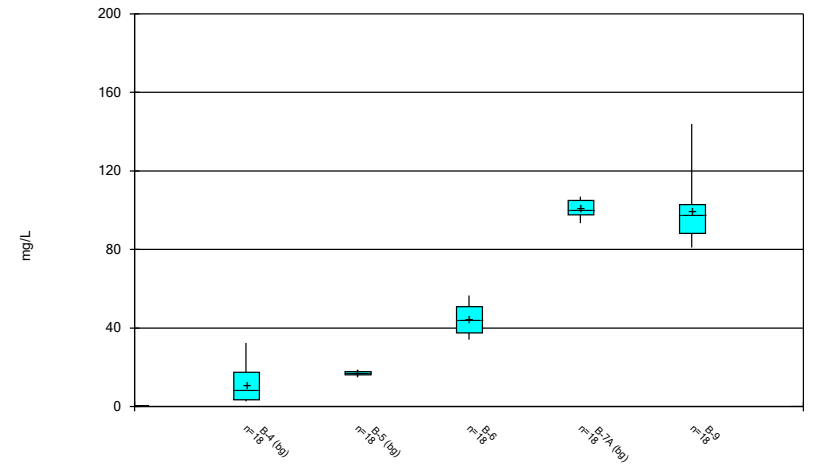
Constituent: Cadmium, total Analysis Run 2/4/2021 9:48 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



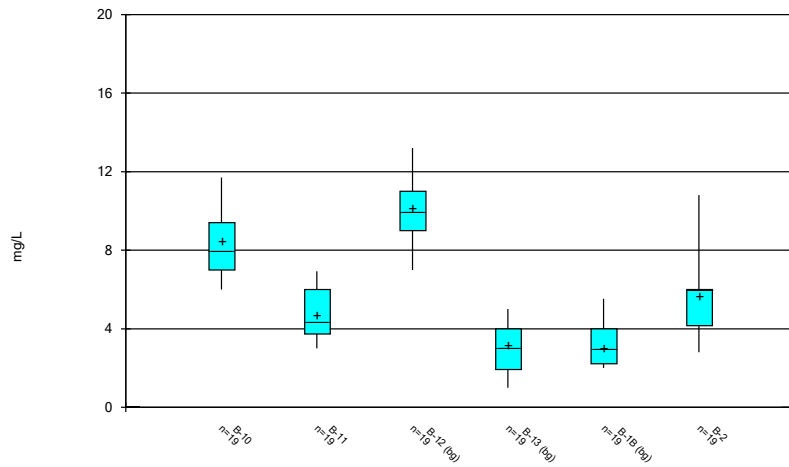
Constituent: Calcium, total Analysis Run 2/4/2021 9:48 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



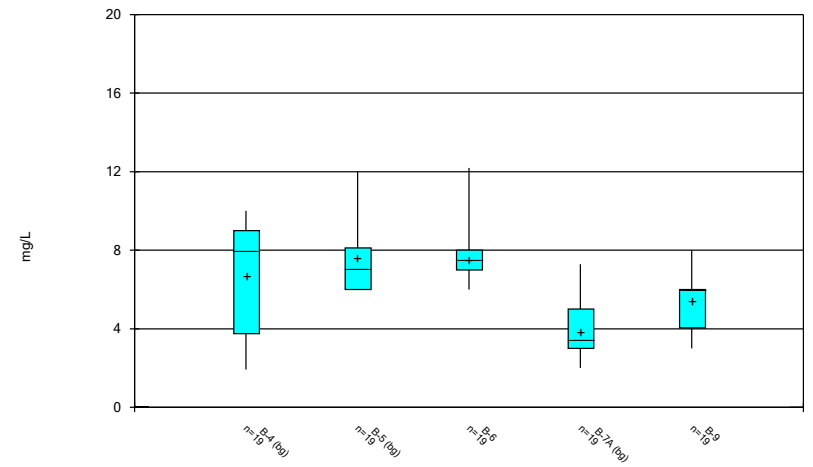
Constituent: Calcium, total Analysis Run 2/4/2021 9:48 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



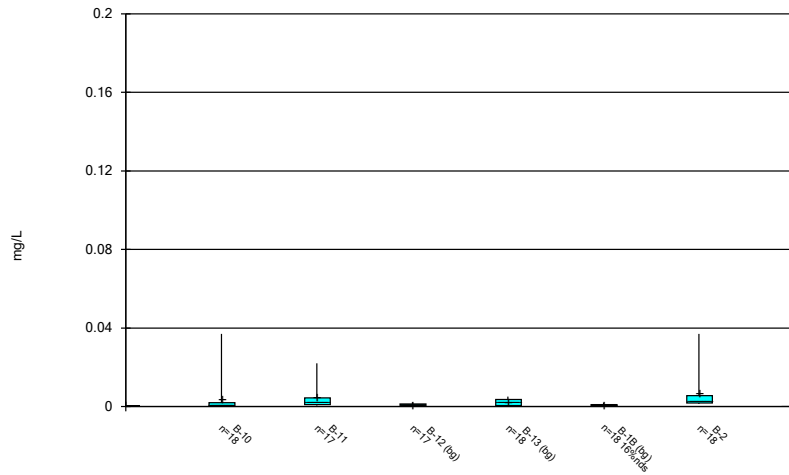
Constituent: Chloride, total Analysis Run 2/4/2021 9:48 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



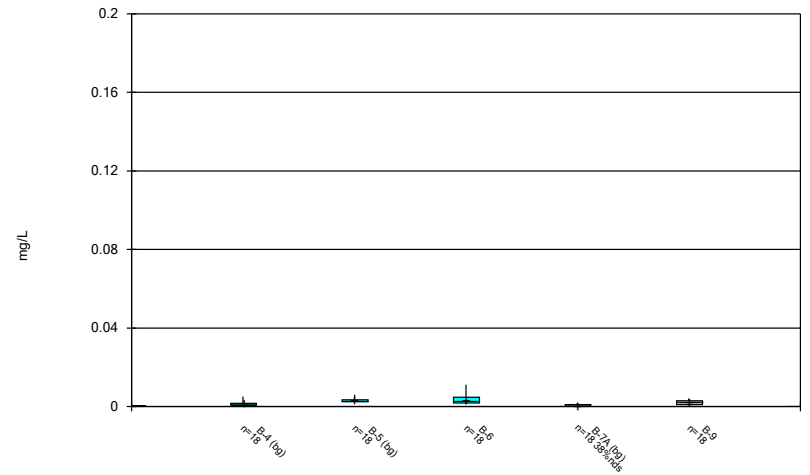
Constituent: Chloride, total Analysis Run 2/4/2021 9:48 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



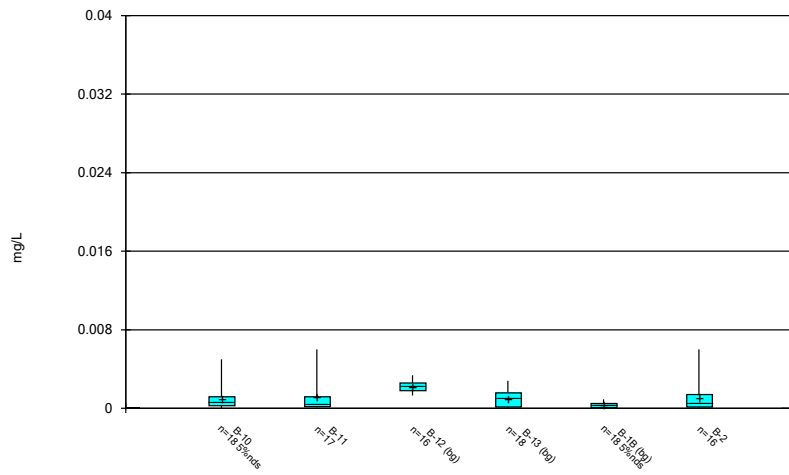
Constituent: Chromium, total Analysis Run 2/4/2021 9:48 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



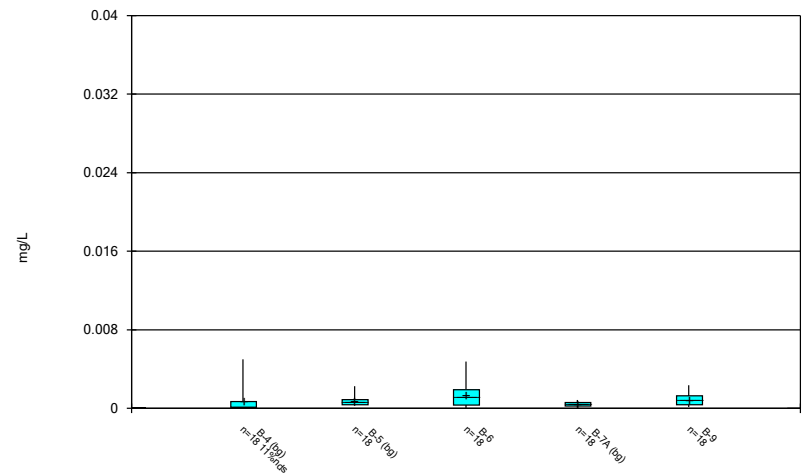
Constituent: Chromium, total Analysis Run 2/4/2021 9:49 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



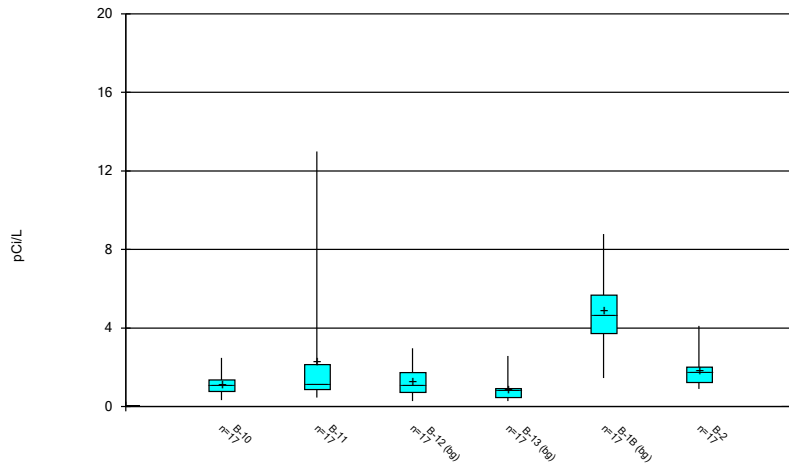
Constituent: Cobalt, total Analysis Run 2/4/2021 9:49 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



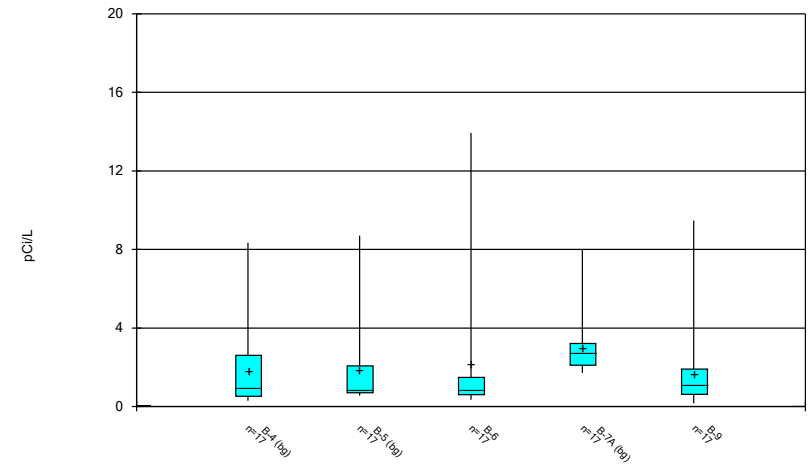
Constituent: Cobalt, total Analysis Run 2/4/2021 9:49 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



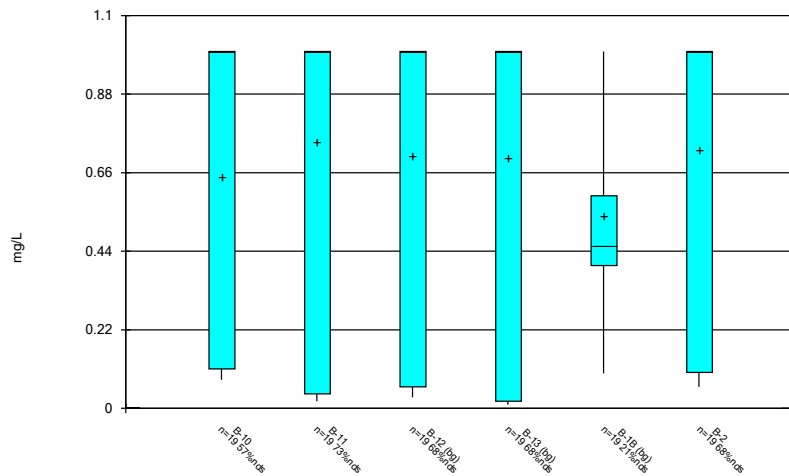
Constituent: Combined Radium 226 + 228 Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



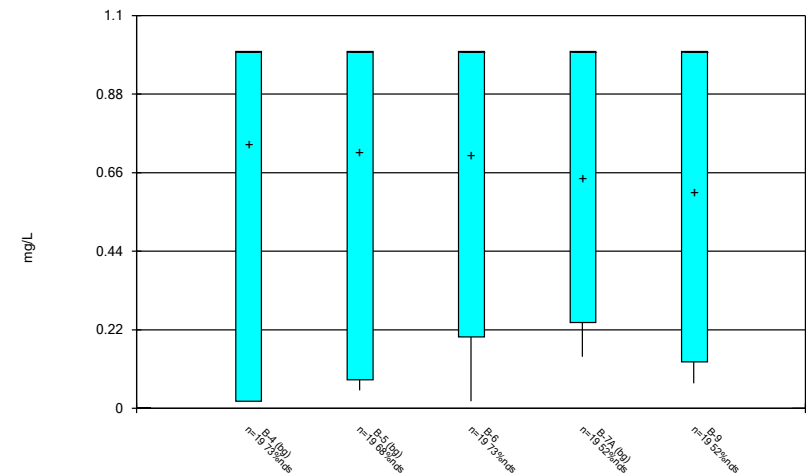
Constituent: Combined Radium 226 + 228 Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



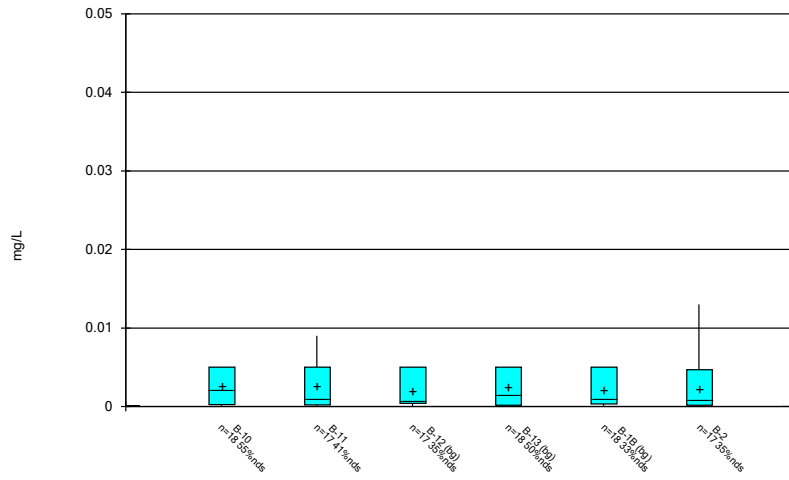
Constituent: Fluoride, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



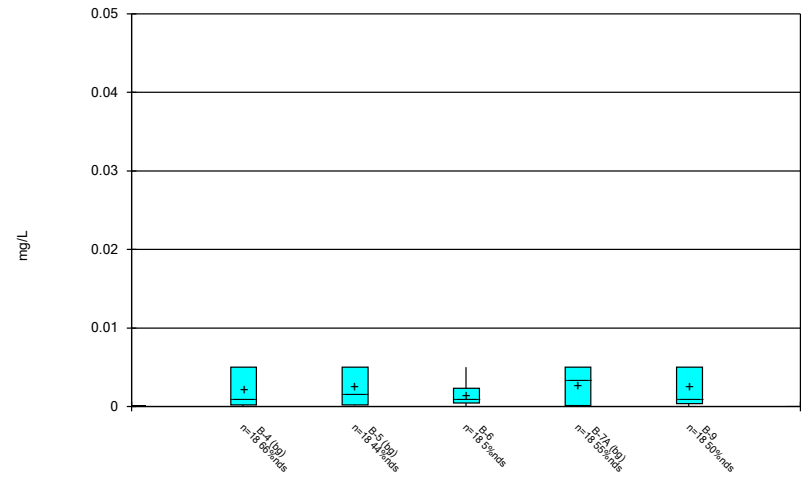
Constituent: Fluoride, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



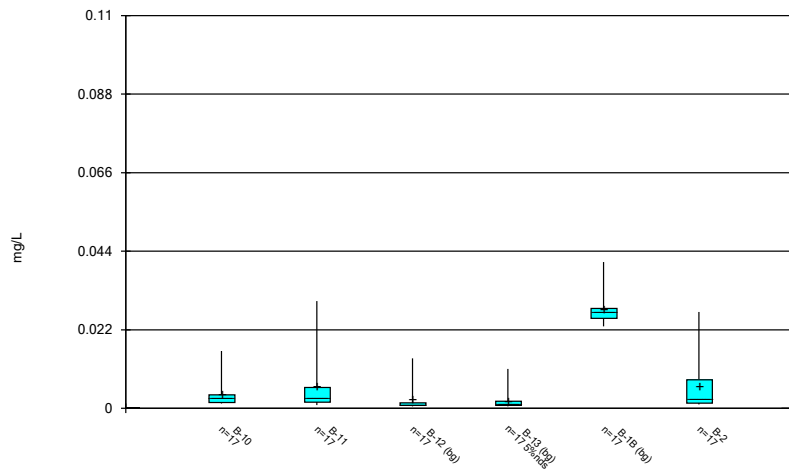
Constituent: Lead, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



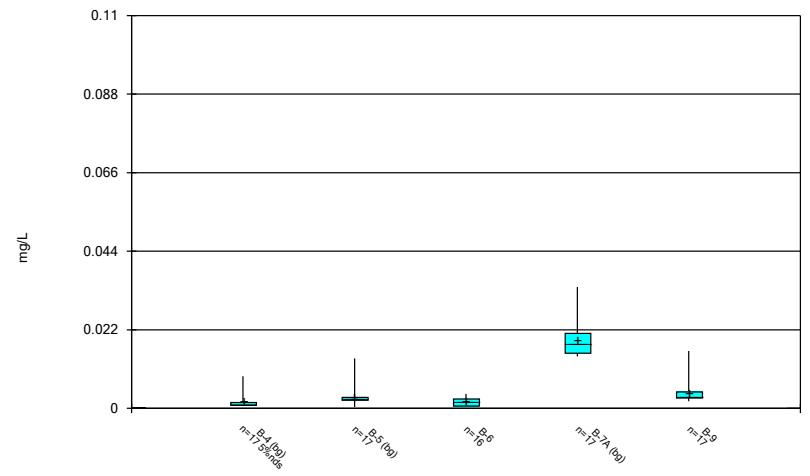
Constituent: Lead, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



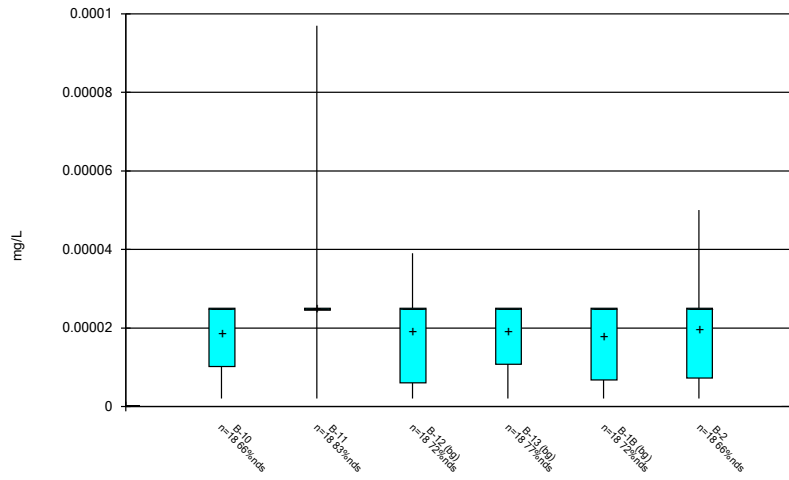
Constituent: Lithium, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



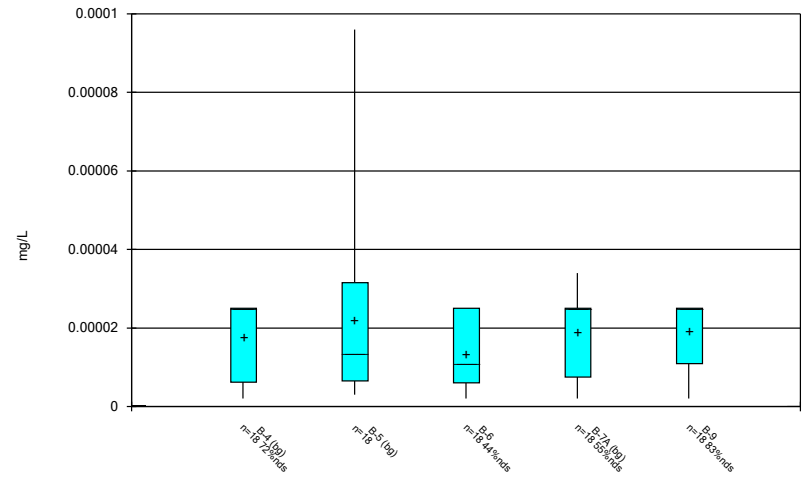
Constituent: Lithium, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



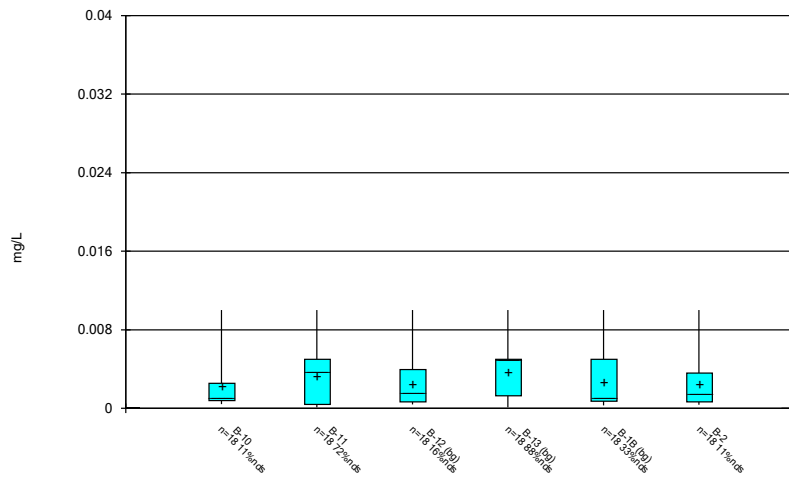
Constituent: Mercury, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



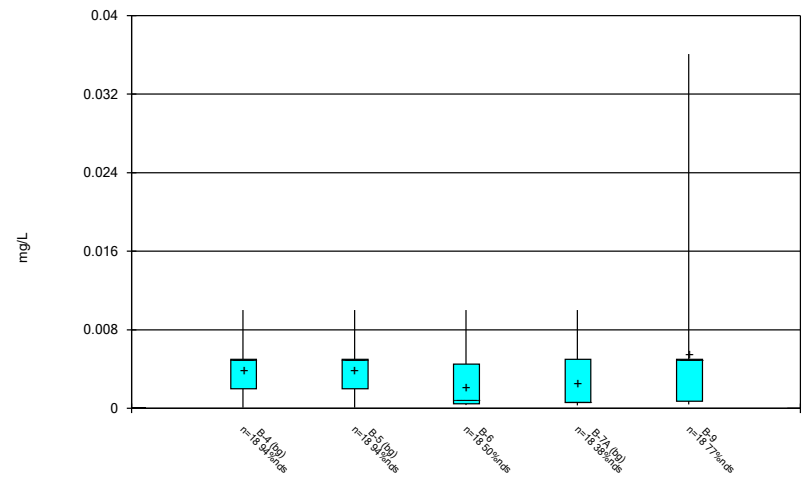
Constituent: Mercury, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



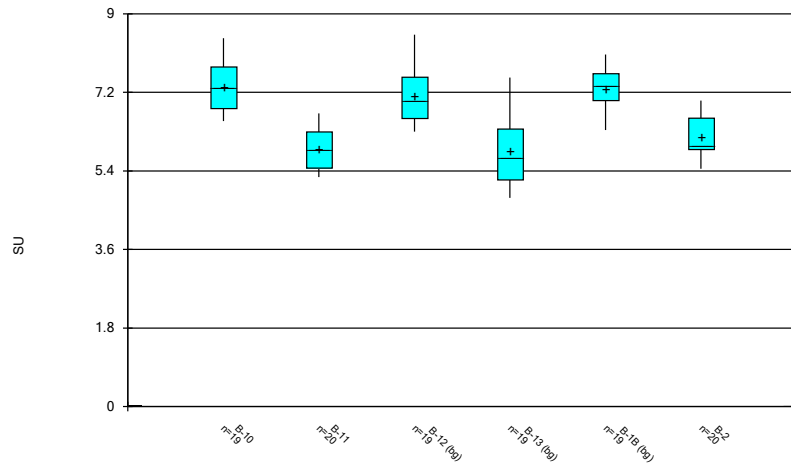
Constituent: Molybdenum, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



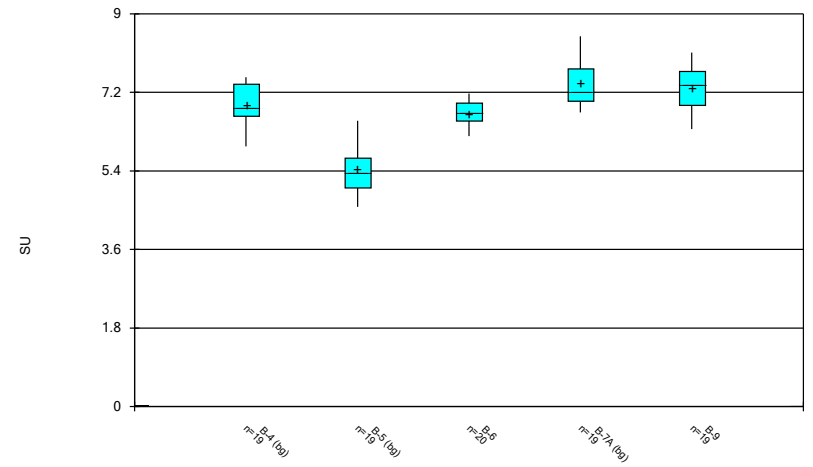
Constituent: Molybdenum, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



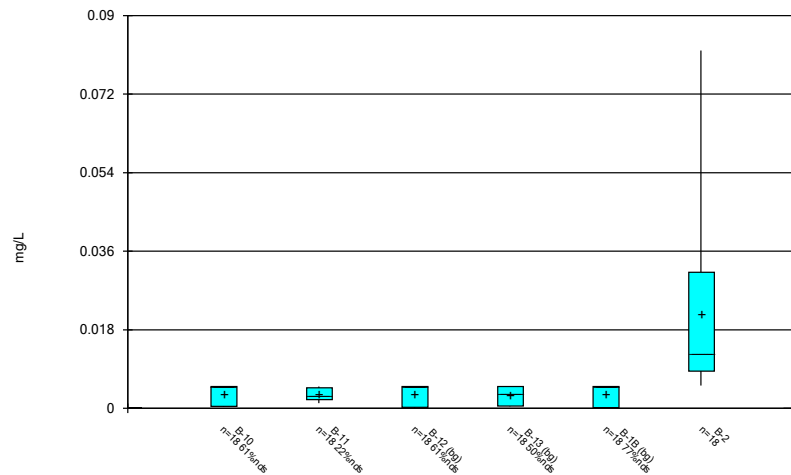
Constituent: pH, field Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



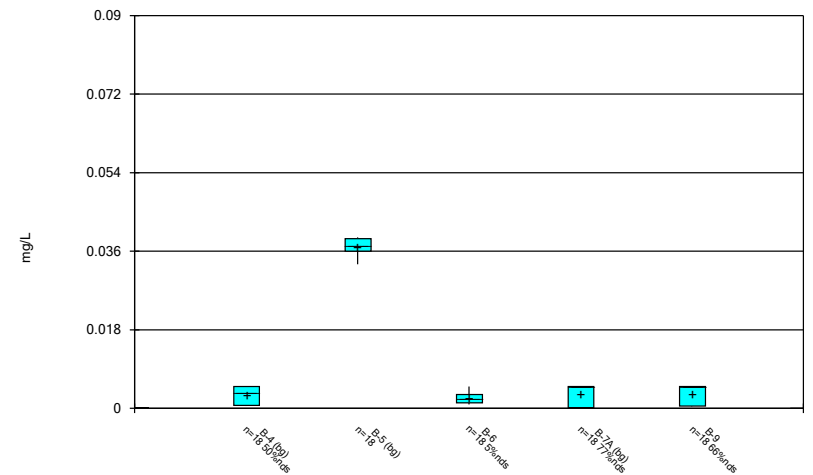
Constituent: pH, field Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



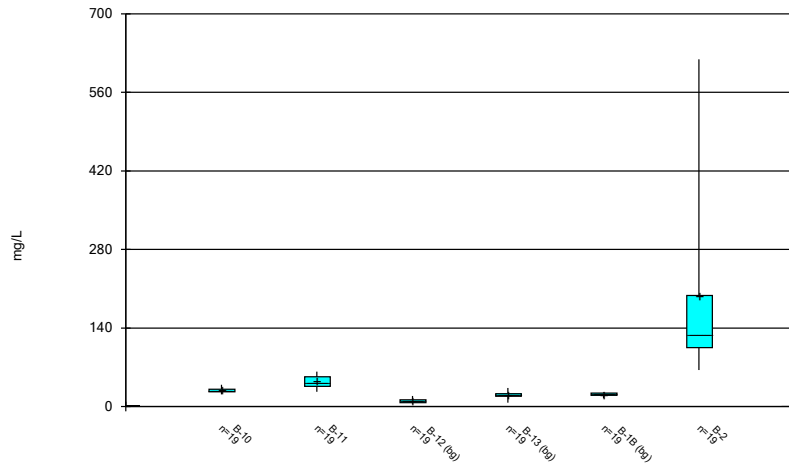
Constituent: Selenium, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



