Annual Groundwater Monitoring Report

Wheeling Power Company

Mitchell Plant

Bottom Ash Pond

Moundsville, WV

January 2025

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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 a formerly existing, now closed, CCR unit at Wheeling Power Company's, a wholly owned subsidiary of American Electric Power Company (AEP), Mitchell 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. The CCR unit was closed on December 24, 2024, and this annual report is the final such report for the Mitchell bottom ash pond.

In general, the following activities were completed in 2024:

- The CCR unit was in assessment monitoring at the beginning of 2024 and until its closure in 2024. The CCR unit was in assessment monitoring since 2018;
- Groundwater samples were collected on March 6-7, 11, 2024 and analyzed in accordance with 40 CFR 257.95(b) for all Appendix IV constituents. Groundwater in monitoring well MW-1505 was very turbid during the March 6-7, 2024 sampling, probably because of earthwork taking place within the pond near the well to facilitate closure of the CCR unit. The well was redeveloped on March 8, 2024, and samples were collected on March 11, 2024 from the well. Groundwater samples were collected on April 23-24, 2024 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 2024. Groundwater samples were collected on September 17-18, 2024 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 2024. All sampling was performed in accordance with 40 CFR 257.95 *et seq.*, and AEP's *Groundwater Sampling and Analysis Plan (2016)*;
- Groundwater monitoring 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 2023 was completed on February 2, 2024. Statistical analysis of assessment monitoring samples collected in March and April 2024 was completed on July 19, 2024. Statistical analysis of assessment monitoring samples collected in September 2024 was completed on December 24, 2024;
- No statistically significant levels (SSLs) above the groundwater protection standard (GWPS) were detected during the three consecutive Appendix IV sampling events and corresponding statistical analyses completed in 2024. Statistical analysis of data conducted to determine whether or not one or more Appendix III constituents were detected at

statistically significant increases (SSIs) above background was also performed in the aforementioned three statistical evaluation reports. The statistical evaluation of data collected during the October 2023 sampling event concluded that sulfate concentrations were above the intrawell upper prediction limit (UPL) of 408 mg/L at MW-1505 (508 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (619 mg/L), the intrawell UPL of 373 mg/L at MW-1507 (571 mg/L), the intrawell UPL of 492 mg/L at MW-1509 (677 mg/L), and the intrawell UPL of 523 mg/L at MW-1510 (549 mg/L). The statistical evaluation of data collected during the April 2024 assessment monitoring event concluded that sulfate concentrations were above the intrawell UPL of 408 milligrams per liter (mg/L) at MW-1505 (569 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (611 mg/L), the intrawell UPL of 373 mg/L at MW-1507 (533 mg/L), and the intrawell UPL of 492 mg/L at MW-1509 (614 mg/L). The statistical evaluation of data collected during the September 2024 assessment monitoring event concluded that boron concentrations were above the interwell UPL of 5.77 milligrams per liter (mg/L) at MW-1507 (5.99 mg/L), fluoride concentrations were above the intrawell UPL of 0.160 mg/L at MW-1509 (0.17 mg/L), and sulfate concentrations were above the intrawell UPL of 408 mg/L at MW-1505 (560 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (576 mg/L), the intrawell UPL of 373 mg/L at MW-1507 (518 mg/L), and the intrawell UPL of 492 mg/L at MW-1509 (567 mg/L);

- No alternative source demonstrations (ASDs) relative to Appendix IV SSLs above the groundwater protection standard were necessary, and thus not 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 unit, 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 (attached as 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 no projection of key activities for the upcoming year because all CCR has been removed from CCR unit, no areas were affected by releases from the CCR unit, all Appendix IV concentrations in groundwater have been documented to be below the corresponding GWPS for two consecutive sampling events using the statistical procedures in 40 CFR 257.93(g), and the CCR unit is therefore closed by removal of CCR in accordance with 40 CFR 257.102(c)..

II. Groundwater Monitoring Well Locations and Identification Numbers

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

III. Monitoring Wells Installed or Decommissioned

There were no monitoring wells installed or decommissioned in 2024. The network design, as summarized in the *Groundwater Monitoring Network Design Report* (2016) and as posted at the CCR web site for the Mitchell 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, and assessment/closure monitoring to demonstrate qualification for CCR unit closure. 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 assessment monitoring samples collected on October 10-11, 2023 was completed on February 2, 2024.

The process of closure by removal of CCR was completed at the CCR unit in 2024. As required by 40 CFR 257.102(c), groundwater samples were collected and analyzed for all Appendix IV

constituents to document whether or not groundwater monitoring concentrations exceed the GWPS throughout the CCR unit area.

Statistical analysis of assessment monitoring and assessment/closure monitoring samples collected on March 6-7 and 11, 2024 and April 23-24, 2024 was completed on July 19, 2024. Statistical analyses of assessment/closure monitoring samples collected on September 17-18, 2024 was completed on December 24, 2024. No SSLs above the GWPS were identified during any of these sampling events (including the October 10-11, 2023 event) and corresponding statistical analyses. Statistical analysis of data conducted to determine whether or not one or more Appendix III constituents were detected at SSIs above background was also performed in the three statistical analysis reports. Several SSIs were concluded for Appendix III parameters as detailed in the overview section of this report. The results of the statistical analyses are documented in the corresponding statistical analysis summary reports provided in Appendix 2.

VI. Alternative Source Demonstrations

ASDs regarding Appendix IV SSLs above the GWPS were not necessary because no SSLs were identified from the completed sampling events required by 40 CFR 257.95(d)(1) and their corresponding statistical analyses. 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 2024; the CCR unit was in assessment monitoring at the beginning of 2024 and throughout its closure. A statement to this effect is provided in Appendix 4.

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

VIII. Other Information Required

All required information has been included in this annual groundwater monitoring report, and the Mitchell plant's bottom ash pond CCR unit is now closed. All CCR were removed from CCR unit as of April 4, 2024, no areas were affected by releases from the CCR unit, all Appendix IV concentrations in groundwater have been documented to be below the corresponding GWPS for two consecutive sampling events using the statistical procedures in 40 CFR 257.93(g), and the CCR unit is therefore closed by removal of CCR in accordance with 40 CFR 257.102(c).

IX. Description of Any Problems Encountered in 2024 and Actions Taken

No significant problems were encountered in 2024. 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

There are no key activities for 2025 because the Mitchell bottom ash pond CCR unit has been closed in accordance with 40 CFR 257.102(c).

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: MW-1504
Mitchell - BAP
Appendix III Constituents

Geosyntec Consultants, Inc.

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/13/2016	Background	0.054	220	99.1	0.23	6.9	375	990
8/1/2016	Background	0.070	220	103	0.25	7.0	403	970
9/26/2016	Background	0.098	225	103	0.24	7.1	389	946
11/8/2016	Background	0.053	219	92.8	0.19	7.1	369	930
2/7/2017	Background	0.162	218	81.7	0.20	7.1	291	904
4/4/2017	Background	0.105	237	89.8	0.21	7.3	362	924
5/16/2017	Background	0.113	225	93.5	0.22	7.2	371	995
7/19/2017	Background	0.129	230	96.3	0.15	7.2	405	999
10/9/2017	Detection	0.114	212	93.4	0.24	7.2	392	982
4/11/2018	Assessment	0.063	204	83.6	0.19	7.0	291	842
8/22/2018	Assessment	0.096	230	91.9	0.20	7.3	372	936
5/1/2019	Assessment	0.05 J1	220	81.8	0.17	8.0	317	926
6/11/2019	Assessment	0.04 J1	183	78.5	0.17	7.6	261	829
10/22/2019	Assessment	0.02 J1	196	85.9	0.15	7.3	242	801
3/17/2020	Assessment	--	--	--	0.15	7.1	--	--
5/5/2020	Assessment	0.04 J1	230	96.2	0.12	7.5	372	1,020
10/20/2020	Assessment	0.082	255	--	0.14	7.3	--	1,230
1/7/2021	Assessment	--	--	101	--	--	292	--
3/16/2021	Assessment	--	--	--	0.15	7.7	--	--
5/11/2021	Assessment	0.03 J1	206	101	0.15	8.6	300	908
10/19/2021	Assessment	0.046 J1	252	107	0.15	7.1	467	1,150
3/15/2022	Assessment	--	--	--	0.13	7.2	--	--
5/11/2022	Assessment	0.026 J1	224 M1, P3	79.4	0.12	7.8	239	810
10/17/2022	Assessment	2.86	271	170	0.20	6.9	851	1,630
3/21/2023	Assessment	--	--	--	0.20	7.3	--	--
5/17/2023	Assessment	4.16	171	245	0.17	7.0	705	1,510
10/10/2023	Assessment	5.77	178	217	0.17	7.2	612	1,330
3/7/2024	Assessment	--	--	--	0.16	7.0	--	--
4/23/2024	Assessment	3.55	229	182	0.17	7.1	654	1,460
9/17/2024	Assessment	5.48	224	254	0.16	7.1	607	1,570

Table 1. Groundwater Data Summary: MW-1504
Mitchell - BAP
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	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
6/13/2016	Background	0.03 J1	0.73	46.2	0.01 J1	0.04	0.4	0.523	0.0838	0.23	0.379	0.002	< 0.002 U1	0.59	0.1	0.02 J1
8/1/2016	Background	0.02 J1	0.52	42.7	0.009 J1	0.04	0.5	0.549	0.248	0.25	0.222	< 0.0002 U1	0.002 J1	0.74	0.07 J1	0.02 J1
9/26/2016	Background	< 0.05 U1	0.38	36.7	< 0.02 U1	0.03 J1	0.3	0.362	0.656	0.24	0.104	0.007	< 0.002 U1	2.31	0.2 J1	0.1 J1
11/8/2016	Background	0.02 J1	0.36	38.4	< 0.005 U1	0.03	0.469	0.249	1.748	0.19	0.041	0.004	< 0.002 U1	0.66	< 0.03 U1	0.089
2/7/2017	Background	0.02 J1	0.39	33.8	< 0.005 U1	0.03	0.530	0.239	0.563	0.20	0.022	0.008	< 0.002 U1	0.94	< 0.03 U1	0.090
4/4/2017	Background	0.02 J1	0.35	40.5	< 0.005 U1	0.04	0.283	0.277	0.327	0.21	0.021	0.009	< 0.002 U1	0.81	0.06 J1	0.110
5/16/2017	Background	0.02 J1	0.46	37.3	< 0.004 U1	0.04	0.250	0.319	0.3882	0.22	0.01 J1	0.011	< 0.002 U1	0.55	0.05 J1	0.02 J1
7/19/2017	Background	0.03 J1	0.41	34.9	< 0.004 U1	0.04	0.175	0.382	0.401	0.15	0.087	0.012	< 0.002 U1	1.25	< 0.03 U1	0.03 J1
4/11/2018	Assessment	0.02 J1	0.36	36.9	0.005 J1	0.03	0.562	0.114	0.349	0.19	0.052	0.004	< 0.004 U1	0.41	0.04 J1	0.03 J1
8/22/2018	Assessment	0.05 J1	0.28	37.9	< 0.004 U1	0.03	0.331	0.093	1.048	0.20	0.037	0.006	< 0.002 U1	0.33	0.04 J1	0.03 J1
5/1/2019	Assessment	< 0.02 U1	0.22	36.4	< 0.02 U1	0.03 J1	0.305	0.071	0.675	0.17	0.02 J1	< 0.009 U1	< 0.002 U1	< 0.4 U1	< 0.03 U1	< 0.1 U1
6/11/2019	Assessment	< 0.02 U1	0.24	33.5	< 0.02 U1	< 0.01 U1	0.05 J1	0.04 J1	0.261	0.17	< 0.02 U1	< 0.009 U1	< 0.002 U1	< 0.4 U1	0.7	< 0.1 U1
10/22/2019	Assessment	0.06 J1	0.29	37.0	< 0.02 U1	0.03 J1	0.399	0.475	0.613	0.15	< 0.05 U1	0.00448	< 0.002 U1	< 0.4 U1	0.05 J1	< 0.1 U1
3/17/2020	Assessment	< 0.02 U1	0.29	48.3	< 0.02 U1	0.03 J1	0.238	0.04 J1	0.4423	0.15	< 0.05 U1	0.00441	< 0.002 U1	< 0.4 U1	7.3	< 0.1 U1
5/5/2020	Assessment	< 0.02 U1	0.26	43.8	< 0.02 U1	0.03 J1	0.238	0.03 J1	0.758	0.12	< 0.05 U1	0.00442	< 0.002 U1	< 0.4 U1	3.8	< 0.1 U1
10/20/2020	Assessment	< 0.02 U1	0.28	41.0	< 0.02 U1	0.03 J1	0.204	0.04 J1	0.093	0.14	< 0.05 U1	0.00430	< 0.002 U1	< 0.4 U1	7.5	< 0.1 U1
3/16/2021	Assessment	< 0.02 U1	0.25	39.2	< 0.007 U1	0.02 J1	0.325	0.03 J1	0.0768	0.15	< 0.05 U1	0.00459	< 0.002 U1	0.2 J1	1.9	< 0.04 U1
5/11/2021	Assessment	< 0.02 U1	0.25	39.2	< 0.007 U1	0.02 J1	0.314	0.03 J1	0.439	0.15	< 0.05 U1	0.00447	< 0.002 U1	1 J1	0.3 J1	< 0.04 U1
10/19/2021	Assessment	< 0.02 U1	0.21	34.8	< 0.007 U1	0.024	0.26	0.027	1.48	0.15	< 0.05 U1	0.00434	< 0.002 U1	0.2 J1	4.38	< 0.04 U1
3/15/2022	Assessment	< 0.02 U1	0.23	40.0	< 0.007 U1	0.018 J1	0.26	0.031	2.16	0.13	0.05 J1	0.00483	< 0.002 U1	0.2 J1	5.69	< 0.04 U1
5/11/2022	Assessment	0.02 J1	0.27	38.1	< 0.007 U1	0.034	0.38	0.334	0.37	0.12	0.08 J1	0.00461	< 0.004 U1	0.2 J1	0.1 J1	< 0.04 U1
10/17/2022	Assessment	0.03 J1	0.34	40.9	< 0.007 U1	0.025	0.36	0.124	0.83	0.20	0.20	0.00600	< 0.007 U1	0.3 J1	9.02	< 0.04 U1
3/21/2023	Assessment	0.02 J1	0.36	24.4	0.011 J1	0.061	0.53	0.275	0.55	0.20	0.24	0.00575	0.002 J1	0.3 J1	8.75	< 0.04 U1
5/17/2023	Assessment	0.018 J1	0.26	23.4	< 0.007 U1	0.030	0.35	0.189	0.55	0.17	0.12 J1	0.00472	< 0.002 U1	0.3 J1	9.17	< 0.02 U1
10/10/2023	Assessment	0.025 J1	0.27	25.4	< 0.007 U1	0.027	0.7	0.144	0.88	0.17	0.13 J1	0.00595	< 0.002 U1	0.2 J1	5.33	< 0.02 U1
3/7/2024	Assessment	0.030 J1	0.40	32.1	0.015 J1	0.039	0.42	0.299	0.22	0.16	0.33	0.00596	< 0.002 U1	0.3 J1	6.32	0.02 J1
4/23/2024	Assessment/ Closure	0.023 J1	0.31	30.3	0.008 J1	0.035	0.39	0.325	1.08	0.17	0.20	0.00598	< 0.002 U1	0.4 J1	3.91	< 0.02 U1
9/17/2024	Assessment/ Closure	0.020 J1	0.22	29.5	< 0.4 U1	0.031	0.22 J1	0.101	2.60	0.16	< 0.05 U1	0.008 J1	< 0.002 U1	0.4 J1	3.24	< 0.02 U1

Table 1. Groundwater Data Summary: MW-1505
Mitchell - BAP
Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/14/2016	Background	10.8	288	365	< 0.05 U1	7.1	337	1,530
8/1/2016	Background	10.6	294	358	< 0.05 U1	7.1	337	1,580
9/26/2016	Background	10.3	289	345	< 0.05 U1	7.2	317	1,420
11/8/2016	Background	9.12	261	316	< 0.05 U1	7.2	307	1,470
2/7/2017	Background	10.0	296	318	< 0.05 U1	7.2	317	1,340
4/4/2017	Background	8.80	293	303	< 0.05 U1	7.3	324	1,350
5/16/2017	Background	10.1	278	298	< 0.05 U1	7.2	316	1,550
7/19/2017	Background	9.13	267	293	< 0.05 U1	7.3	318	1,390
10/10/2017	Detection	8.70	255	287	< 0.05 U1	7.2	327	1,270
12/27/2017	Detection	8.02	259	288	--	7.3	--	1,220
4/11/2018	Assessment	8.00	282	289	< 0.05 U1	7.0	401	1,220
8/22/2018	Assessment	8.00	274	284	0.02 J1	7.3	383	1,520
5/1/2019	Assessment	7.31	287	285	< 0.01 U1	7.8	408	1,580
6/11/2019	Assessment	7.79	279	261	0.03 J1	7.7	404	1,450
10/22/2019	Assessment	7.37	285	260	0.03 J1	7.2	455	1,480
3/17/2020	Assessment	--	--	--	0.03 J1	7.2	--	--
5/5/2020	Assessment	7.36	282	252	0.02 J1	7.5	471	1,460
10/20/2020	Assessment	6.78	242	--	0.03 J1	7.3	--	1,420
1/7/2021	Assessment	--	--	240	--	--	502	--
3/16/2021	Assessment	--	--	--	0.04 J1	7.7	--	--
5/11/2021	Assessment	8.40	281	284	0.04 J1	7.7	599	1,620
10/19/2021	Assessment	8.22 P3, M1	273	265	0.03 J1	7.1	601	1,560 S7
3/15/2022	Assessment	--	--	--	< 0.02 U1	7.3	--	--
5/11/2022	Assessment	3.70	323	185	< 0.05 U1	7.8	927	1,770
10/17/2022	Assessment	6.17	271	253	< 0.05 U1	7.1	983	1,760
3/22/2023	Assessment	--	--	--	0.02 J1	7.1	--	--
5/17/2023	Assessment	3.39	147	150	< 0.05 U1	7.1	538	1,190
10/10/2023	Assessment	4.56	184	198	0.06 J1	7.4	580	1,280
3/11/2024	Assessment	--	--	--	< 0.05 U1	7.3	--	--
4/23/2024	Assessment	4.88	219	209	< 0.05 U1	7.4	569	1,300
9/17/2024	Assessment	4.75	219 M1	224	< 0.05 U1	7.4	560	1,390