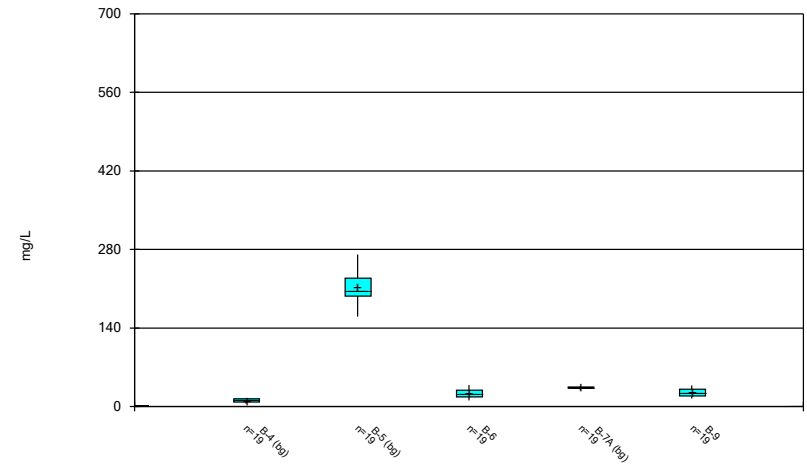
Constituent: Selenium, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



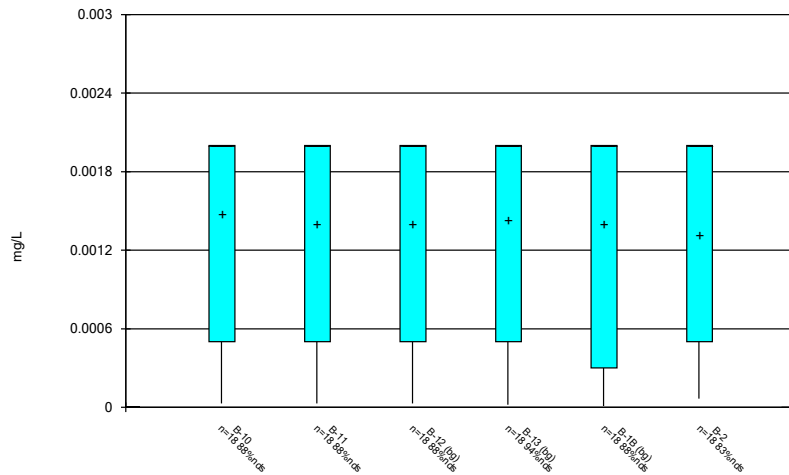
Constituent: Sulfate, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



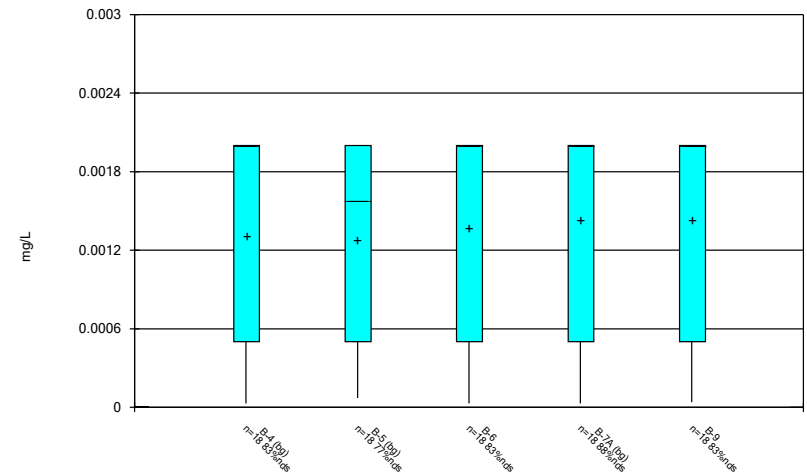
Constituent: Sulfate, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



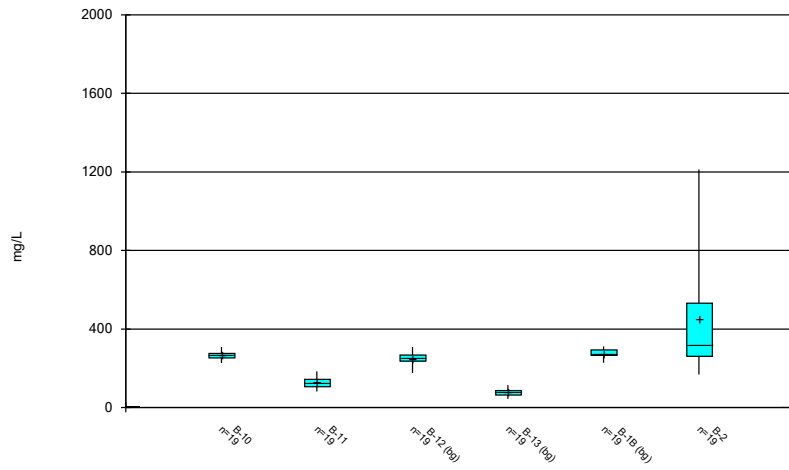
Constituent: Thallium, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



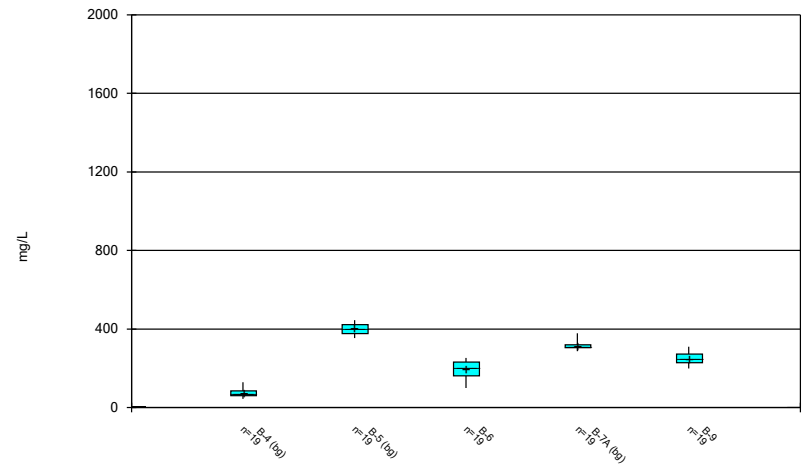
Constituent: Thallium, total Analysis Run 2/4/2021 9:49 AM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 2/4/2021 9:49 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 2/4/2021 9:49 AM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Outlier Summary

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/4/2021, 9:50 AM

	B-11 Arsenic, total (mg/L)	B-10 Barium, total (mg/L)	B-11 Barium, total (mg/L)	B-2 Barium, total (mg/L)	B-11 Beryllium, total (mg/L)	B-2 Beryllium, total (mg/L)	B-11 Cadmium, total (mg/L)	B-11 Chromium, total (mg/L)	B-12 Chromium, total (mg/L)	B-11 Cobalt, total (mg/L)
9/14/2016	0.032 (o)	0.102 (o)	0.494 (o)		0.006 (o)		0.004 (o)	0.108 (o)		0.025 (o)
10/7/2016										
11/7/2016		0.103 (o)								
11/8/2016				0.543 (o)		0.003 (o)			0.022 (o)	
6/10/2019										
6/11/2019										
8/27/2019										

	B-12 Cobalt, total (mg/L)	B-2 Cobalt, total (mg/L)	B-11 Lead, total (mg/L)	B-12 Lead, total (mg/L)	B-2 Lead, total (mg/L)	B-10 Lithium, total (mg/L)	B-11 Lithium, total (mg/L)	B-12 Lithium, total (mg/L)	B-13 Lithium, total (mg/L)	B-1B Lithium, total (mg/L)
9/14/2016		0.015 (o)	0.049 (o)				0.079 (o)			
10/7/2016										
11/7/2016										
11/8/2016	0.023 (o)	0.031 (o)		0.015 (o)	0.026 (o)					
6/10/2019						<0.1 (o)		<0.1 (o)	<0.1 (o)	<0.1 (o)
6/11/2019										
8/27/2019	0.0112 (o)									

	B-2 Lithium, total (mg/L)	B-4 Lithium, total (mg/L)	B-5 Lithium, total (mg/L)	B-6 Lithium, total (mg/L)	B-7A Lithium, total (mg/L)	B-9 Lithium, total (mg/L)
9/14/2016						
10/7/2016				0.016 (o)		
11/7/2016						
11/8/2016						
6/10/2019				<0.1 (o)	<0.1 (o)	
6/11/2019	<0.1 (o)	<0.1 (o)	<0.1 (o)			<0.1 (o)
8/27/2019						

Tukey's Outlier Test - Upgradient Wells - Significant Results

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/2/2021, 12:18 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Barium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.123,0.123,0.123,0.112,0.112,0.112,0.112,0.112,0	NP	NaN	108	0.06368	0.02711	x^6	ChiSquared
Boron, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.05,0.05,0.05,0.05,0.05,0.1,0.1,0.0579,0.0588,0.	NP	NaN	108	0.03033	0.01935	x^6	ChiSquared
Chromium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.022,0.004,0.004,0.005,0.005,0.00405,0.006,0.003	NP	NaN	108	0.001703	0.002358	x^4	ChiSquared
Cobalt, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.003362,0.002846,0.002534,0.002315,0.023,0.00251	NP	NaN	108	0.001165	0.002513	x^3	ChiSquared
Combined Radium 226 + 228 (pCi/L)	B-12,B-13,B-1B,B-...	Yes	8.375,8.79,4.63,5.15,4.49,6.51,5.96,4.73,5.38,4.5	NP	NaN	102	2.29	2.048	x^5	ChiSquared
Lithium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.1,0.1,0.041,0.034	NP	NaN	108	0.01437	0.02334	x^4	ChiSquared
Selenium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.036,0.036,0.036,0.037,0.037,0.039,0.039,0.033,0	NP	NaN	108	0.008723	0.01292	x^2	ChiSquared

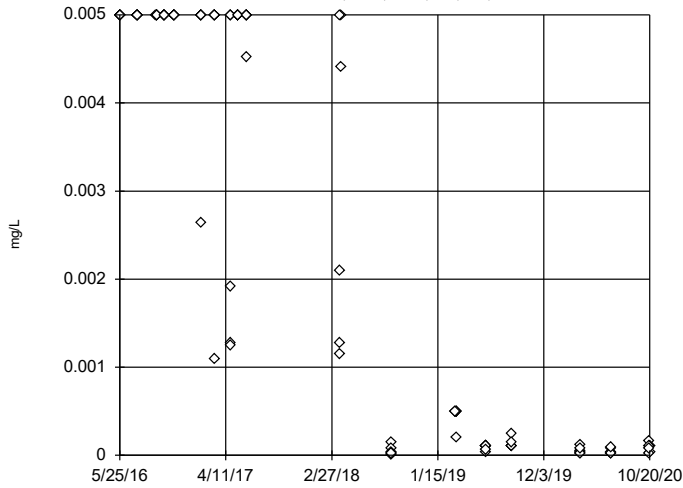
Tukey's Outlier Test - Upgradient Wells - All Results

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/2/2021, 12:18 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.002843	0.002351	unknown	ChiSquared
Arsenic, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.002915	0.002195	unknown	ChiSquared
Barium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.123,0.123,0.123,0.112,0.112,0.112,0.112,0.112,0	NP	NaN	108	0.06368	0.02711	x^6	ChiSquared
Beryllium, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.000389	0.0003659	unknown	ChiSquared
Boron, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.05,0.05,0.05,0.05,0.05,0.1,0.1,0.0579,0.0588,0.	NP	NaN	108	0.03033	0.01935	x^6	ChiSquared
Cadmium, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.0005274	0.0004551	unknown	ChiSquared
Chromium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.022,0.004,0.004,0.005,0.005,0.00405,0.006,0.003	NP	NaN	108	0.001703	0.002358	x^4	ChiSquared
Cobalt, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.003362,0.002846,0.002534,0.002315,0.023,0.00251	NP	NaN	108	0.001165	0.002513	x^3	ChiSquared
Combined Radium 226 + 228 (pCi/L)	B-12,B-13,B-1B,B-...	Yes	8.375,8.79,4.63,5.15,4.49,6.51,5.96,4.73,5.38,4.5	NP	NaN	102	2.29	2.048	x^5	ChiSquared
Fluoride, total (mg/L)	B-12,B-13,B-1B,B-...	No	n/a	NP	NaN	114	0.6741	0.4071	x^4	ChiSquared
Lead, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.002454	0.002506	unknown	ChiSquared
Lithium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.1,0.1,0.041,0.034	NP	NaN	108	0.01437	0.02334	x^4	ChiSquared
Mercury, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.0000192	0.00001293	unknown	ChiSquared
Molybdenum, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.003238	0.002579	unknown	ChiSquared
Selenium, total (mg/L)	B-12,B-13,B-1B,B-...	Yes	0.036,0.036,0.036,0.037,0.037,0.039,0.039,0.033,0	NP	NaN	108	0.008723	0.01292	x^2	ChiSquared
Thallium, total (mg/L)	B-12,B-13,B-1B,B-...	n/a	n/a	NP	NaN	108	0.001375	0.0008145	unknown	ChiSquared

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

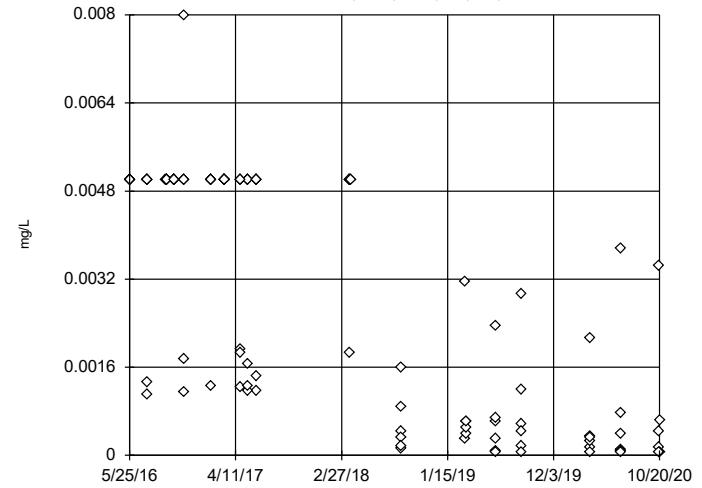


n = 108
 No outliers found. Tukey's method selected by user.
 Data were x⁵ transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Antimony, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

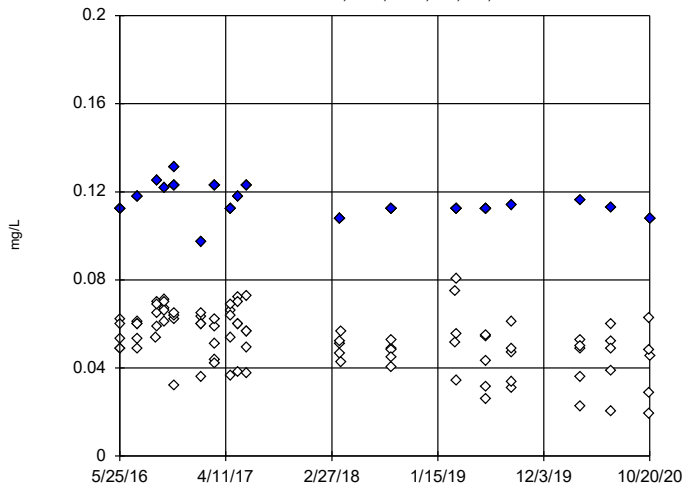


n = 108
 No outliers found. Tukey's method selected by user.
 Data were x⁶ transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Arsenic, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

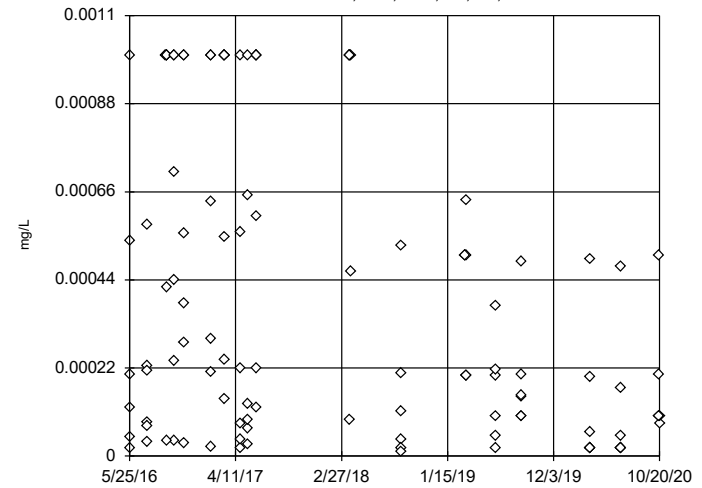


n = 108
 Outliers are drawn as solid. Tukey's method selected by user.
 Data were x⁶ transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.08627, low cutoff = -0.0812, based on IQR multiplier of 3.

Constituent: Barium, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

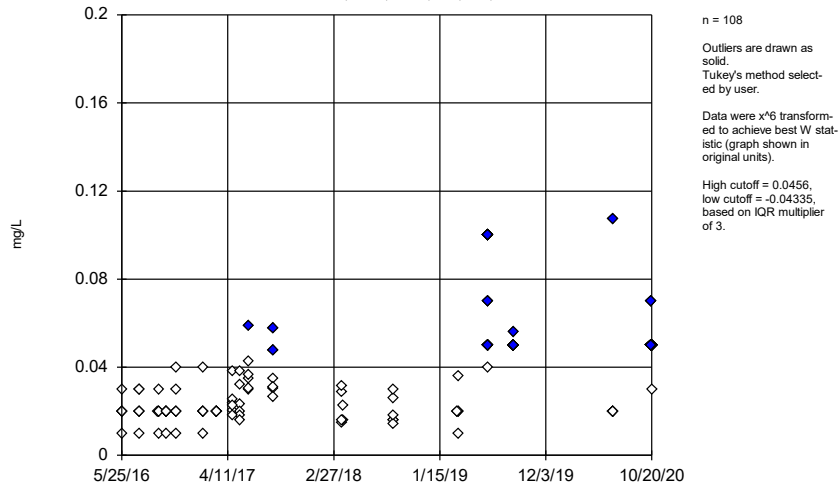


n = 108
 No outliers found. Tukey's method selected by user.
 Data were x⁶ transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Beryllium, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

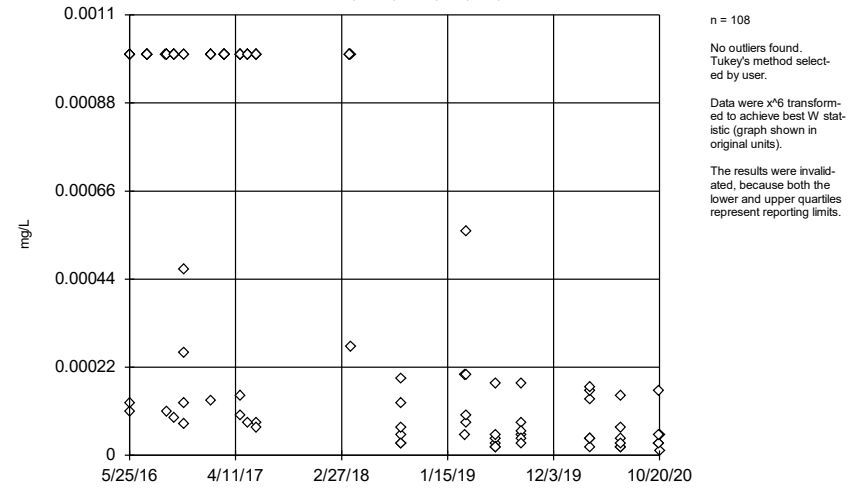
B-12,B-13,B-1B,B-4,B-5,B-7A



Constituent: Boron, total Analysis Run 2/2/2021 12:16 PM View: Outliers
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

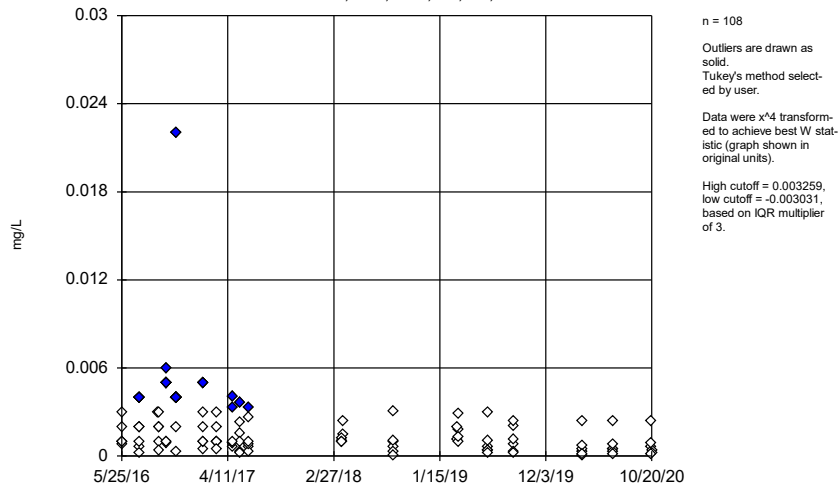
B-12,B-13,B-1B,B-4,B-5,B-7A



Constituent: Cadmium, total Analysis Run 2/2/2021 12:16 PM View: Outliers
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

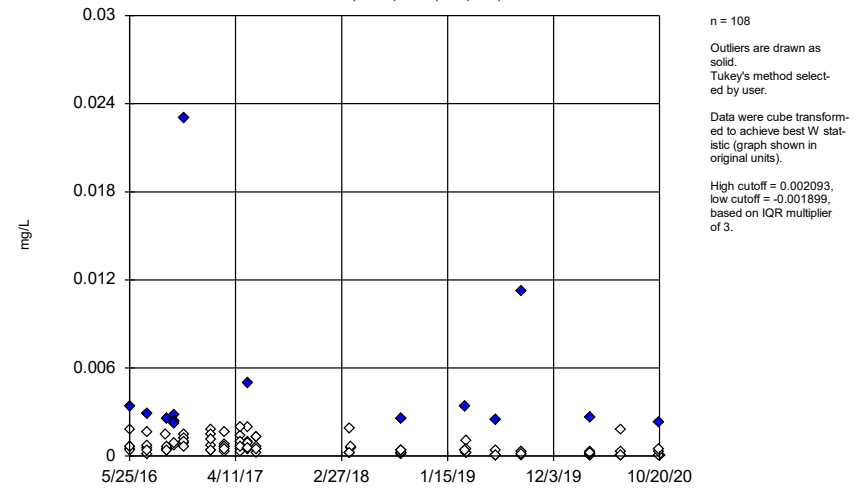
B-12,B-13,B-1B,B-4,B-5,B-7A



Constituent: Chromium, total Analysis Run 2/2/2021 12:16 PM View: Outliers
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

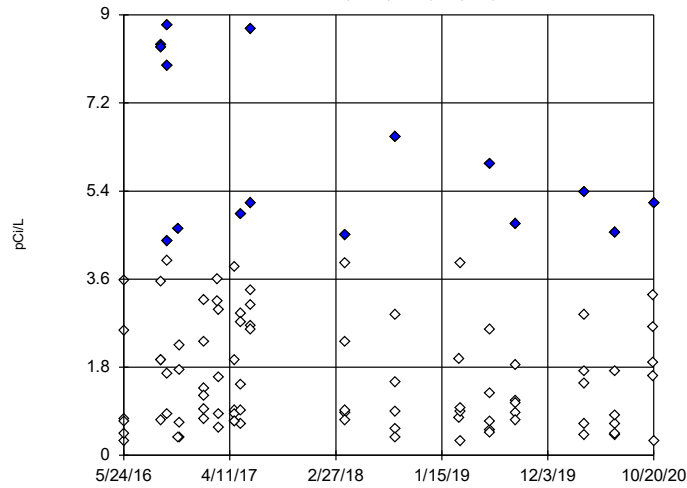
B-12,B-13,B-1B,B-4,B-5,B-7A



Constituent: Cobalt, total Analysis Run 2/2/2021 12:16 PM View: Outliers
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

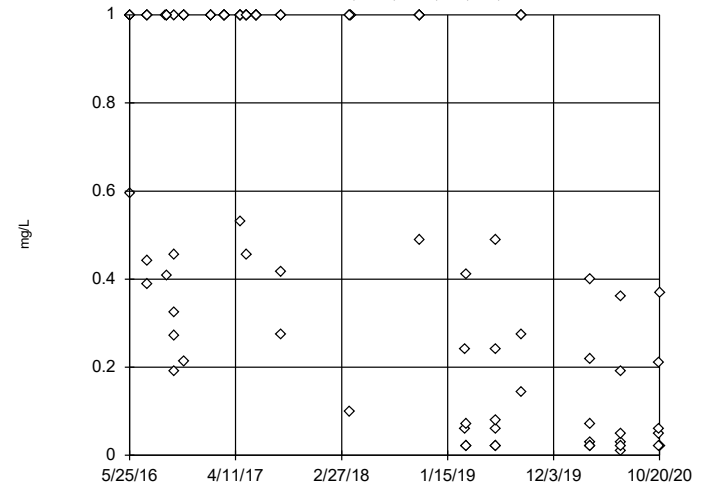


n = 102
 Outliers are drawn as solid. Tukey's method selected by user.
 Data were x⁵ transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 4.263, low cutoff = -4.025, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

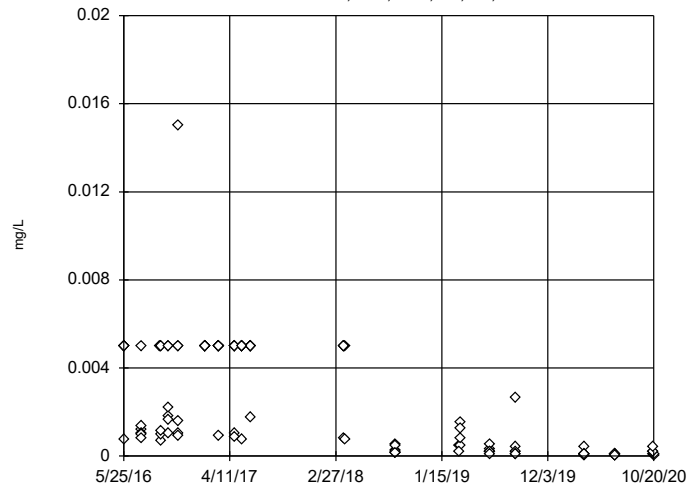


n = 114
 No outliers found. Tukey's method selected by user.
 Data were x⁴ transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 1.413, low cutoff = -1.315, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

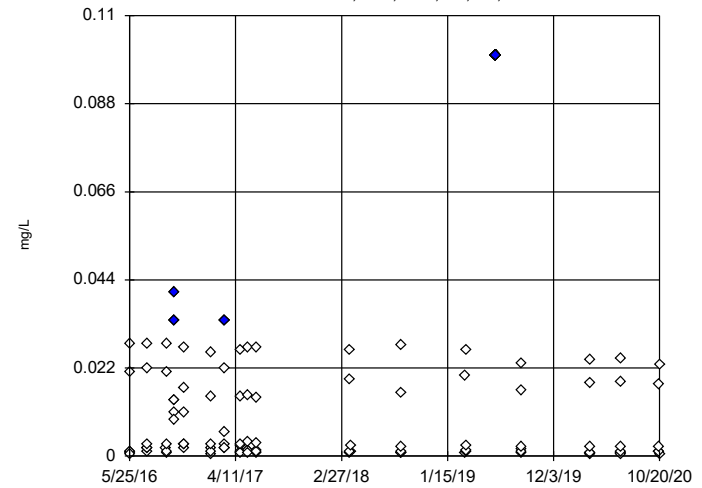


n = 108
 No outliers found. Tukey's method selected by user.
 Data were x⁴ transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Lead, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

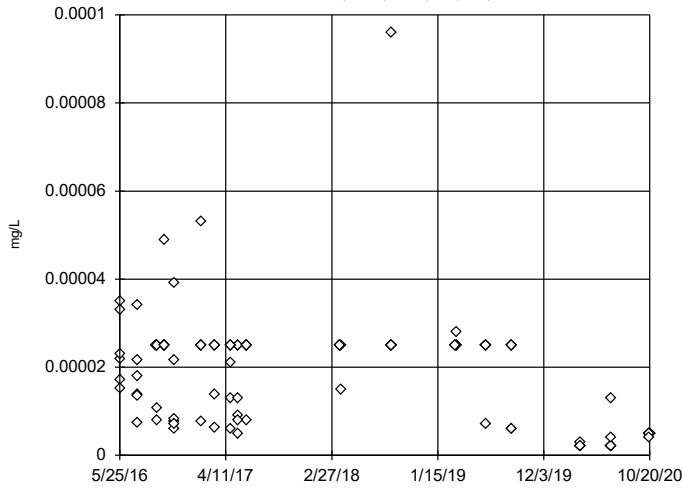


n = 108
 Outliers are drawn as solid. Tukey's method selected by user.
 Data were x⁴ transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.0297, low cutoff = -0.02764, based on IQR multiplier of 3.

Constituent: Lithium, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

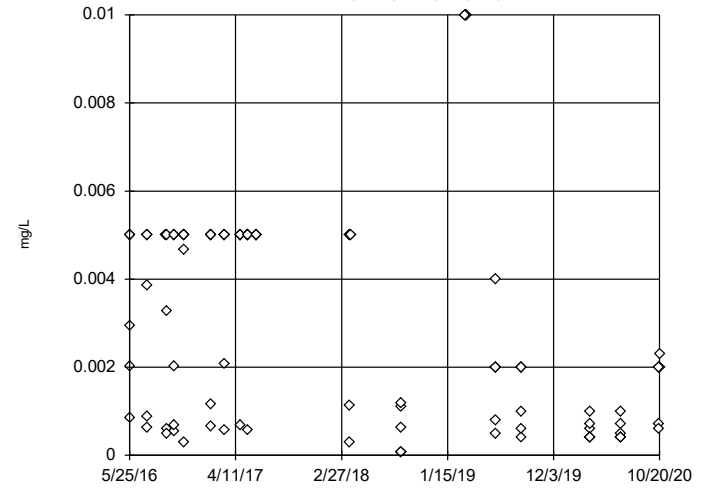


n = 108
 No outliers found.
 Tukey's method selected by user.
 Data were x*6 transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Mercury, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

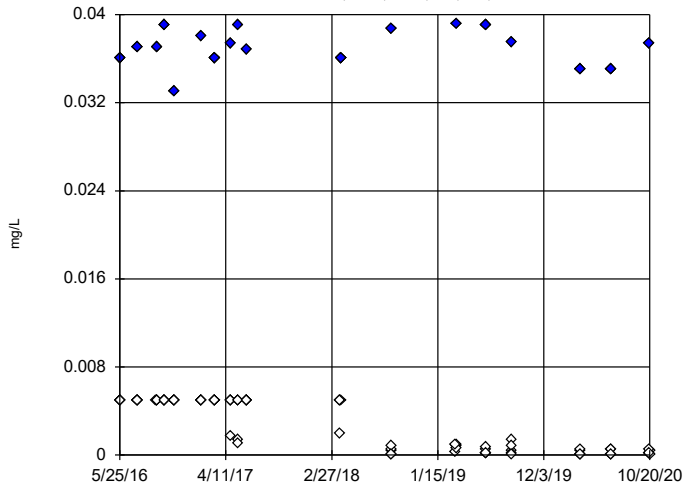


n = 108
 No outliers found.
 Tukey's method selected by user.
 Data were x*4 transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Molybdenum, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A

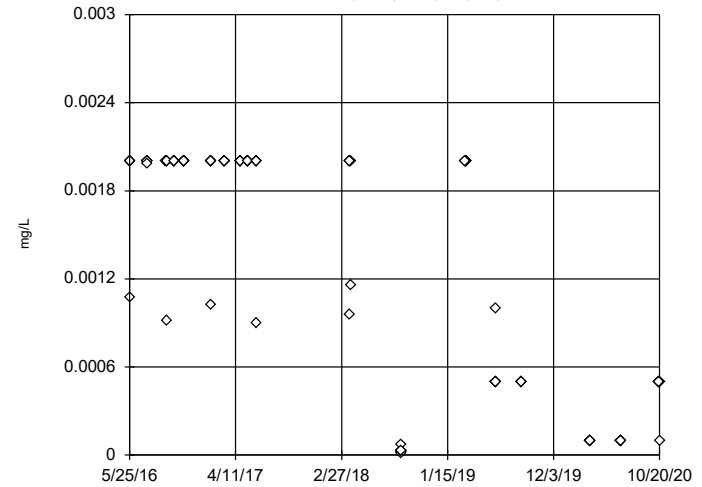


n = 108
 Outliers are drawn as solid.
 Tukey's method selected by user.
 Data were square transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.009954, low cutoff = -0.00859, based on IQR multiplier of 3.