Table 1. Groundwater Data Summary: MW-1505
Mitchell - BAP
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	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
6/14/2016	Background	0.06	1.40	57.7	0.049	0.03	33.2	0.966	0.466	< 0.05 U1	1.02	0.006	0.002 J1	2.94	0.2	0.074
8/1/2016	Background	0.11	3.73	81.0	0.150	0.05	10.4	2.69	1.2271	< 0.05 U1	3.69	0.011	0.013	0.95	0.9	0.093
9/26/2016	Background	< 0.05 U1	0.79	47.2	< 0.02 U1	0.03 J1	0.9	0.404	0.912	< 0.05 U1	0.546	0.008	< 0.002 U1	7.35	0.4 J1	0.464
11/8/2016	Background	0.07	2.14	63.3	0.091	0.03	7.07	1.77	1.26	< 0.05 U1	2.06	0.007	0.006	0.90	0.5	0.093
2/7/2017	Background	0.04 J1	1.16	51.7	0.035	0.03	9.06	0.772	1.236	< 0.05 U1	0.697	0.010	0.002 J1	1.21	0.5	0.102
4/4/2017	Background	0.03 J1	0.41	47.2	< 0.005 U1	0.02	11.0	0.509	0.4842	< 0.05 U1	0.091	0.007	< 0.002 U1	1.54	0.3	0.057
5/16/2017	Background	0.04 J1	0.73	45.5	0.01 J1	0.02	4.93	0.594	0.604	< 0.05 U1	0.224	0.017	< 0.002 U1	0.85	0.4	0.067
7/19/2017	Background	0.04 J1	0.78	45.9	0.02 J1	0.03 J1	2.38	0.628	1.222	< 0.05 U1	0.434	0.012	< 0.002 U1	1.69	0.9	0.08 J1
4/11/2018	Assessment	0.03 J1	0.44	46.0	0.006 J1	0.03	1.16	0.151	0.582	< 0.05 U1	0.116	0.005	< 0.002 U1	0.67	0.7	0.065
8/22/2018	Assessment	0.05 J1	0.38	48.0	0.007 J1	0.03	1.40	0.257	0.576	0.02 J1	0.150	0.008	< 0.002 U1	1.35	0.4	0.070
5/1/2019	Assessment	0.03 J1	0.29	48.7	< 0.02 U1	0.03 J1	0.665	0.199	0.2396	< 0.01 U1	0.07 J1	< 0.009 U1	< 0.002 U1	0.6 J1	0.9	< 0.1 U1
6/11/2019	Assessment	0.03 J1	0.28	49.3	< 0.02 U1	0.03 J1	0.849	0.155	0.526	0.03 J1	0.04 J1	0.01 J1	< 0.002 U1	0.7 J1	0.4	< 0.1 U1
10/22/2019	Assessment	0.03 J1	0.34	49.9	< 0.02 U1	0.03 J1	0.450	0.143	0.759	0.03 J1	< 0.05 U1	0.00534	< 0.002 U1	< 0.4 U1	0.1 J1	< 0.1 U1
3/17/2020	Assessment	< 0.02 U1	0.31	42.8	< 0.02 U1	0.02 J1	0.624	0.100	0.715	0.03 J1	< 0.05 U1	0.00501	< 0.002 U1	< 0.4 U1	0.06 J1	< 0.1 U1
5/5/2020	Assessment	0.03 J1	0.27	48.4	< 0.02 U1	0.03 J1	0.291	0.096	0.7905	0.02 J1	< 0.05 U1	0.00493	< 0.002 U1	< 0.4 U1	0.06 J1	< 0.1 U1
10/20/2020	Assessment	0.03 J1	0.35	43.0	< 0.02 U1	0.02 J1	0.603	0.151	0.1742	0.03 J1	0.09 J1	0.00501	< 0.002 U1	0.5 J1	0.06 J1	< 0.1 U1
3/16/2021	Assessment	0.03 J1	0.35	48.6	0.01 J1	0.03 J1	0.567	0.211	0.158	0.04 J1	0.1 J1	0.00529	< 0.002 U1	0.3 J1	0.2 J1	0.07 J1
5/11/2021	Assessment	0.03 J1	0.32	48.6	0.008 J1	0.03 J1	0.361	0.218	0.895	0.04 J1	0.1 J1	0.00527	< 0.002 U1	0.6 J1	0.2 J1	0.08 J1
10/19/2021	Assessment	0.03 J1	0.29	38.9	< 0.007 U1	0.025	0.42	0.215	1.98	0.03 J1	0.10 J1	0.00577	< 0.002 U1	0.2 J1	0.09 J1	0.06 J1
3/15/2022	Assessment	0.03 J1	0.38	35.5	0.009 J1	0.022	0.70	0.286	1.27	< 0.02 U1	0.14 J1	0.00664	< 0.002 U1	0.4 J1	2.41	0.07 J1
5/11/2022	Assessment	0.03 J1	0.40	33.5	< 0.007 U1	0.020	0.65	0.245	0.54	< 0.05 U1	0.16 J1	0.00676	< 0.002 U1	0.3 J1	2.76	0.06 J1
10/17/2022	Assessment	0.04 J1	0.57	37.1	0.014 J1	0.017 J1	0.86	0.404	0.90	< 0.05 U1	0.32	0.00705	0.005	0.2 J1	2.82	0.07 J1
3/22/2023	Assessment	0.036 J1	0.43	25.6	0.011 J1	0.013 J1	0.49	0.178	2.22	0.02 J1	0.27	0.0076	0.0052	0.1 J1	1.29	0.05 J1
5/17/2023	Assessment	0.026 J1	0.22	17.8	< 0.007 U1	0.009 J1	0.29 J1	0.074	0.95	< 0.05 U1	0.08 J1	0.00555	0.003 J1	< 0.1 U1	3.76	0.03 J1
10/10/2023	Assessment	0.094 J1	0.31	23.4	< 0.007 U1	0.022	1.08	0.200	0.61	0.06 J1	0.72	0.00583	0.002 J1	< 0.1 U1	2.98	0.04 J1
3/11/2024	Assessment	0.079 J1	0.33	23.6	< 0.007 U1	0.014 J1	0.39	0.140	0.28	< 0.05 U1	0.19 J1	0.00558	0.0023	0.5	2.64	0.04 J1
4/23/2024	Assessment/ Closure	0.042 J1	0.25	23.2	< 0.007 U1	0.011 J1	0.39	0.090	0.83	< 0.05 U1	0.10 J1	0.00572	0.002 J1	0.1 J1	1.99	0.03 J1
9/17/2024	Assessment/ Closure	0.027 J1	0.24	25.1	< 0.007 U1	0.012 J1	0.28 J1	0.062	0.92	< 0.05 U1	0.07 J1	0.00592	0.002 J1	0.1 J1	0.89	0.05 J1

Table 1. Groundwater Data Summary: MW-1506
Mitchell - BAP
Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/14/2016	Background	8.04	275	422	0.07 J1	7.1	315	1,640
8/2/2016	Background	9.72	299	418	0.07 J1	7.0	325	1,600
9/27/2016	Background	6.77	304	428	< 0.05 U1	7.2	323	1,610
11/9/2016	Background	5.50	281	392	< 0.05 U1	7.4	285	1,510
2/8/2017	Background	5.70	289	395	< 0.05 U1	7.3	292	1,350
4/5/2017	Background	5.59	282	389	< 0.05 U1	7.4	301	1,430
5/17/2017	Background	7.11	278	393	< 0.05 U1	7.3	307	1,520
7/19/2017	Background	6.26	277	379	< 0.05 U1	7.3	297	1,480
10/10/2017	Detection	8.03	257	357	< 0.05 U1	7.3	326	1,390
12/27/2017	Detection	6.14	264	383	--	7.3	--	1,280
4/11/2018	Assessment	5.73	275	382	< 0.05 U1	7.1	347	1,300
8/22/2018	Assessment	5.91	270	369	0.05 J1	7.4	349	1,590
5/1/2019	Assessment	5.24	280	331	0.03 J1	7.9	347	1,360
6/11/2019	Assessment	5.27	265	315	0.05 J1	7.8	335	1,370
10/22/2019	Assessment	4.49	293	364	0.04 J1	7.4	354	1,330
3/17/2020	Assessment	--	--	--	0.04 J1	7.3	--	--
5/5/2020	Assessment	4.07	290	379	0.03 J1	7.5	337	1,530
10/20/2020	Assessment	4.59	265	--	0.04 J1	7.4	--	1,490
1/7/2021	Assessment	--	--	259	--	--	404	--
3/16/2021	Assessment	--	--	--	0.06 J1	7.6	--	--
5/11/2021	Assessment	5.81	245	228	0.06	7.6	477	1,330
10/19/2021	Assessment	5.90	282	328	0.04 J1	7.3	399	1,340 S7
3/15/2022	Assessment	--	--	--	0.04 J1	7.4	--	--
5/10/2022	Assessment	3.72	283	195	< 0.05 U1	8.9	703	1,450 S7, L1
10/17/2022	Assessment	5.03 M1, P3	272 M1, P3	227	< 0.05 U1	7.1	909	1,640
3/22/2023	Assessment	--	--	--	0.05 J1	7.3	--	--
5/17/2023	Assessment	6.13	247	157	0.05 J1	7.1	840	1,620
10/10/2023	Assessment	4.22	187	234	0.07 J1	7.3	619	1,360
3/7/2024	Assessment	--	--	--	< 0.05 U1	7.3	--	--
4/23/2024	Assessment	4.15	206	208	0.07 J1	7.3	611	1,380
9/17/2024	Assessment	4.43	205	211	< 0.05 U1	7.4	576	1,420

Table 1. Groundwater Data Summary: MW-1506
Mitchell - BAP
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	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
6/14/2016	Background	0.07	1.65	73.0	0.053	0.04	1.1	1.31	0.488	0.07 J1	1.25	0.006	0.004 J1	0.74	0.2	0.070
8/2/2016	Background	0.05 J1	1.01	70.4	0.026	0.04	0.8	0.799	0.67	0.07 J1	0.601	0.015	0.003 J1	0.68	0.09 J1	0.060
9/27/2016	Background	0.05 J1	1.14	62.0	0.030	0.03	1.0	0.739	1.263	< 0.05 U1	0.744	0.015	0.002 J1	0.55	0.2	0.064
11/9/2016	Background	0.03 J1	0.64	57.4	0.01 J1	0.02 J1	0.959	0.251	2.196	< 0.05 U1	0.272	0.008	< 0.002 U1	0.45	0.07 J1	0.05 J1
2/8/2017	Background	0.03 J1	0.62	52.9	0.008 J1	0.02 J1	4.28	0.305	0.4008	< 0.05 U1	0.217	0.013	< 0.002 U1	1.07	< 0.03 U1	0.066
4/5/2017	Background	0.04 J1	0.81	60.1	0.021	0.02	3.87	0.891	0.438	< 0.05 U1	0.574	0.011	0.002 J1	0.49	0.08 J1	0.04 J1
5/17/2017	Background	0.05 J1	1.26	60.9	0.027	0.03	2.83	0.768	0.226	< 0.05 U1	0.726	0.016	0.002 J1	1.22	0.1	0.05 J1
7/19/2017	Background	0.18	0.80	54.9	0.02 J1	0.02 J1	3.15	0.932	0.889	< 0.05 U1	0.457	0.016	< 0.002 U1	1.14	< 0.06 U1	0.06 J1
4/11/2018	Assessment	0.03 J1	0.73	55.4	0.021	0.02 J1	2.01	0.476	0.592	< 0.05 U1	0.477	0.009	0.002 J1	1.23	0.1	0.05 J1
8/22/2018	Assessment	0.06	0.46	54.6	0.01 J1	0.02	2.47	0.581	1.723	0.05 J1	0.319	0.010	< 0.002 U1	0.50	0.09 J1	0.050
5/1/2019	Assessment	0.03 J1	0.34	53.5	< 0.02 U1	0.02 J1	0.752	0.256	0.1879	0.03 J1	0.135	0.02 J1	< 0.002 U1	2 J1	0.07 J1	< 0.1 U1
6/11/2019	Assessment	0.03 J1	0.42	49.8	< 0.02 U1	0.01 J1	1.11	0.290	1.009	0.05 J1	0.234	< 0.009 U1	< 0.002 U1	0.4 J1	0.04 J1	< 0.1 U1
10/22/2019	Assessment	0.03 J1	0.37	52.7	< 0.02 U1	0.02 J1	0.708	0.167	0.997	0.04 J1	0.1 J1	0.00873	< 0.002 U1	2 J1	0.04 J1	< 0.1 U1
3/17/2020	Assessment	< 0.02 U1	0.44	53.0	< 0.02 U1	0.01 J1	4.24	0.393	< 0.680 U1	0.04 J1	0.213	0.00825	< 0.002 U1	1 J1	0.09 J1	< 0.1 U1
5/5/2020	Assessment	0.02 J1	0.33	52.2	< 0.02 U1	0.01 J1	0.592	0.162	0.478	0.03 J1	0.2 J1	0.00782	< 0.002 U1	0.7 J1	< 0.03 U1	< 0.1 U1
10/20/2020	Assessment	0.02 J1	0.30	47.7	< 0.02 U1	0.02 J1	0.407	0.119	0.5997	0.04 J1	0.1 J1	0.00774	< 0.002 U1	2.05	< 0.03 U1	< 0.1 U1
3/16/2021	Assessment	0.03 J1	0.33	49.9	0.009 J1	0.02 J1	0.680	0.512	0.612	0.06 J1	0.1 J1	0.00783	< 0.002 U1	0.7 J1	< 0.09 U1	< 0.04 U1
5/11/2021	Assessment	0.03 J1	0.38	51.9	0.009 J1	0.02 J1	0.591	0.357	0.4573	0.06	0.2 J1	0.00771	< 0.002 U1	0.7 J1	< 0.09 U1	0.05 J1
10/19/2021	Assessment	0.03 J1	0.27	44.7	< 0.007 U1	0.022	0.55	0.465	1.42	0.04 J1	0.13 J1	0.00735	< 0.002 U1	1	0.10 J1	0.06 J1
3/15/2022	Assessment	0.03 J1	0.34	41.2	0.012 J1	0.014 J1	0.73	0.344	1.22	0.04 J1	0.14 J1	0.00753	< 0.002 U1	1.3	0.13 J1	< 0.04 U1
5/10/2022	Assessment	0.02 J1	0.31	42.5	< 0.007 U1	0.012 J1	0.42	0.183	0.99	< 0.05 U1	0.08 J1	0.00764	< 0.002 U1	0.4 J1	1.51	< 0.04 U1
10/17/2022	Assessment	0.03 J1	0.38	38.3	0.007 J1	0.011 J1	0.39	0.154	0.59	< 0.05 U1	0.19 J1	0.00814	0.004 J1	0.3 J1	2.30	0.04 J1
3/22/2023	Assessment	0.030 J1	0.27	35.3	< 0.007 U1	0.024	0.32	0.133	1.48	0.05 J1	0.30	0.0087	0.0042 J1	0.4 J1	0.45 J1	0.04 J1
5/17/2023	Assessment	0.028 J1	0.22	26.8	< 0.007 U1	0.010 J1	0.40	0.093	0.26	0.05 J1	< 0.05 U1	0.00744	< 0.002 U1	0.2 J1	0.28 J1	0.03 J1
10/10/2023	Assessment	0.031 J1	0.25	23.6	< 0.007 U1	0.011 J1	0.70	0.129	0.50	0.07 J1	0.09 J1	0.00770	< 0.002 U1	0.2 J1	1.53	0.03 J1
3/7/2024	Assessment	0.030 J1	0.21	25.1	< 0.007 U1	0.010 J1	0.41	0.089	0.46	< 0.05 U1	< 0.05 U1	0.00686	< 0.002 U1	0.4 J1	1.16	0.02 J1
4/23/2024	Assessment/ Closure	0.025 J1	0.21	24.5	< 0.007 U1	0.005 J1	0.57	0.089	0.76	0.07 J1	0.05 J1	0.00725	< 0.002 U1	0.5	0.73	< 0.02 U1
9/17/2024	Assessment/ Closure	0.034 J1	0.43	28.7	0.012 J1	0.010 J1	0.99	0.209	0.78	< 0.05 U1	0.24	0.00774	0.003 J1	0.2 J1	0.69	0.05 J1

Table 1. Groundwater Data Summary: MW-1507
Mitchell - BAP
Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/14/2016	Background	13.2	333	529	0.06 J1	7.0	339	1,070
8/2/2016	Background	12.2	323	497	0.07 J1	7.0	332	1,890
9/27/2016	Background	14.1	355	517	0.06 J1	7.1	345	1,840
11/9/2016	Background	12.1	325	480	0.06 J1	7.1	314	1,840
2/8/2017	Background	11.1	312	401	0.06 J1	7.1	276	1,480
4/5/2017	Background	10.6	324	445	0.05 J1	7.2	306	1,630
5/17/2017	Background	12.1	308	437	0.05 J1	7.2	310	1,680
7/19/2017	Background	11.1	298	447	< 0.05 U1	7.2	308	1,740
10/10/2017	Detection	10.7	289	430	0.06 J1	7.2	316	1,660
12/27/2017	Detection	10.4	284	450	--	7.2	--	1,380
4/11/2018	Assessment	10.4	296	400	0.06 J1	6.9	347	1,390
8/21/2018	Assessment	9.29	272	331	0.07	7.2	323	1,430
5/1/2019	Assessment	8.36	271	296	0.07	8.0	346	1,270
6/11/2019	Assessment	8.41	257	279	0.07	7.8	349	1,340
10/22/2019	Assessment	8.39	273	295	0.08	7.4	369	1,360
3/18/2020	Assessment	--	--	--	0.07	7.2	--	--
5/5/2020	Assessment	7.72	262	310	0.05 J1	7.4	350	1,330
10/21/2020	Assessment	7.12	229	242	0.07	7.4	420	1,300
3/16/2021	Assessment	--	--	--	0.09	7.7	--	--
5/11/2021	Assessment	7.12	252	274	0.08	7.5	387	1,300
10/19/2021	Assessment	7.28	255	262	0.07	7.2	378	1,320
3/15/2022	Assessment	--	--	--	0.04 J1	7.3	--	--
5/10/2022	Assessment	4.08	251	169	0.05 J1	8.3	671	1,500 L1
10/17/2022	Assessment	9.07	360	288	< 0.05 U1	7.0	1,040	1,900
3/22/2023	Assessment	--	--	--	0.03 J1	7.2	--	--
5/16/2023	Assessment	4.65	167	145	0.04 J1	7.2	592	1,250
10/10/2023	Assessment	4.93	166	218	0.09	7.4	571	1,250
3/7/2024	Assessment	--	--	--	0.08	7.3	--	--
4/23/2024	Assessment	4.86	208	215	0.09	7.3	533	1,310
9/17/2024	Assessment	5.99	216	229	0.08	7.3	518	1,350