Constituent: Selenium, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tukey's Outlier Screening, Pooled Background

B-12,B-13,B-1B,B-4,B-5,B-7A



n = 108
 No outliers found.
 Tukey's method selected by user.
 Data were x*4 transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because both the lower and upper quartiles represent reporting limits.

Constituent: Thallium, total Analysis Run 2/2/2021 12:16 PM View: Outliers
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Intrawell Prediction Limits - All Results

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/3/2021, 10:39 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	TransformAlpha	Method
Calcium, total (mg/L)	B-10	111.9	n/a	n/a	1 future	n/a	14	9.017	0.6971	0	None	sqrt(x)	Param Intra 1 of 2
Calcium, total (mg/L)	B-11	18.31	n/a	n/a	1 future	n/a	14	13.04	2.356	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-12	75.49	n/a	n/a	1 future	n/a	14	63.47	5.376	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-13	23.53	n/a	n/a	1 future	n/a	14	13.11	4.659	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-1B	96.65	n/a	n/a	1 future	n/a	14	88.73	3.541	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-2	87.96	n/a	n/a	1 future	n/a	14	39.34	21.74	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-4	32.15	n/a	n/a	1 future	n/a	14	13.04	8.545	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-5	19.15	n/a	n/a	1 future	n/a	14	17.01	0.9534	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-6	61.48	n/a	n/a	1 future	n/a	14	44.62	7.541	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-7A	109.1	n/a	n/a	1 future	n/a	14	101.3	3.479	0	None	No	Param Intra 1 of 2
Calcium, total (mg/L)	B-9	136.9	n/a	n/a	1 future	n/a	14	99.17	16.89	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-10	11.52	n/a	n/a	1 future	n/a	14	8.17	1.496	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-11	7.726	n/a	n/a	1 future	n/a	14	5.14	1.157	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-12	13.71	n/a	n/a	1 future	n/a	14	10.23	1.557	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-13	5.697	n/a	n/a	1 future	n/a	14	3.609	0.934	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-1B	5.842	n/a	n/a	1 future	n/a	14	3.346	1.116	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-2	9.825	n/a	n/a	1 future	n/a	14	2.487	0.2896	0	None	sqrt(x)	Param Intra 1 of 2
Chloride, total (mg/L)	B-4	10.83	n/a	n/a	1 future	n/a	14	67.59	22.27	0	None	x^2	Param Intra 1 of 2
Chloride, total (mg/L)	B-5	11.56	n/a	n/a	1 future	n/a	14	7.664	1.743	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-6	12.2	n/a	n/a	1 future	n/a	14	n/a	n/a	0	n/a	n/a	NP Intra (normality) 1 of 2
Chloride, total (mg/L)	B-7A	6.865	n/a	n/a	1 future	n/a	14	4.194	1.195	0	None	No	Param Intra 1 of 2
Chloride, total (mg/L)	B-9	8.306	n/a	n/a	1 future	n/a	14	5.921	1.066	0	None	No	Param Intra 1 of 2
Fluoride, total (mg/L)	B-10	1	n/a	n/a	1 future	n/a	14	n/a	n/a	71.43	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-11	1	n/a	n/a	1 future	n/a	14	n/a	n/a	92.86	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-12	1	n/a	n/a	1 future	n/a	14	n/a	n/a	85.71	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-13	1	n/a	n/a	1 future	n/a	14	n/a	n/a	85.71	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-1B	0.7071	n/a	n/a	1 future	n/a	14	0.43	0.1239	28.57	Kaplan-Meier	No	Param Intra 1 of 2
Fluoride, total (mg/L)	B-2	1	n/a	n/a	1 future	n/a	14	n/a	n/a	85.71	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-4	1	n/a	n/a	1 future	n/a	14	n/a	n/a	92.86	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-5	1	n/a	n/a	1 future	n/a	14	n/a	n/a	85.71	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-6	1	n/a	n/a	1 future	n/a	14	n/a	n/a	92.86	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-7A	1	n/a	n/a	1 future	n/a	14	n/a	n/a	71.43	n/a	n/a	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	B-9	1	n/a	n/a	1 future	n/a	14	n/a	n/a	64.29	n/a	n/a	NP Intra (NDs) 1 of 2
pH, field (SU)	B-10	8.798	5.942	n/a	1 future	n/a	14	7.37	0.6385	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-11	6.964	4.84	n/a	1 future	n/a	15	5.902	0.4841	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-12	8.782	5.598	n/a	1 future	n/a	14	7.19	0.7119	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-13	7.662	3.797	n/a	1 future	n/a	14	5.729	0.8643	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-1B	8.4	6.162	n/a	1 future	n/a	14	7.281	0.5005	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-2	7.278	5.226	n/a	1 future	n/a	15	6.252	0.4681	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-4	7.889	6.162	n/a	1 future	n/a	14	7.026	0.3862	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-5	6.814	4.285	n/a	1 future	n/a	14	5.549	0.5654	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-6	7.368	6.129	n/a	1 future	n/a	15	6.749	0.2825	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-7A	7.877	6.488	n/a	1 future	n/a	14	7.183	0.3105	0	None	No	Param Intra 1 of 2
pH, field (SU)	B-9	8.481	6.162	n/a	1 future	n/a	14	7.321	0.5186	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-10	39.39	n/a	n/a	1 future	n/a	14	29.63	4.368	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-11	65.67	n/a	n/a	1 future	n/a	14	43.11	10.09	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-12	19.27	n/a	n/a	1 future	n/a	14	11.08	3.662	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-13	37.26	n/a	n/a	1 future	n/a	14	20.67	7.419	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-1B	28.09	n/a	n/a	1 future	n/a	14	21.66	2.876	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-2	803	n/a	n/a	1 future	n/a	14	5.276	0.6315	0	None	ln(x)	Param Intra 1 of 2
Sulfate, total (mg/L)	B-4	16.46	n/a	n/a	1 future	n/a	14	9.979	2.9	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-5	243.3	n/a	n/a	1 future	n/a	14	200	19.34	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-6	42.34	n/a	n/a	1 future	n/a	14	25.34	7.606	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-7A	37.07	n/a	n/a	1 future	n/a	14	33.16	1.747	0	None	No	Param Intra 1 of 2
Sulfate, total (mg/L)	B-9	37.64	n/a	n/a	1 future	n/a	14	22.71	6.675	0	None	No	Param Intra 1 of 2

Intrawell Prediction Limits - All Results

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/3/2021, 10:39 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	TransformAlpha	Method
Total Dissolved Solids [TDS] (mg/L)	B-10	314.7	n/a	n/a	1 future	n/a	14	267.7	21.01	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-11	193.2	n/a	n/a	1 future	n/a	14	132.3	27.26	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-12	323.3	n/a	n/a	1 future	n/a	14	252.4	31.73	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-13	119.5	n/a	n/a	1 future	n/a	14	75.14	19.83	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-1B	316.8	n/a	n/a	1 future	n/a	14	272.6	19.73	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-2	1409	n/a	n/a	1 future	n/a	14	7.823	1.515	0	None	x^(1/3)	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-4	121.6	n/a	n/a	1 future	n/a	14	76.79	20.03	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-5	447.2	n/a	n/a	1 future	n/a	14	395.5	23.14	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-6	292.3	n/a	n/a	1 future	n/a	14	194.9	43.59	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-7A	339	n/a	n/a	1 future	n/a	14	312.1	12.01	0	None	No	0.001504 Param Intra 1 of 2
Total Dissolved Solids [TDS] (mg/L)	B-9	293.4	n/a	n/a	1 future	n/a	14	239.4	24.16	0	None	No	0.001504 Param Intra 1 of 2

Upgradient Wells Trend Tests - Significant Results

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/2/2021, 2:24 PM

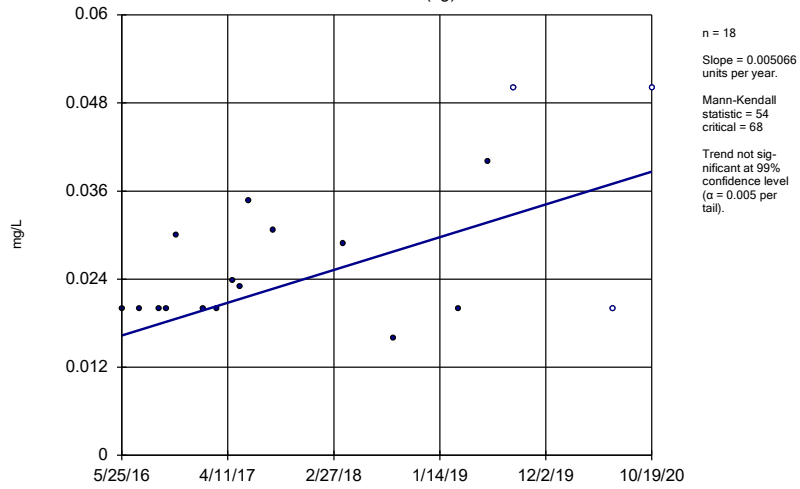
<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron, total (mg/L)	B-4 (bg)	0.009428	74	68	Yes	18	0	n/a	n/a	0.01	NP

Upgradient Wells Trend Tests - All Results

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/2/2021, 2:24 PM

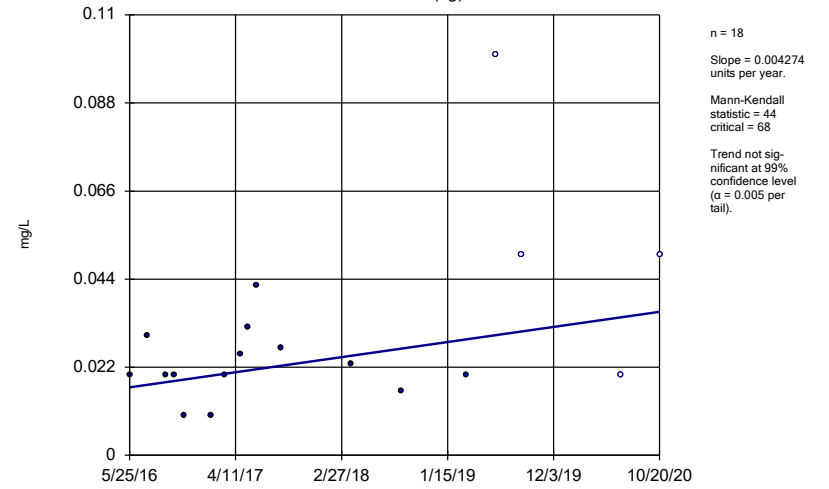
Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron, total (mg/L)	B-12 (bg)	0.005066	54	68	No	18	16.67	n/a	n/a	0.01	NP
Boron, total (mg/L)	B-13 (bg)	0.004274	44	68	No	18	22.22	n/a	n/a	0.01	NP
Boron, total (mg/L)	B-1B (bg)	0.0004441	44	68	No	18	11.11	n/a	n/a	0.01	NP
Boron, total (mg/L)	B-4 (bg)	0.009428	74	68	Yes	18	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	B-5 (bg)	0.00804	64	68	No	18	22.22	n/a	n/a	0.01	NP
Boron, total (mg/L)	B-7A (bg)	0	30	68	No	18	22.22	n/a	n/a	0.01	NP

Sen's Slope Estimator
B-12 (bg)



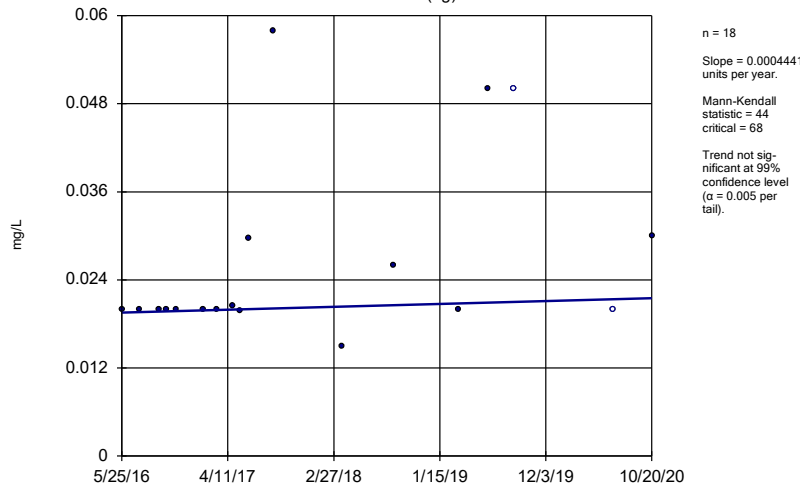
Constituent: Boron, total Analysis Run 2/2/2021 2:23 PM View: Appendix III - Interwell
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Sen's Slope Estimator
B-13 (bg)



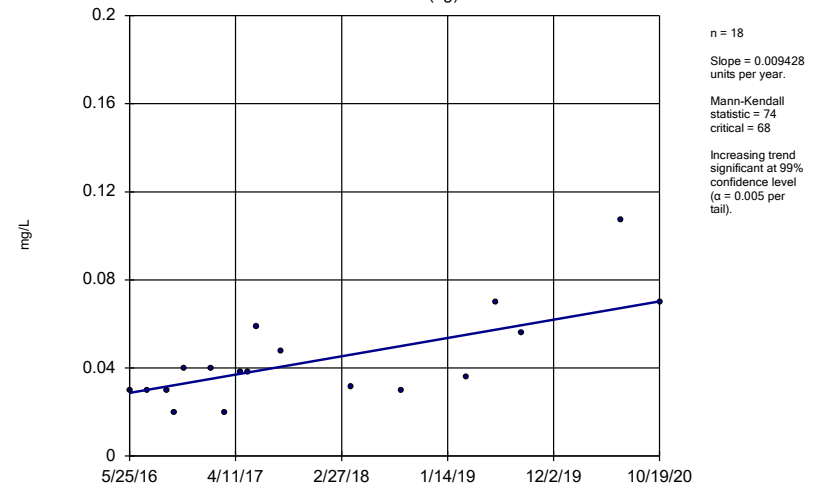
Constituent: Boron, total Analysis Run 2/2/2021 2:23 PM View: Appendix III - Interwell
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Sen's Slope Estimator
B-1B (bg)



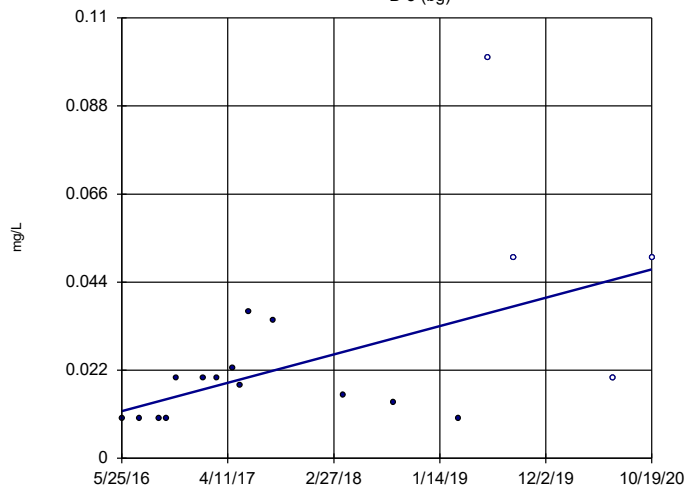
Constituent: Boron, total Analysis Run 2/2/2021 2:23 PM View: Appendix III - Interwell
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Sen's Slope Estimator
B-4 (bg)



Constituent: Boron, total Analysis Run 2/2/2021 2:23 PM View: Appendix III - Interwell
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Sen's Slope Estimator
B-5 (bg)



Interwell Prediction Limits - All Results

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/2/2021, 2:25 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	TransformAlpha	Method
Boron, total (mg/L)	n/a	0.107	n/a	n/a	5 future	n/a	108	n/a	n/a	15.74	n/a	n/a	0.0001701 NP Inter (normality) 1 of 2

Upper Tolerance Limit Summary Table

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/2/2021, 2:28 PM

Constituent	Upper Lim.	Lower Lim.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	0.005	n/a	n/a	108	n/a	n/a	68.52	n/a	n/a	0.003928	NP Inter(NDs)
Arsenic, total (mg/L)	0.008	n/a	n/a	108	n/a	n/a	48.15	n/a	n/a	0.003928	NP Inter(normality)
Barium, total (mg/L)	0.131	n/a	n/a	108	n/a	n/a	0	n/a	n/a	0.003928	NP Inter(normality)
Beryllium, total (mg/L)	0.001	n/a	n/a	108	n/a	n/a	35.19	n/a	n/a	0.003928	NP Inter(normality)
Cadmium, total (mg/L)	0.001	n/a	n/a	108	n/a	n/a	48.15	n/a	n/a	0.003928	NP Inter(normality)
Chromium, total (mg/L)	0.006	n/a	n/a	107	n/a	n/a	9.346	n/a	n/a	0.004135	NP Inter(normality)
Cobalt, total (mg/L)	0.003103	n/a	n/a	106	0.08399	0.03229	2.83	None	x^(1/3)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	8.79	n/a	n/a	102	n/a	n/a	0	n/a	n/a	0.005343	NP Inter(normality)
Fluoride, total (mg/L)	1	n/a	n/a	114	n/a	n/a	58.77	n/a	n/a	0.002887	NP Inter(NDs)
Lead, total (mg/L)	0.005	n/a	n/a	107	n/a	n/a	47.66	n/a	n/a	0.004135	NP Inter(normality)
Lithium, total (mg/L)	0.041	n/a	n/a	102	n/a	n/a	1.961	n/a	n/a	0.005343	NP Inter(normality)
Mercury, total (mg/L)	0.000096	n/a	n/a	108	n/a	n/a	58.33	n/a	n/a	0.003928	NP Inter(NDs)
Molybdenum, total (mg/L)	0.01	n/a	n/a	108	n/a	n/a	61.11	n/a	n/a	0.003928	NP Inter(NDs)
Selenium, total (mg/L)	0.0392	n/a	n/a	108	n/a	n/a	52.78	n/a	n/a	0.003928	NP Inter(NDs)
Thallium, total (mg/L)	0.002	n/a	n/a	108	n/a	n/a	87.04	n/a	n/a	0.003928	NP Inter(NDs)

Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 108 background values. 68.52% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Antimony, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

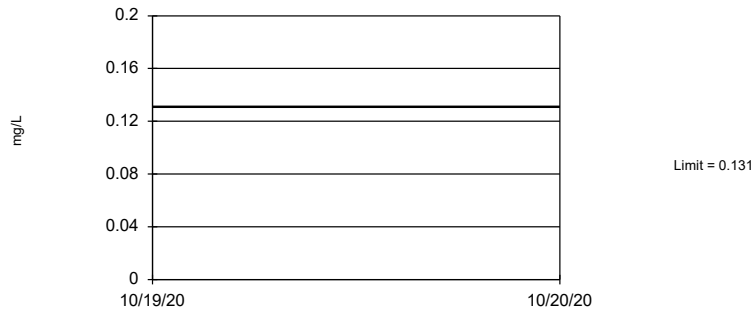
Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 108 background values. 48.15% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Arsenic, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 108 background values. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Barium, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

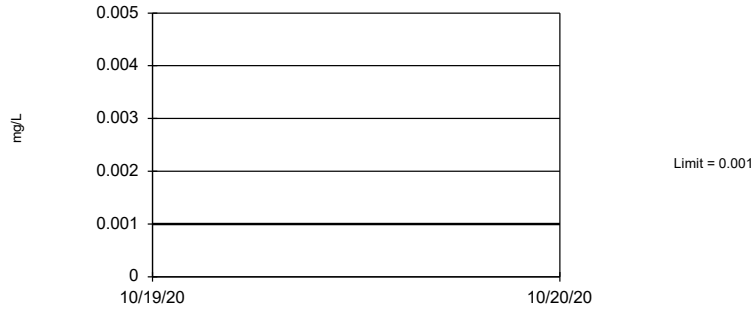
Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 108 background values. 35.19% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Beryllium, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 108 background values. 48.15% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Cadmium, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

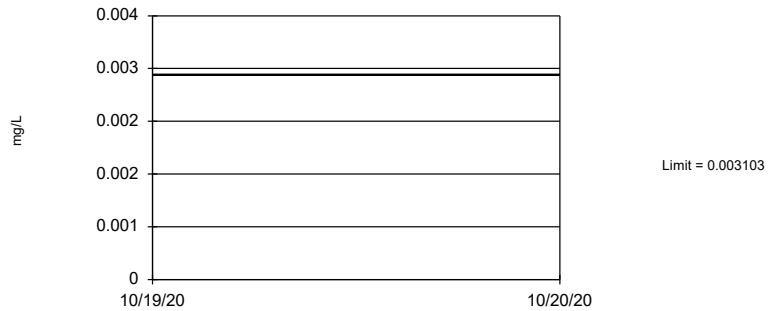
Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 107 background values. 9.346% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.004135.

Constituent: Chromium, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

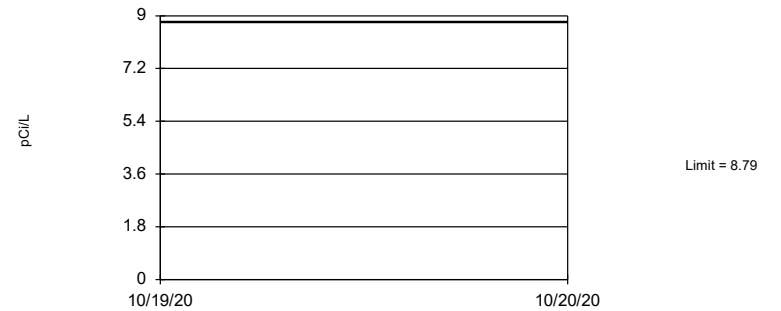
Tolerance Limit
Interwell Parametric



95% coverage. Background Data Summary (based on cube root transformation): Mean=0.08399, Std. Dev.=0.03229, n=106, 2.83% NDs. Normality test: Chi Squared @alpha = 0.01, calculated = 9.283, critical = 14.07. Report alpha = 0.05.

Constituent: Cobalt, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tolerance Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 102 background values. 95.51% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.005343.

Constituent: Combined Radium 226 + 228 Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 114 background values. 58.77% NDs. 95.9% coverage at alpha=0.01; 97.46% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.002887.

Constituent: Fluoride, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 107 background values. 47.66% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.004135.

Constituent: Lead, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

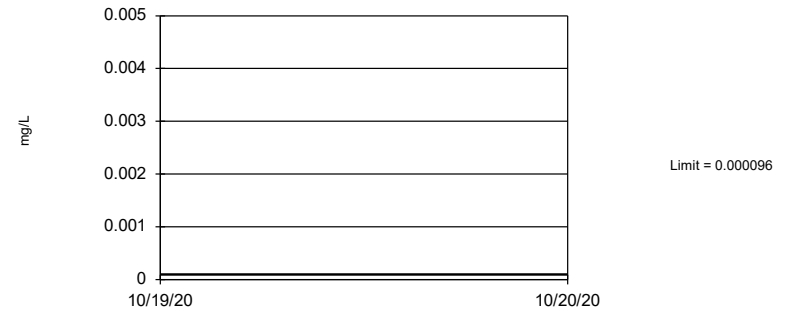
Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 102 background values. 1.961% NDs. 95.51% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.005343.

Constituent: Lithium, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

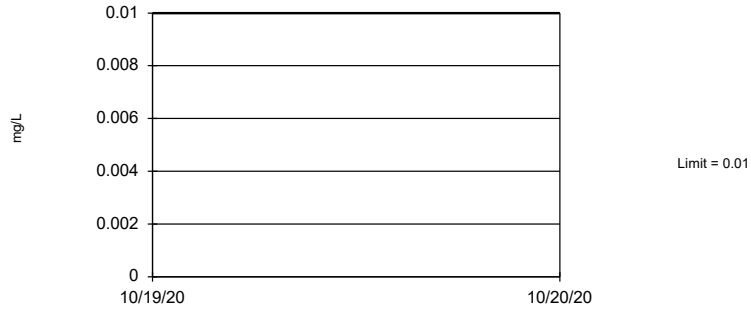
Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 108 background values. 58.33% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Mercury, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

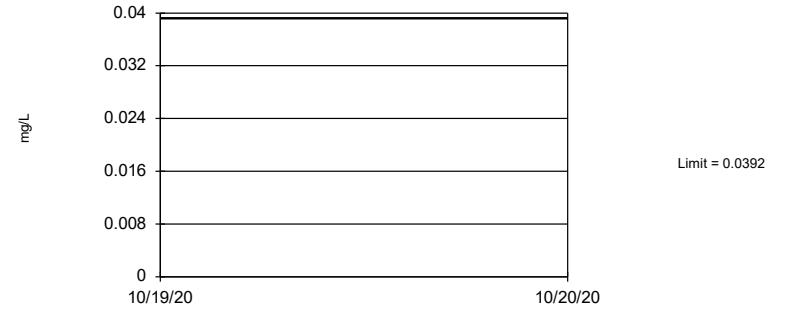
Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 108 background values. 61.11% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Molybdenum, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

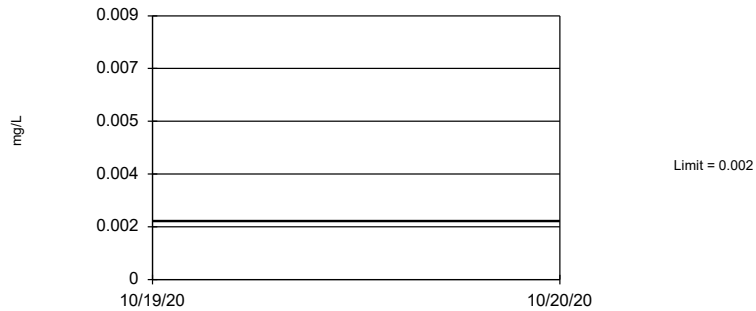
Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 108 background values. 52.78% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Selenium, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 108 background values. 87.04% NDs. 95.9% coverage at alpha=0.01; 97.07% coverage at alpha=0.05; 99.41% coverage at alpha=0.5. Report alpha = 0.003928.

Constituent: Thallium, total Analysis Run 2/2/2021 2:27 PM View: Appendix IV - UTLs
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

FLINT CREEK LANDFILL GWPS				
Constituent Name	MCL	CCR-Rule Specified	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.005	0.006
Arsenic, Total (mg/L)	0.01		0.008	0.01
Barium, Total (mg/L)	2		0.13	2
Beryllium, Total (mg/L)	0.004		0.001	0.004
Cadmium, Total (mg/L)	0.005		0.001	0.005
Chromium, Total (mg/L)	0.1		0.006	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0031	0.006
Combined Radium, Total (pCi/L)	5		8.79	8.79
Fluoride, Total (mg/L)	4		1	4
Lead, Total (mg/L)	n/a	0.015	0.005	0.015
Lithium, Total (mg/L)	n/a	0.04	0.041	0.041
Mercury, Total (mg/L)	0.002		0.000096	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.039	0.05
Thallium, Total (mg/L)	0.002		0.002	0.002

**Grey cell indicates background limit is higher than MCL or CCR-Rule Specified level*

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

Confidence Intervals - All Results (No Significant)

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/4/2021, 9:54 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	B-10	0.005	0.00011	0.006	No 18	0.003102	0.002448	61.11 None	No	0.01	NP (NDs)
Antimony, total (mg/L)	B-11	0.005	0.0001	0.006	No 18	0.003102	0.002437	88.89 None	No	0.01	NP (NDs)
Antimony, total (mg/L)	B-2	0.005	0.00002	0.006	No 18	0.002158	0.002272	50 None	No	0.01	NP (normality)
Antimony, total (mg/L)	B-6	0.005	0.00005	0.006	No 18	0.002902	0.002435	72.22 None	No	0.01	NP (NDs)
Antimony, total (mg/L)	B-9	0.005	0.00009	0.006	No 18	0.002928	0.002403	66.67 None	No	0.01	NP (NDs)
Arsenic, total (mg/L)	B-10	0.005	0.00046	0.01	No 18	0.003056	0.002205	44.44 None	No	0.01	NP (normality)
Arsenic, total (mg/L)	B-11	0.005	0.00025	0.01	No 17	0.002872	0.002454	41.18 None	No	0.01	NP (normality)
Arsenic, total (mg/L)	B-2	0.002424	0.0003524	0.01	No 18	0.003075	0.004191	22.22 Kaplan-Meier	x^(1/3)	0.01	Param.
Arsenic, total (mg/L)	B-6	0.005	0.00036	0.01	No 18	0.002349	0.002101	33.33 None	No	0.01	NP (normality)
Arsenic, total (mg/L)	B-9	0.005	0.0009	0.01	No 18	0.002833	0.002012	44.44 None	No	0.01	NP (normality)
Barium, total (mg/L)	B-10	0.08088	0.07616	2	No 16	0.07852	0.003628	0 None	No	0.01	Param.
Barium, total (mg/L)	B-11	0.1377	0.1043	2	No 17	0.121	0.02667	0 None	No	0.01	Param.
Barium, total (mg/L)	B-2	0.1036	0.05454	2	No 17	0.08637	0.05441	0 None	ln(x)	0.01	Param.
Barium, total (mg/L)	B-6	0.06472	0.04895	2	No 18	0.05684	0.01303	0 None	No	0.01	Param.
Barium, total (mg/L)	B-9	0.1603	0.1408	2	No 18	0.1506	0.01618	0 None	No	0.01	Param.
Beryllium, total (mg/L)	B-10	0.001	0.0000284	0.004	No 18	0.0004822	0.0004509	66.67 None	No	0.01	NP (NDs)
Beryllium, total (mg/L)	B-11	0.0005803	0.0002492	0.004	No 17	0.0004907	0.0004552	0 None	ln(x)	0.01	Param.
Beryllium, total (mg/L)	B-2	0.00022	0.0001	0.004	No 17	0.0002369	0.000253	0 None	No	0.01	NP (normality)
Beryllium, total (mg/L)	B-6	0.0001744	0.00004395	0.004	No 18	0.0002045	0.00025	22.22 Kaplan-Meier	sqrt(x)	0.01	Param.
Beryllium, total (mg/L)	B-9	0.001	0.0000202	0.004	No 18	0.0003575	0.0004354	55.56 Kaplan-Meier	No	0.01	NP (NDs)
Cadmium, total (mg/L)	B-10	0.001	0.00003	0.005	No 18	0.0005996	0.0004694	61.11 None	No	0.01	NP (NDs)
Cadmium, total (mg/L)	B-11	0.0004638	0.0001133	0.005	No 17	0.0004215	0.0005151	0 None	ln(x)	0.01	Param.
Cadmium, total (mg/L)	B-2	0.001	0.00004	0.005	No 18	0.0004816	0.0004685	38.89 None	No	0.01	NP (normality)
Cadmium, total (mg/L)	B-6	0.001	0.00002	0.005	No 18	0.0004553	0.0004539	44.44 None	No	0.01	NP (normality)
Cadmium, total (mg/L)	B-9	0.001	0.00006	0.005	No 18	0.000645	0.0004605	77.78 None	No	0.01	NP (NDs)
Chromium, total (mg/L)	B-10	0.002	0.00039	0.1	No 18	0.003854	0.009013	0 None	No	0.01	NP (normality)
Chromium, total (mg/L)	B-11	0.004753	0.001202	0.1	No 17	0.00458	0.006255	0 None	ln(x)	0.01	Param.
Chromium, total (mg/L)	B-2	0.006	0.00174	0.1	No 18	0.006379	0.009567	0 None	No	0.01	NP (normality)
Chromium, total (mg/L)	B-6	0.004714	0.002201	0.1	No 18	0.003644	0.002406	0 None	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	B-9	0.002696	0.001391	0.1	No 18	0.002043	0.001078	0 None	No	0.01	Param.
Cobalt, total (mg/L)	B-10	0.001187	0.0003077	0.006	No 18	0.0009181	0.001119	5.556 None	x^(1/3)	0.01	Param.
Cobalt, total (mg/L)	B-11	0.001195	0.0002202	0.006	No 17	0.001199	0.00172	0 None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	B-2	0.001338	0.0001958	0.006	No 16	0.001021	0.001485	0 None	x^(1/3)	0.01	Param.
Cobalt, total (mg/L)	B-6	0.001782	0.0004509	0.006	No 18	0.00129	0.001208	0 None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	B-9	0.00122	0.0004993	0.006	No 18	0.0008598	0.0005959	0 None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-10	1.49	0.8328	8.79	No 17	1.161	0.5243	0 None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-11	2.49	0.797	8.79	No 17	2.329	3.263	0 None	ln(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-2	2.285	1.305	8.79	No 17	1.863	0.9036	0 None	x^(1/3)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-6	1.556	0.571	8.79	No 17	2.173	3.495	0 None	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	B-9	1.952	0.6028	8.79	No 17	1.682	2.139	0 None	ln(x)	0.01	Param.
Fluoride, total (mg/L)	B-10	1	0.11	4	No 19	0.6491	0.4277	57.89 None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-11	1	0.04	4	No 19	0.7458	0.4371	73.68 None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-2	1	0.09	4	No 19	0.7224	0.4235	68.42 None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-6	1	0.03	4	No 19	0.7103	0.4408	73.68 None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-9	1	0.1	4	No 19	0.608	0.4305	52.63 None	No	0.01	NP (NDs)
Lead, total (mg/L)	B-10	0.005	0.000189	0.015	No 18	0.002643	0.002251	55.56 None	No	0.01	NP (NDs)
Lead, total (mg/L)	B-11	0.001896	0.0002051	0.015	No 17	0.002602	0.002785	41.18 Kaplan-Meier	x^(1/3)	0.01	Param.
Lead, total (mg/L)	B-2	0.001682	0.0001363	0.015	No 17	0.002341	0.003348	35.29 Kaplan-Meier	x^(1/3)	0.01	Param.
Lead, total (mg/L)	B-6	0.002012	0.0004859	0.015	No 18	0.001454	0.001443	5.556 None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	B-9	0.005	0.000242	0.015	No 18	0.002523	0.002296	50 None	No	0.01	NP (normality)
Lithium, total (mg/L)	B-10	0.004	0.00156	0.041	No 17	0.003835	0.00376	0 None	No	0.01	NP (normality)
Lithium, total (mg/L)	B-11	0.006823	0.001929	0.041	No 17	0.006343	0.008235	0 None	ln(x)	0.01	Param.
Lithium, total (mg/L)	B-2	0.00692	0.001864	0.041	No 17	0.006338	0.007737	0 None	ln(x)	0.01	Param.
Lithium, total (mg/L)	B-6	0.002539	0.0009596	0.041	No 16	0.001749	0.001214	0 None	No	0.01	Param.
Lithium, total (mg/L)	B-9	0.005	0.00264	0.041	No 17	0.004432	0.00339	0 None	No	0.01	NP (normality)

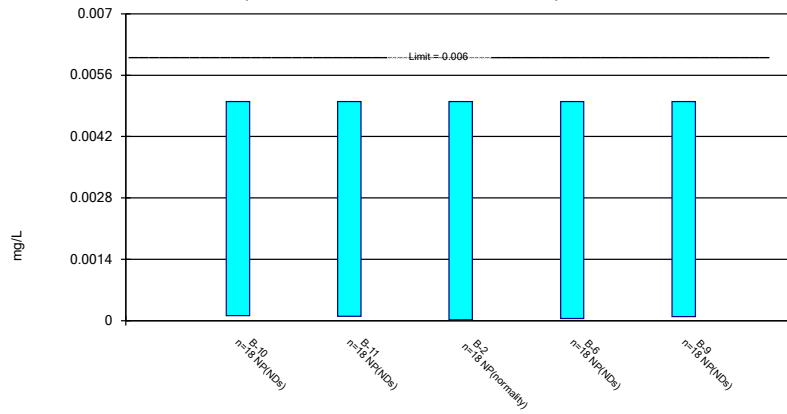
Confidence Intervals - All Results (No Significant)

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/4/2021, 9:54 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs ND Adj.	Transform	Alpha	Method
Mercury, total (mg/L)	B-10	0.000025	0.000005	0.002	No 18	0.00001848	0.000009249	66.67 None	No	0.01	NP (NDs)
Mercury, total (mg/L)	B-11	0.000097	0.00002442	0.002	No 18	0.00002528	0.00001976	83.33 None	No	0.01	NP (NDs)
Mercury, total (mg/L)	B-2	0.000027	0.000005	0.002	No 18	0.00001995	0.00001198	66.67 None	No	0.01	NP (NDs)
Mercury, total (mg/L)	B-6	0.000025	0.000005	0.002	No 18	0.00001336	0.000008967	44.44 None	No	0.01	NP (normality)
Mercury, total (mg/L)	B-9	0.000025	0.00000774	0.002	No 18	0.0000192	0.000008993	83.33 None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	B-10	0.00352	0.00078	0.1	No 18	0.002338	0.003003	11.11 None	No	0.01	NP (normality)
Molybdenum, total (mg/L)	B-11	0.005	0.0004	0.1	No 18	0.003252	0.002665	72.22 None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	B-2	0.003129	0.0008674	0.1	No 18	0.002414	0.002542	11.11 None	x^(1/3)	0.01	Param.
Molybdenum, total (mg/L)	B-6	0.004	0.00043	0.1	No 18	0.002181	0.002626	50 None	No	0.01	NP (normality)
Molybdenum, total (mg/L)	B-9	0.01	0.00054	0.1	No 18	0.005595	0.008027	77.78 None	No	0.01	NP (NDs)
Selenium, total (mg/L)	B-10	0.005	0.0004	0.05	No 18	0.003222	0.002294	61.11 None	No	0.01	NP (NDs)
Selenium, total (mg/L)	B-11	0.003164	0.002077	0.05	No 18	0.003149	0.001304	22.22 Kaplan-Meier	No	0.01	Param.
Selenium, total (mg/L)	B-2	0.02504	0.009583	0.05	No 18	0.02154	0.02048	0 None	ln(x)	0.01	Param.
Selenium, total (mg/L)	B-6	0.003022	0.00159	0.05	No 18	0.002306	0.001184	5.556 None	No	0.01	Param.
Selenium, total (mg/L)	B-9	0.005	0.0005	0.05	No 18	0.003278	0.002226	66.67 None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-10	0.002	0.0005	0.002	No 18	0.001477	0.0008077	88.89 None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-11	0.002	0.0005	0.002	No 18	0.001402	0.0008101	88.89 None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-2	0.002	0.0005	0.002	No 18	0.001313	0.0008222	83.33 None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-6	0.002	0.0005	0.002	No 18	0.001373	0.0007929	83.33 None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-9	0.002	0.0005	0.002	No 18	0.001433	0.0008018	83.33 None	No	0.01	NP (NDs)

Non-Parametric Confidence Interval

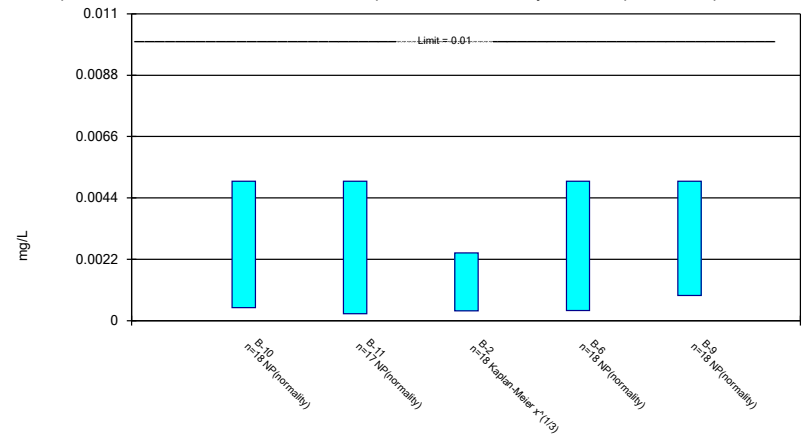
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Antimony, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

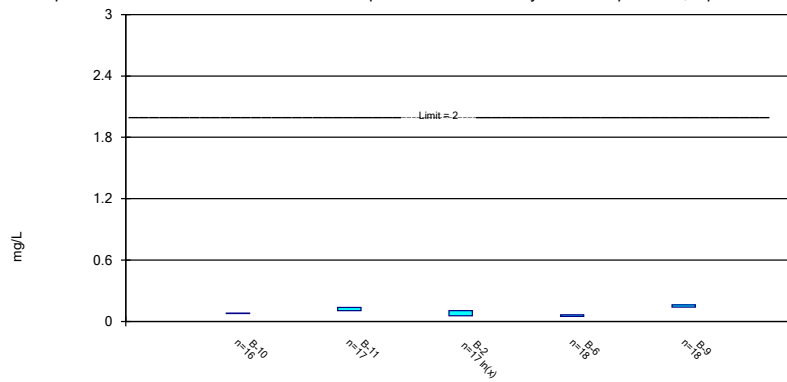
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric Confidence Interval

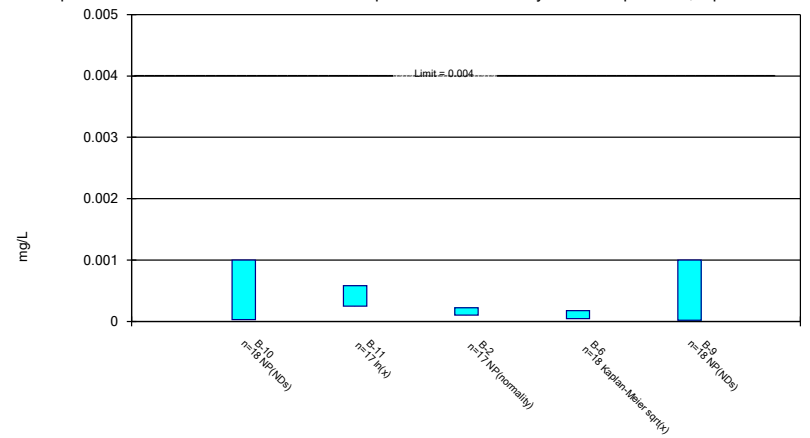
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

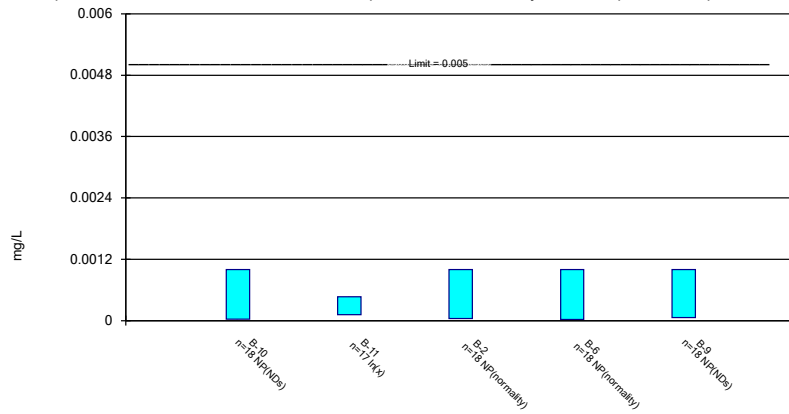
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

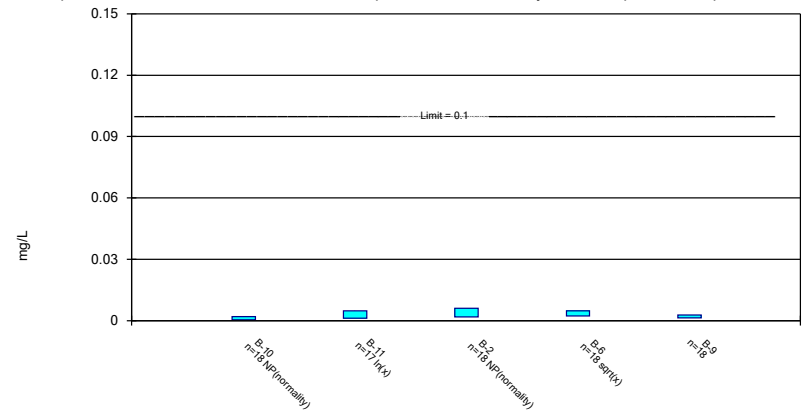
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

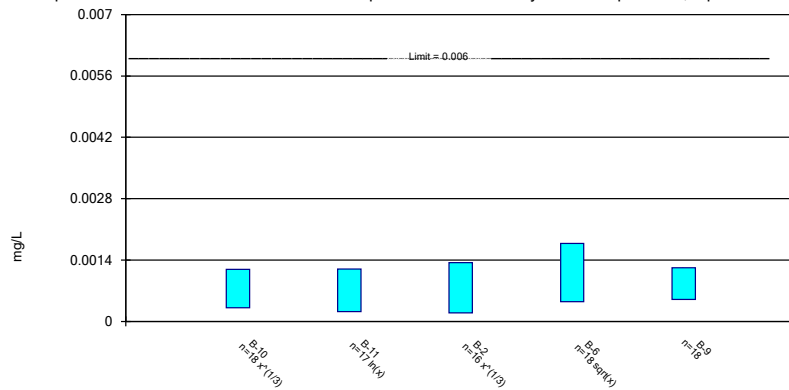
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric Confidence Interval

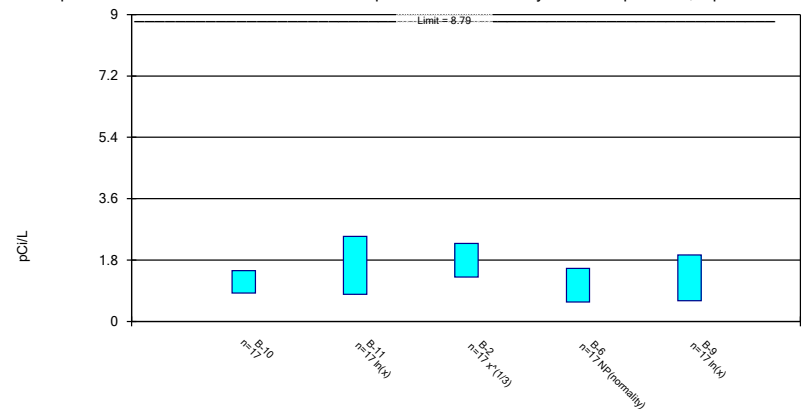
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

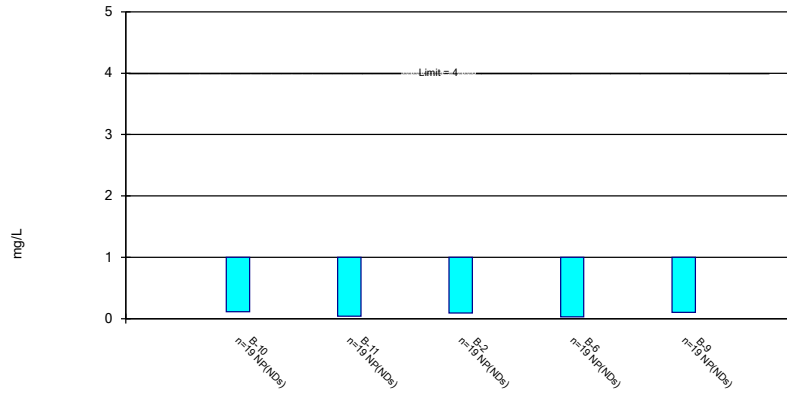
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Non-Parametric Confidence Interval

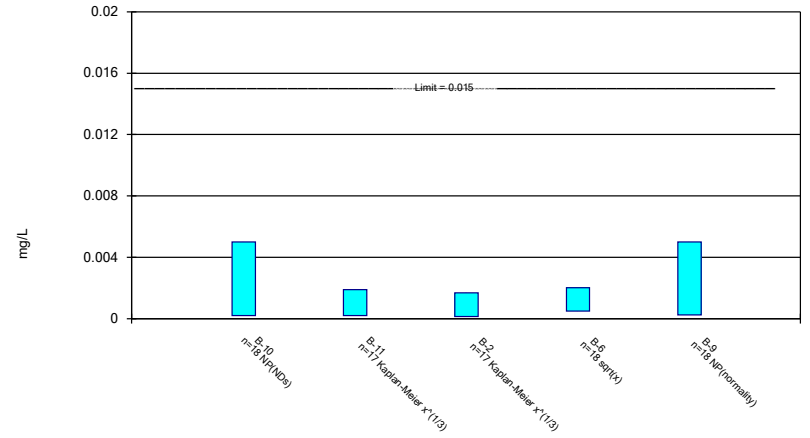
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Fluoride, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

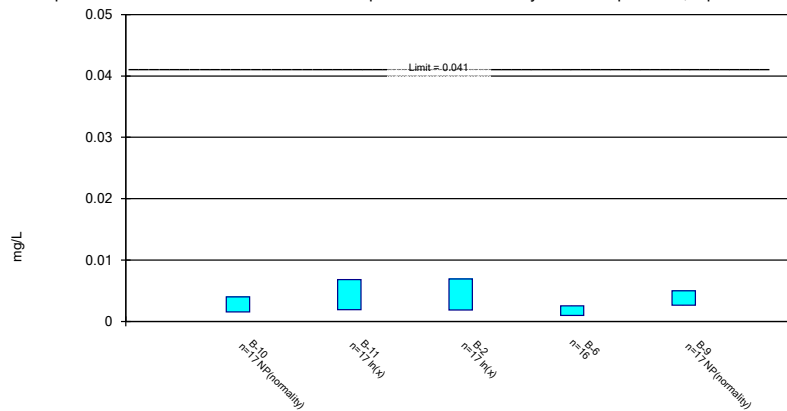
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

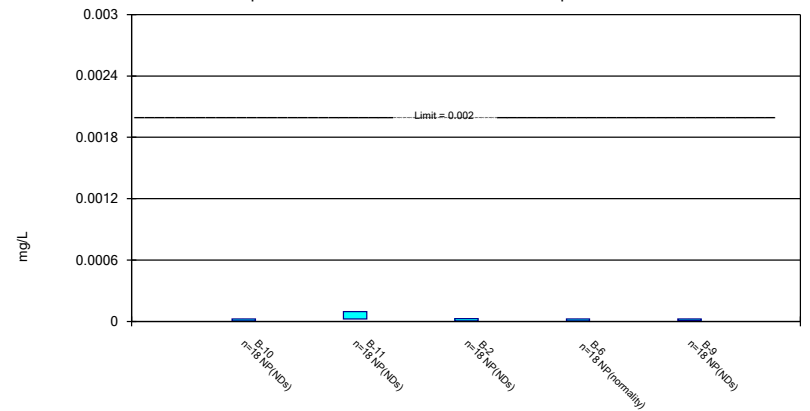
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 2/4/2021 9:51 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Non-Parametric Confidence Interval

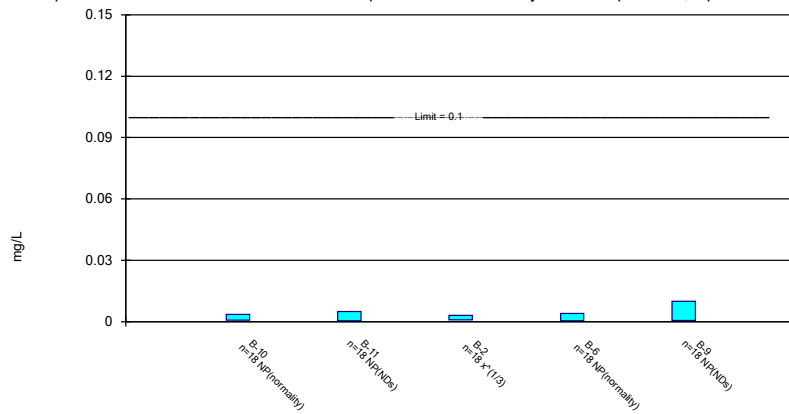
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Mercury, total Analysis Run 2/4/2021 9:52 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

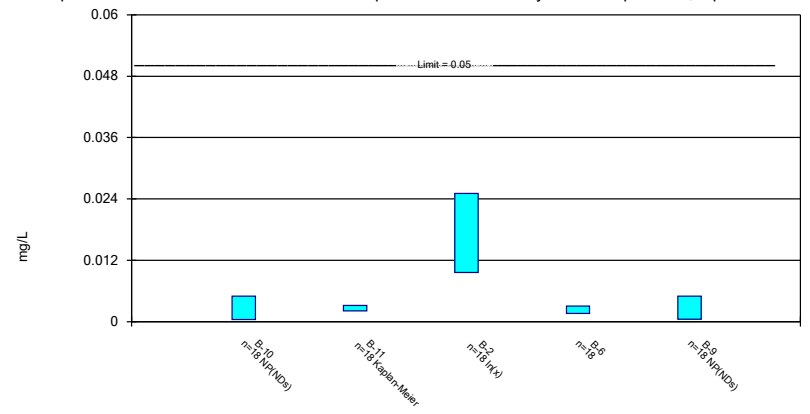
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum, total Analysis Run 2/4/2021 9:52 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

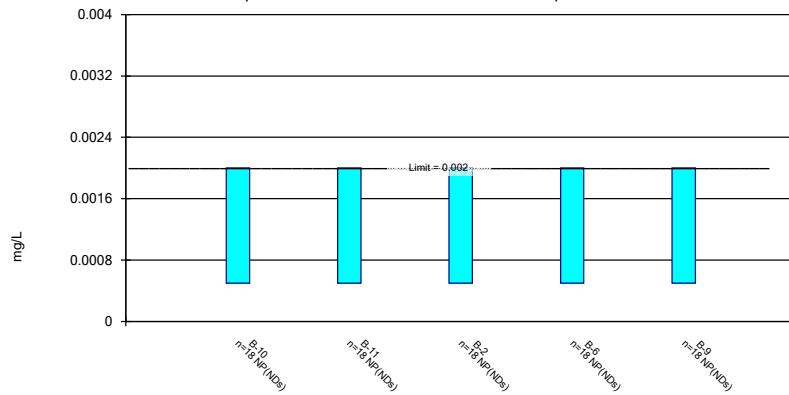
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 2/4/2021 9:52 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Thallium, total Analysis Run 2/4/2021 9:52 AM View: Appendix IV
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

STATISTICAL ANALYSIS SUMMARY
LANDFILL
Flint Creek Plant
Gentry, Arkansas

Submitted to



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Submitted by



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October 20, 2021

CHA8500

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LIST OF ATTACHMENTS

Attachment A	Certification by Qualified Professional Engineer
Attachment B	Statistical Analysis Output

LIST OF ACRONYMS AND ABBREVIATIONS

AEP	American Electric Power
CCR	Coal Combustion Residuals
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
GWPS	Groundwater Protection Standard
LCL	Lower Confidence Limit
LF	Landfill
LFB	Laboratory Fortified Blanks
LPL	Lower Prediction Limit
LRB	Laboratory Reagent Blanks
MCL	Maximum Contaminant Level
NELAP	National Environmental Laboratory Accreditation Program
QA	Quality Assurance
QC	Quality Control
SSI	Statistically Significant Increase
SSL	Statistically Significant Level
SU	Standard Units
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 has been conducted at the Flint Creek Landfill (LF), an existing CCR unit at the Flint Creek Power Plant located in Gentry, Arkansas.

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron at the LF. An alternative source was not identified at the time, so assessment monitoring was initiated at the LF in April 2018 and has continued at the unit in 2021. During 2021, an annual sampling event for Appendix IV parameters required by 257.95(b) was completed in March, and a semiannual sampling event for both Appendix III parameters and Appendix IV parameters, as required by 257.95(d)(1), was completed in June. The results of these assessment sampling events are documented in this report.

Prior to conducting the statistical analyses, the 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 data usability.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. Confidence intervals were calculated from the Appendix IV parameter data at the compliance wells to assess whether any were present at SSLs above the corresponding GWPS. No SSLs were identified; however, concentrations of Appendix III parameters remained above background. Thus, the unit will remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

SECTION 2

LANDFILL EVALUATION

2.1 Data Validation & QA/QC

During the assessment monitoring program in 2021, two sets of samples were collected for analysis from each upgradient and downgradient well to meet the requirements of 40 CFR 257.95b (March 2021) and 257.95(d)(1) (June 2021). Samples from March 2021 were analyzed for Appendix IV parameters only, whereas samples from the June 2021 sample event were analyzed for all Appendix IV and Appendix III parameters. A summary of data collected during this assessment monitoring event is presented 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.9.6.30f statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues were noted which would impact data usability.

2.2 Statistical Analysis

Statistical analyses for the LF were conducted in accordance with the October 2020 *Statistical Analysis Plan* (Geosyntec, 2020). Time series plots and results for all completed statistical tests are provided in Attachment B.

The data obtained in March and June 2021 were screened for potential outliers; however, no outliers were identified (Attachment B).

2.2.1 Evaluation of Potential Appendix IV SSLs

A confidence interval was constructed for each Appendix IV parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$); however, non-parametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the non-detect frequency was too high). An SSL was concluded if the lower confidence limit (LCL) exceeded the GWPS (i.e., if the entire confidence interval exceeded the GWPS). Calculated confidence limits are shown in Attachment B. The calculated confidence limits were compared to the GWPSs provided in Table 2. The GWPSs were established during a

previous statistical analysis as either the greater value of the background concentration or the maximum contaminant level (MCL) and risk-based level specified in 40 CFR 257.95(h)(2) (Geosyntec, 2021).

No SSLs were identified at the LF.

2.2.2 Evaluation of Potential Appendix III SSIs

The Appendix III results were analyzed to assess whether concentrations of Appendix III parameters at the compliance wells exceeded background concentrations. Data collected during the June 2021 assessment monitoring event from each compliance well were compared to previously established prediction limits to assess whether the results are statistically above background limits. The results from these events and the prediction limits are summarized in Table 3. The following exceedances of the upper prediction limits (UPLs) were noted:

- Boron concentrations exceeded the interwell UPL of 0.107 mg/L at B-2 (0.480 mg/L), and B-11 (0.277 mg/L).
- A sulfate concentration exceeded the intrawell UPL of 243 mg/L at B-5 (248 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the June 2021 sample was above the UPL or below the lower prediction limit (LPL). Based on this evaluation, concentrations of Appendix III constituents appear to be above background concentrations and the unit will remain in assessment monitoring.

2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that impacted data usability. A review of outliers identified no potential outliers in the March 2021 and June 2021 data. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval exceeded the GWPSs. No SSLs were identified. Appendix III parameters were compared to prediction limits, with exceedances identified for boron and sulfate.

Based on this evaluation, the LF CCR unit will remain in assessment monitoring.

SECTION 3

REFERENCES

Geosyntec Consultants (Geosyntec). 2020. Statistical Analysis Plan. October 2020.

Geosyntec. 2021. Statistical Analysis Summary – Landfill, Flint Creek Plant, Gentry, Arkansas, March 1, 2021.