Table 1. Groundwater Data Summary: MW-1507
Mitchell - BAP
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	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
6/14/2016	Background	0.05 J1	2.19	84.5	0.142	0.07	3.6	3.18	0.521	0.06 J1	4.07	0.011	0.025	0.25	0.7	0.051
8/2/2016	Background	0.12	4.54	104	0.168	0.07	10.4	4.10	2.09	0.07 J1	4.48	0.019	0.016	2.14	0.5	0.078
9/27/2016	Background	0.10	3.58	92.0	0.134	0.06	14.0	3.06	2.029	0.06 J1	2.96	0.020	0.010	1.80	0.5	0.08 J1
11/9/2016	Background	0.11	4.15	102	0.202	0.07	12.6	4.50	1.784	0.06 J1	3.97	0.016	0.010	12.8	0.5	0.09 J1
2/8/2017	Background	0.08	2.16	73.6	0.089	0.04	6.16	1.77	16.587	0.06 J1	1.86	0.013	0.007	2.31	0.3	0.081
4/5/2017	Background	0.06	1.51	71.3	0.053	0.04	19.4	1.26	0.600	0.05 J1	1.17	0.011	0.006	5.29	0.2	0.053
5/17/2017	Background	0.11	1.30	63.6	0.031	0.04	12.6	0.990	0.767	0.05 J1	0.799	0.024	0.003 J1	4.54	0.2	0.04 J1
7/19/2017	Background	0.06 J1	1.29	62.0	0.044	0.04	12.1	2.37	1.215	< 0.05 U1	0.999	0.018	0.004 J1	4.37	0.1 J1	0.06 J1
4/11/2018	Assessment	0.07	1.67	71.2	0.062	0.04	21.3	1.45	0.701	0.06 J1	1.56	0.012	0.006	2.73	0.3	0.059
8/21/2018	Assessment	0.08	0.47	62.1	0.01 J1	0.03	2.00	0.426	1.419	0.07	0.308	0.010	0.002 J1	0.87	0.08 J1	0.05 J1
5/1/2019	Assessment	0.03 J1	0.43	53.9	< 0.02 U1	0.03 J1	2.35	0.331	0.496	0.07	0.239	< 0.009 U1	< 0.002 U1	1 J1	0.07 J1	< 0.1 U1
6/11/2019	Assessment	0.03 J1	0.24	52.2	< 0.02 U1	0.03 J1	0.315	0.160	1.454	0.07	< 0.02 U1	0.01 J1	0.003 J1	0.4 J1	0.04 J1	< 0.1 U1
10/22/2019	Assessment	0.03 J1	0.45	54.8	< 0.02 U1	0.03 J1	1.51	0.343	0.952	0.08	0.239	0.00814	0.003 J1	< 0.4 U1	0.08 J1	< 0.1 U1
3/18/2020	Assessment	< 0.02 U1	0.44	53.0	< 0.02 U1	0.03 J1	2.69	0.342	0.381	0.07	0.217	0.00794	< 0.002 U1	0.8 J1	0.06 J1	< 0.1 U1
5/5/2020	Assessment	0.03 J1	0.42	53.1	< 0.02 U1	0.03 J1	1.30	0.345	0.836	0.05 J1	0.208	0.00757	< 0.002 U1	0.7 J1	0.08 J1	< 0.1 U1
10/21/2020	Assessment	0.03 J1	0.41	48.3	< 0.02 U1	0.04 J1	0.857	0.347	0.0979	0.07	0.201	0.00799	< 0.002 U1	0.7 J1	0.05 J1	< 0.1 U1
3/16/2021	Assessment	0.03 J1	0.44	53.5	0.02 J1	0.02 J1	1.91	0.384	0.5512	0.09	0.232	0.00710	< 0.002 U1	1 J1	< 0.09 U1	< 0.04 U1
5/11/2021	Assessment	0.03 J1	0.42	54.4	0.01 J1	0.03 J1	1.71	0.360	0.506	0.08	0.225	0.00739	< 0.002 U1	0.9 J1	< 0.09 U1	0.04 J1
10/19/2021	Assessment	0.04 J1	0.37	45.5	0.009 J1	0.035	2.31	0.845	1.24	0.07	0.23	0.00784	< 0.002 U1	0.7	< 0.09 U1	< 0.04 U1
3/15/2022	Assessment	0.03 J1	0.31	44.0	0.011 J1	0.026	1.49	0.357	1.19	0.04 J1	0.10 J1	0.00842	< 0.002 U1	0.8	< 0.09 U1	0.04 J1
5/10/2022	Assessment	0.03 J1	0.49	45.0	0.012 J1	0.022	1.48	0.330	1.31	0.05 J1	0.24	0.00831	< 0.002 U1	0.8	4.44	< 0.04 U1
10/17/2022	Assessment	0.03 J1	0.32	45.1	< 0.007 U1	0.034	0.75	0.102	1.15	< 0.05 U1	< 0.05 U1	0.00889	0.004 J1	0.4 J1	0.28 J1	0.07 J1
3/22/2023	Assessment	0.028 J1	0.24	25.2	< 0.007 U1	0.015 J1	0.79	0.051	0.73	0.03 J1	< 0.05 U1	0.0092	0.0036 J1	0.8	0.79	0.04 J1
5/16/2023	Assessment	0.026 J1	0.19	19.8	< 0.007 U1	0.011 J1	0.94	0.050	0.85	0.04 J1	< 0.05 U1	0.00773	< 0.002 U1	0.3 J1	0.71	0.03 J1
10/10/2023	Assessment	0.027 J1	0.20	22.6	< 0.007 U1	0.015 J1	1.21	0.105	0.57	0.09	0.06 J1	0.00608	< 0.002 U1	1.8	0.57	0.03 J1
3/7/2024	Assessment	0.031 J1	0.18	25.0	< 0.007 U1	0.037	0.34	0.060	0.41	0.08	0.06 J1	0.00553	< 0.002 U1	0.6	0.36 J1	0.03 J1
4/23/2024	Assessment/ Closure	0.026 J1	0.17	24.3	< 0.007 U1	0.018 J1	0.47	0.080	0.66	0.09	< 0.05 U1	0.00570	< 0.002 U1	0.4 J1	0.30 J1	< 0.02 U1
9/17/2024	Assessment/ Closure	0.023 J1	0.23	27.3	< 0.007 U1	0.027	0.77	0.119	0.55	0.08	0.05 J1	0.00582	< 0.002 U1	0.4 J1	0.18 J1	0.03 J1

Table 1. Groundwater Data Summary: MW-1508
Mitchell - BAP
Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/14/2016	Background	0.509	204	211	0.1 J1	6.9	291	1,060
8/1/2016	Background	0.690	218	237	0.1 J1	7.0	302	1,100
9/26/2016	Background	1.03	215	238	0.1 J1	7.0	304	1,110
11/8/2016	Background	1.36	234	227	0.08 J1	7.2	304	1,140
2/8/2017	Background	1.04	236	220	0.08 J1	7.1	301	1,070
4/5/2017	Background	0.780	228	215	0.08 J1	7.2	311	1,070
5/16/2017	Background	0.846	218	208	0.07 J1	7.1	296	1,130
7/18/2017	Background	1.00	224	214	0.06 J1	7.1	305	1,110
10/9/2017	Detection	0.881	207	212	0.08 J1	7.1	322	1,200
4/11/2018	Assessment	0.806	229	200	0.08	6.9	302	1,050
8/21/2018	Assessment	0.952	219	204	0.08	7.2	313	1,080
5/1/2019	Assessment	0.622	221	178	0.08	8.2	287	978
6/12/2019	Assessment	0.679	209	163	0.08	7.1	285	988
10/22/2019	Assessment	0.860	212	168	0.09	7.3	309	991
3/18/2020	Assessment	--	--	--	0.08	7.2	--	--
5/6/2020	Assessment	0.486	198	148	0.06	7.2	273	947
10/20/2020	Assessment	0.962	201	--	0.08	7.1	--	982
1/7/2021	Assessment	--	--	161	--	--	286	--
3/17/2021	Assessment	--	--	--	0.09	7.5	--	--
5/12/2021	Assessment	0.454	205	156	0.09	7.6	281	974
10/20/2021	Assessment	0.439	195	157	0.09	7.4	283	940
3/15/2022	Assessment	--	--	--	0.09	7.0	--	--
5/11/2022	Assessment	0.215	245	147	0.06 J1	7.6	335	980
10/17/2022	Assessment	4.06	248	191	0.06 J1	7.0	734	1,360
3/21/2023	Assessment	--	--	--	0.08	7.0	--	--
5/16/2023	Assessment	5.11	265	173	0.08	6.8	859	1,670
10/11/2023	Assessment	5.21	214	174	0.1	7.1	691	1,380 S7
3/6/2024	Assessment	--	--	--	0.09	7.0	--	--
4/24/2024	Assessment	4.95 M1	230 M1	156	0.09	7.1	719	1,470
9/18/2024	Assessment	5.20	234	169	0.09	7.0	623	1,410

Table 1. Groundwater Data Summary: MW-1508
Mitchell - BAP
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	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
6/14/2016	Background	0.04 J1	1.05	48.7	0.038	0.09	0.8	3.21	0.763	0.1 J1	1.61	0.009	0.003 J1	0.93	0.5	0.04 J1
8/1/2016	Background	0.04 J1	1.07	51.7	0.037	0.07	1.2	2.22	0.0803	0.1 J1	1.34	< 0.0002 U1	0.008	0.74	0.7	0.03 J1
9/26/2016	Background	0.06 J1	1.65	50.2	0.06 J1	0.07 J1	2.3	2.34	0.596	0.1 J1	1.69	0.007	0.003 J1	1.17	0.8	< 0.05 U1
11/8/2016	Background	0.05 J1	1.32	53.9	0.058	0.05	1.70	2.17	2.782	0.08 J1	2.06	0.003	0.002 J1	0.63	0.7	0.03 J1
2/8/2017	Background	0.04 J1	0.97	46.1	0.042	0.04	1.34	1.40	12.465	0.08 J1	1.32	0.009	0.003 J1	0.53	0.7	0.04 J1
4/5/2017	Background	0.04 J1	1.09	49.9	0.049	0.04	1.74	1.66	0.394	0.08 J1	1.71	0.008	0.004 J1	0.35	0.9	0.03 J1
5/16/2017	Background	0.04 J1	1.21	47.0	0.041	0.03	1.32	1.12	0.931	0.07 J1	1.13	0.014	< 0.002 U1	0.46	0.9	0.04 J1
7/18/2017	Background	0.04 J1	1.11	45.1	0.040	0.04	1.33	1.27	0.597	0.06 J1	1.20	0.012	< 0.002 U1	0.68	0.6	0.04 J1
4/11/2018	Assessment	0.04 J1	1.04	46.4	0.040	0.04	1.40	1.03	0.236	0.08	1.11	0.008	< 0.004 U1	0.45	0.7	0.05 J1
8/21/2018	Assessment	0.06	0.44	40.1	0.01 J1	0.04	0.691	0.678	0.3152	0.08	0.384	0.007	< 0.002 U1	0.25	0.4	0.03 J1
5/1/2019	Assessment	0.03 J1	0.60	37.4	0.02 J1	0.03 J1	0.735	0.637	0.636	0.08	0.540	< 0.009 U1	< 0.002 U1	< 0.4 U1	0.3	< 0.1 U1
6/12/2019	Assessment	< 0.02 U1	0.41	35.2	< 0.02 U1	0.03 J1	0.590	0.419	0.295	0.08	0.336	< 0.009 U1	< 0.002 U1	< 0.4 U1	0.2	< 0.1 U1
10/22/2019	Assessment	0.05 J1	0.35	34.8	< 0.02 U1	0.03 J1	1.20	0.521	1.491	0.09	0.2 J1	0.00485	< 0.002 U1	0.6 J1	0.3	< 0.1 U1
3/18/2020	Assessment	< 0.02 U1	0.52	36.2	< 0.02 U1	0.03 J1	0.820	0.481	0.636	0.08	0.298	0.00484	< 0.002 U1	0.8 J1	0.1 J1	< 0.1 U1
5/6/2020	Assessment	< 0.02 U1	0.44	35.4	< 0.02 U1	0.03 J1	0.654	0.413	0.5934	0.06	0.311	0.00483	< 0.002 U1	0.7 J1	0.1 J1	< 0.1 U1
10/20/2020	Assessment	< 0.02 U1	0.29	31.4	< 0.02 U1	0.02 J1	0.336	0.114	0.01901	0.08	0.05 J1	0.00416	< 0.002 U1	< 0.4 U1	0.2 J1	< 0.1 U1
3/17/2021	Assessment	< 0.02 U1	0.36	34.0	0.01 J1	0.04 J1	0.661	0.242	0.3413	0.09	0.233	0.00475	< 0.002 U1	0.4 J1	0.2 J1	< 0.04 U1
5/12/2021	Assessment	< 0.02 U1	0.39	36.4	< 0.007 U1	0.04 J1	0.511	0.261	1.083	0.09	0.217	0.00458	< 0.002 U1	1 J1	0.2 J1	< 0.04 U1
10/20/2021	Assessment	< 0.02 U1	0.30	29.6	< 0.007 U1	0.037	0.53	0.244	0.17	0.09	0.14 J1	0.00423	< 0.002 U1	0.4 J1	0.15 J1	< 0.04 U1
3/15/2022	Assessment	< 0.02 U1	0.30	28.7	< 0.007 U1	0.038	0.31	0.219	0.70	0.09	< 0.05 U1	0.00421	< 0.002 U1	0.3 J1	0.1 J1	< 0.04 U1
5/11/2022	Assessment	< 0.02 U1	0.28	30.7	< 0.007 U1	0.026	0.31	0.162	0.85	0.06 J1	< 0.05 U1	0.00432	< 0.002 U1	0.3 J1	0.83	< 0.04 U1
10/17/2022	Assessment	< 0.02 U1	0.28	28.6	< 0.007 U1	0.022	0.59	0.147	0.86	0.06 J1	0.06 J1	0.00473	< 0.002 U1	0.2 J1	3.34	< 0.04 U1
3/21/2023	Assessment	< 0.02 U1	0.24	23.1	< 0.007 U1	0.036	0.38	0.409	0.55	0.08	0.07 J1	0.00506	0.0016 J1	0.2 J1	2.9	< 0.04 U1
5/16/2023	Assessment	0.017 J1	0.32	21.5	< 0.007 U1	0.030	0.58	0.634	0.61	0.08	0.11 J1	0.00445	< 0.002 U1	0.4 J1	2.70	< 0.02 U1
10/11/2023	Assessment	0.018 J1	0.29	20.2	< 0.007 U1	0.022	0.65	0.372	0.37	0.1	0.15 J1	0.00470	< 0.002 U1	0.3 J1	0.47 J1	< 0.02 U1
3/6/2024	Assessment	0.045 J1	0.24	20.4	< 0.007 U1	0.040	0.38	0.449	0.81	0.09	0.12 J1	0.00420	< 0.002 U1	0.3 J1	0.86	0.03 J1
4/24/2024	Assessment/ Closure	0.015 J1	0.21	21.0	< 0.007 U1	0.026	0.30	0.185	0.46	0.09	0.09 J1	0.00447	0.005	0.2 J1	0.89	0.02 J1
9/18/2024	Assessment/ Closure	0.014 J1	0.21	20.5	< 0.007 U1	0.021	0.23 J1	0.163	1.00	0.09	0.06 J1	0.00454	< 0.002 U1	0.3 J1	0.67	0.02 J1

Table 1. Groundwater Data Summary: MW-1509
Mitchell - BAP
Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/14/2016	Background	12.4	280	435	0.16	7.0	380	1,730
8/9/2016	Background	11.6	292	401	0.16	7.1	388	1,670
9/27/2016	Background	10.6	292	371	0.1 J1	7.1	418	1,540
11/8/2016	Background	8.29	258	333	0.1 J1	7.1	400	1,410
2/7/2017	Background	7.65	280	360	0.15	7.1	416	1,450
4/5/2017	Background	6.22	290	358	0.1 J1	7.2	416	1,560
5/17/2017	Background	7.36	284	354	0.1 J1	7.2	420	1,520
7/19/2017	Background	6.54	279	346	0.1 J1	7.2	418	1,560
10/10/2017	Detection	6.70	277	345	0.1 J1	7.2	432	1,490
12/27/2017	Detection	6.31	271	315	--	7.1	--	1,360
4/11/2018	Assessment	6.81	272	324	0.15	6.9	488	1,390
8/21/2018	Assessment	6.97	279	323	0.14	7.2	465	1,540
5/1/2019	Assessment	8.73	287	328	0.13	8.5	429	1,480
6/11/2019	Assessment	8.37	273	311	0.13	7.8	432	1,410
10/22/2019	Assessment	8.02	273	297	0.15	7.3	468	1,420
3/18/2020	Assessment	--	--	--	0.13	7.3	--	--
5/5/2020	Assessment	10.6	262	331	0.10	7.4	402	1,390
10/21/2020	Assessment	7.97	237	291	0.14	7.3	463	1,360
3/16/2021	Assessment	--	--	--	0.16	7.9	--	--
5/11/2021	Assessment	7.29	239	230	0.15	7.6	447	1,310
10/19/2021	Assessment	7.37	234	238	0.15	7.2	413	1,260
3/15/2022	Assessment	--	--	--	0.09	7.3	--	--
5/10/2022	Assessment	8.95	240	267	0.09 J1	8.4	456	1,270 S7, L1
10/17/2022	Assessment	6.99	279	251	0.06 J1	7.2	918	1,730
3/21/2023	Assessment	--	--	--	0.09	7.3	--	--
5/16/2023	Assessment	5.55	171	177	0.1 J1	7.0	776	1,550
10/10/2023	Assessment	4.90	203	220	0.12 J1	7.3	677	1,340
3/6/2024	Assessment	--	--	--	0.10 J1	7.2	--	--
4/23/2024	Assessment	4.98	193	203	0.13 J1	7.2	614	1,360
9/17/2024	Assessment	4.09	161	186	0.17	7.4	567	1,330

Table 1. Groundwater Data Summary: MW-1509
Mitchell - BAP
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	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
6/14/2016	Background	0.03 J1	0.55	64.4	0.008 J1	0.03	2.5	0.514	0.816	0.16	0.102	0.0009 J1	< 0.002 U1	1.43	0.1	0.03 J1
8/9/2016	Background	0.03 J1	0.62	64.4	0.01 J1	0.02	0.5	0.484	0.45569	0.16	0.251	0.015	< 0.002 U1	1.00	0.1	0.03 J1
9/27/2016	Background	0.03 J1	0.39	61.0	< 0.005 U1	0.02	4.6	0.424	2.664	0.1 J1	0.024	0.018	< 0.002 U1	1.07	0.2	0.04 J1
11/8/2016	Background	0.03 J1	0.40	62.0	< 0.005 U1	0.02	0.627	0.253	0.413	0.1 J1	0.006 J1	0.012	< 0.002 U1	0.59	0.1	0.05 J1
2/7/2017	Background	0.03 J1	0.50	56.7	< 0.005 U1	0.02	0.650	0.130	1.399	0.15	0.056	0.011	< 0.002 U1	0.66	0.09 J1	0.04 J1
4/5/2017	Background	0.02 J1	0.33	63.5	< 0.005 U1	0.02 J1	1.15	0.189	0.304	0.1 J1	0.01 J1	0.012	< 0.002 U1	0.48	0.2	0.03 J1
5/17/2017	Background	0.02 J1	0.56	61.5	< 0.004 U1	0.01 J1	1.05	0.255	1.673	0.1 J1	0.02 J1	0.022	0.002 J1	0.56	0.2	0.03 J1
7/19/2017	Background	0.03 J1	0.65	58.5	0.01 J1	0.01 J1	0.857	0.344	1.134	0.1 J1	0.220	0.017	< 0.002 U1	0.80	0.2 J1	0.04 J1
4/11/2018	Assessment	0.03 J1	0.42	52.8	0.005 J1	0.01 J1	0.657	0.215	0.792	0.15	0.062	0.009	0.002 J1	0.34	0.2	0.057
8/21/2018	Assessment	0.09	0.33	53.8	< 0.004 U1	0.008 J1	0.777	0.132	0.736	0.14	0.035	0.012	< 0.002 U1	0.32	0.3	0.03 J1
5/1/2019	Assessment	0.03 J1	0.33	47.2	< 0.02 U1	0.01 J1	2.28	0.324	0.4075	0.13	0.114	< 0.009 U1	< 0.002 U1	< 0.4 U1	0.2 J1	< 0.1 U1
6/11/2019	Assessment	0.03 J1	0.28	48.6	< 0.02 U1	0.02 J1	1.47	0.097	0.559	0.13	0.05 J1	0.02 J1	< 0.002 U1	< 0.4 U1	0.2	< 0.1 U1
10/22/2019	Assessment	0.03 J1	0.37	47.2	< 0.02 U1	0.01 J1	1.22	0.164	1.441	0.15	0.08 J1	0.00911	< 0.002 U1	< 0.4 U1	0.3	< 0.1 U1
3/18/2020	Assessment	< 0.02 U1	0.42	45.8	< 0.02 U1	< 0.01 U1	0.518	0.144	0.5514	0.13	0.2 J1	0.00934	< 0.002 U1	< 0.4 U1	0.07 J1	< 0.1 U1
5/5/2020	Assessment	0.03 J1	0.27	43.7	< 0.02 U1	< 0.01 U1	0.633	0.092	1.2019	0.10	0.05 J1	0.00897	< 0.002 U1	0.6 J1	0.1 J1	< 0.1 U1
10/21/2020	Assessment	0.03 J1	0.35	45.9	< 0.02 U1	< 0.01 U1	0.698	0.115	1.6015	0.14	0.09 J1	0.00809	< 0.002 U1	< 0.4 U1	0.3	< 0.1 U1
3/16/2021	Assessment	0.03 J1	0.30	43.8	0.01 J1	0.009 J1	0.552	0.099	0.33	0.16	0.1 J1	0.00749	< 0.002 U1	0.3 J1	0.6	< 0.04 U1
5/11/2021	Assessment	0.03 J1	0.37	45.0	0.009 J1	0.01 J1	0.492	0.143	0.56	0.15	0.2 J1	0.00732	< 0.002 U1	0.3 J1	0.7	< 0.04 U1
10/19/2021	Assessment	0.03 J1	0.33	37.3	< 0.007 U1	0.012 J1	0.61	0.261	1.32	0.15	0.20	0.00763	0.002 J1	0.3 J1	0.24 J1	< 0.04 U1
3/15/2022	Assessment	0.03 J1	0.45	43.3	0.021 J1	0.014 J1	0.70	0.422	1.48	0.09	0.24	0.0101	0.002 J1	0.6	< 0.09 U1	< 0.04 U1
5/10/2022	Assessment	0.02 J1	0.31	36.7	< 0.007 U1	0.009 J1	0.34	0.129	0.47	0.09 J1	0.09 J1	0.00952	< 0.002 U1	2.2	1.03	< 0.04 U1
10/17/2022	Assessment	0.03 J1	0.54	44.3	0.014 J1	0.011 J1	0.52	0.279	0.54	0.06 J1	0.29	0.00987	0.006	0.2 J1	1.10	< 0.04 U1
3/21/2023	Assessment	0.03 J1	0.25	28.2	< 0.007 U1	0.009 J1	0.64	0.164	1.10	0.09	0.05 J1	0.0118	0.003 J1	0.4 J1	0.22 J1	< 0.04 U1
5/16/2023	Assessment	0.026 J1	0.37	24.8	0.010 J1	0.010 J1	0.45	0.286	0.59	0.1 J1	0.22	0.00871	< 0.002 U1	0.3 J1	0.17 J1	0.05 J1
10/10/2023	Assessment	0.033 J1	0.27	24.2	< 0.007 U1	0.01 J1	0.90	0.217	0.75	0.12 J1	0.22	0.00914	< 0.002 U1	0.3 J1	0.07 J1	0.02 J1
3/6/2024	Assessment	0.097 J1	0.19	24.7	< 0.007 U1	0.013 J1	0.29 J1	0.121	0.43	0.10 J1	< 0.05 U1	0.00881	< 0.002 U1	0.3 J1	0.07 J1	0.03 J1
4/23/2024	Assessment/ Closure	0.024 J1	0.19	24.0	< 0.007 U1	0.007 J1	0.28 J1	0.058	1.09	0.13 J1	0.05 J1	0.00910	< 0.002 U1	0.3 J1	0.06 J1	< 0.02 U1
9/17/2024	Assessment/ Closure	0.026 J1	0.22	22.9	< 0.007 U1	0.007 J1	0.35	0.076	0.30	0.17	< 0.05 U1	0.00798	< 0.002 U1	0.5	0.11 J1	0.03 J1

Table 1. Groundwater Data Summary: MW-1510
Mitchell - BAP
Appendix III Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
6/14/2016	Background	9.36	283	334	0.06 J1	7.0	358	1,520
8/2/2016	Background	9.18	294	333	0.06 J1	7.0	356	1,410
9/27/2016	Background	10.1	296	338	0.05 J1	7.1	367	1,410
11/9/2016	Background	9.22	280	325	< 0.05 U1	7.1	332	1,420
2/8/2017	Background	10.4	281	314	0.06 J1	7.2	325	1,270
4/5/2017	Background	9.23	261	303	0.06 J1	7.3	313	1,330
5/17/2017	Background	10.8	249	306	0.05 J1	7.2	307	1,340
7/18/2017	Background	9.86	255	311	< 0.05 U1	7.2	309	1,410
10/9/2017	Detection	8.70	249	327	0.05 J1	7.2	356	1,520
12/27/2017	Detection	8.83	261	339	--	7.2	--	1,300
4/12/2018	Assessment	10.4	292	322	< 0.05 U1	7.0	398	1,290
8/21/2018	Assessment	9.13	268	334	0.09	7.3	428	1,550
5/1/2019	Assessment	8.83	287	325	0.10	8.1	467	1,460
6/12/2019	Assessment	8.50	266	293	0.10	6.9	469	1,430
10/22/2019	Assessment	9.30	259	283	0.11	7.2	483	1,360
3/18/2020	Assessment	--	--	--	0.11	7.4	--	--
5/6/2020	Assessment	9.14	228	252	0.10	7.4	484	1,440
10/20/2020	Assessment	8.38	197	--	0.11	7.4	--	1,280
1/7/2021	Assessment	--	--	229	--	--	441	--
3/17/2021	Assessment	--	--	--	0.13	7.6	--	--
5/12/2021	Assessment	7.52	180	226	0.13	7.4	405	1,220
10/20/2021	Assessment	7.70	186	215	0.13	7.3	409	1,250
3/15/2022	Assessment	--	--	--	0.13	7.3	--	--
5/11/2022	Assessment	5.04	163	175	0.1 J1	7.7	354	1,010
10/17/2022	Assessment	6.50	195	165	0.09 J1	7.2	612	1,450
3/21/2023	Assessment	--	--	--	0.08 J1	7.3	--	--
5/16/2023	Assessment	4.00	222	258	0.09 J1	7.1	859	1,810
10/11/2023	Assessment	6.65	142	117	0.12 J1	7.3	549	1,150
3/6/2024	Assessment	--	--	--	0.12 J1	7.3	--	--
4/24/2024	Assessment	4.52	115	157	0.12 J1	7.3	389	1,030
9/18/2024	Assessment	3.19	124	163	0.13 J1	7.3	364	1,110

Table 1. Groundwater Data Summary: MW-1510
Mitchell - BAP
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	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
6/14/2016	Background	0.03 J1	0.72	50.8	0.02 J1	0.01 J1	0.6	0.257	0.331	0.06 J1	0.282	0.003	< 0.002 U1	0.65	0.2	0.057
8/2/2016	Background	0.03 J1	0.62	49.0	0.02 J1	0.009 J1	0.7	0.256	1.383	0.06 J1	0.269	0.016	< 0.002 U1	0.92	0.2	0.02 J1
9/27/2016	Background	0.03 J1	0.70	48.7	0.02 J1	0.009 J1	0.8	0.329	0.865	0.05 J1	0.333	0.014	< 0.002 U1	0.45	0.2	0.04 J1
11/9/2016	Background	0.02 J1	0.58	44.6	0.02 J1	0.01 J1	0.655	0.230	0.88	< 0.05 U1	0.261	0.009	< 0.002 U1	0.33	0.1	0.03 J1
2/8/2017	Background	0.02 J1	0.47	39.5	< 0.005 U1	0.005 J1	0.521	0.073	6.828	0.06 J1	0.066	0.013	< 0.002 U1	0.42	0.08 J1	0.02 J1
4/5/2017	Background	0.02 J1	0.36	41.4	< 0.005 U1	0.006 J1	2.34	0.175	1.12829	0.06 J1	0.094	0.011	< 0.002 U1	0.27	0.07 J1	< 0.01 U1
5/17/2017	Background	0.02 J1	0.53	40.2	< 0.004 U1	0.005 J1	1.40	0.138	0.176	0.05 J1	0.049	0.015	< 0.002 U1	0.28	0.1	0.01 J1
7/18/2017	Background	0.02 J1	0.51	41.0	0.007 J1	0.008 J1	6.41	0.234	0.97	< 0.05 U1	0.125	0.014	< 0.002 U1	0.85	0.1	0.01 J1
4/12/2018	Assessment	0.03 J1	0.42	43.3	0.01 J1	0.005 J1	27.4	0.217	0.094	< 0.05 U1	0.119	0.006	0.002 J1	3.30	0.1	0.02 J1
8/21/2018	Assessment	0.03 J1	0.37	42.6	0.008 J1	0.006 J1	5.64	0.383	1.237	0.09	0.133	0.011	< 0.002 U1	0.43	0.1	0.01 J1
5/1/2019	Assessment	0.02 J1	0.29	41.7	< 0.02 U1	< 0.01 U1	1.75	0.172	0.5725	0.10	0.105	0.01 J1	< 0.002 U1	< 0.4 U1	0.2 J1	< 0.1 U1
6/12/2019	Assessment	0.02 J1	0.27	41.3	< 0.02 U1	< 0.01 U1	0.697	0.105	0.4098	0.10	0.07 J1	0.02 J1	< 0.002 U1	< 0.4 U1	0.2 J1	< 0.1 U1
10/22/2019	Assessment	0.02 J1	0.33	38.7	< 0.02 U1	< 0.01 U1	1.12	0.154	0.333	0.11	0.07 J1	0.00862	< 0.002 U1	< 0.4 U1	0.2	< 0.1 U1
3/18/2020	Assessment	< 0.02 U1	0.31	38.0	< 0.02 U1	< 0.01 U1	2.10	0.121	0.864	0.11	0.08 J1	0.00808	< 0.002 U1	< 0.4 U1	0.2 J1	< 0.1 U1
5/6/2020	Assessment	< 0.02 U1	0.29	36.7	< 0.02 U1	< 0.01 U1	0.886	0.109	0.7374	0.10	0.07 J1	0.00750	< 0.002 U1	< 0.4 U1	0.2 J1	< 0.1 U1
10/20/2020	Assessment	0.02 J1	0.27	32.6	< 0.02 U1	< 0.01 U1	0.688	0.091	0.3002	0.11	0.06 J1	0.00675	< 0.002 U1	< 0.4 U1	0.3	< 0.1 U1
3/17/2021	Assessment	0.02 J1	0.25	30.6	0.01 J1	0.004 J1	1.04	0.098	0.5272	0.13	0.08 J1	0.00720	< 0.002 U1	0.2 J1	0.3	< 0.04 U1
5/12/2021	Assessment	0.02 J1	0.34	33.4	0.01 J1	0.005 J1	3.16	0.339	1.024	0.13	0.2 J1	0.00689	< 0.002 U1	0.5 J1	0.3 J1	< 0.04 U1
10/20/2021	Assessment	0.02 J1	0.26	29.7	< 0.007 U1	0.005 J1	0.57	0.128	0.62	0.13	0.11 J1	0.00701	< 0.002 U1	0.5	0.23 J1	< 0.04 U1
3/15/2022	Assessment	0.02 J1	0.29	26.5	0.015 J1	0.006 J1	0.73	0.127	0.60	0.13	0.12 J1	0.00687	0.003 J1	0.2 J1	0.59	< 0.04 U1
5/11/2022	Assessment	0.02 J1	0.27	25.8	< 0.007 U1	0.004 J1	0.54	0.119	0.43	0.1 J1	0.08 J1	0.00616	0.002 J1	0.2 J1	0.60	< 0.04 U1
10/17/2022	Assessment	0.03 J1	0.35	37.6	< 0.007 U1	0.005 J1	0.93	0.275	0.50	0.09 J1	0.12 J1	0.00760	0.019	0.3 J1	7.10	< 0.04 U1
3/21/2023	Assessment	0.02 J1	0.22	32.9	< 0.007 U1	0.007 J1	0.40	0.131	1.32	0.08 J1	0.52	0.00818	0.0134	0.2 J1	3.68	< 0.04 U1
5/16/2023	Assessment	0.019 J1	0.26	31.8	< 0.007 U1	0.007 J1	0.39	0.168	0.22	0.09 J1	0.06 J1	0.00774	0.014	0.2 J1	2.13	< 0.02 U1
10/11/2023	Assessment	0.025 J1	0.32	23.3	< 0.007 U1	0.006 J1	0.72	0.226	0.45	0.12 J1	0.13 J1	0.00728	0.008	0.3 J1	2.16	< 0.02 U1
3/6/2024	Assessment	0.064 J1	0.23	22.7	< 0.007 U1	0.012 J1	0.34	0.128	0.68	0.12 J1	0.06 J1	0.00626	0.005	0.3 J1	2.28	< 0.02 U1
4/24/2024	Assessment/ Closure	0.021 J1	0.18	20.7	< 0.007 U1	< 0.004 U1	0.31	0.081	1.03	0.12 J1	< 0.05 U1	0.00632	< 0.002 U1	0.2 J1	2.11	< 0.02 U1
9/18/2024	Assessment/ Closure	0.023 J1	0.27	25.5	< 0.007 U1	< 0.004 U1	0.35	0.131	< 2.0 U1	0.13 J1	< 0.05 U1	0.00662	0.009	0.3 J1	0.86	0.04 J1

Notes:
Combined radium values were calculated from the sum of the reported radium-226 and radium-228 results.
Radium data quality flags were not included. Reported negative radium-226 or radium-228 results were replaced with zero.
--: Not analyzed
<: 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.
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.
L1: The associated laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) recovery was outside acceptance limits.
M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.
mg/L: milligrams per liter
P3: The precision on the matrix spike duplicate (MSD) was above acceptance limits.
pCi/L: picocuries per liter
S7: Sample did not achieve constant weight.
SU: standard unit
µg/L: micrograms per liter

Table 1: Residence Time Calculation Summary
Mitchell Bottom Ash Ponds

Geosyntec Consultants, Inc.

			2024-03		2024-04		2024-09	
CCR Management Unit	Monitoring Well	Well Diameter (inches)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Bottom Ash Pond	MW-1504 [1]	2.0	9.6	6.4	25.5	2.4	10.3	5.9
	MW-1505 [2]	2.0	20.0	3.0	59.7	1.0	66.9	0.9
	MW-1506 [2]	2.0	18.1	3.4	57.9	1.1	68.4	0.9
	MW-1507 [2]	2.0	19.2	3.2	34.6	1.8	14.5	4.2
	MW-1508 [3]	2.0	20.0	3.0	37.7	1.6	11.8	5.2
	MW-1509 [2]	2.0	10.0	6.1	25.7	2.4	15.9	3.8
	MW-1510 [1]	2.0	18.1	3.4	35.6	1.7	10.3	5.9

Notes:
[1] - Sidegradient Well
[2] - Downgradient Well
[3] - Upgradient Well

Monitoring Well Network

- Compliance Sampling Location
- Upgradient Sampling Location
- Bottom Ash Pond

Notes

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

250 125 0 250 Feet

Site Layout
Bottom Ash Pond

Mitchell Power Generation Plant - Bottom Ash Pond
Marshall County, West Virginia

Geosyntec consultants

Columbus, Ohio | 2018/01/26

Figure **1**

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Legend

- Groundwater Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction

Notes

1. Monitoring well coordinates and water level data (collected on March 06, 2024) provided by AEP.
2. Approximate Ohio River elevation was 604.42 feet at Mitchell Power Plant on March 06, 2024. Data Source: USGS Ohio River gauge at Hannibal Lock and Dan (Lower), OH.
3. Site features based on information available in the Groundwater Monitoring Network Evaluation (CEC 2016) provided by AEP.
4. Site dewatering activities on East Pond began on September 11, 2023 and concluded on November 16, 2023.
5. Coal Combustion Residual removal from East Pond began on October 6, 2023, and was completed in February 2024.
6. Groundwater and river elevation units are feet above mean sea level (NAVD 88).
7. Aerial imager provided by Google Earth Pro, dated April 18, 2023.

200 100 0 200 Feet

Potentiometric Surface Map - Uppermost Aquifer March 2024

Mitchell Power Generation Plant - Bottom Ash Pond
Marshall County, West Virginia

Geosyntec consultants

Columbus, Ohio | 2024/07/10

Figure 2

P:\Projects\AEP\Groundwater Statistical Evaluation - CHA8423\Groundwater Mapping\GIS Files\MXD\Mitchell\BAP\2024\AEP-Mitchell_Pond_GW_Mar2024.mxd. ASoltero. 7/10/2024. Project/Phase/Task.