TABLES

**Table 1 - Groundwater Data Summary
Flint Creek Plant - Landfill**

Parameter	Unit	B-1B		B-2		B-4		B-5		B-6	
		3/2/2021	6/21/2021	3/1/2021	6/21/2021	3/1/2021	6/22/2021	3/2/2021	6/22/2021	3/1/2021	6/21/2021
Antimony	µg/L	0.02 J	0.1 U	0.04 J	0.02 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Arsenic	µg/L	0.67	0.23	0.24	0.17	0.09 J	0.09 J	0.43	0.33	0.20	0.19
Barium	µg/L	102	102	46.6	51.0	43.9	37.2	18.3	20.0	41.6	40.7
Beryllium	µg/L	0.03 J	0.013 J	0.08 J	0.090	0.101	0.176	0.477	0.482	0.1 U	0.022 J
Boron	mg/L	-	0.014 J	-	0.480	-	0.10	-	0.05 U	-	0.029 J
Cadmium	µg/L	0.05 U	0.007 J	0.02 J	0.022	0.03 J	0.038	0.16	0.174	0.01 J	0.018 J
Calcium	mg/L	-	84.8	-	23.0	-	3.2	-	15.6	-	34.0
Chloride	mg/L	-	2.20	-	3.68	-	2.38	-	9.16	-	6.95
Chromium	µg/L	0.1 J	0.43	1.35	1.35	0.744	1.03	2.50	2.45	1.66	1.52
Cobalt	µg/L	0.04 J	0.057	0.136	0.092	0.04 J	0.094	0.284	0.259	0.123	0.125
Combined Radium	pCi/L	4.629	3.94	1.498	0.57	0.887	1.05	0.714	1.1	0.147	0.63
Fluoride	mg/L	0.42	0.39	0.11	0.11	0.03 J	0.02 J	0.08	0.07	0.03 J	0.03 J
Lead	µg/L	0.2 U	0.06 J	0.1 J	0.08 J	0.2 U	0.23	0.2 J	0.20	0.1 J	0.15 J
Lithium	mg/L	0.0247	0.0231	0.000946	0.0010	0.000761	0.00083	0.00227	0.00232	0.000390	0.00055
Mercury	µg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.004 J	0.004 J	0.005 U	0.005 U
Molybdenum	µg/L	2 U	0.3 J	1 J	1.2	2 U	0.5 U	2 U	0.5 U	2 U	0.2 J
Selenium	µg/L	0.2 U	0.5 U	5.7	5.81	0.4	0.53	36.2	38.6	1.5	1.07
Sulfate	mg/L	-	18.7	-	60.9	-	12.4	-	248	-	9.93
Thallium	µg/L	0.5 U	0.2 U	0.5 U	0.04 J	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U
Total Dissolved Solids	mg/L	-	290	-	230	-	70	-	410	-	150
pH	SU	7.0	7.2	6.1	5.7	6.0	5.6	4.8	4.9	6.6	6.1

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

SU: standard unit

U: Non-detect value. For statistical analysis, parameters which were not detected were replaced with the reporting limit.

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

-: Not sampled

**Table 1 - Groundwater Data Summary
Flint Creek Plant - Landfill**

Parameter	Unit	B-7A		B-9		B-10		B-11		B-12		B-13	
		3/1/2021	6/21/2021	3/2/2021	6/21/2021	3/2/2021	6/22/2021	3/2/2021	6/21/2021	3/1/2021	6/21/2021	3/2/2021	6/21/2021
Antimony	µg/L	0.05 J	0.03 J	0.02 J	0.02 J	0.08 J	0.11	0.1 U	0.1 U	0.07 J	0.06 J	0.1 U	0.1 U
Arsenic	µg/L	3.28	4.95	0.50	0.46	0.36	0.31	0.14	0.13	0.12	0.1	0.1 J	0.18
Barium	µg/L	48.7	49.0	157	148	81.7	82.3	103	101	44.7	54.6	46.3	54.1
Beryllium	µg/L	0.1 U	0.010 J	0.1 U	0.05 U	0.1 U	0.05 U	0.333	0.301	0.1 U	0.009 J	0.06 J	0.065
Boron	mg/L	-	0.015 J	-	0.01 J	-	0.05 U	-	0.277	-	0.014 J	-	0.015 J
Cadmium	µg/L	0.02 J	0.015 J	0.05 U	0.009 J	0.03 J	0.030	0.09	0.102	0.02 J	0.018 J	0.03 J	0.036
Calcium	mg/L	-	93.0	-	80.9	-	78.1	-	11.4	-	53.0	-	16.7
Chloride	mg/L	-	3.23	-	4.23	-	10.7	-	7.00	-	9.33	-	2.16
Chromium	µg/L	0.2 U	0.37	0.539	0.71	0.649	0.76	1.08	0.99	0.501	0.68	0.464	0.99
Cobalt	µg/L	0.05 U	1.34	0.074	0.123	0.095	0.086	0.121	0.098	2.52	2.81	0.116	0.245
Combined Radium	pCi/L	2.15	2.67	0.703	1.24	0.953	1.09	0.968	0.72	0.4501	4.62	0.179	0.51
Fluoride	mg/L	0.25	0.25	0.09	0.09	0.09	0.09	0.03 J	0.03 J	0.05 J	0.04 J	0.02 J	0.03 J
Lead	µg/L	0.2 U	0.14 J	0.2 U	0.2 U	0.09 J	0.14 J	0.2 U	0.05 J	0.05 J	0.06 J	0.1 J	0.29
Lithium	mg/L	0.0188	0.0178	0.00280	0.00272	0.00127	0.00124	0.00192	0.00112	0.000751	0.00086	0.000582	0.00056
Mercury	µg/L	0.005 U	0.003 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Molybdenum	µg/L	0.5 J	0.5	2 U	0.3 J	0.5 J	0.5	2 U	0.5 U	0.5 J	0.4 J	2 U	0.1 J
Selenium	µg/L	0.2 U	0.5 U	0.3	0.34 J	0.4	0.44 J	2.1	2.00	0.09 J	0.12 J	0.5	0.49 J
Sulfate	mg/L	-	33.5	-	28.6	-	27.0	-	35.1	-	4.91	-	18.2
Thallium	µg/L	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.2 U
Total Dissolved Solids	mg/L	-	320	-	270	-	260	-	130	-	220	-	90
pH	SU	7.3	7.4	7.0	6.7	7.1	6.9	5.3	5.9	7.0	6.5	5.8	6.4

Notes:

µg/L: micrograms per liter

mg/L: milligrams per liter

pCi/L: picocuries per liter

SU: standard unit

U: Non-detect value. For statistical analysis, parameters which were not detected were replaced with the reporting limit.

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

-: Not sampled

**Table 2 - Appendix IV Groundwater Protection Standards
Flint Creek Plant - Landfill**

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.006		0.005	0.006
Arsenic, Total (mg/L)	0.010		0.0080	0.010
Barium, Total (mg/L)	2.00		0.131	2.00
Beryllium, Total (mg/L)	0.00400		0.00100	0.00400
Cadmium, Total (mg/L)	0.005		0.001	0.005
Chromium, Total (mg/L)	0.100		0.00600	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.00310	0.00600
Combined Radium, Total (pCi/L)	5.00		8.79	8.79
Fluoride, Total (mg/L)	4		1	4
Lead, Total (mg/L)	n/a	0.015	0.0050	0.015
Lithium, Total (mg/L)	n/a	0.0400	0.0410	0.0410
Mercury, Total (mg/L)	0.002		0.0001	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.050		0.039	0.050
Thallium, Total (mg/L)	0.002		0.002	0.002

Notes:

MCL = Maximum Contaminant Level

CCR = Coal Combustion Residual

GWPS = Groundwater Protection Standard

Calculated UTL (Upper Tolerance Limit) represents site-specific background values.

Grey cells indicate the GWPS is based upon calculated UTL, which is higher than either the MCL or CCR-Rule Specified value.

**Table 3 - Appendix III Data Summary
Flint Creek Plant - Landfill**

Analyte	Unit	Description	B-10	B-11	B-1B	B-2	B-5	B-6	B-7A	B-9
			6/22/2021	6/21/2021	6/21/2021	6/21/2021	6/22/2021	6/21/2021	6/21/2021	6/21/2021
Boron	mg/L	Interwell Background Value (UPL)	0.107							
		Analytical Result	0.009	0.277	0.014	0.480	0.009	0.029	0.015	0.01
Calcium	mg/L	Intrawell Background Value (UPL)	112	18.3	96.7	88.0	19.2	61.5	109	137
		Analytical Result	78.1	11.4	84.8	23.0	15.6	34.0	93.0	80.9
Chloride	mg/L	Intrawell Background Value (UPL)	11.5	7.73	5.84	9.83	11.6	12.2	6.87	8.31
		Analytical Result	10.7	7.00	2.20	3.68	9.16	6.95	3.23	4.23
Fluoride	mg/L	Intrawell Background Value (UPL)	1.00	1.00	0.707	1.00	1.00	1.00	1.00	1.00
		Analytical Result	0.09	0.03	0.39	0.11	0.07	0.03	0.25	0.09
pH	SU	Intrawell Background Value (UPL)	8.8	7.0	8.4	7.3	6.8	7.4	7.9	8.5
		Intrawell Background Value (LPL)	5.9	4.8	6.2	5.2	4.3	6.1	6.5	6.2
		Analytical Result	6.9	5.9	7.2	5.7	4.9	6.1	7.4	6.7
Sulfate	mg/L	Intrawell Background Value (UPL)	39.4	65.7	28.1	803	243	42.3	37.1	37.6
		Analytical Result	27.0	35.1	18.7	60.9	248	9.93	33.5	28.6
Total Dissolved Solids	mg/L	Intrawell Background Value (UPL)	315	193	317	1,410	447	292	339	293
		Analytical Result	260	130	290	230	410	150	320	270

Notes:

UPL: Upper prediction limit

LPL: Lower prediction limit

Bold values exceed the background value.

Background values are shaded gray.

ATTACHMENT A

Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that the selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Flint Creek 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



15296

License Number

ARKANSAS

Licensing State

10.20.21

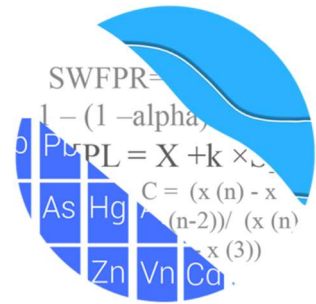
Date

ATTACHMENT B
Statistical Analysis Output

GROUNDWATER STATS CONSULTING

August 31, 2021

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



Re: Flint Creek Landfill
Assessment Monitoring Summary – June 2021

Dear Ms. Kreinberg,

Groundwater Stats Consulting (GSC), formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the Assessment Monitoring statistical analysis of groundwater data through June 2021 at American Electric Power Company's Flint Creek Landfill. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities (CCR Rule, 2015) as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling began at the site for the CCR program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** B-1B, B-4, B-5, B-7A, B-12, and B-13
- **Downgradient wells:** B-2, B-6, B-9, B-10, and B-11

Data were sent electronically, and the statistical analysis was conducted according to the Statistical Analysis Plan and screening evaluation prepared by GSC and approved by Dr. Kirk Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to GSC. The analysis was reviewed by Kristina Rayner, Groundwater Statistician and Founder of Groundwater Stats Consulting.

The CCR program consists of the following constituents:

- **Appendix IV** (Assessment Monitoring) – antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium

Time series and box plots for Appendix IV parameters are provided for all wells and constituents; and are used to evaluate concentrations over the entire record (Figures A and B, respectively). Values in background which have previously been flagged as outliers may be seen in a lighter font and disconnected symbol on the graphs. Additionally, a summary of flagged values follows this letter (Figure C).

Summary of Statistical Methods – Appendix IV Parameters

Parametric tolerance 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 non-detects, 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 (USEPA, 2009), data are analyzed using either parametric or non-parametric tolerance limits as appropriate.

- No statistical analyses are required on wells and analytes containing 100% non-detects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects in background, the reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory. There is no replacement of historical reporting limits with the most recent reporting limit. For several constituents, the most recent reporting limits are significantly lower than those reported historically. This is a conservative approach for tolerance limits and confidence intervals at this site.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect 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 tolerance limits are used on data containing greater than 50% non-detects.

Summary of Background Update – Conducted in February 2021

Outlier Analysis

Prior to evaluating Appendix IV parameters, background (upgradient) data were screened through visual screening and Tukey's outlier test for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits. High outliers are also 'cautiously' flagged in the downgradient wells when they are clearly much different from the rest of the data. This is intended to be a regulatory conservative approach in that it will reduce the variance and thus reduce the width of parametric confidence intervals; although it will also reduce the mean and thus lower the entire interval. The intent is to better represent the actual downgradient mean.

Tukey's outlier test results for Appendix IV parameters were included with the background update conducted in February 2021. As mentioned above, a list of flagged values follows this report (Figure C).

Tolerance Limits

Interwell upper tolerance limits were used to calculate background limits from all available pooled upgradient well data for each Appendix IV parameter through October 2020 (Figure D). Parametric limits use a target of 95% confidence and 95% coverage. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. These limits were compared to the Maximum Contaminant Levels (MCLs) and CCR-Rule specified levels in the Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the Confidence Interval comparisons (Figure E). GWPS will be updated during Fall 2021.

Evaluation of Appendix IV Parameters – June 2021

Confidence intervals were then constructed with data through June 2021 on downgradient wells for each of the Appendix IV parameters using the highest limit of the MCL, CCR-Rule specified levels, or background limit as the GWPS as discussed above (Figure F). Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. No exceedances were noted for any of the well/constituent pairs. A summary of the confidence interval results follows this letter.

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

For Groundwater Stats Consulting,

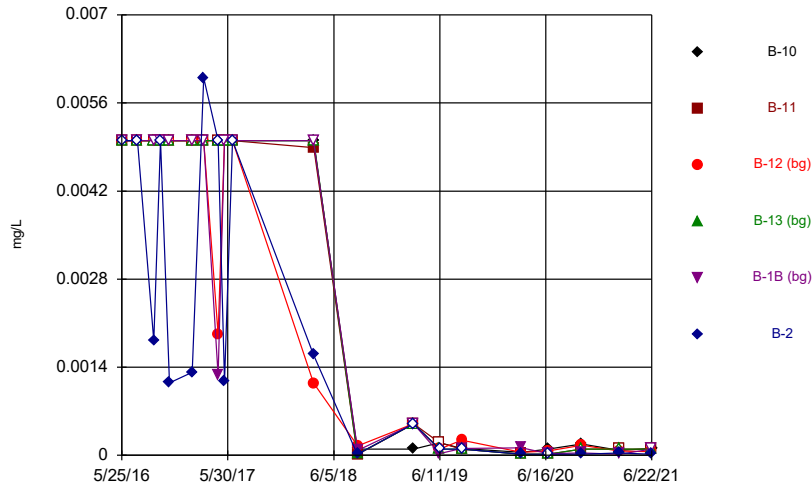


Andrew T. Collins
Project Manager



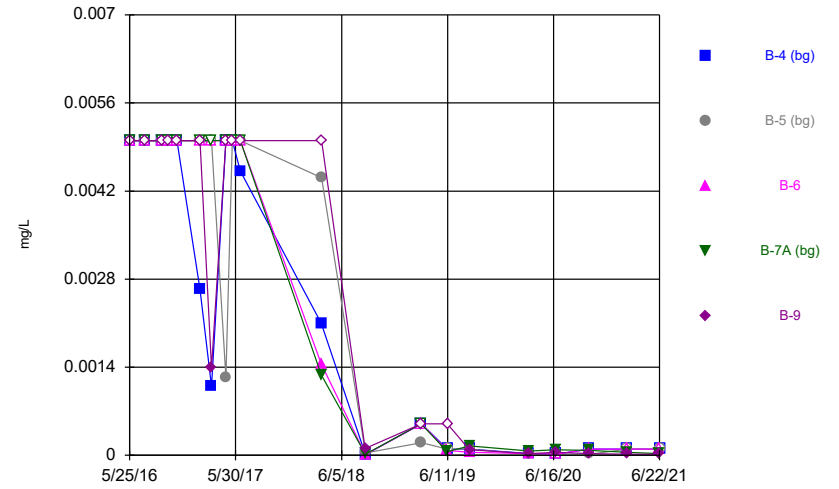
Kristina L. Rayner
Groundwater Statistician

Time Series



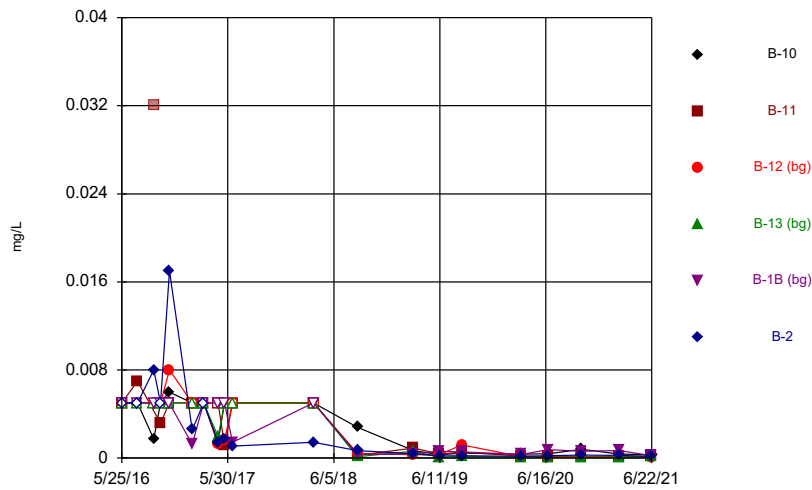
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Time Series



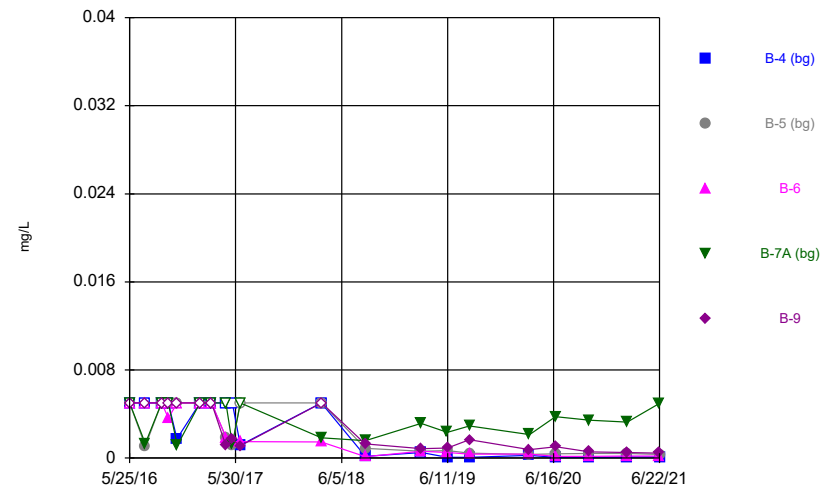
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Time Series



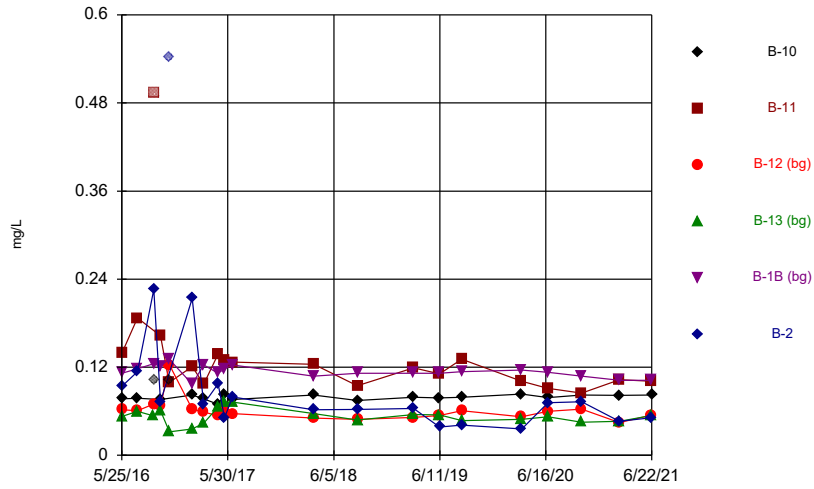
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Time Series



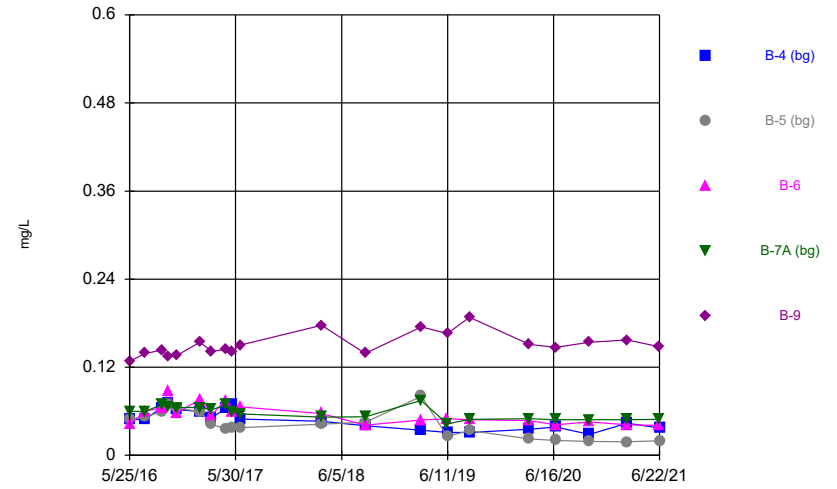
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Time Series



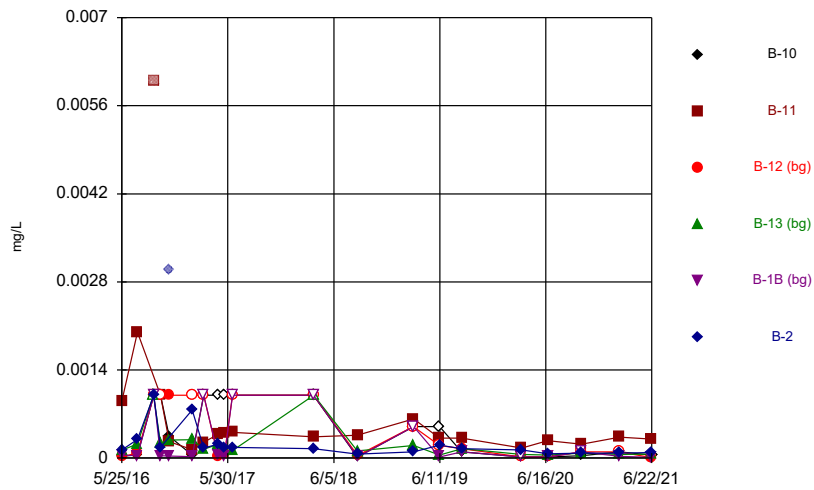
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Time Series



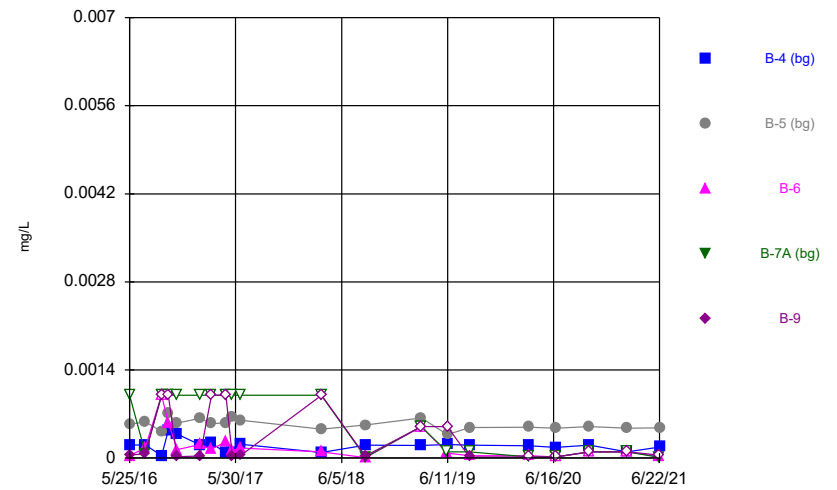
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Time Series



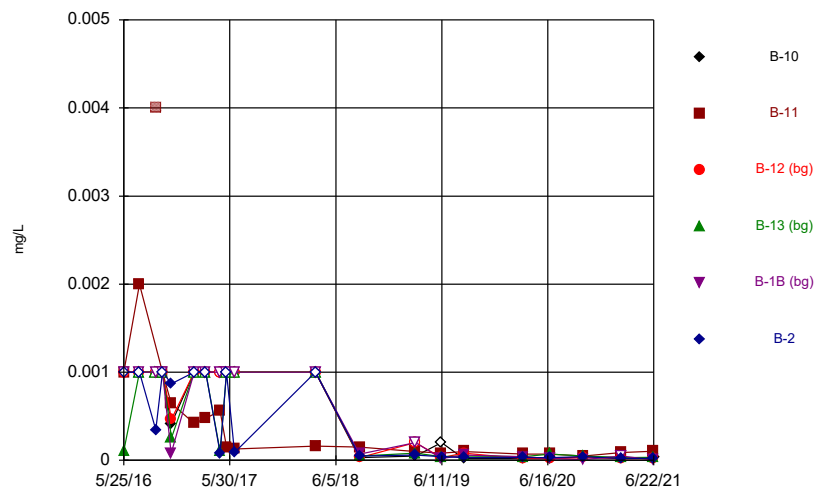
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Time Series



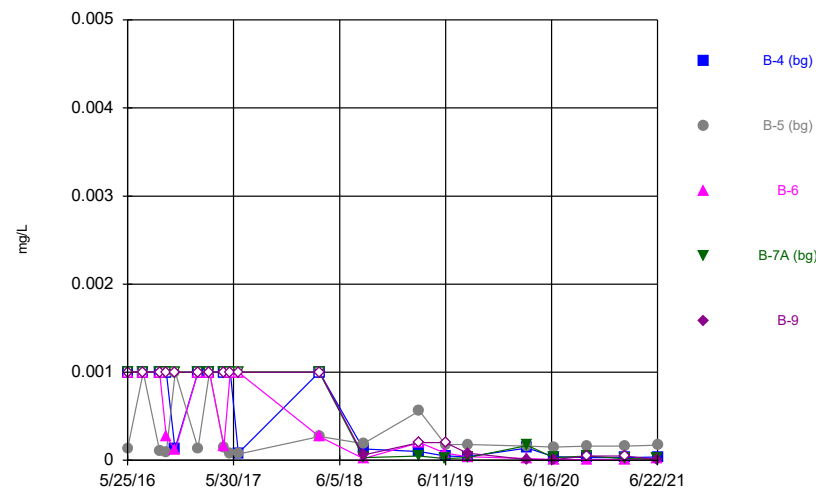
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Time Series



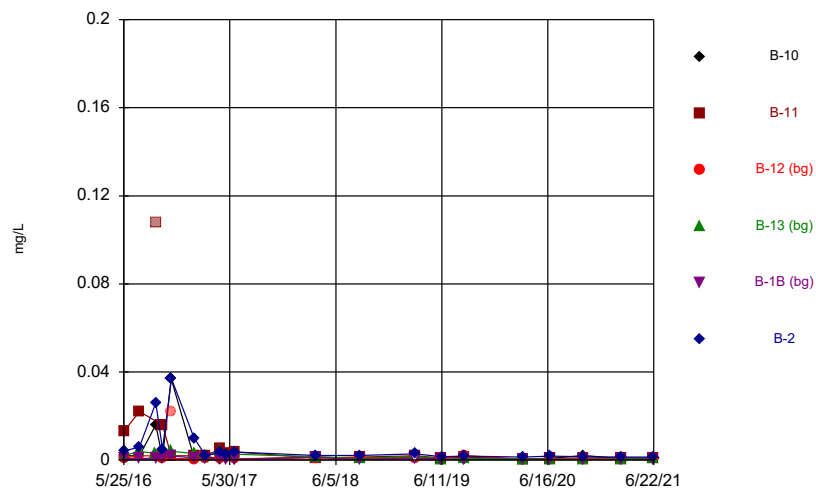
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Time Series



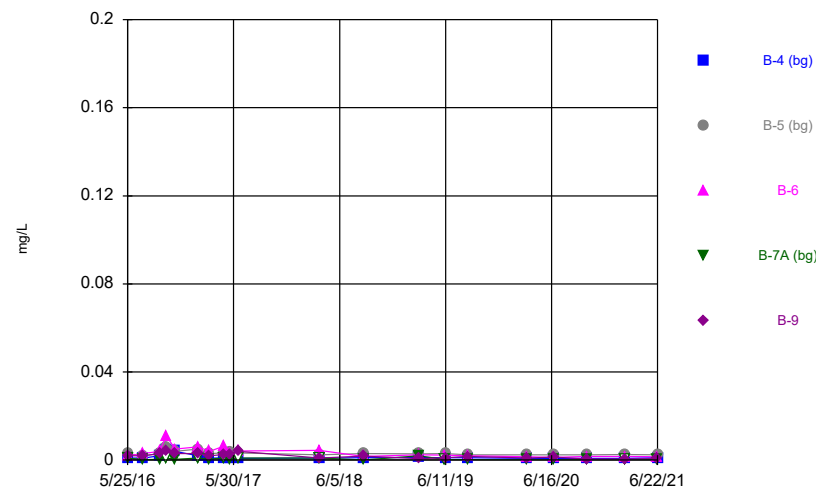
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Time Series



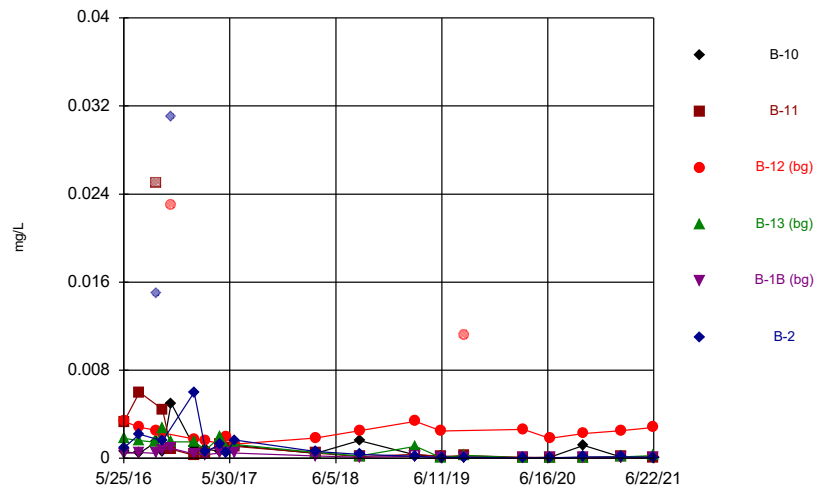
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Time Series



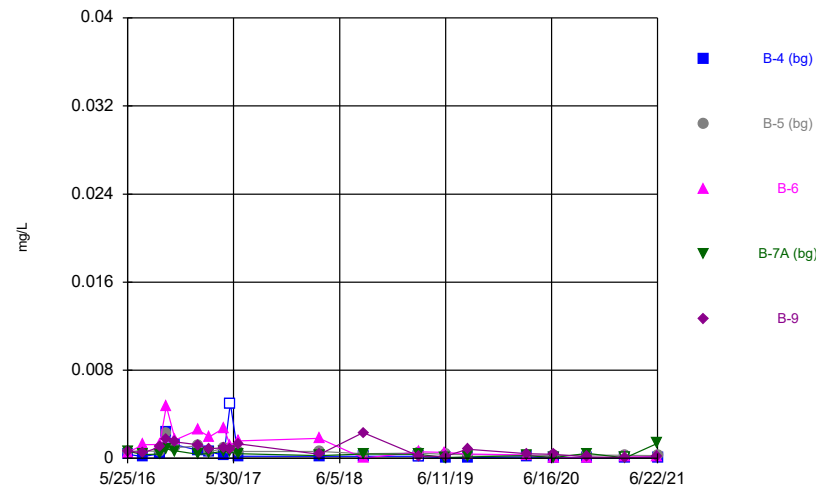
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Time Series