Legend

- Groundwater Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction

Notes

1. Monitoring well coordinates and water level data (collected on April 23, 2024) provided by AEP.
2. Approximate Ohio River elevation was 604.66 feet at Mitchell Power Plant on April 23, 2024. Data Source: USGS Ohio River gauge at Hannibal Lock and Dan (Lower), OH.
3. Site features based on information available in the Groundwater Monitoring Network Evaluation (CEC 2016) provided by AEP.
4. Site dewatering activities on East Pond began on September 11, 2023 and concluded on November 16, 2023.
5. Coal Combustion Residual removal from East Pond began on October 6, 2023, and was completed in February 2024.
6. Groundwater and river elevation units are feet above mean sea level (ft amsl) (NAVD 88).
7. Aerial imagery provided by Google Earth Pro, dated April 18, 2023.

250 125 0 250 Feet

Potentiometric Surface Map - Uppermost Aquifer
April 2024

Mitchell Power Generation Plant - Bottom Ash Pond
Marshall County, West Virginia

Geosyntec consultants

Columbus, Ohio | 2024/06/12

Figure 3

A:\Projects\AEP\Groundwater Statistical Evaluation - CHA8423\Groundwater Mapping\GIS Files\MXD\Mitchell\BAP\2024\AEP-Mitchell_Pond_GW_Apr2024_v1.mxd. Okiemute.Commander. 6/12/2024. Project/Phase/Task.

Legend

- Groundwater Monitoring Well
- Groundwater Elevation Contour
- Groundwater Elevation Contour (Inferred)
- Groundwater Flow Direction

Notes

1. Monitoring well coordinates and water level data (collected on September 17, 2024) provided by AEP.
2. Approximate Ohio River elevation was 602 feet at Mitchell Power Plant on September 17, 2024. Data Source: USGS Ohio River gauge at Hannibal Lock and Dan (Lower), OH.
3. Site features based on information available in the Groundwater Monitoring Network Evaluation (CEC 2016) provided by AEP.
4. Groundwater and river elevation units are feet above mean sea level (ft amsl) (NAVD 88).
5. Aerial imagery provided by Google Earth Pro, dated April 18, 2023.

250 125 0 250 Feet

Potentiometric Surface Map - Uppermost Aquifer September 2024

Mitchell Power Generation Plant - Bottom Ash Pond
Marshall County, West Virginia

Geosyntec consultants

Columbus, Ohio | 2024/12/17

Figure 4

A:\Projects\AEP\Groundwater Statistical Evaluation - CHA8423\Groundwater Mapping\GIS Files\MXD\Mitchell\BAP\2024\AEP-Mitchell_Pond_GW_Sep2024.mxd. ASoltero. 12/17/2024. Project/Phase/Task.

APPENDIX 2 - Statistical Analyses

The following statistical analysis reports, all completed in 2024, are included in this appendix:

- The February 2, 2024 statistical analysis summary report with the results of statistical evaluations of the October 10-11, 2023 assessment monitoring event;
- The July 19, 2024 statistical analysis summary report with the results of statistical evaluations of the March 6-7 and 11, 2024 assessment monitoring event and the April 23-24, 2024 assessment/closure monitoring event;
- The December 24, 2024 statistical analysis summary report with the results of statistical evaluations of the September 17-18, 2024 assessment/closure monitoring event.

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STATISTICAL ANALYSIS SUMMARY, BOTTOM ASH POND

Mitchell Plant

Moundsville, West Virginia

Prepared for

American Electric Power
1 Riverside Plaza
Columbus, Ohio 43215-2372

Prepared by

Geosyntec Consultants, Inc.
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Worthington, Ohio 43085

Project Number: CHA8500B

February 2, 2024

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LIST OF ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

BAP	bottom ash pond
CCR	coal combustion residuals
CFR	code of federal regulations
GWPS	groundwater protection standard
LCL	lower confidence limit
LPL	lower prediction limit
mg/L	milligrams per liter
pCi/L	picocuries per liter
QA/QC	quality assurance/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

1. INTRODUCTION

In accordance with United States Environmental Protection Agency (USEPA) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (Code of Federal Regulations [CFR] Title 40, Section 257, Subpart D), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Mitchell Power Plant in Moundsville, West Virginia. Recent groundwater monitoring results were used to identify concentrations of Appendix IV constituents that are above the groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, calcium, chloride, and total dissolved solids (TDS), at the BAP. An alternative source was not identified following the detection monitoring events; thus, the BAP has been in assessment monitoring since 2018. During the most recent assessment monitoring event, completed in October 2022, Appendix III detections of boron, calcium, chloride, pH, and TDS were observed above background levels and the unit remained in assessment monitoring (Geosyntec 2023).

A semiannual sampling event for Appendix III parameters and Appendix IV parameters, as required by 40 CFR 257.95(d)(1), was completed in September 2023. The results of the September 2023 assessment sampling event are documented in this report.

Before the statistical analyses were conducted, 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 that would impact data usability were identified.

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

2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

One set of samples was collected for analysis from each upgradient and downgradient well to meet the requirements of 40 CFR 257.95(d)(1) in October 2023 as part of the assessment monitoring program. Samples from the October 2023 sample event were analyzed for all Appendix III and Appendix IV parameters. A summary of data collected during this assessment monitoring event is presented in Table 1.

Chemical analysis was completed by a National Environmental Laboratory Accreditation Program-certified analytical laboratory. The laboratory completed analysis of quality assurance and quality control (QA/QC) samples such as laboratory reagent blanks, continuing calibration verification samples, and laboratory fortified blanks.

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.10.0.15 statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues that would impact data usability were noted.

2.2 Statistical Analysis

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

The data obtained in October 2023 were screened for potential outliers. The October 2023 sulfate values of 691 and 677 milligrams per liter (mg/L) at background well MW-1508 and downgradient well MW-1509 were identified as potential outliers. However, because these values may be indicative of future trends they were not flagged as outliers during this analysis and will be reevaluated when additional data points are available (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 either the maximum contaminant level 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 was calculated using pooled data from the background wells collected during the background monitoring and assessment monitoring events. GWPSs were previously established in February 2023 (Geosyntec 2023); this evaluation incorporated data from the March 2023, May 2023, and October 2023 assessment monitoring events.

Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for barium, chromium, cobalt, combined radium, fluoride, lead, molybdenum, and selenium. Nonparametric tolerance limits were calculated for antimony, arsenic, cadmium, and lithium due

to apparent non-normal distributions. Nonparametric tolerance limits were calculated for beryllium, mercury, and thallium because greater than 50% of the data was composed of nondetect results. Upper 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, nonparametric confidence limits were calculated in some cases (e.g., when the data were not normally distributed or when the nondetect 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). The calculated confidence limits (Attachment B) were compared to the GWPSs provided in Table 2.

No SSLs were identified at the Mitchell BAP.

2.2.3 Updating Appendix III Prediction Limits

Upper prediction limits (UPLs) were originally established for all Appendix III parameters following the background monitoring period (Geosyntec 2018). Intrawell tests were used to evaluate potential SSIs for fluoride and sulfate, whereas interwell tests were used to evaluate potential SSIs for boron, calcium, chloride, pH, and TDS. Prediction limits have been updated periodically during the assessment monitoring period as sufficient data became available.

Mann-Whitney (Wilcoxon rank-sum) tests were performed to determine whether the newer data are affected by a release from the Landfill. Because the interwell Appendix III limits and the Appendix IV GWPSs are based on data from upgradient wells which we would not expect to have been impacted by a release, these tests were used for intrawell Appendix III tests only. Mann-Whitney tests were used to compare the medians of historical data (June 2016 – May 2021) to the new compliance samples (October 2021 – May 2023) for fluoride and sulfate. Results were evaluated to determine if the medians of the two groups were statistically different at the 99% confidence level. Where no statistically significant difference was found, the new compliance data were added to the background dataset. Where a statistically significant difference was found between the medians of the two groups, the data were reviewed to evaluate the cause of the difference and to determine if adding newer data to the background dataset, truncating historical data and using only the newer data, or continuing to use the existing background dataset was most appropriate. If the differences appeared to have been caused by a release, then the previous background dataset would have continued to be used.

The complete Mann-Whitney test results and a summary of the significant findings can be found in Attachment B.

While a statistically significant decrease was observed for fluoride at downgradient well MW-1509, the magnitude of the difference was minimal and remains below the GWPS. Therefore, the background dataset was updated to include all data. For downgradient well/parameter pairs with statistically significant increases for sulfate, concentrations appear to be increasing relative to historical values. Increasing sulfate concentrations were observed at all downgradient wells (Attachment B); therefore, the sulfate data sets for all wells were not updated at this time.

Prediction limits for the interwell tests were recalculated using data collected during the 2023 assessment monitoring events. New upgradient well data were tested for outliers prior to being added to the background dataset. Upgradient well data were also evaluated for statistically significant trends using the Sen's Slope/Mann-Kendall trend test, and the results are included in Attachment B. The revised interwell prediction limits were used to evaluate potential SSIs for boron, calcium, chloride, pH, and TDS.

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

The updated interwell prediction limits for boron, calcium, chloride, pH, and TDS and intrawell prediction limits for fluoride and sulfate are summarized in Table 3. The UPLs were calculated for a one-of-two retesting procedure; i.e., if at least one sample in a series of two does not exceed the UPL, or in the case of pH, is neither less than the lower prediction limit (LPL) nor greater than the UPL, then it can be concluded that an SSI has not occurred. In practice, where the initial result does not exceed the UPL, or in the case of pH, is neither less than the LPL nor greater than the UPL, a second sample will not be collected. The retesting procedures allow achieving an acceptably high statistical power to detect changes at downgradient wells for constituents evaluated using intrawell prediction limits.

2.2.4 Evaluation of Potential Appendix III SSIs

The Appendix III results were analyzed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the October 2023 assessment monitoring event from each compliance well were compared to updated prediction limits to assess whether the results were statistically above background values. The results from these events and the prediction limits are summarized in Table 3. The following exceedances of the UPLs were noted:

- Sulfate concentrations were above the intrawell UPL of 408 mg/L at MW-1505 (508 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (619 mg/L), the intrawell UPL of 373 mg/L at MW-1507 (571 mg/L), the intrawell UPL of 492 mg/L at MW-1509 (677 mg/L), and the intrawell UPL of 523 mg/L at MW-1510 (549 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the October 2023 sample was above the UPL or, in the case of pH,

below the 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 prevented data usage. A review of outliers identified no potential outliers in the September 2023 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 was above the GWPSs. No SSLs were identified. Appendix III parameters were compared to updated prediction limits; concentrations of sulfate were identified above the prediction limits.

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

3. REFERENCES

Geosyntec. 2018. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. Geosyntec Consultants, Inc. January.

Geosyntec. 2020. Statistical Analysis Plan – Mitchell Plant. Geosyntec Consultants, Inc. October.

Geosyntec. 2023. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. Geosyntec Consultants, Inc. February.

TABLES

Table 1. Groundwater Data Summary
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1504	MW-1505	MW-1506	MW-1507	MW-1508	MW-1509	MW-1510
		10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/11/2023	10/10/2023	10/11/2023
Antimony	µg/L	0.025 J1	0.094 J1	0.031 J1	0.027 J1	0.018 J1	0.033 J1	0.025 J1
Arsenic	µg/L	0.27	0.31	0.25	0.20	0.29	0.27	0.32
Barium	µg/L	25.4	23.4	23.6	22.6	20.2	24.2	23.3
Beryllium	µg/L	0.05 U1	0.05 U1	0.05 U1	0.05 U1	0.05 U1	0.05 U1	0.05 U1
Boron	mg/L	5.77	4.56	4.22	4.93	5.21	4.90	6.65
Cadmium	µg/L	0.027	0.022	0.011 J1	0.015 J1	0.022	0.01 J1	0.006 J1
Calcium	mg/L	178	184	187	166	214	203	142
Chloride	mg/L	217	198	234	218	174	220	117
Chromium	µg/L	0.7	1.08	0.70	1.21	0.65	0.90	0.72
Cobalt	µg/L	0.144	0.200	0.129	0.105	0.372	0.217	0.226
Combined Radium	pCi/L	0.88	0.61	0.5	0.57	0.37	0.75	0.45
Fluoride	mg/L	0.17	0.06 J1	0.07 J1	0.09	0.1	0.12 J1	0.12 J1
Lead	µg/L	0.13 J1	0.72	0.09 J1	0.06 J1	0.15 J1	0.22	0.13 J1
Lithium	mg/L	0.00595	0.00583	0.00770	0.00608	0.00470	0.00914	0.00728
Mercury	µg/L	0.005 U1	0.002 J1	0.005 U1	0.005 U1	0.005 U1	0.005 U1	0.008
Molybdenum	µg/L	0.2 J1	0.5 U1	0.2 J1	1.8	0.3 J1	0.3 J1	0.3 J1
Selenium	µg/L	5.33	2.98	1.53	0.57	0.47 J1	0.07 J1	2.16
Sulfate	mg/L	612	580	619	571	691	677	549
Thallium	µg/L	0.2 U1	0.04 J1	0.03 J1	0.03 J1	0.2 U1	0.02 J1	0.2 U1
Total Dissolved Solids	mg/L	1,330	1,280	1,360	1,250	1,380 S7	1,340	1,150
pH	SU	7.2	7.4	7.3	7.4	7.1	7.3	7.3

Notes:
J1: Estimated value. Parameter was detected in concentrations below the reporting limit.
mg/L: milligrams per liter
pCi/L: picocuries per liter
S7: Sample did not achieve constant weight.
SU: standard unit
U1: Non-detect value. For statistical analysis, parameters that were not detected were replaced with the reporting limit.
µg/L: micrograms per liter

Table 2: Appendix IV Groundwater Protection Standards
Statistical Analysis Summary
Mitchell Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600		0.000100	0.00600
Arsenic, Total (mg/L)	0.0100		0.00165	0.0100
Barium, Total (mg/L)	2.00		0.0541	2.00
Beryllium, Total (mg/L)	0.00400		0.0000600	0.00400
Cadmium, Total (mg/L)	0.00500		0.0000900	0.00500
Chromium, Total (mg/L)	0.100		0.00175	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.00233	0.00600
Combined Radium, Total (pCi/L)	5.00		1.88	5.00
Fluoride, Total (mg/L)	4.00		0.290	4.00
Lead, Total (mg/L)	n/a	0.0150	0.00266	0.0150
Lithium, Total (mg/L)	n/a	0.0400	0.0150	0.0400
Mercury, Total (mg/L)	0.00200		0.00000800	0.00200
Molybdenum, Total (mg/L)	n/a	0.100	0.00159	0.100
Selenium, Total (mg/L)	0.0500		0.01470	0.0500
Thallium, Total (mg/L)	0.00200		0.000200	0.00200

Notes:

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

CCR: Coal Combustion Residual

GWPS: Groundwater Protection Standard

MCL: Maximum Contaminant Level

mg/L: milligrams per liter

pCi/L: picocuries per liter

Table 3. Appendix III Data Summary
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Analyte	Unit	Description	MW-1505	MW-1506	MW-1507	MW-1509	MW-1510
			10/10/2023	10/10/2023	10/10/2023	10/10/2023	10/11/2023
Boron	mg/L	Interwell Background Value (UPL)	6.790				
		Analytical Result	4.56	4.22	4.93	4.90	6.65
Calcium	mg/L	Interwell Background Value (UPL)	259				
		Analytical Result	184	187	166	203	142
Chloride	mg/L	Interwell Background Value (UPL)	245				
		Analytical Result	198	234	218	220	117
Fluoride	mg/L	Intrawell Background Value (UPL)	0.150	0.150	0.0906	0.160	0.144
		Analytical Result	0.06	0.07	0.09	0.12	0.12
pH	SU	Interwell Background Value (UPL)	8.6				
		Interwell Background Value (LPL)	6.8				
		Analytical Result	7.4	7.3	7.4	7.3	7.3
Sulfate	mg/L	Intrawell Background Value (UPL)	408	369	373	492	523
		Analytical Result	**580**	**619**	**571**	**677**	**549**
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,670				
		Analytical Result	1,280	1,360	1,250	1,340	1,150

Notes:

1. Bold values exceed the background value.

2. Background values are shaded gray.

LPL: lower prediction limit

mg/L: milligrams per liter

SU: standard units

UPL: upper prediction limit

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Mitchell Bottom Ash Pond 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

Signature

22663	West Virginia	02.02.2024
License Number	Licensing State	Date

ATTACHMENT B
Statistical Analysis Output

GROUNDWATER STATS CONSULTING

January 29, 2024

Geosyntec Consultants
Attn: Ms. Allison Kreinberg
500 W. Wilson Bridge Road, Suite 250
Worthington, OH 43085

RE: Mitchell Bottom Ash Pond (BAP)
Background Update & October 2023 Assessment Monitoring Analysis

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis and background update of interwell statistical limits through 2023 for American Electric Power Company's Mitchell Bottom Ash Pond. 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 USEPA Unified Guidance (2009).

Sampling at each of the wells below began at Mitchell Bottom Ash Pond for the CCR program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** MW-1504 and MW-1508
- **Downgradient wells**: MW-1505, MW-1506, MW-1507, MW-1509, and MW-1510

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 Andrew Collins, Project Manager of 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.

Due to varying detection limits in background data sets due to improved laboratory practices, a substitution of the most recent reporting limit is used for all non-detects. In some cases, the reporting limit provided by the laboratory contains varying limits for a given parameter; therefore, the substitution may differ from well to well. This generally gives the most conservative limit in each case.

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 were included previously and demonstrated 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

All data were initially screened for outliers and trends in December 2017. As a result of that screening, the statistical methods implemented at this site are listed below.

Summary of Statistical Methods – Appendix III Parameters

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

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are non-detects, 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. Non-detects are handled as follows:

- 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, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data for parametric limits. 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.

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.

December 2017 – Initial Background Screening

Intrawell prediction limits combined with a 1-of-2 verification strategy were recommended for fluoride and sulfate; and interwell prediction limits combined with a 1-of-2 verification strategy were recommended for boron, calcium, chloride, pH, and TDS. All proposed background data were screened for outliers and trends during the background screening. The findings of those reports were submitted at that time. 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.

January 2024 – Background Update

Outlier Analysis

Prior to updating background data, Tukey's outlier test and visual screening were used to re-evaluate data through May 2023 at all wells for parameters using intrawell prediction limits (fluoride and sulfate) and through October 2023 at all upgradient wells for parameters utilizing interwell prediction limits (boron, calcium, chloride, pH, and TDS) (Figure C). For parameters which use intrawell prediction limits, Tukey's outlier test identified values for sulfate; however, because these values are among the most recent observations, they could be indicative of future trends and were not flagged during this analysis.

For parameters which use interwell prediction limits, Tukey's outlier test identified two values for pH as outliers, but these values were similar to remaining observations within their respective record and were not flagged in the database. No new values were flagged as outliers (Figure C).

Intrawell - Mann-Whitney Evaluation

For constituents requiring intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through May 2021 to the new compliance samples through May 2023 at each well to evaluate whether the groups are statistically different at the 99% confidence level (Figure D). Any records that were truncated during previous updates due to statistical limits that were not conservative from a regulatory perspective used curtailed portions of the respective record for comparison with the Mann-Whitney test. Discussions of any truncated records were included in previous background update reports. When no statistically significant difference is found, background data may be updated with compliance data. Statistically significant differences (either an increase or decrease in median concentrations) were found between the two groups for the following well/constituent pairs:

Increase:

- Sulfate: MW-1505, MW-1506, and MW-1507

Decrease:

- Fluoride: MW-1509

Typically, when the test concludes that the medians of the two groups are statistically significantly different, particularly in the downgradient wells, the background data are not updated to include the newer data, unless it can be reasonably justified that the change in concentrations reflects a shift unrelated to practices at the site. In studies such as the current one, in which at least one of the segments being compared is of short duration, the comparison is complicated by the fact that normal short-term variation may be mistaken for long-term change in medians.

Regarding well/constituent pairs with statistically significant increases in medians, newer observations are higher than historical concentrations and appear to be increasing. Because all records for sulfate have recent increases in concentrations above historic levels, none of the records for sulfate were updated at this time. A list of well/constituent pairs using a truncated portion of their record follows this report.

Regarding the statistically significant decrease in medians for fluoride in downgradient well MW-1509, the decrease in concentrations was marginal to the overall record and remains below the Maximum Contaminant Level (MCL). Therefore, this record was updated with compliance data. All records for fluoride were updated through May 2023.

Interwell – Trend Test Evaluation

For parameters which are 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). Statistically significant trends were identified for the following well/constituent pairs:

Increasing
- None

Decreasing
- Chloride: MW-1508

For chloride in upgradient well MW-1508, although earlier concentrations were higher than more recent concentrations, no adjustment was required to the record since the statistical limit was representative of present-day groundwater quality conditions, was a nonparametric prediction limit constructed based on the highest report concentration among the upgradient wells, and was not influenced by the magnitude of the trend. 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.

Prediction Limits

Intrawell limits constructed from carefully screened background data from within each well serve to provide statistical limits that are representative of the background data population, and that will rapidly identify a change in more recent compliance data from within a given well. The most recent sample from the same well is compared to its respective background. This statistical method removes the element of variation from across wells and eliminates the chance of mistaking spatial variation for a release from the facility. Intrawell prediction limits are updated when a minimum of 4 compliance samples are available. Intrawell prediction limits, combined with a 1-of-2 resample plan, were constructed for fluoride and sulfate using screened background data through May 2023 at each well, unless otherwise specified (Figure F). No comparison of the October 2023 compliance data to statistical limits was made in this analysis.

Interwell prediction limits, which pool upgradient well data to establish a background limit for an individual constituent, were updated during this analysis after visual screening for new outliers and trends. The most recent sample from each downgradient well is compared to the interwell prediction limits to determine whether initial exceedances are

present. Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed using all pooled upgradient well data through October 2023 for boron, calcium, chloride, pH, and TDS (Figure G). Time series plots were included with the interwell prediction limit graphs to display concentrations at upgradient wells that were used to construct the statistical limits. No comparison of the October 2023 compliance data to statistical limits was made in this analysis.

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of one additional sample to determine whether the initial exceedance is confirmed. When the resample confirms the initial exceedance, a statistically significant increase (SSI) is identified, and further research is required to identify the cause of the exceedance (i.e., impact from the site, natural variation, or an off-site source). If a resample falls within the statistical limit, the initial exceedance is considered to be a false positive result; therefore, no further action is necessary.

Evaluation of Appendix IV Parameters – October 2023

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. For the current analysis, Tukey's outlier test on pooled upgradient identified a low value for combined radium 226 + 228; however, this value was similar to several other observations upgradient of the facility and was not flagged. No new measurements among pooled upgradient well data were flagged and visual screening with time series graphs confirmed previously flagged outliers for Appendix IV parameters.

Additionally, downgradient well data through October 2023 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. No new outliers among downgradient wells were flagged during this analysis. All flagged values may be seen on the Outlier Summary following this letter (Figure C).

<u>Interwell Upper Tolerance Limits</u>

Interwell upper tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data through October 2023 for the Appendix IV constituents discussed above (Figure H). These limits are updated on an annual basis and will be updated again during the Fall 2024 sample event. Parametric tolerance limits are

calculated, with a target of 95% confidence and 95% coverage, when data follow a normal or transformed-normal distribution such as for barium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, molybdenum, and selenium. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

These limits were compared to the Maximum Contaminant Levels (MCLs) and the CCR-Rule specified levels in the Groundwater Protection Standards (GWPS) table following this letter to determine the highest limit for use as the GWPS in the Confidence Interval comparisons (Figure I).

Confidence Intervals

Confidence intervals were then constructed using all available data through October 2023 on downgradient wells for each of the Appendix IV parameters using the highest limit of either the MCL, CCR-Rule specified, or background as the GWPS as discussed above (Figure J). These intervals were constructed as either parametric or nonparametric confidence intervals depending on the data distribution and percentage of non-detects. When data followed a normal or transformed-normal distribution, parametric confidence intervals were used for Appendix IV parameters. Nonparametric confidence intervals were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available.

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 report and no confidence interval exceedances were noted for any of the Appendix IV parameters.

Trend Test Evaluation

When confidence interval exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable at the 95% confidence

level. Utilizing the 95% confidence level for trend tests readily identifies significant trends and is more sensitive than the 99% confidence level without drastically increasing the false negative rate. Upgradient wells are included in the trend analyses for all parameters found to exceed their confidence interval in downgradient wells. When similar patterns exist upgradient of the site, it is an indication of variability in groundwater which may be unrelated to practices at the site. Since no exceedances were identified, no trend tests were required.

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

For Groundwater Stats Consulting,

Abdul Diane
Groundwater Analyst

Andrew T. Collins
Project Manager

Date Ranges

Date: 1/25/2024 5:10 PM

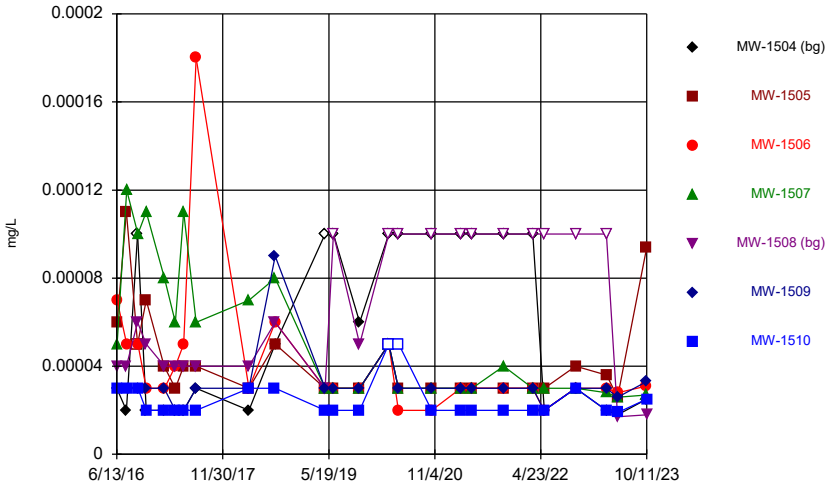
Mitchell BAP Data: Mitchell BAP

Sulfate, total (mg/L)

- MW-1504 overall:6/13/2016-5/11/2021
- MW-1505 overall:6/14/2016-6/11/2019
- MW-1506 overall:6/14/2016-6/11/2019
- MW-1507 overall:6/14/2016-6/11/2019
- MW-1508 overall:6/14/2016-5/12/2021
- MW-1509 overall:6/14/2016-5/11/2021
- MW-1510 overall:6/14/2016-5/12/2021

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

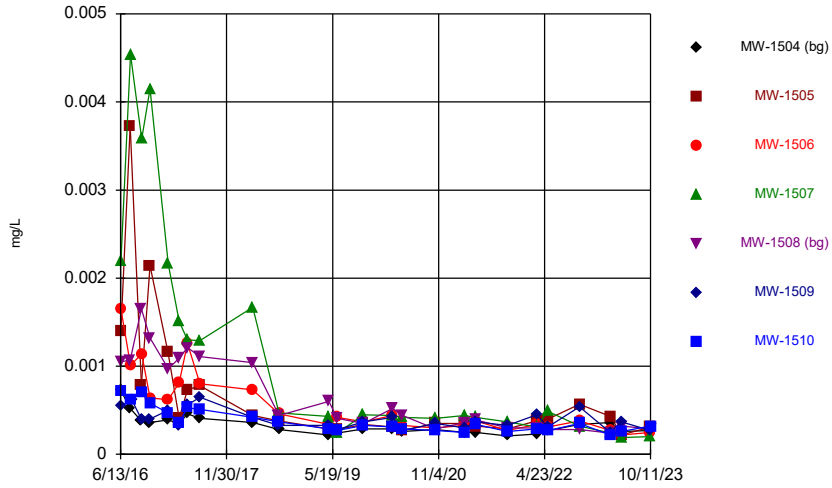
Time Series



Constituent: Antimony, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

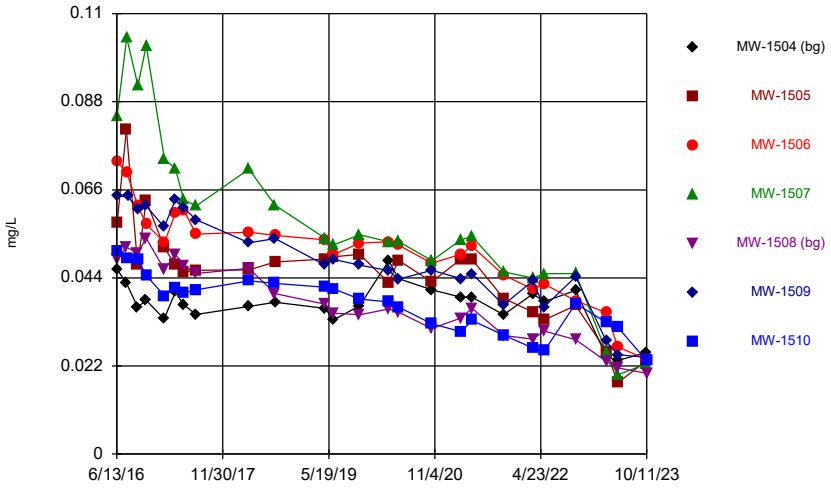
Time Series



Constituent: Arsenic, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

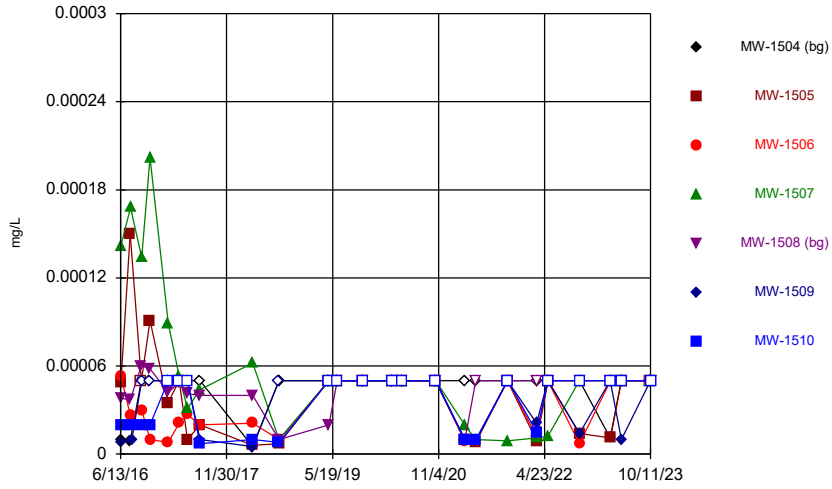
Time Series



Constituent: Barium, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

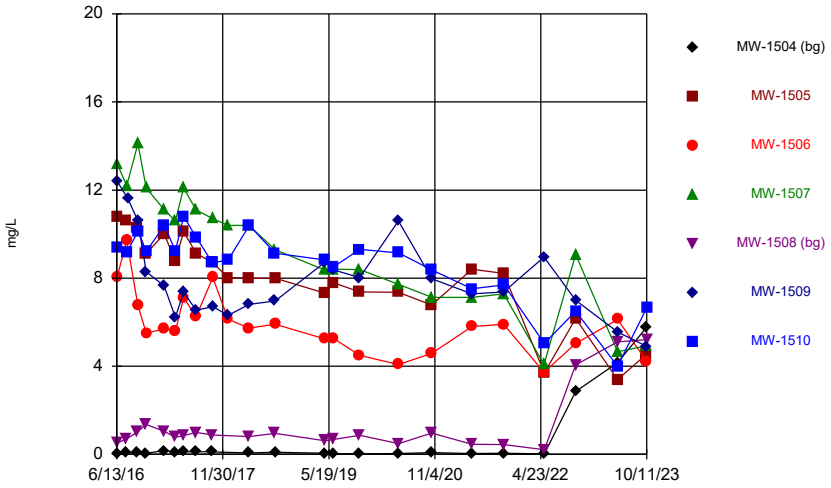
Time Series



Constituent: Beryllium, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

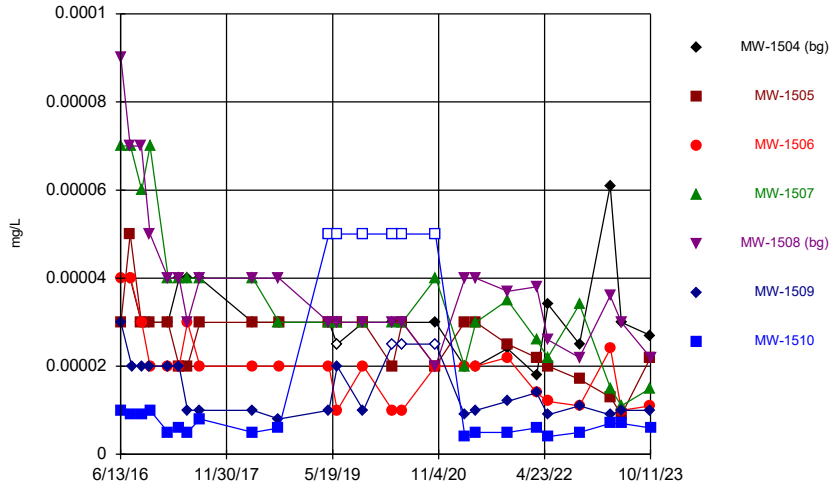
Time Series



Constituent: Boron, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

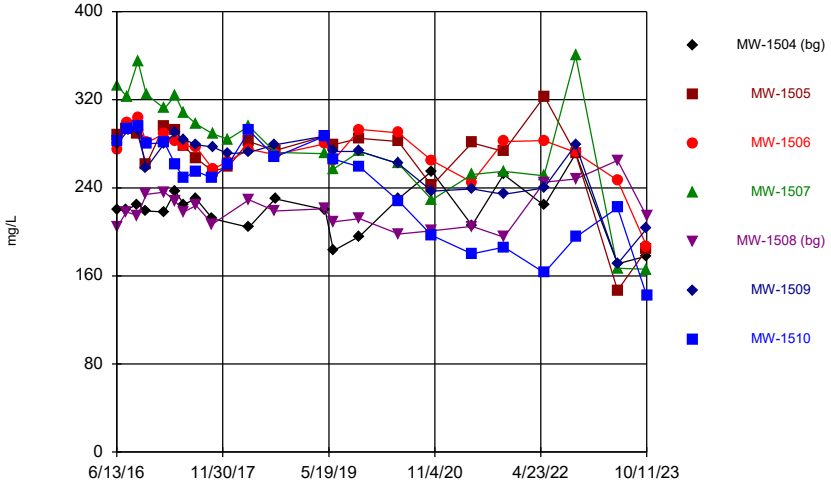
Time Series



Constituent: Cadmium, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

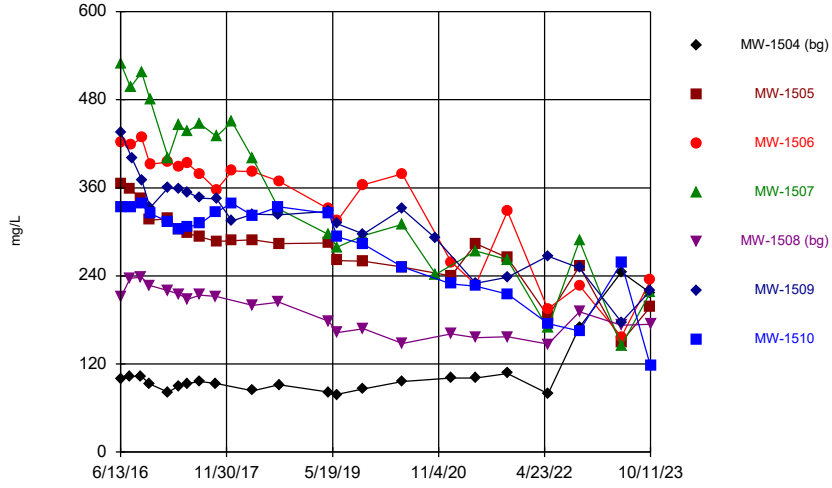
Time Series



Constituent: Calcium, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

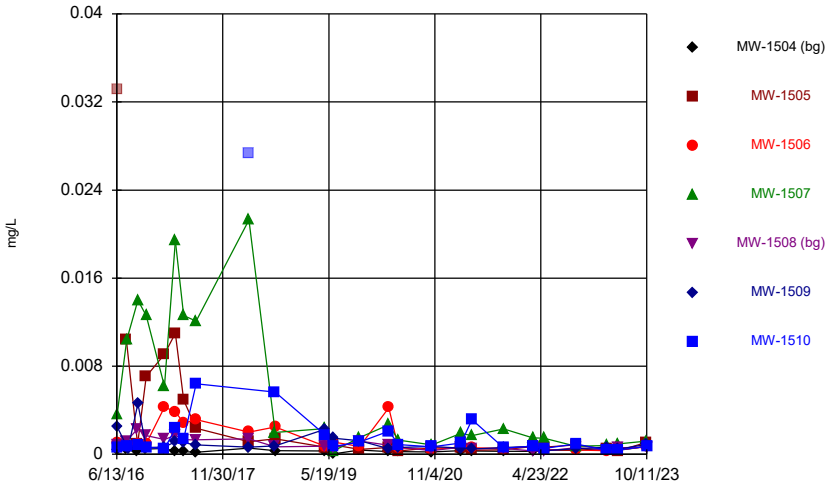
Time Series



Constituent: Chloride, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Time Series