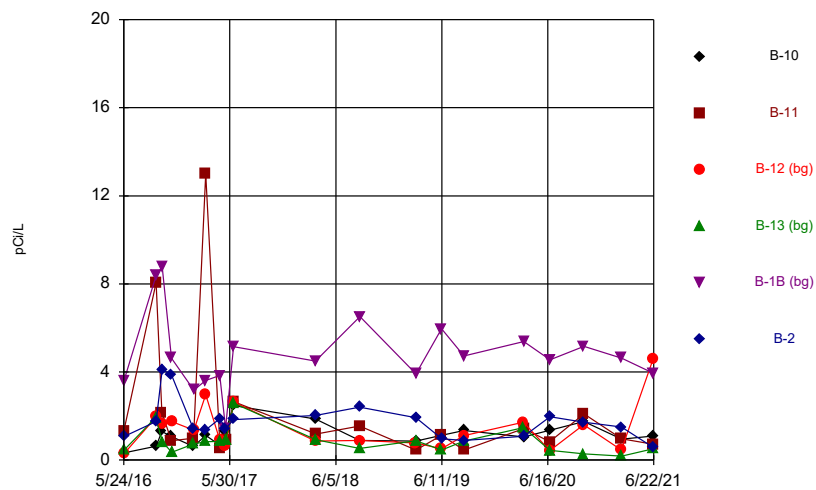
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Time Series



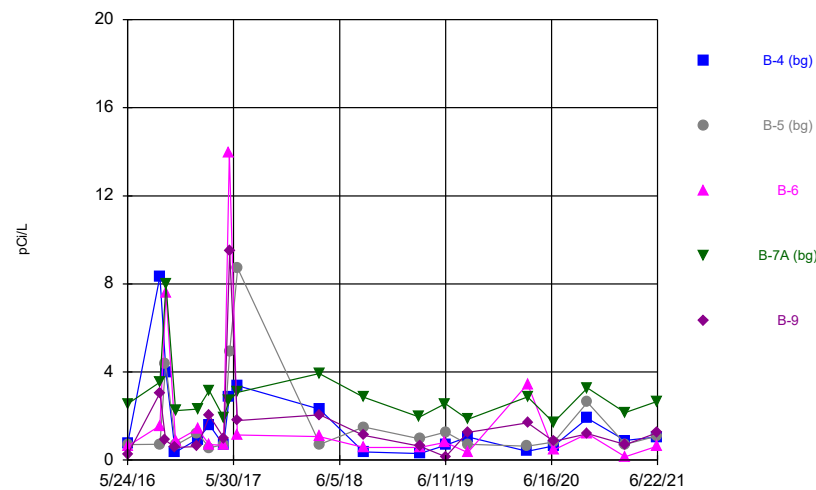
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Time Series



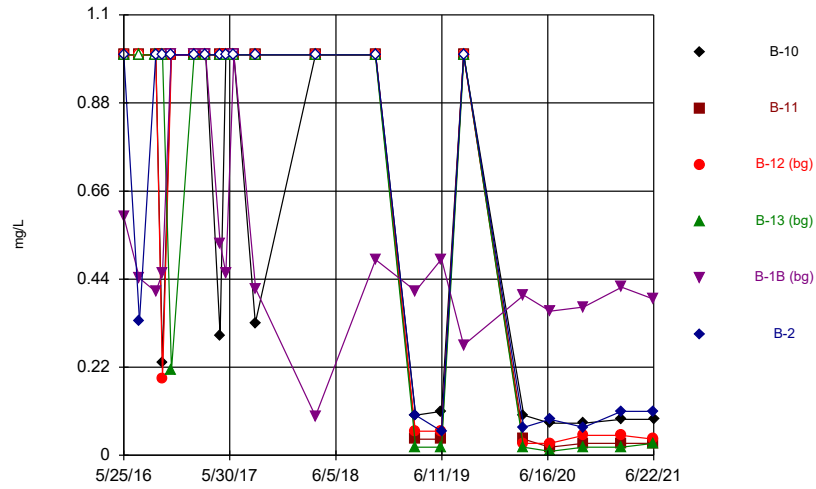
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Time Series



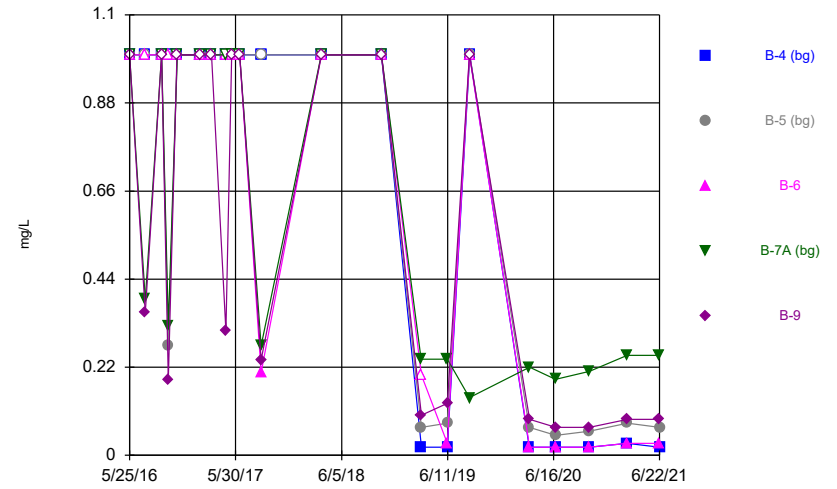
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Time Series



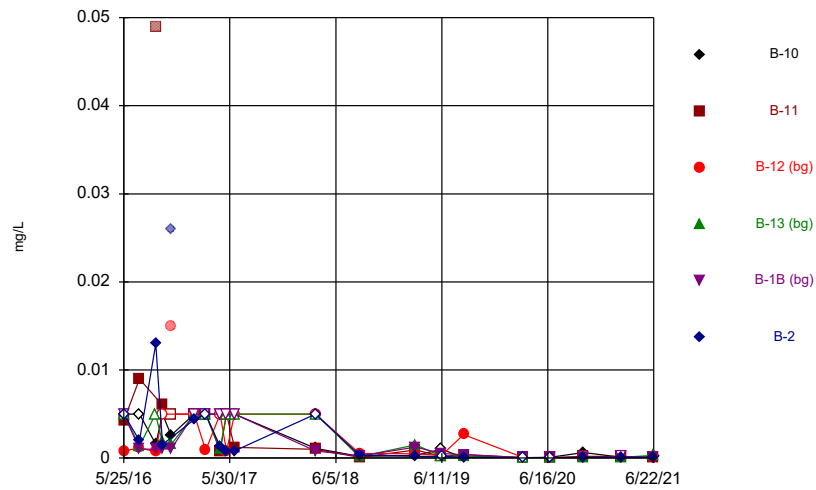
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Time Series



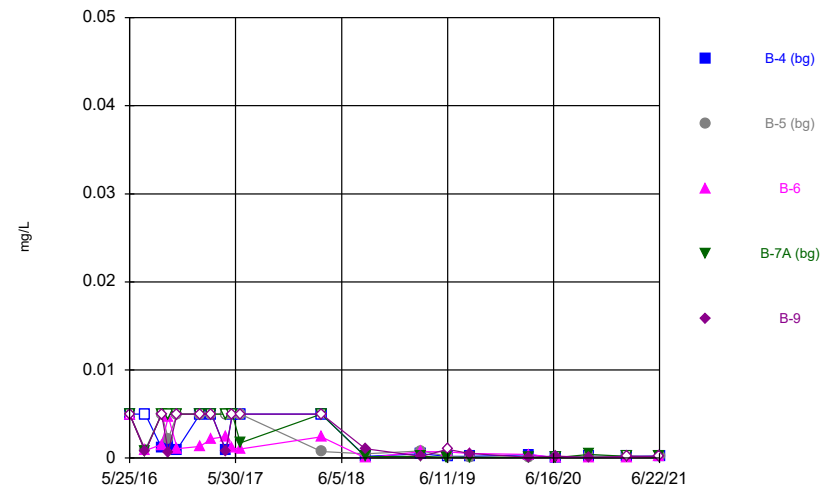
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Time Series



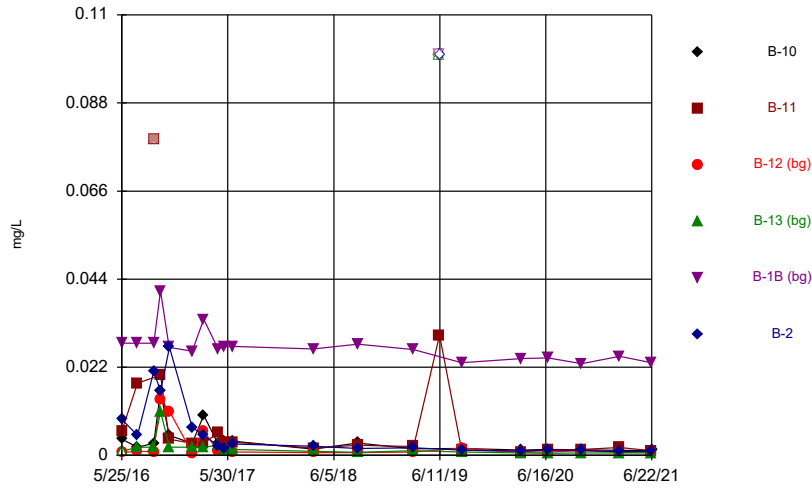
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Time Series



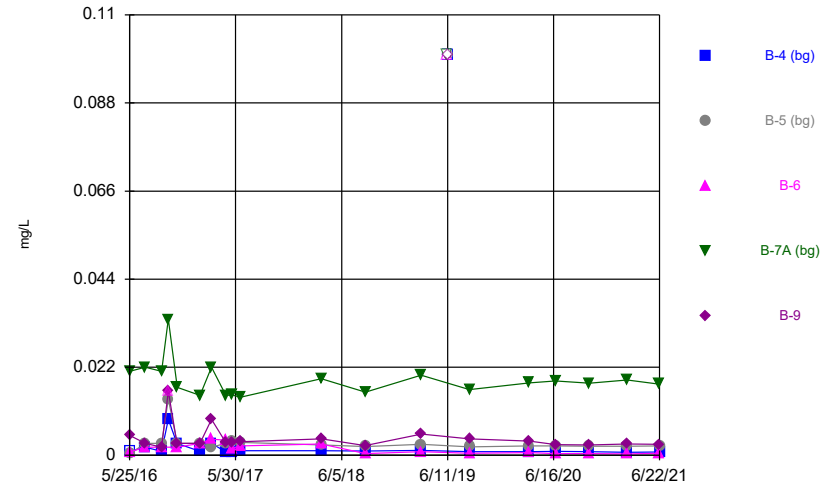
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Time Series



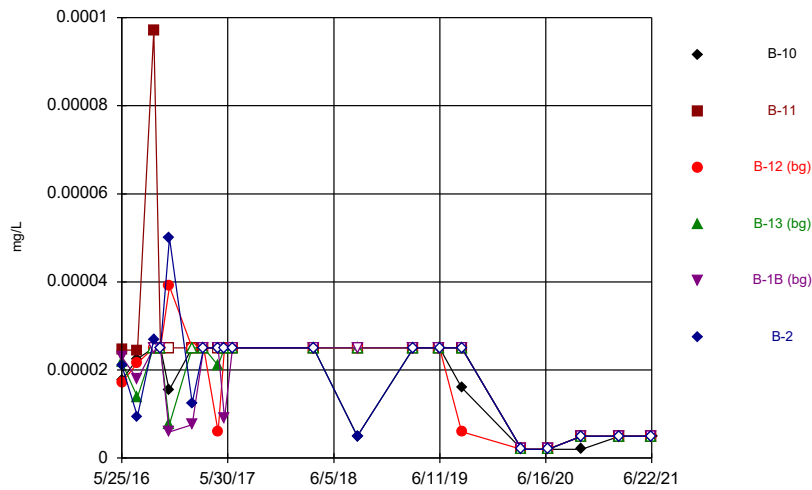
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Time Series



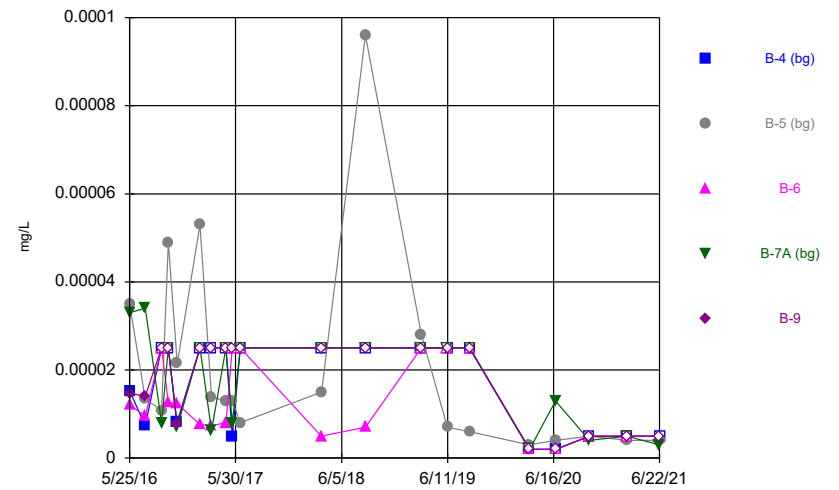
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Time Series



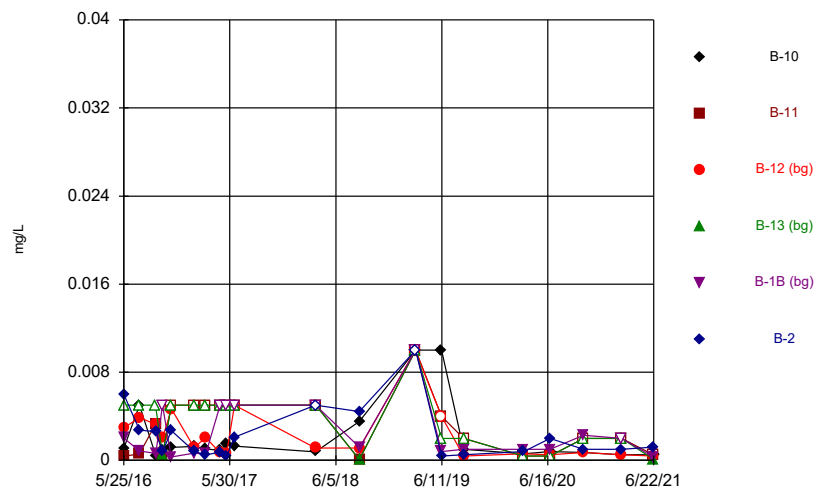
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Time Series



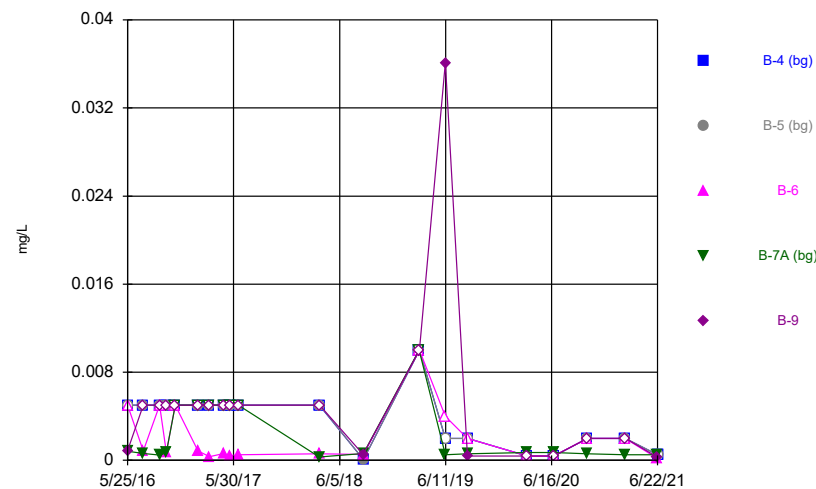
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Time Series



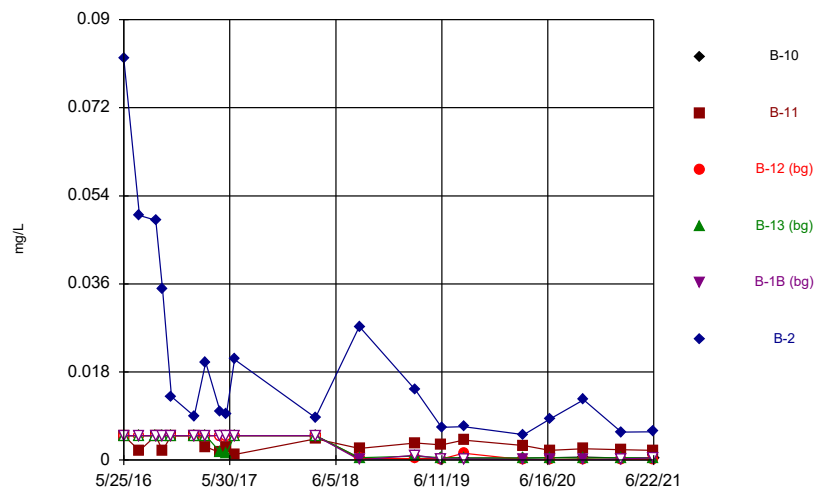
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Time Series



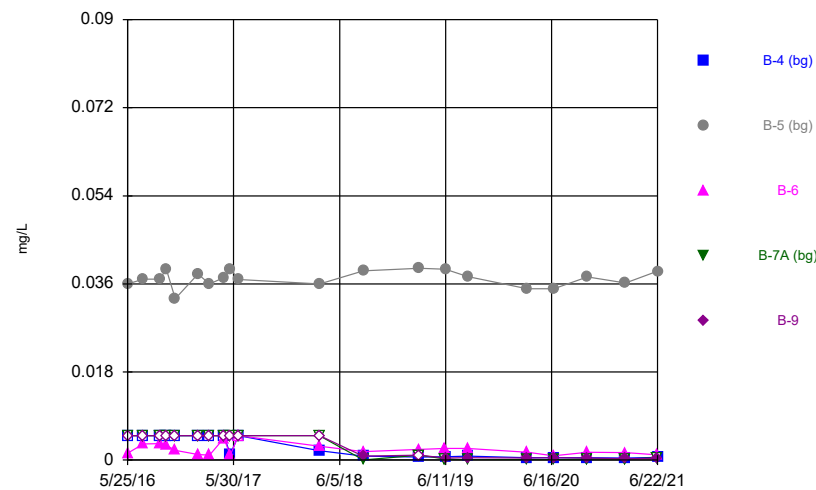
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Time Series



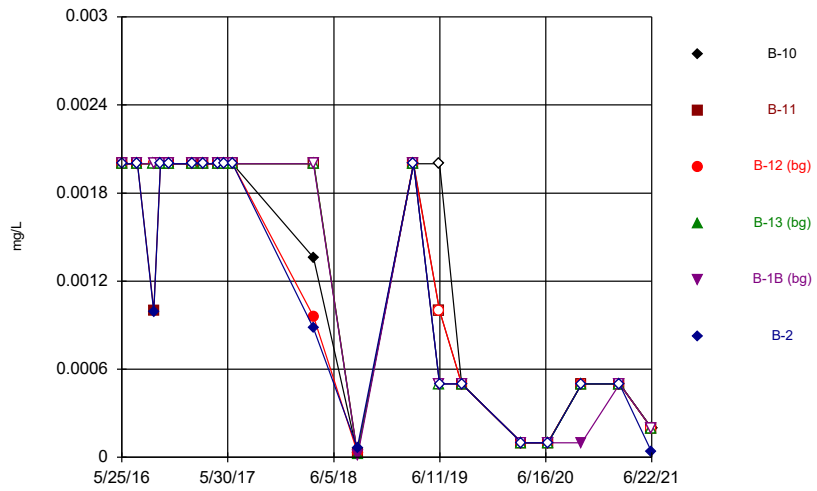
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Time Series



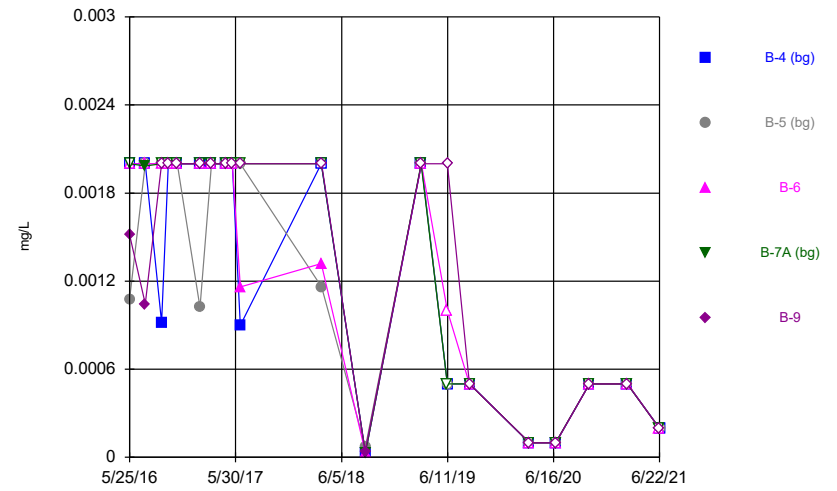
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Time Series



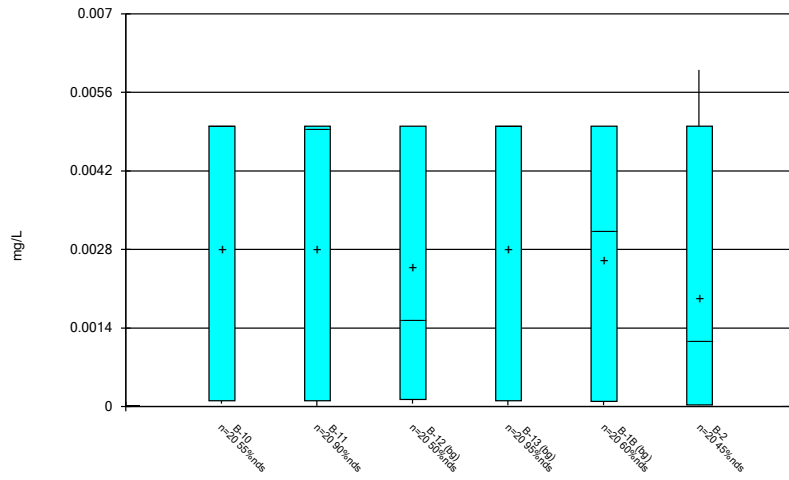
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Time Series



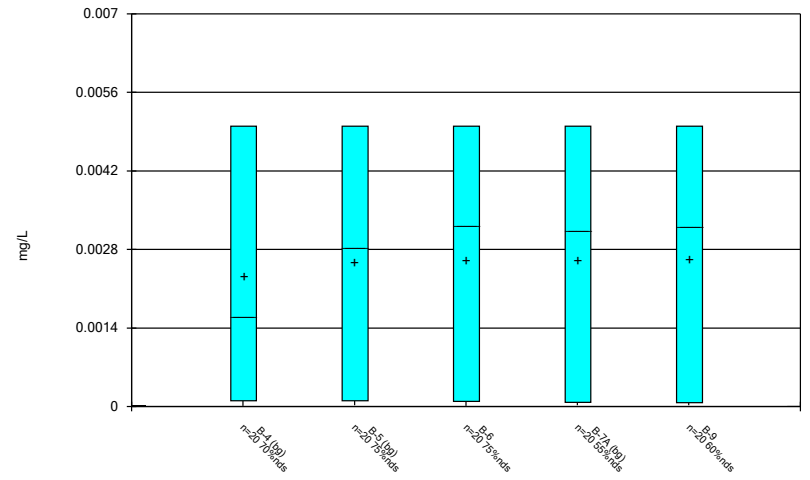
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Box & Whiskers Plot



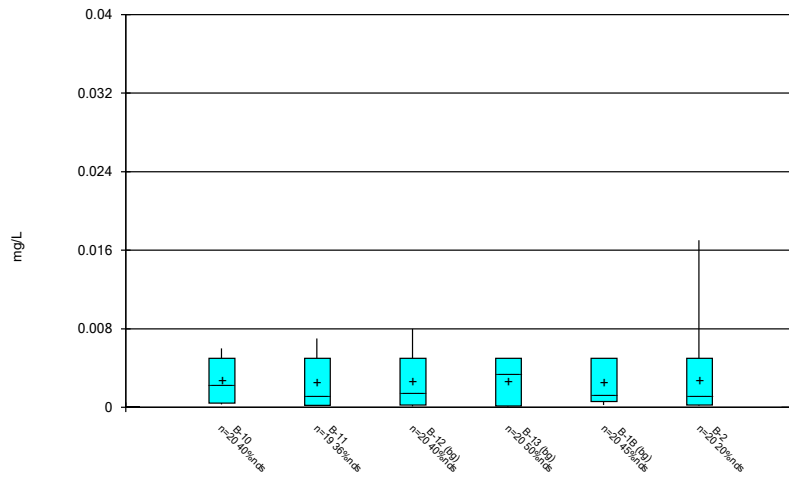
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Box & Whiskers Plot



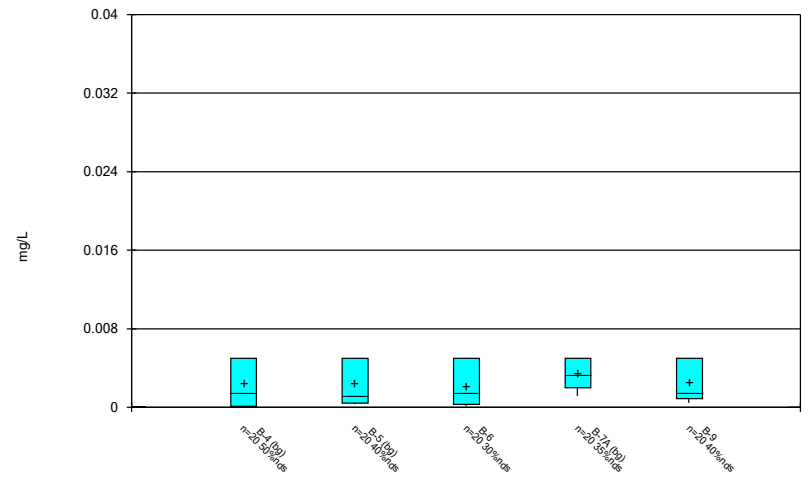
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Box & Whiskers Plot



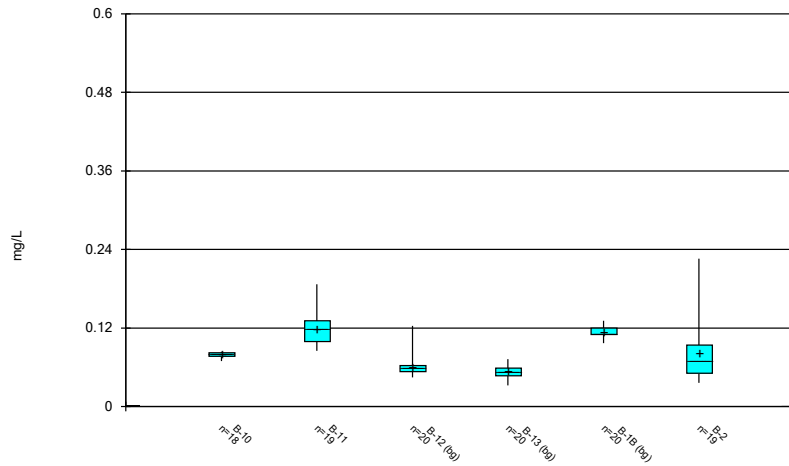
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Box & Whiskers Plot



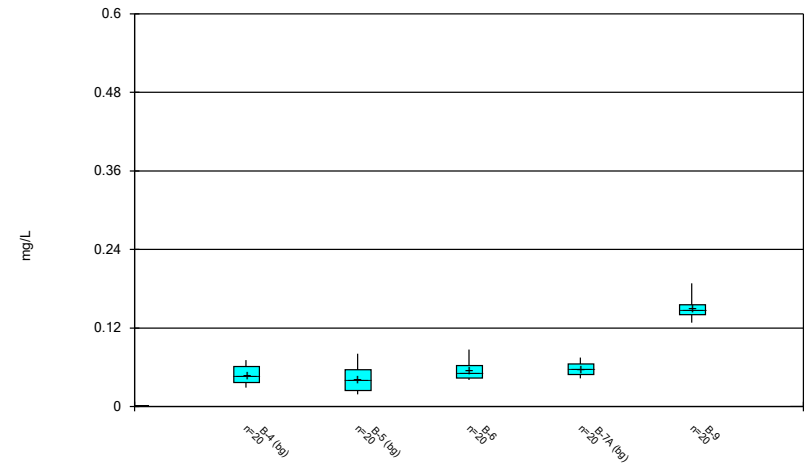
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



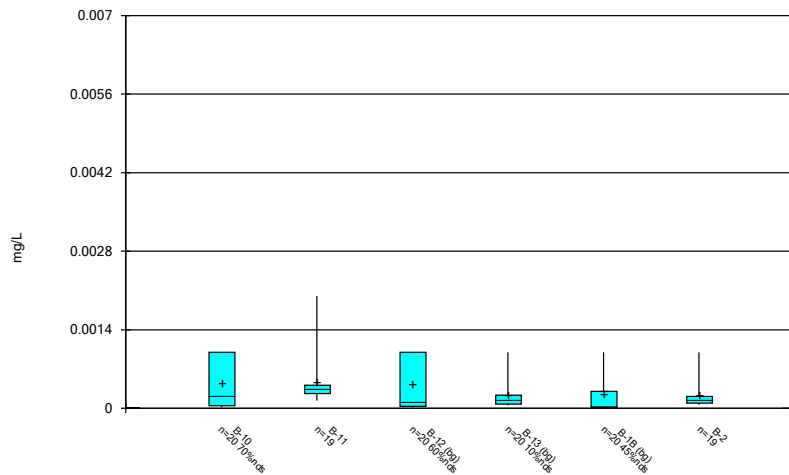
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