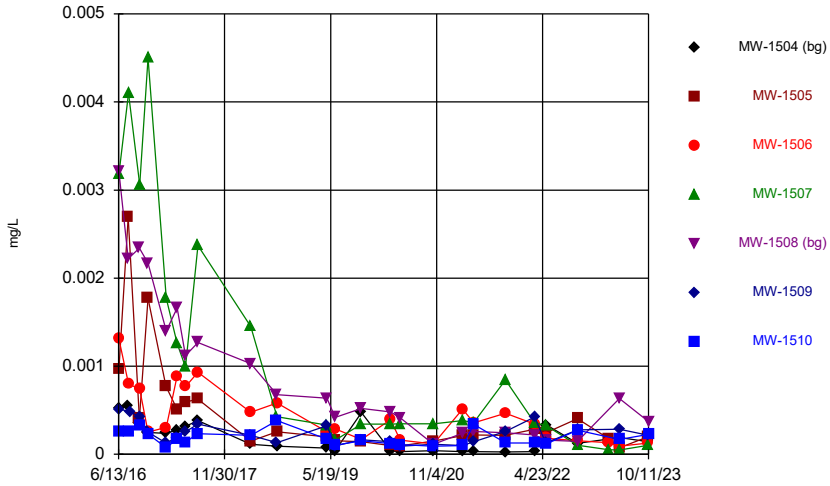


Constituent: Chromium, total Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Time Series

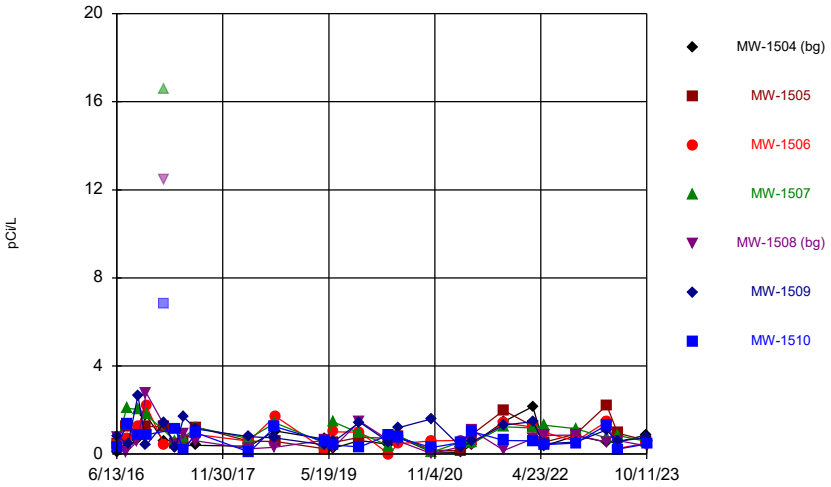


Constituent: Cobalt, total Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Time Series



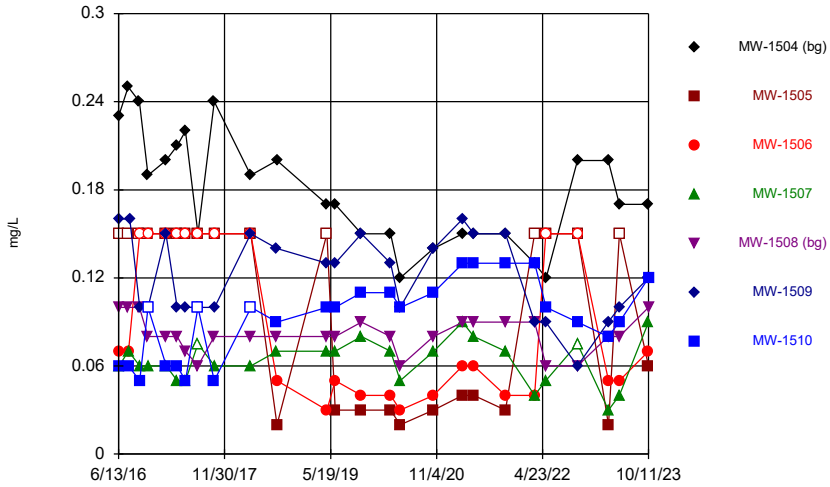
Constituent: Combined Radium 226 + 228 Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Hollow symbols indicate censored values.

Time Series

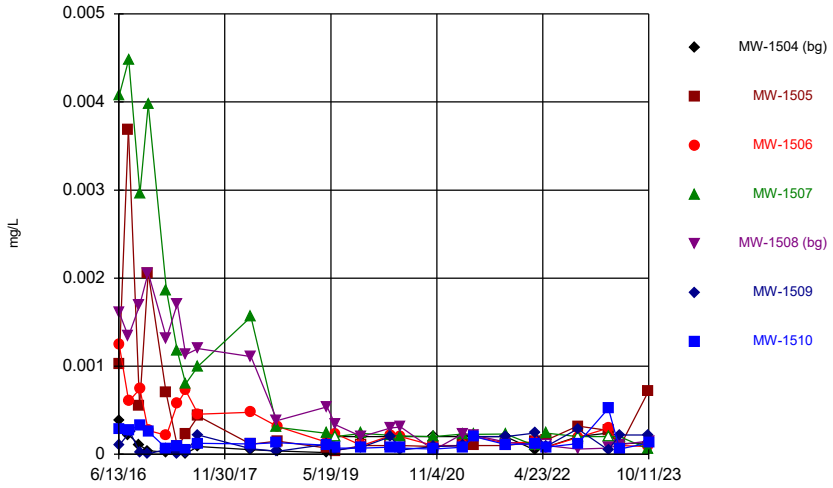


Constituent: Fluoride, total Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

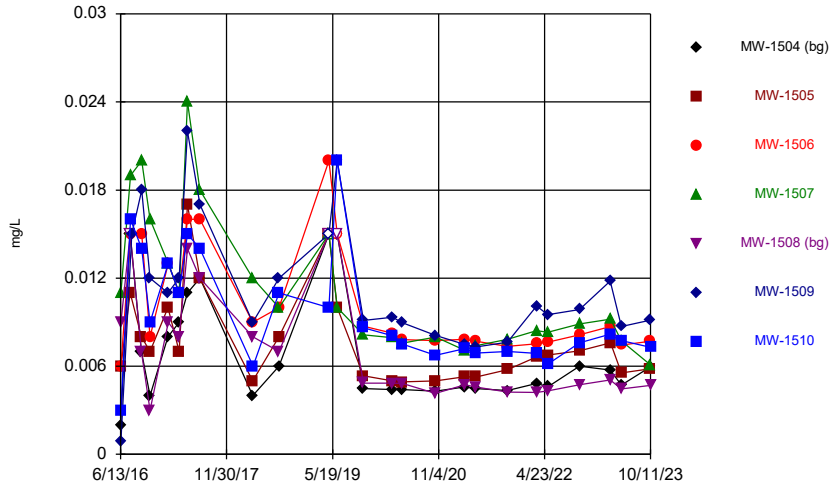
Time Series



Constituent: Lead, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

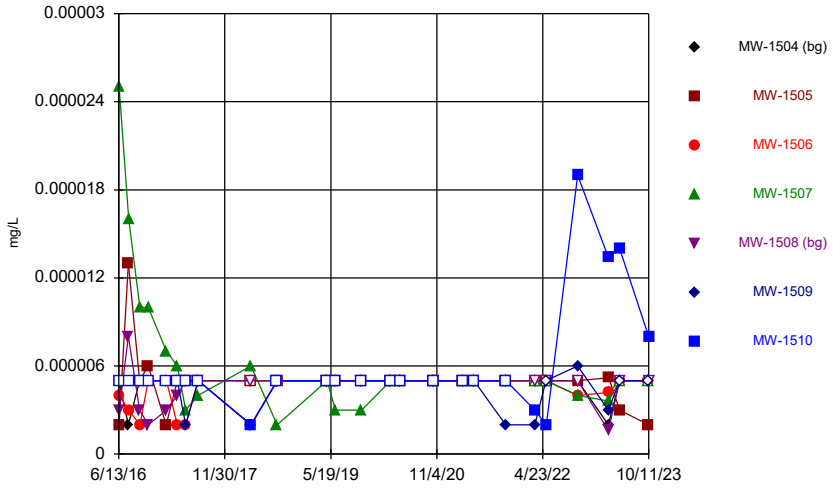
Time Series



Constituent: Lithium, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

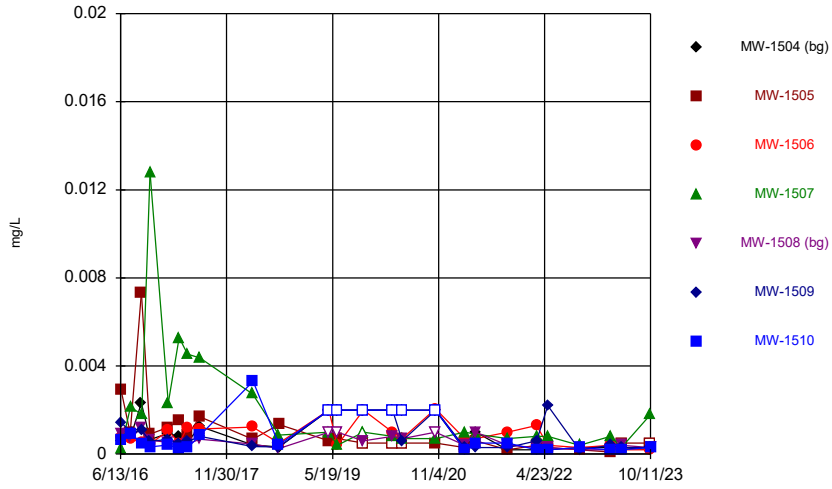
Time Series



Constituent: Mercury, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

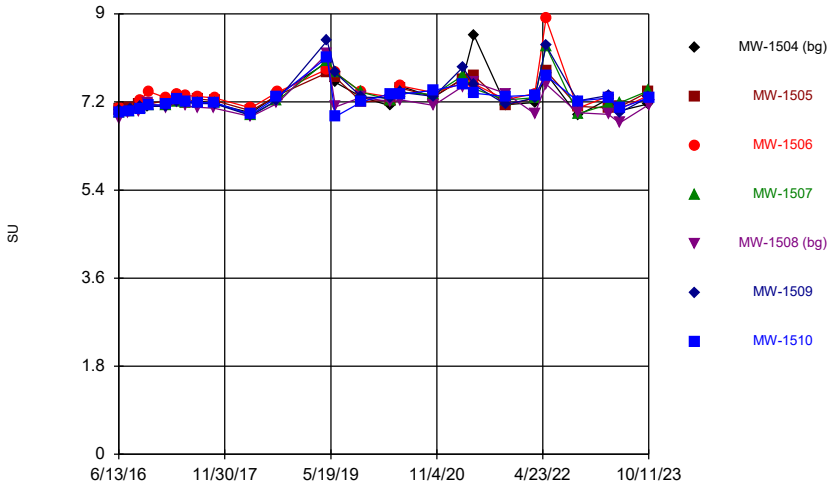
Time Series



Constituent: Molybdenum, total Analysis Run 1/22/2024 2:59 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Time Series



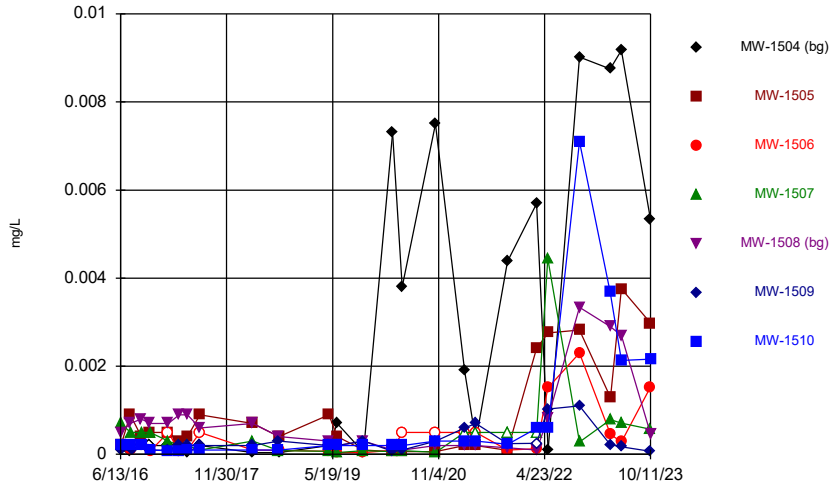
Constituent: pH, field Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Hollow symbols indicate censored values.

Time Series

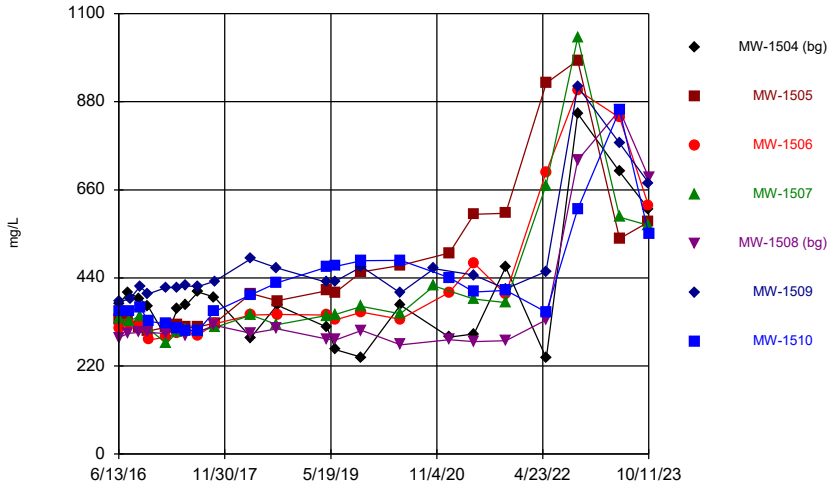


Constituent: Selenium, total Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Time Series



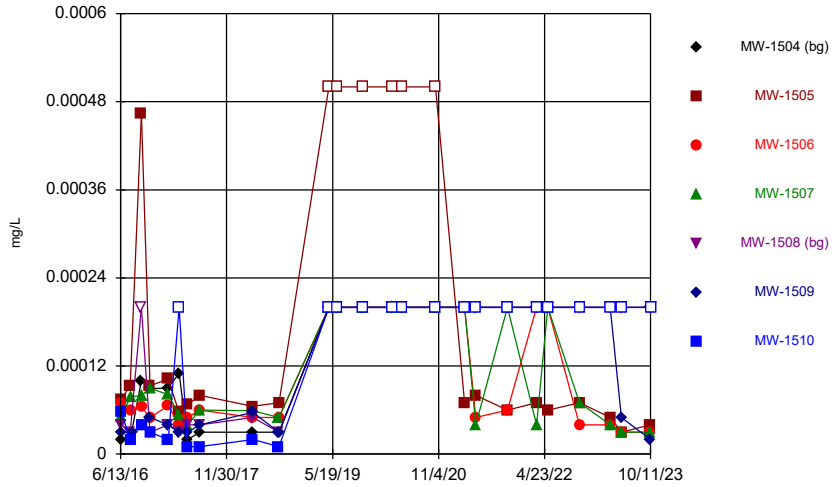
Constituent: Sulfate, total Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Hollow symbols indicate censored values.

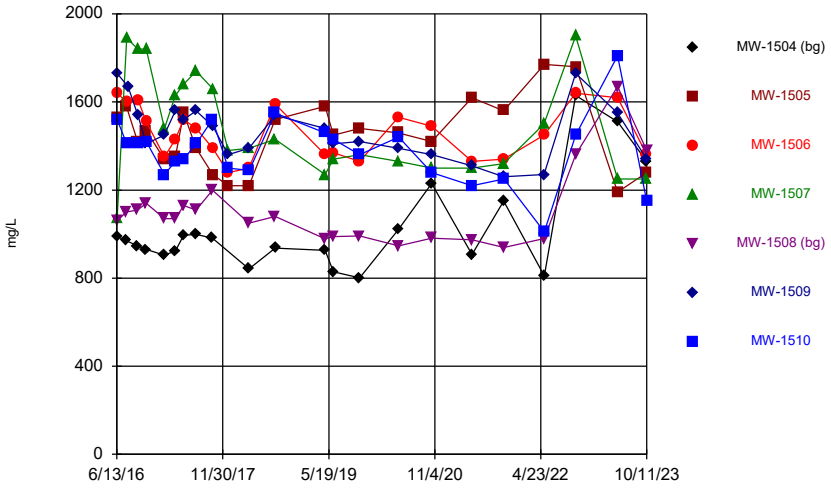
Time Series



Constituent: Thallium, total Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Time Series

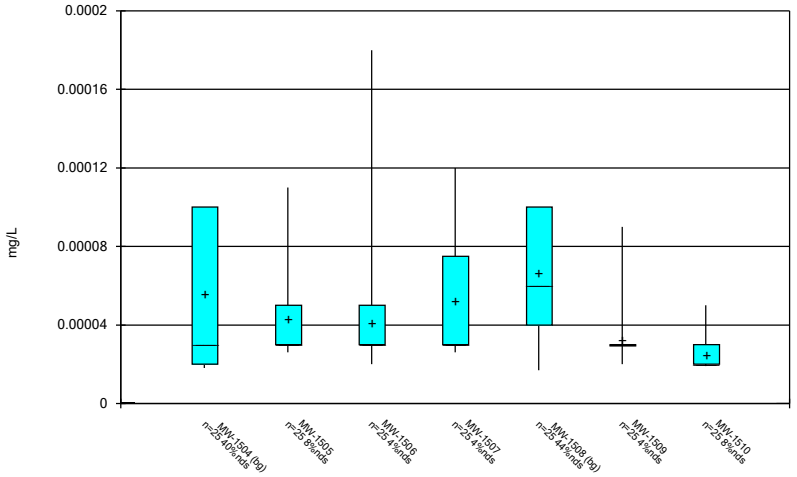


Constituent: Total Dissolved Solids [TDS] Analysis Run 1/22/2024 2:59 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

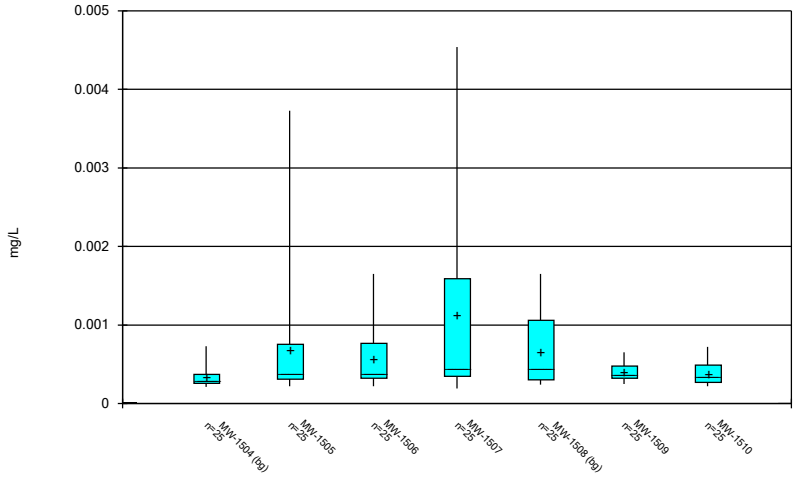
Box & Whiskers Plot



Constituent: Antimony, total Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