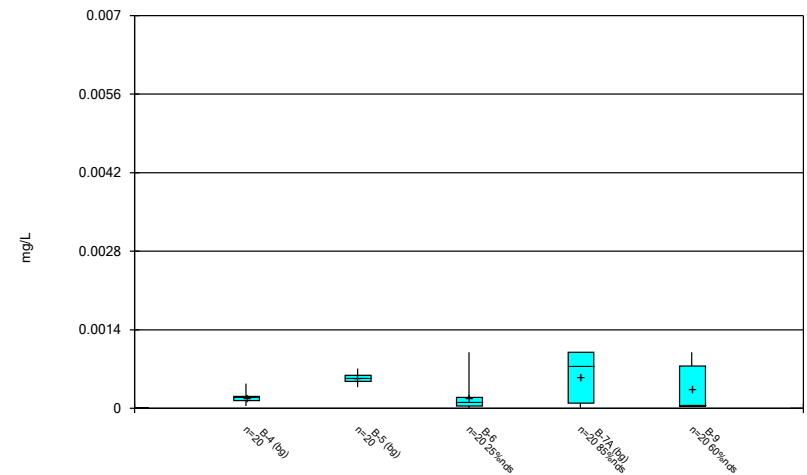
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Box & Whiskers Plot



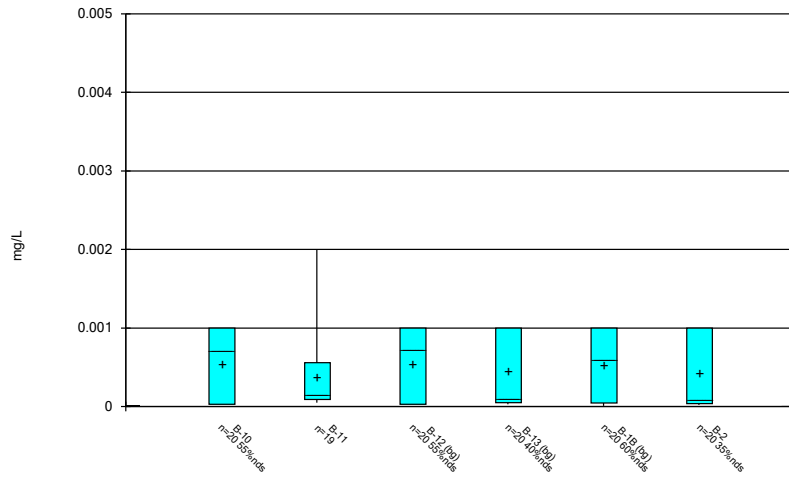
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Box & Whiskers Plot



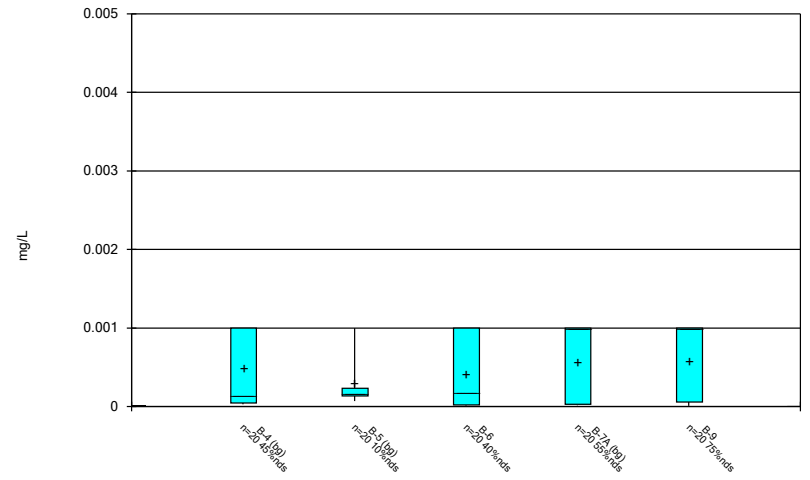
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



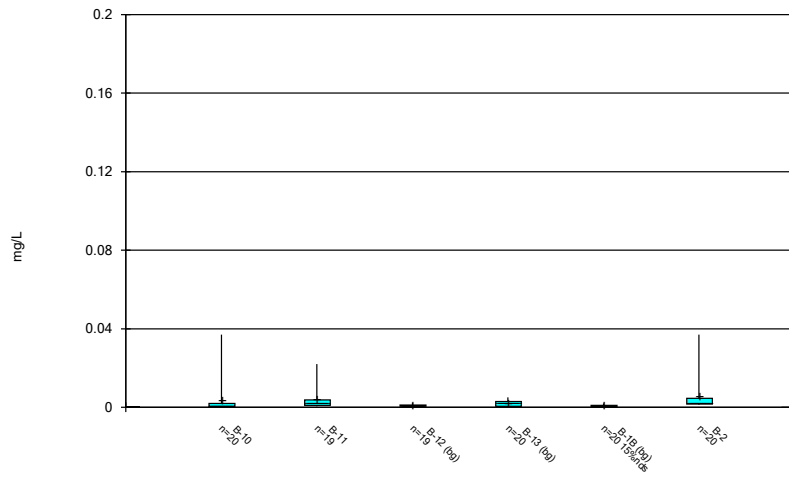
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Box & Whiskers Plot



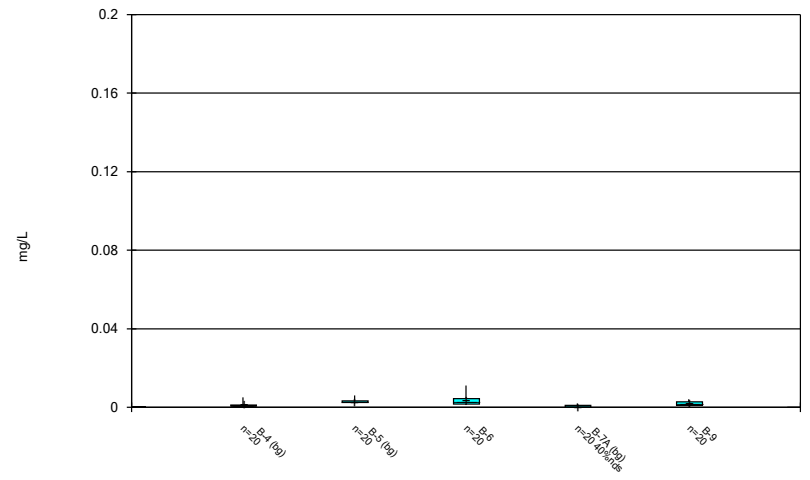
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Box & Whiskers Plot



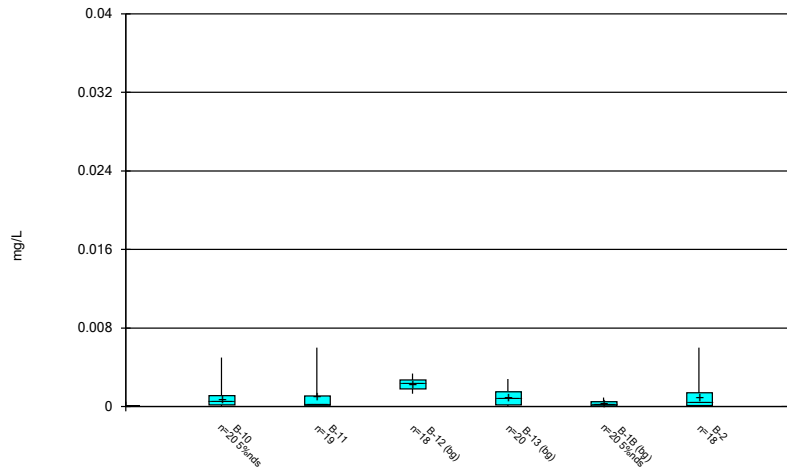
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



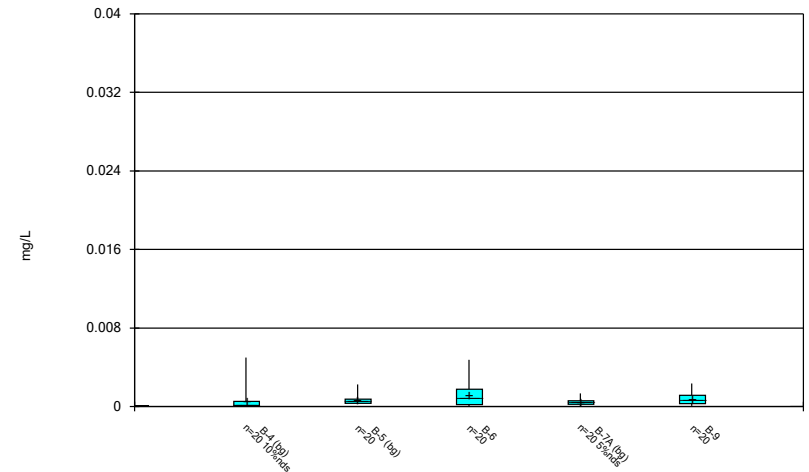
Constituent: Chromium, total Analysis Run 8/31/2021 12:40 PM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



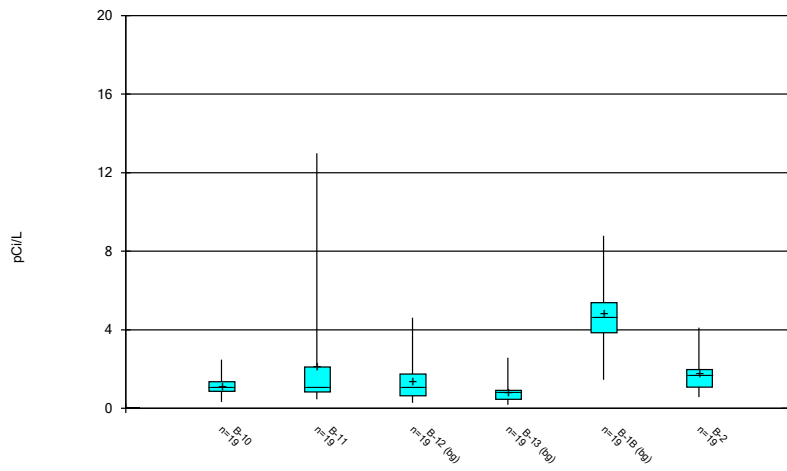
Constituent: Cobalt, total Analysis Run 8/31/2021 12:40 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



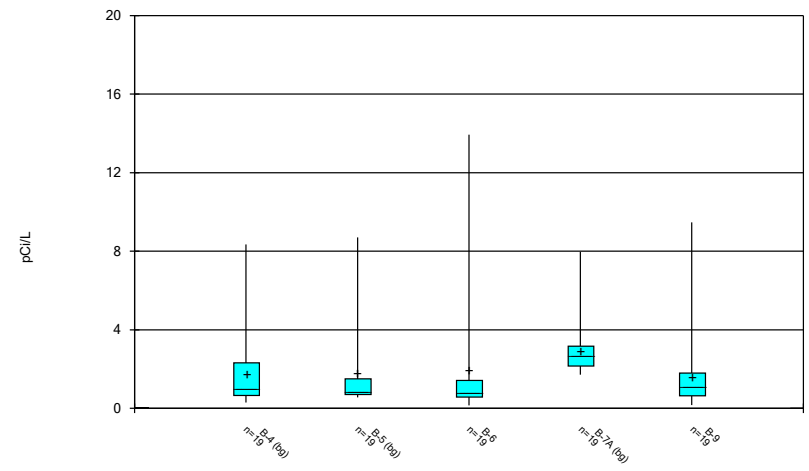
Constituent: Cobalt, total Analysis Run 8/31/2021 12:40 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



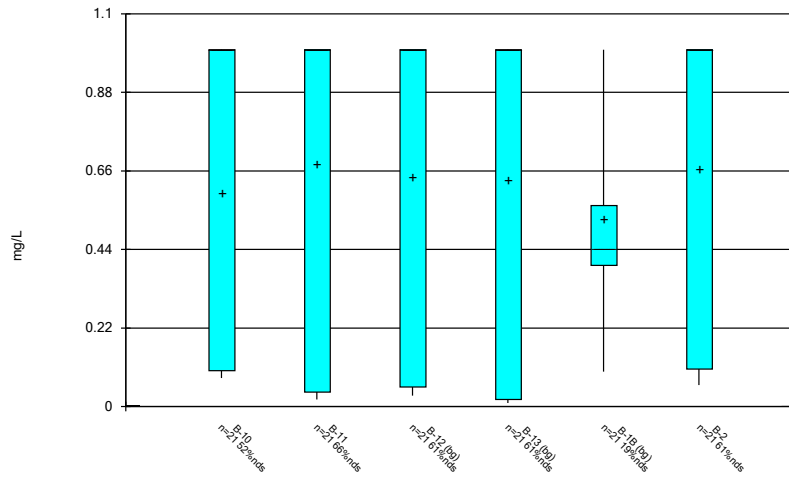
Constituent: Combined Radium 226 + 228 Analysis Run 8/31/2021 12:40 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



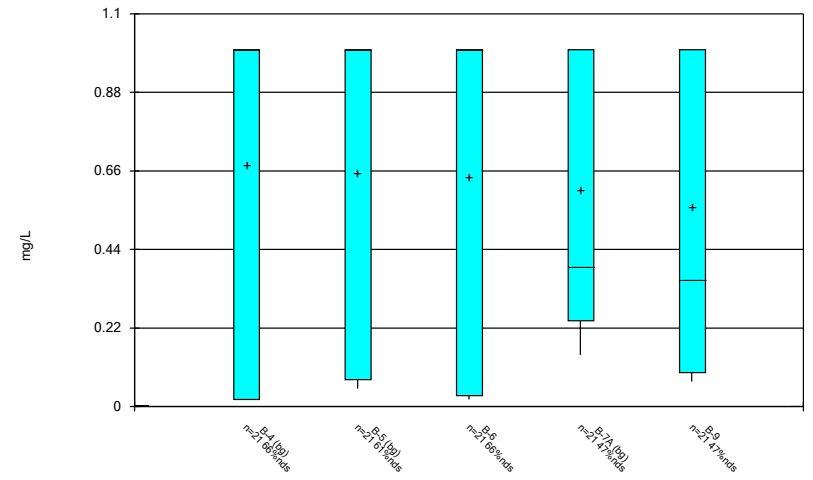
Constituent: Combined Radium 226 + 228 Analysis Run 8/31/2021 12:40 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



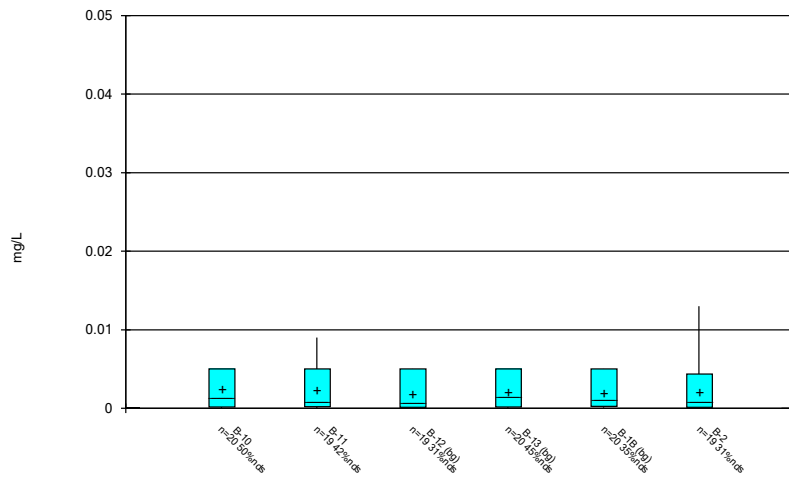
Constituent: Fluoride, total Analysis Run 8/31/2021 12:40 PM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



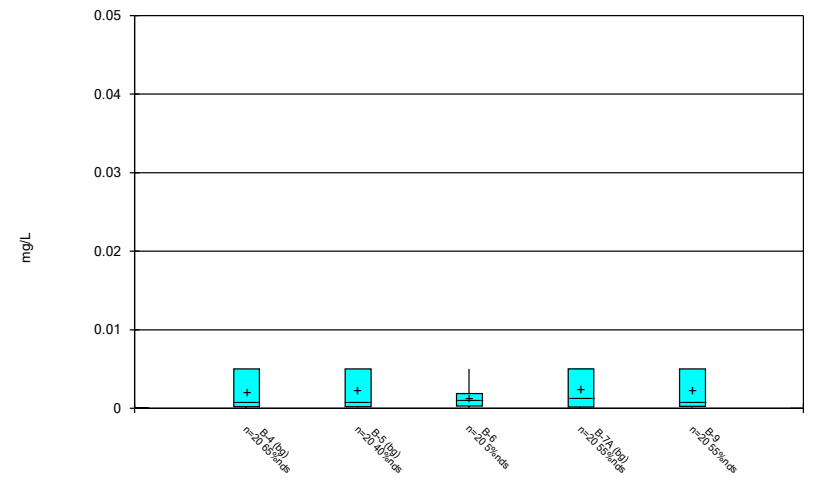
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



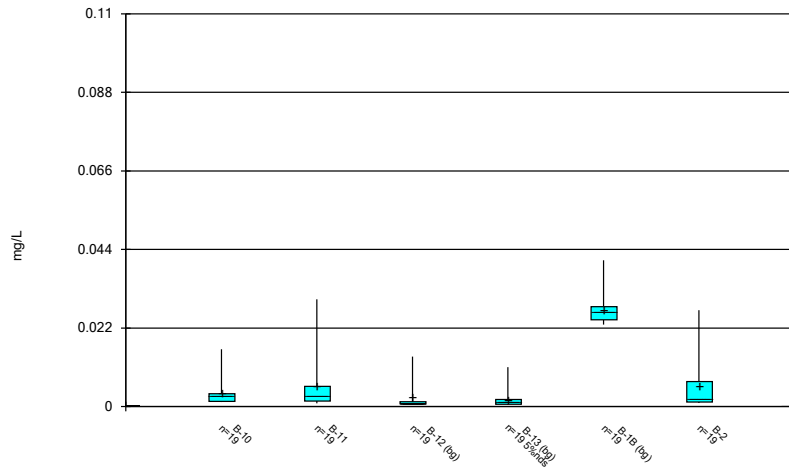
Constituent: Lead, total Analysis Run 8/31/2021 12:40 PM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



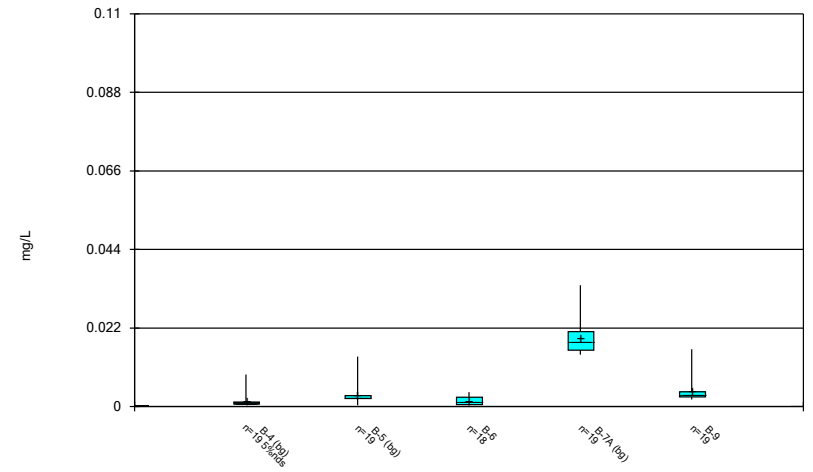
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Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



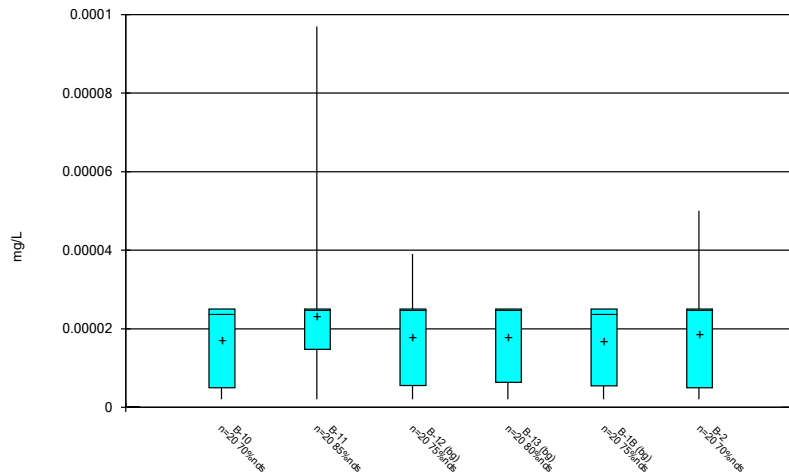
Constituent: Lithium, total Analysis Run 8/31/2021 12:40 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



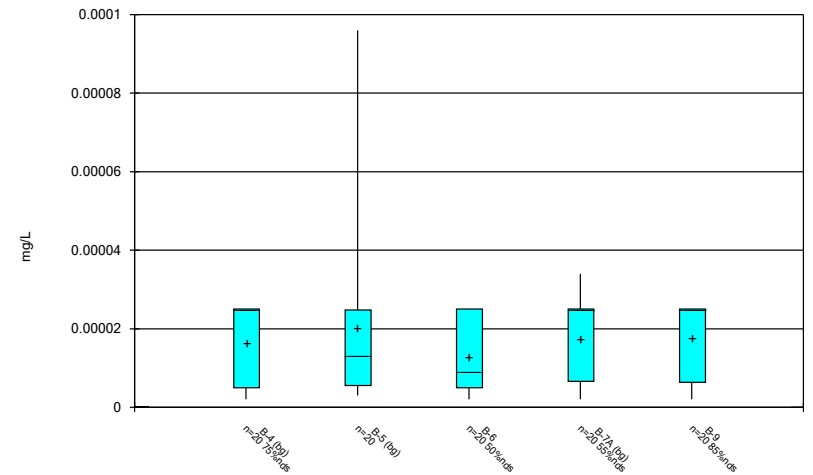
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



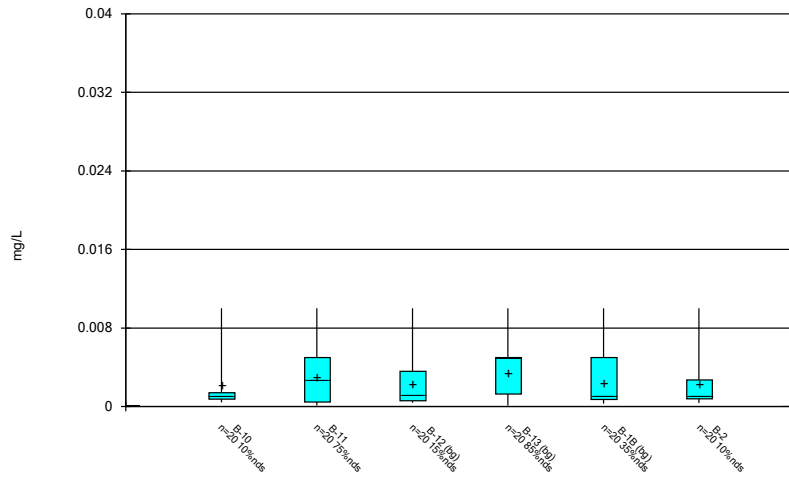
Constituent: Mercury, total Analysis Run 8/31/2021 12:40 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



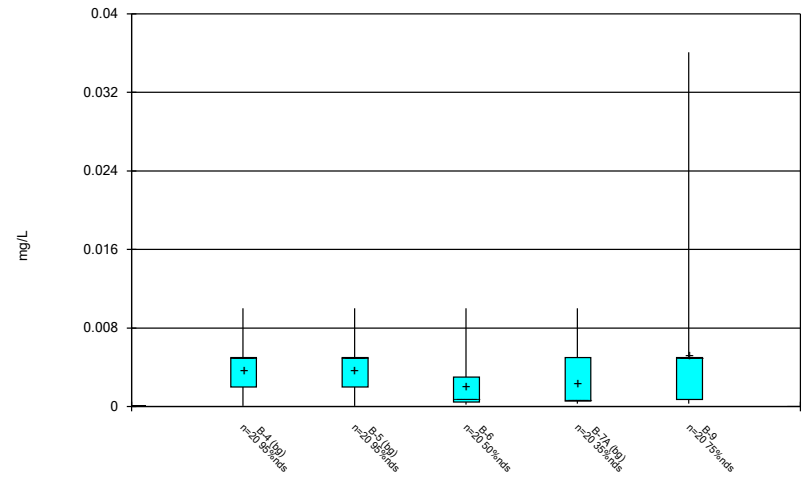
Constituent: Mercury, total Analysis Run 8/31/2021 12:41 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



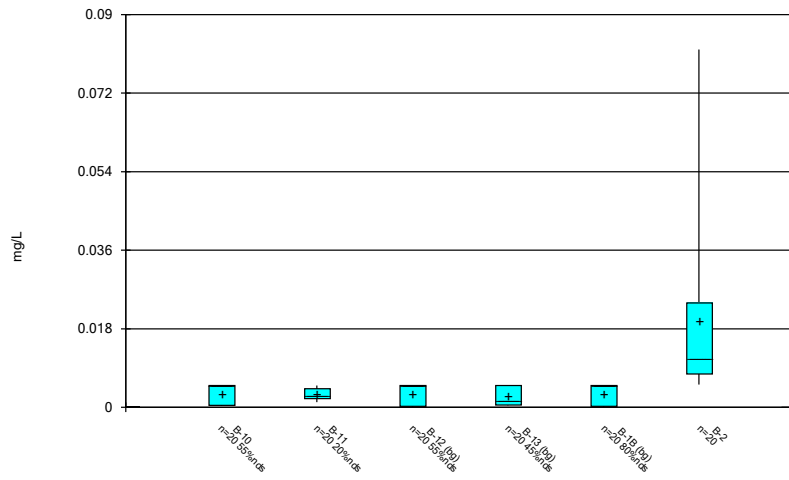
Constituent: Molybdenum, total Analysis Run 8/31/2021 12:41 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



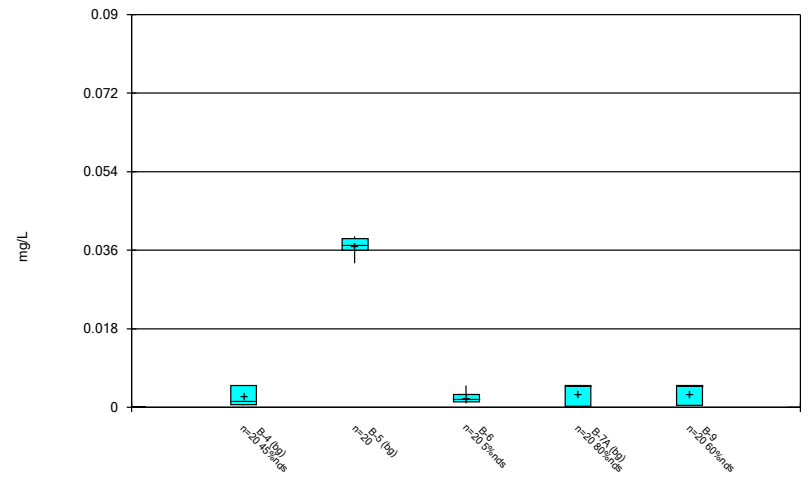
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



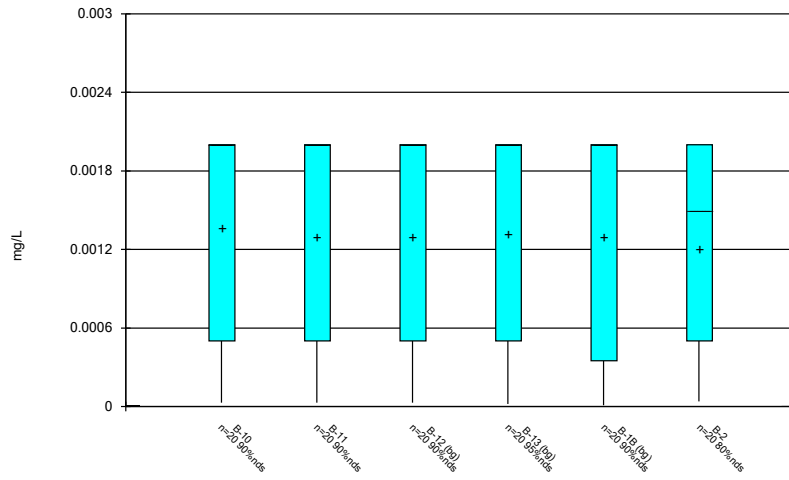
Constituent: Selenium, total Analysis Run 8/31/2021 12:41 PM
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



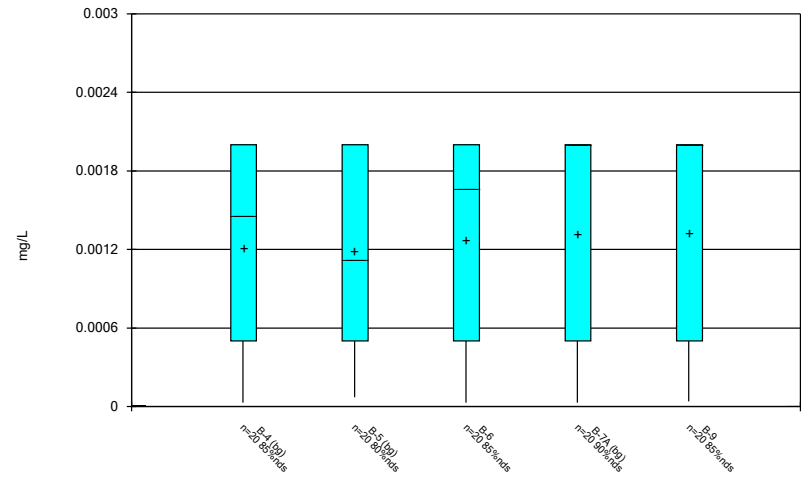
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 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 8/31/2021 12:41 PM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 8/31/2021 12:41 PM
Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Outlier Summary

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 8/31/2021, 12:41 PM

	B-11 Arsenic, total (mg/L)	B-10 Barium, total (mg/L)	B-11 Barium, total (mg/L)	B-2 Barium, total (mg/L)	B-11 Beryllium, total (mg/L)	B-2 Beryllium, total (mg/L)	B-11 Cadmium, total (mg/L)	B-11 Chromium, total (mg/L)	B-12 Chromium, total (mg/L)	B-11 Cobalt, total (mg/L)
9/14/2016	0.032 (o)	0.102 (o)	0.494 (o)		0.006 (o)		0.004 (o)	0.108 (o)		0.025 (o)
10/7/2016										
11/7/2016		0.103 (o)								
11/8/2016				0.543 (o)		0.003 (o)			0.022 (o)	
6/10/2019										
6/11/2019										
8/27/2019										

	B-12 Cobalt, total (mg/L)	B-2 Cobalt, total (mg/L)	B-11 Lead, total (mg/L)	B-12 Lead, total (mg/L)	B-2 Lead, total (mg/L)	B-10 Lithium, total (mg/L)	B-11 Lithium, total (mg/L)	B-12 Lithium, total (mg/L)	B-13 Lithium, total (mg/L)	B-1B Lithium, total (mg/L)
9/14/2016		0.015 (o)	0.049 (o)				0.079 (o)			
10/7/2016										
11/7/2016										
11/8/2016	0.023 (o)	0.031 (o)		0.015 (o)	0.026 (o)					
6/10/2019						<0.1 (o)		<0.1 (o)	<0.1 (o)	<0.1 (o)
6/11/2019										
8/27/2019	0.0112 (o)									

	B-2 Lithium, total (mg/L)	B-4 Lithium, total (mg/L)	B-5 Lithium, total (mg/L)	B-6 Lithium, total (mg/L)	B-7A Lithium, total (mg/L)	B-9 Lithium, total (mg/L)
9/14/2016						
10/7/2016				0.016 (o)		
11/7/2016						
11/8/2016						
6/10/2019				<0.1 (o)	<0.1 (o)	
6/11/2019	<0.1 (o)	<0.1 (o)	<0.1 (o)			<0.1 (o)
8/27/2019						

Upper Tolerance Limit Summary Table

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 2/2/2021, 2:28 PM

Constituent	Upper Lim.	Lower Lim.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	0.005	n/a	n/a	108	n/a	n/a	68.52	n/a	n/a	0.003928	NP Inter(NDs)
Arsenic, total (mg/L)	0.008	n/a	n/a	108	n/a	n/a	48.15	n/a	n/a	0.003928	NP Inter(normality)
Barium, total (mg/L)	0.131	n/a	n/a	108	n/a	n/a	0	n/a	n/a	0.003928	NP Inter(normality)
Beryllium, total (mg/L)	0.001	n/a	n/a	108	n/a	n/a	35.19	n/a	n/a	0.003928	NP Inter(normality)
Cadmium, total (mg/L)	0.001	n/a	n/a	108	n/a	n/a	48.15	n/a	n/a	0.003928	NP Inter(normality)
Chromium, total (mg/L)	0.006	n/a	n/a	107	n/a	n/a	9.346	n/a	n/a	0.004135	NP Inter(normality)
Cobalt, total (mg/L)	0.003103	n/a	n/a	106	0.08399	0.03229	2.83	None	x^(1/3)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	8.79	n/a	n/a	102	n/a	n/a	0	n/a	n/a	0.005343	NP Inter(normality)
Fluoride, total (mg/L)	1	n/a	n/a	114	n/a	n/a	58.77	n/a	n/a	0.002887	NP Inter(NDs)
Lead, total (mg/L)	0.005	n/a	n/a	107	n/a	n/a	47.66	n/a	n/a	0.004135	NP Inter(normality)
Lithium, total (mg/L)	0.041	n/a	n/a	102	n/a	n/a	1.961	n/a	n/a	0.005343	NP Inter(normality)
Mercury, total (mg/L)	0.000096	n/a	n/a	108	n/a	n/a	58.33	n/a	n/a	0.003928	NP Inter(NDs)
Molybdenum, total (mg/L)	0.01	n/a	n/a	108	n/a	n/a	61.11	n/a	n/a	0.003928	NP Inter(NDs)
Selenium, total (mg/L)	0.0392	n/a	n/a	108	n/a	n/a	52.78	n/a	n/a	0.003928	NP Inter(NDs)
Thallium, total (mg/L)	0.002	n/a	n/a	108	n/a	n/a	87.04	n/a	n/a	0.003928	NP Inter(NDs)

FLINT CREEK LANDFILL GWPS				
Constituent Name	MCL	CCR-Rule Specified	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.005	0.006
Arsenic, Total (mg/L)	0.01		0.008	0.01
Barium, Total (mg/L)	2		0.13	2
Beryllium, Total (mg/L)	0.004		0.001	0.004
Cadmium, Total (mg/L)	0.005		0.001	0.005
Chromium, Total (mg/L)	0.1		0.006	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0031	0.006
Combined Radium, Total (pCi/L)	5		8.79	8.79
Fluoride, Total (mg/L)	4		1	4
Lead, Total (mg/L)	n/a	0.015	0.005	0.015
Lithium, Total (mg/L)	n/a	0.04	0.041	0.041
Mercury, Total (mg/L)	0.002		0.000096	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.039	0.05
Thallium, Total (mg/L)	0.002		0.002	0.002

**Grey cell indicates background limit is higher than MCL or CCR-Rule Specified level*

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

Confidence Interval - All Results (No Significant)

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 8/31/2021, 12:49 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	B-10	0.005	0.0001	0.006	No	20	0.002801	0.002494	55	None	No	0.01	NP (NDs)
Antimony, total (mg/L)	B-11	0.005	0.0001	0.006	No	20	0.002802	0.002484	90	None	No	0.01	NP (NDs)
Antimony, total (mg/L)	B-2	0.005	0.00004	0.006	No	20	0.001945	0.002247	45	None	No	0.01	NP (normality)
Antimony, total (mg/L)	B-6	0.005	0.00008	0.006	No	20	0.002622	0.002459	75	None	No	0.01	NP (NDs)
Antimony, total (mg/L)	B-9	0.005	0.00005	0.006	No	20	0.002637	0.002443	60	None	No	0.01	NP (NDs)
Arsenic, total (mg/L)	B-10	0.005	0.00038	0.01	No	20	0.002784	0.002247	40	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	B-11	0.005	0.0002	0.01	No	19	0.002584	0.002469	36.84	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	B-2	0.002036	0.0003129	0.01	No	20	0.002788	0.004061	20	Kaplan-Meier	x^(1/3)	0.01	Param.
Arsenic, total (mg/L)	B-6	0.005	0.0002	0.01	No	20	0.002133	0.002095	30	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	B-9	0.005	0.00085	0.01	No	20	0.002598	0.002036	40	None	No	0.01	NP (normality)
Barium, total (mg/L)	B-10	0.08108	0.07673	2	No	18	0.07891	0.00359	0	None	No	0.01	Param.
Barium, total (mg/L)	B-11	0.1341	0.1039	2	No	19	0.119	0.02585	0	None	No	0.01	Param.
Barium, total (mg/L)	B-2	0.09639	0.05353	2	No	19	0.08242	0.05265	0	None	ln(x)	0.01	Param.
Barium, total (mg/L)	B-6	0.06279	0.04775	2	No	20	0.05527	0.01324	0	None	No	0.01	Param.
Barium, total (mg/L)	B-9	0.1595	0.142	2	No	20	0.1508	0.01539	0	None	No	0.01	Param.
Beryllium, total (mg/L)	B-10	0.001	0.00004	0.004	No	20	0.0004415	0.0004446	70	None	No	0.01	NP (NDs)
Beryllium, total (mg/L)	B-11	0.0005422	0.0002566	0.004	No	19	0.0004724	0.0004327	0	None	ln(x)	0.01	Param.
Beryllium, total (mg/L)	B-2	0.00022	0.00009	0.004	No	19	0.000221	0.0002433	0	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	B-6	0.0001544	0.00003992	0.004	No	20	0.0001901	0.0002409	25	Kaplan-Meier	sqrt(x)	0.01	Param.
Beryllium, total (mg/L)	B-9	0.0005	0.00003	0.004	No	20	0.0003293	0.000421	60	Kaplan-Meier	No	0.01	NP (NDs)
Cadmium, total (mg/L)	B-10	0.001	0.00003	0.005	No	20	0.0005427	0.0004773	55	None	No	0.01	NP (NDs)
Cadmium, total (mg/L)	B-11	0.0006496	0.00008	0.005	No	19	0.0003872	0.0004963	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	B-2	0.001	0.00003	0.005	No	20	0.0004355	0.0004652	35	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	B-6	0.001	0.00002	0.005	No	20	0.0004111	0.0004503	40	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	B-9	0.001	0.00005	0.005	No	20	0.0005835	0.000475	75	None	No	0.01	NP (NDs)
Chromium, total (mg/L)	B-10	0.002	0.000429	0.1	No	20	0.003539	0.008581	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	B-11	0.00516	0.000919	0.1	No	19	0.004207	0.006003	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	B-2	0.005	0.00157	0.1	No	20	0.005877	0.009181	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	B-6	0.004375	0.002102	0.1	No	20	0.003439	0.002363	0	None	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	B-9	0.002531	0.001271	0.1	No	20	0.001901	0.00111	0	None	No	0.01	Param.
Cobalt, total (mg/L)	B-10	0.001119	0.0002742	0.006	No	20	0.0008353	0.001088	5	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	B-11	0.0009682	0.0001961	0.006	No	19	0.001084	0.001658	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	B-2	0.001124	0.0001786	0.006	No	18	0.0009201	0.001425	0	None	x^(1/3)	0.01	Param.
Cobalt, total (mg/L)	B-6	0.001572	0.0003874	0.006	No	20	0.001173	0.001197	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	B-9	0.00113	0.000437	0.006	No	20	0.0007837	0.0006105	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-10	1.437	0.8557	8.79	No	19	1.147	0.4968	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-11	2.161	0.72	8.79	No	19	2.173	3.112	0	None	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	B-2	2.195	1.237	8.79	No	19	1.776	0.9045	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-6	1.859	0.5446	8.79	No	19	1.985	3.344	0	None	ln(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	B-9	1.798	0.634	8.79	No	19	1.608	2.031	0	None	ln(x)	0.01	Param.
Fluoride, total (mg/L)	B-10	1	0.1	4	No	21	0.5958	0.4393	52.38	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-11	1	0.04	4	No	21	0.6776	0.4672	66.67	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-2	1	0.1	4	No	21	0.6641	0.442	61.9	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-6	1	0.03	4	No	21	0.6456	0.4656	66.67	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	B-9	1	0.1	4	No	21	0.5587	0.4371	47.62	None	No	0.01	NP (normality)
Lead, total (mg/L)	B-10	0.005	0.00014	0.015	No	20	0.00239	0.002267	50	None	No	0.01	NP (normality)
Lead, total (mg/L)	B-11	0.005	0.000097	0.015	No	19	0.002342	0.00274	42.11	None	No	0.01	NP (normality)
Lead, total (mg/L)	B-2	0.000794	0.0001022	0.015	No	19	0.002104	0.003235	31.58	Kaplan-Meier	ln(x)	0.01	Param.
Lead, total (mg/L)	B-6	0.00177	0.0004146	0.015	No	20	0.001321	0.001425	5	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	B-9	0.005	0.0002	0.015	No	20	0.002291	0.002287	55	None	No	0.01	NP (NDs)
Lithium, total (mg/L)	B-10	0.004	0.0014	0.041	No	19	0.003563	0.003637	0	None	No	0.01	NP (normality)
Lithium, total (mg/L)	B-11	0.005911	0.00184	0.041	No	19	0.005835	0.007913	0	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	B-2	0.009	0.00126	0.041	No	19	0.005773	0.007488	0	None	No	0.01	NP (normality)
Lithium, total (mg/L)	B-6	0.00281	0.000456	0.041	No	18	0.001607	0.001213	0	None	No	0.01	NP (normality)
Lithium, total (mg/L)	B-9	0.005	0.00264	0.041	No	19	0.004256	0.00324	0	None	No	0.01	NP (normality)

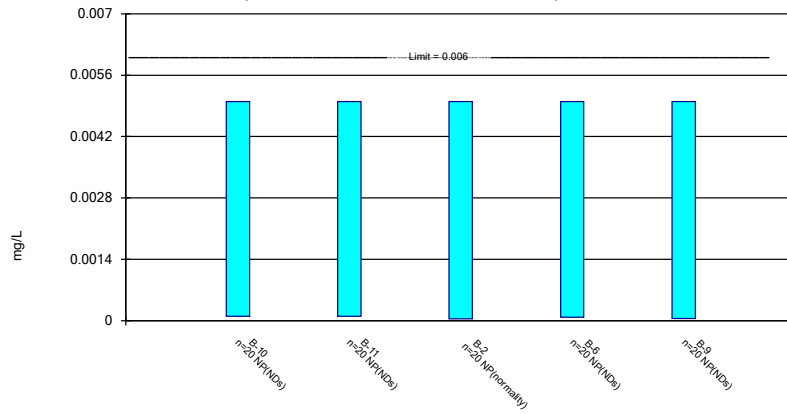
Confidence Interval - All Results (No Significant)

Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF Printed 8/31/2021, 12:49 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Mercury, total (mg/L)	B-10	0.000025	0.000005	0.002	No	20	0.00001713	0.000009683	70	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	B-11	0.000025	0.000005	0.002	No	20	0.00002325	0.00001971	85	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	B-2	0.000025	0.000005	0.002	No	20	0.00001845	0.00001223	70	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	B-6	0.000008348	0.000003807	0.002	No	20	0.00001253	0.000008864	50	Kaplan-Meier	sqrt(x)	0.01	Param.
Mercury, total (mg/L)	B-9	0.000025	0.000005	0.002	No	20	0.00001778	0.000009563	85	Kaplan-Meier	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	B-10	0.00155	0.0007	0.1	No	20	0.002154	0.002896	10	None	No	0.01	NP (normality)
Molybdenum, total (mg/L)	B-11	0.005	0.0004	0.1	No	20	0.003051	0.002606	75	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	B-2	0.003046	0.0009118	0.1	No	20	0.002283	0.002438	10	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	B-6	0.0006205	0.0003654	0.1	No	20	0.002073	0.002523	50	Kaplan-Meier	x^(1/3)	0.01	Param.
Molybdenum, total (mg/L)	B-9	0.005	0.00054	0.1	No	20	0.005151	0.00772	75	Kaplan-Meier	No	0.01	NP (NDs)
Selenium, total (mg/L)	B-10	0.005	0.0004	0.05	No	20	0.002942	0.002335	55	None	No	0.01	NP (NDs)
Selenium, total (mg/L)	B-11	0.003028	0.002024	0.05	No	20	0.00304	0.001279	20	Kaplan-Meier	No	0.01	Param.
Selenium, total (mg/L)	B-2	0.02223	0.008856	0.05	No	20	0.01996	0.01997	0	None	ln(x)	0.01	Param.
Selenium, total (mg/L)	B-6	0.002866	0.001542	0.05	No	20	0.002204	0.001165	5	None	No	0.01	Param.
Selenium, total (mg/L)	B-9	0.005	0.0004	0.05	No	20	0.002982	0.002294	60	None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-10	0.002	0.0002	0.002	No	20	0.001365	0.0008405	90	None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-11	0.002	0.0002	0.002	No	20	0.001297	0.0008333	90	None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-2	0.002	0.0001	0.002	No	20	0.001209	0.0008447	80	None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-6	0.002	0.0002	0.002	No	20	0.001271	0.0008148	85	None	No	0.01	NP (NDs)
Thallium, total (mg/L)	B-9	0.002	0.0002	0.002	No	20	0.001325	0.0008299	85	None	No	0.01	NP (NDs)

Non-Parametric Confidence Interval

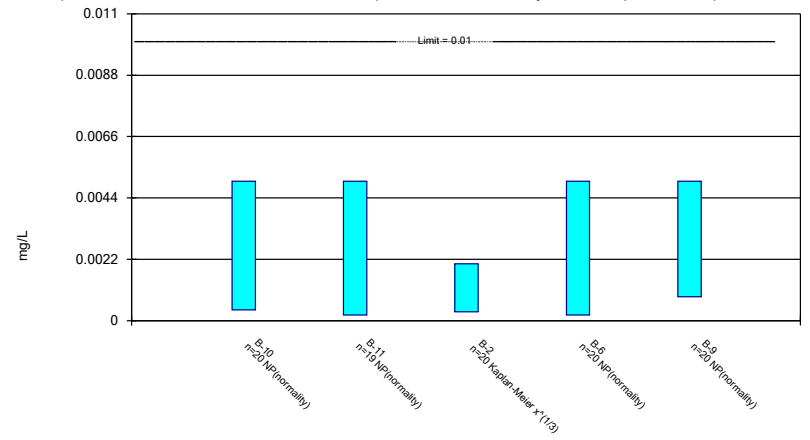
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Antimony, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

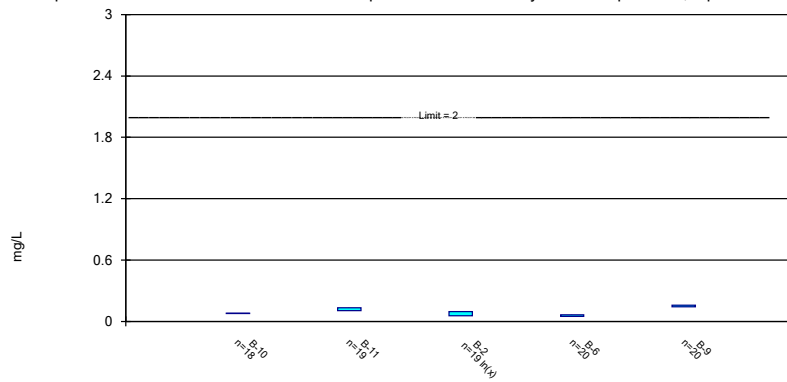
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric Confidence Interval

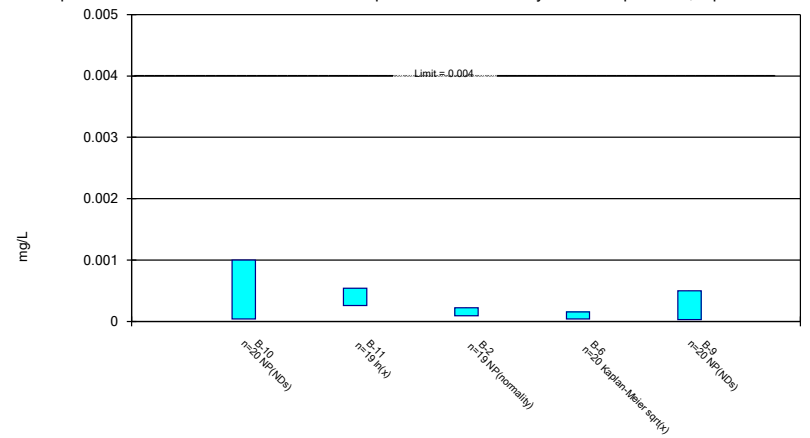
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

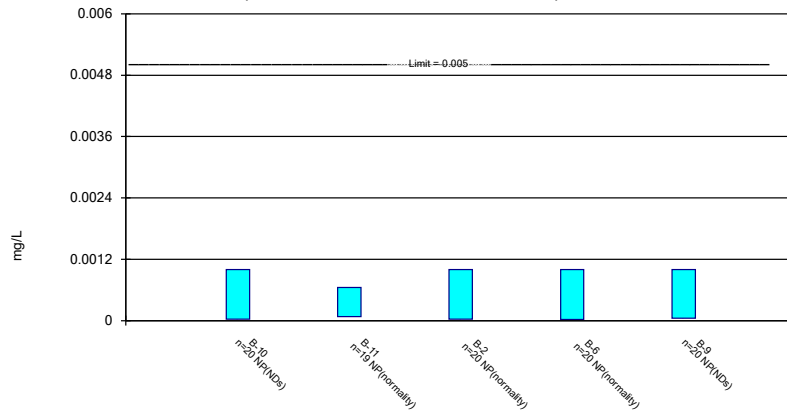
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Non-Parametric Confidence Interval

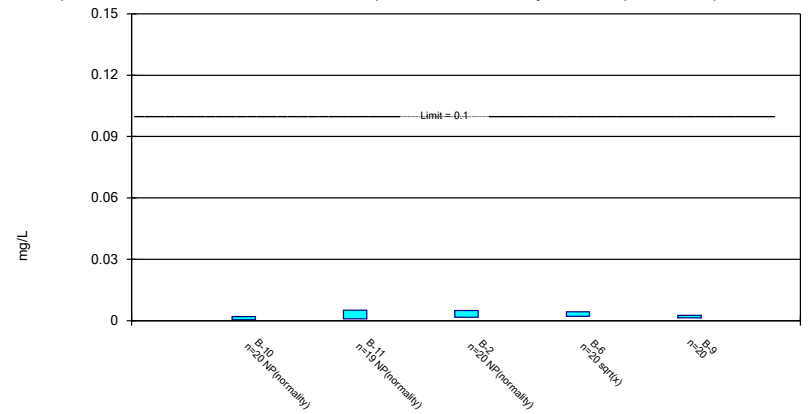
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Cadmium, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

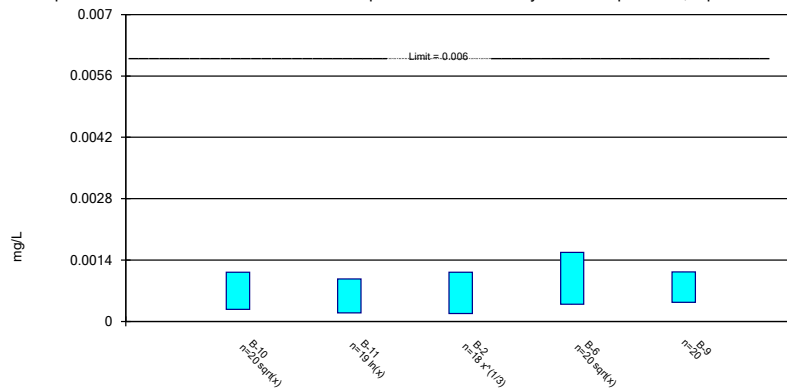
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric Confidence Interval

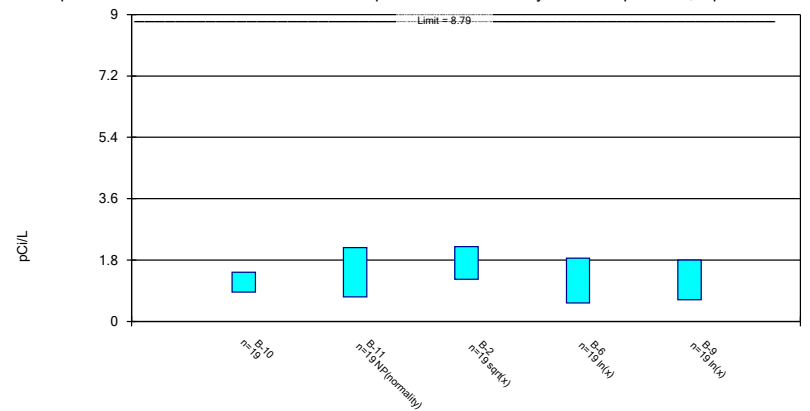
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

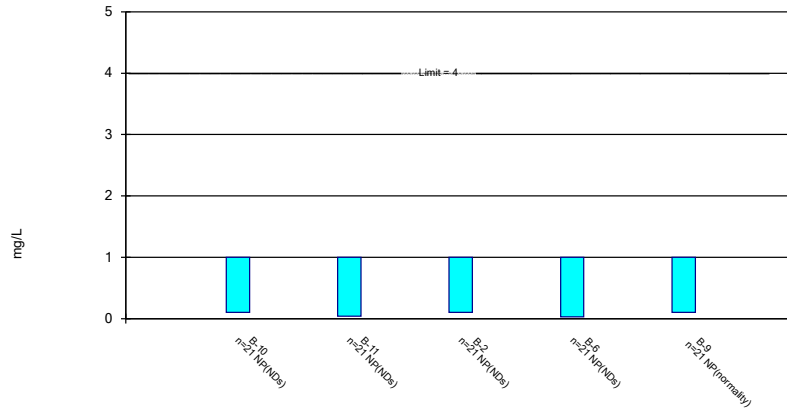
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Non-Parametric Confidence Interval

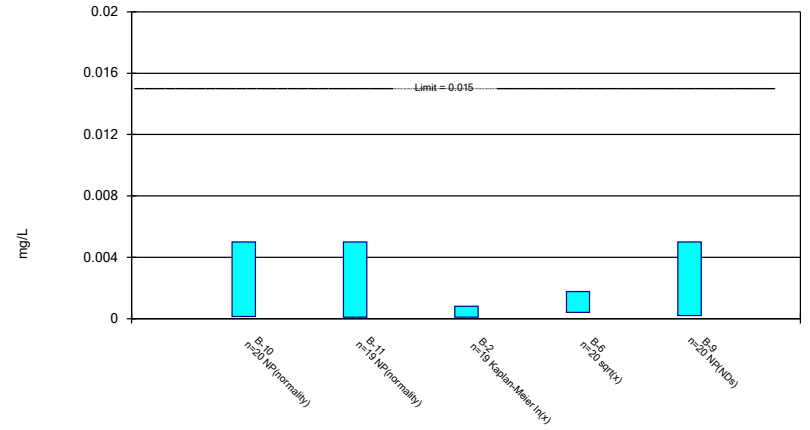
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Fluoride, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

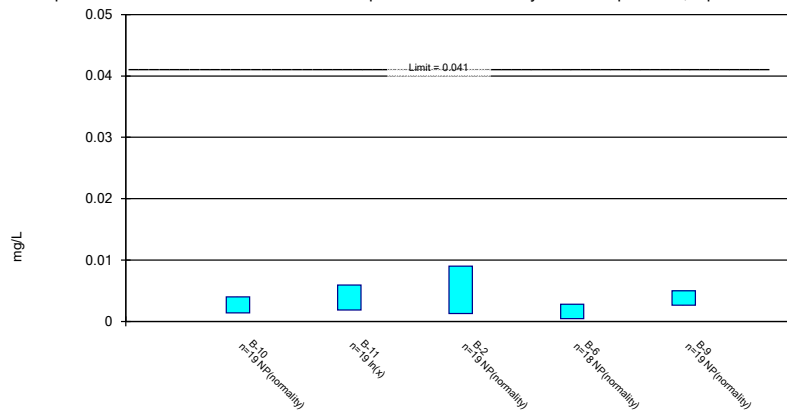
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

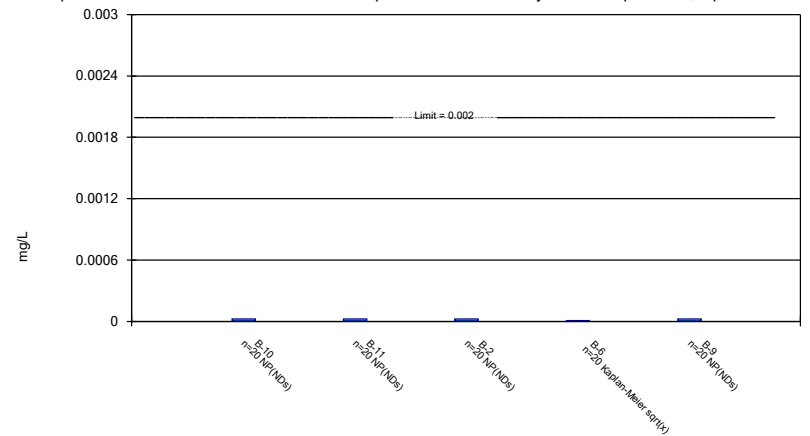
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

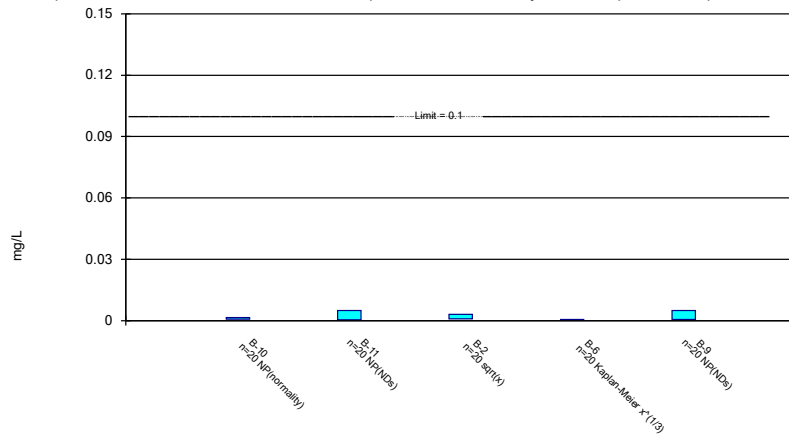
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Mercury, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

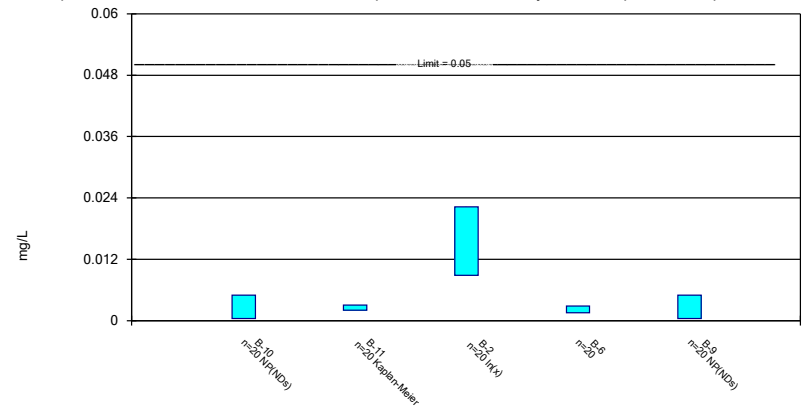
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Parametric and Non-Parametric (NP) Confidence Interval

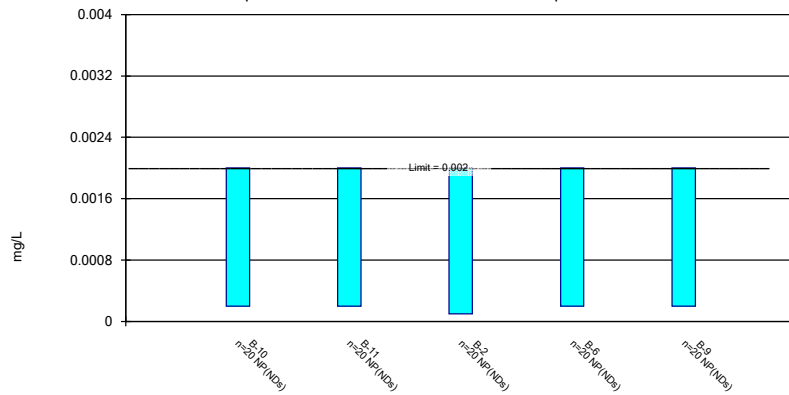
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Thallium, total Analysis Run 8/31/2021 12:47 PM View: Confidence Intervals
 Flint Creek Landfill Client: Geosyntec Data: Flint Creek LF

APPENDIX 3 – Alternative Source Demonstrations

Alternative source demonstrations relative to Appendix IV SSLs above the groundwater protection standard were not necessary because no SSLs above the groundwater protection standards were identified in 2021. Alternative source demonstrations are not applicable at this time.

APPENDIX 4 - Notices for Monitoring Program Transitions

No transition between monitoring requirements occurred in 2021; the CCR unit remained in assessment monitoring. Notices for monitoring program transitions are not applicable at this time.

APPENDIX 5 - Well Installation/Decommissioning Logs

No monitoring wells installed or decommissioned in 2021. Well installation/decommissioning logs are not applicable at this time.