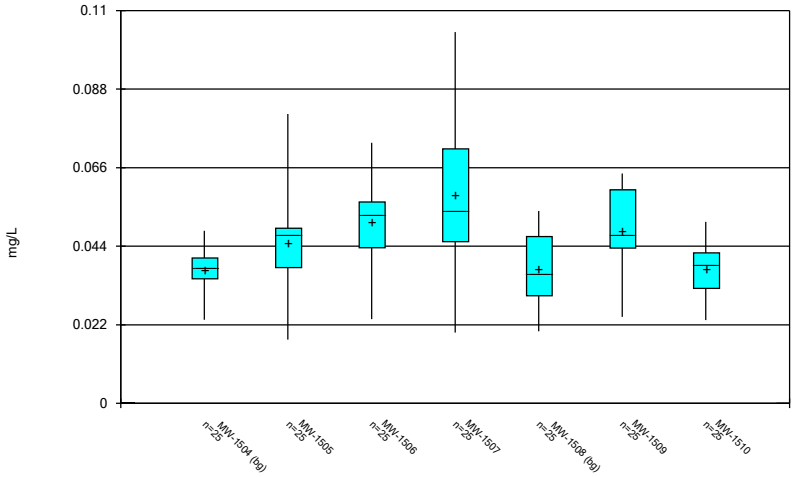
Box & Whiskers Plot



Constituent: Arsenic, total Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

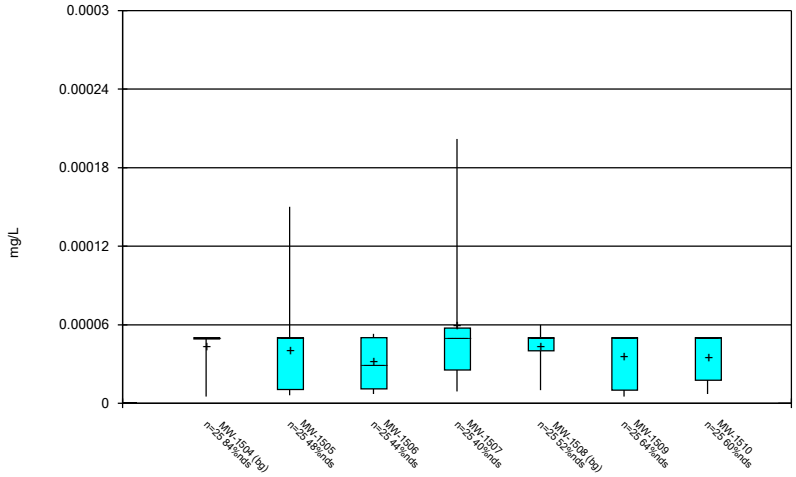
Box & Whiskers Plot



Constituent: Barium, total Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

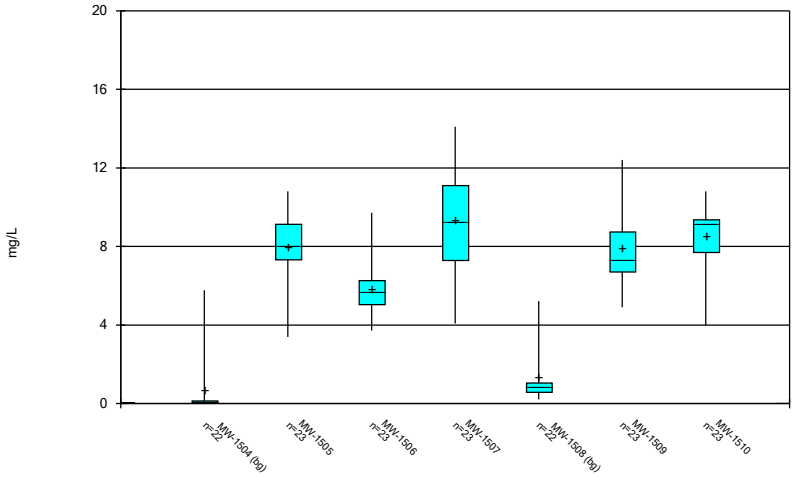
Box & Whiskers Plot



Constituent: Beryllium, total Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

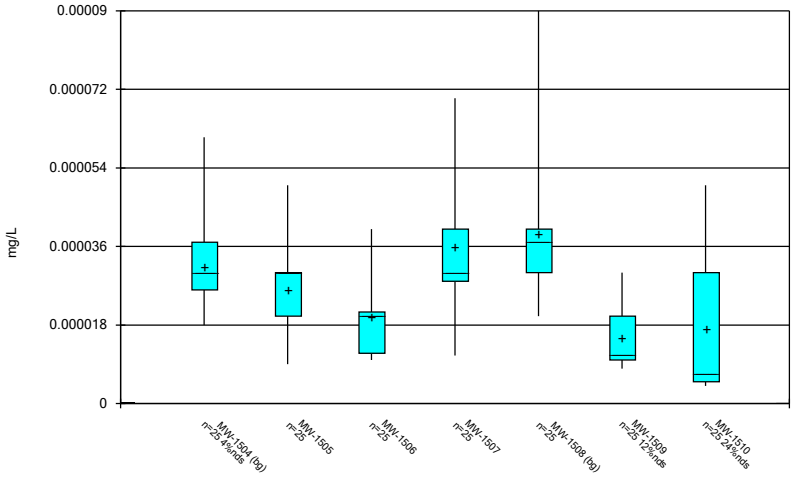


Constituent: Boron, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

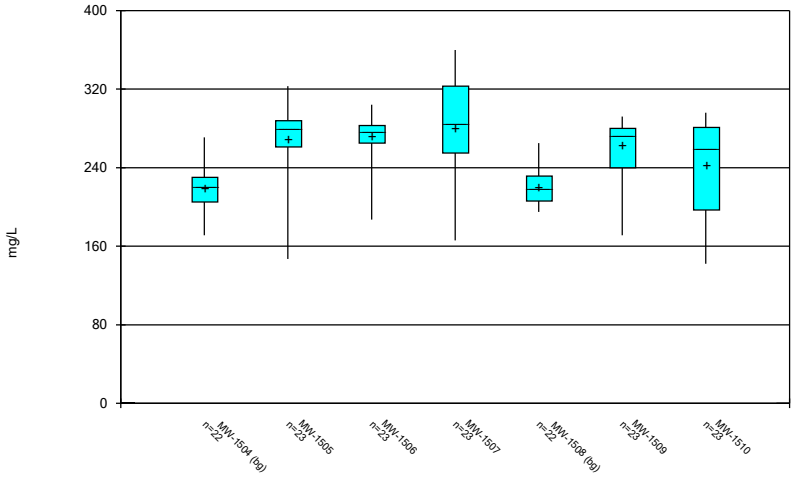


Constituent: Cadmium, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

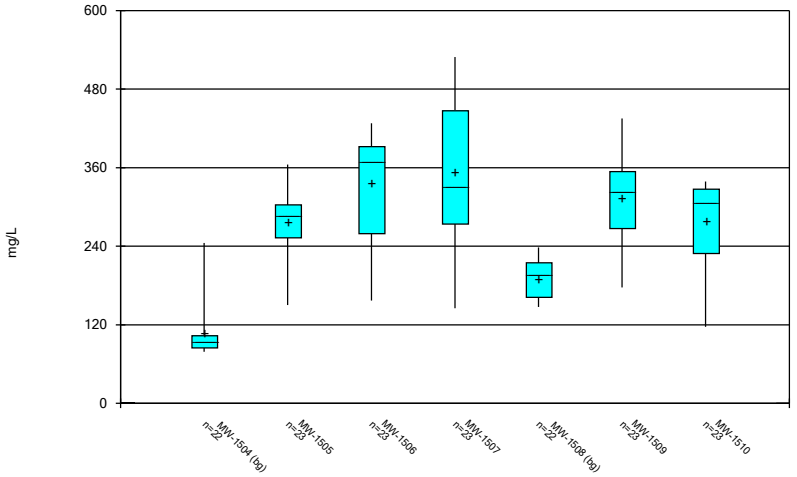


Constituent: Calcium, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

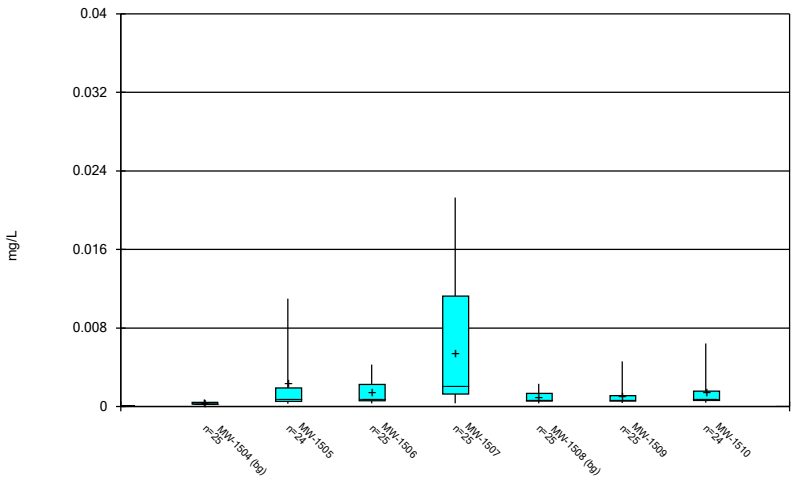


Constituent: Chloride, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

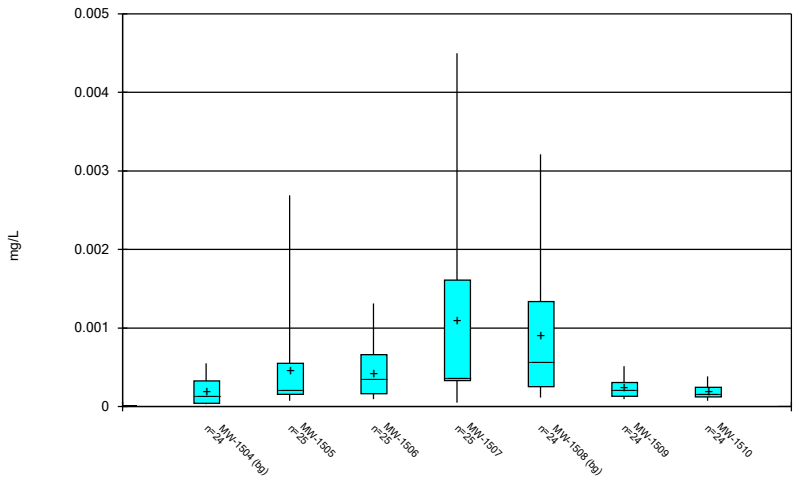
Box & Whiskers Plot



Constituent: Chromium, total Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

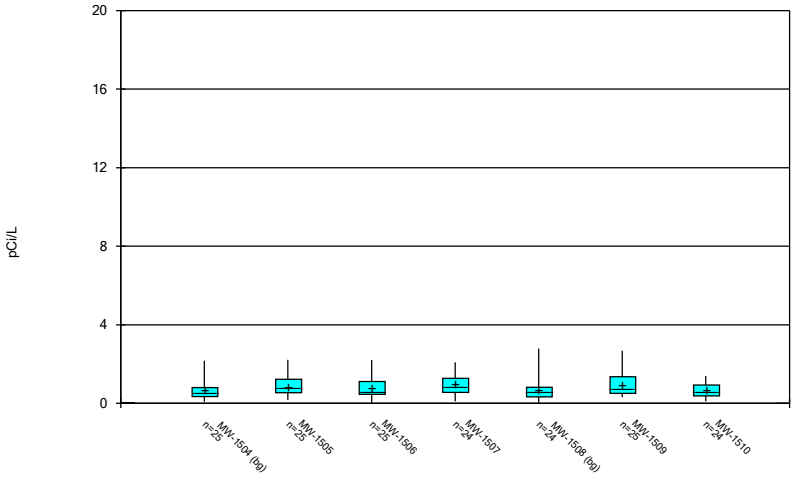
Box & Whiskers Plot



Constituent: Cobalt, total Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

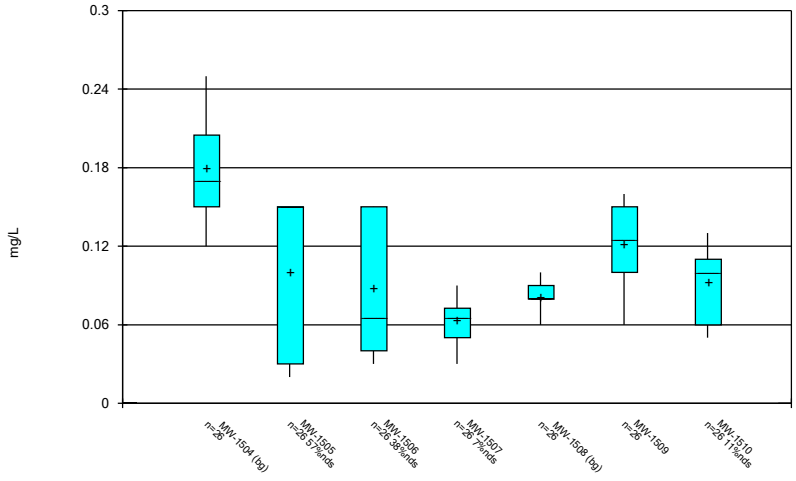
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

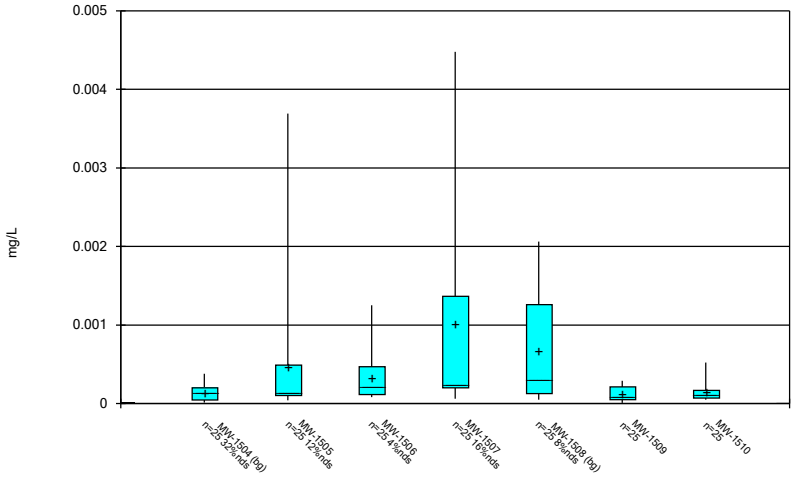
Box & Whiskers Plot



Constituent: Fluoride, total Analysis Run 1/22/2024 3:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

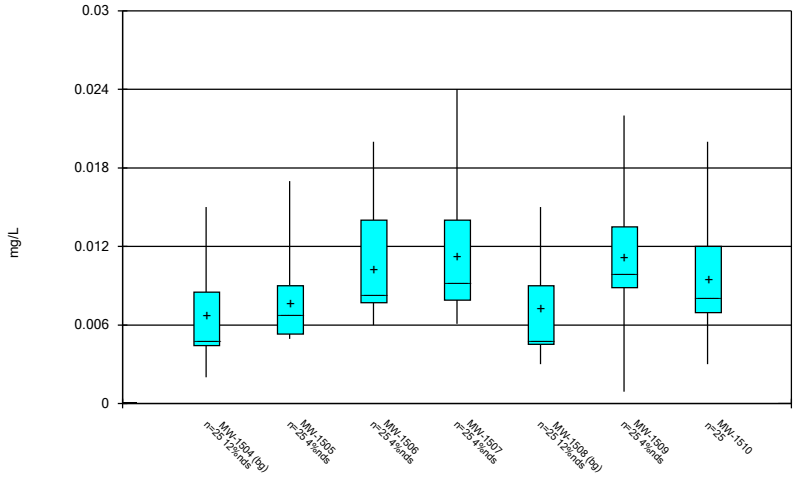


Constituent: Lead, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

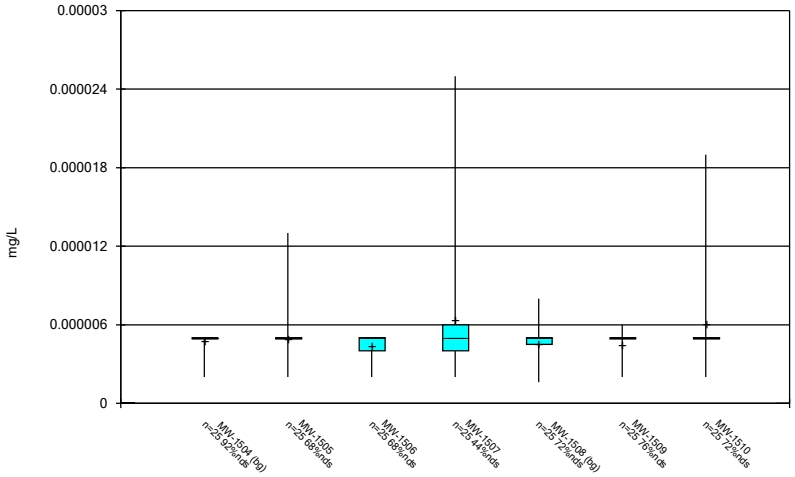


Constituent: Lithium, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

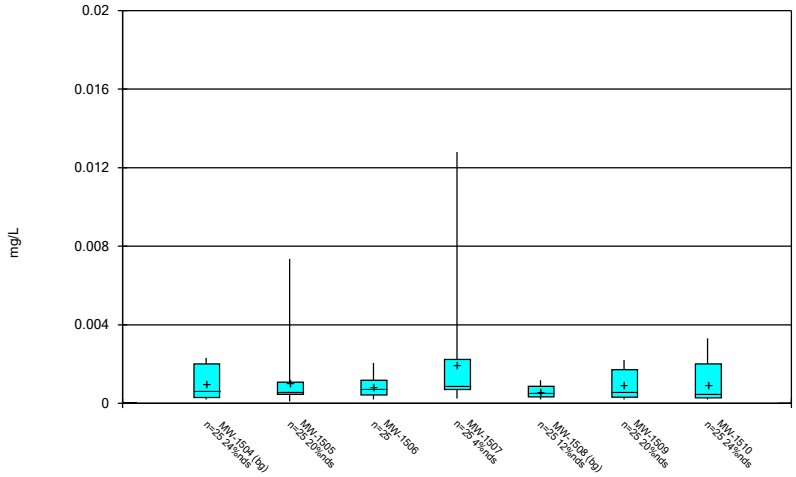


Constituent: Mercury, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

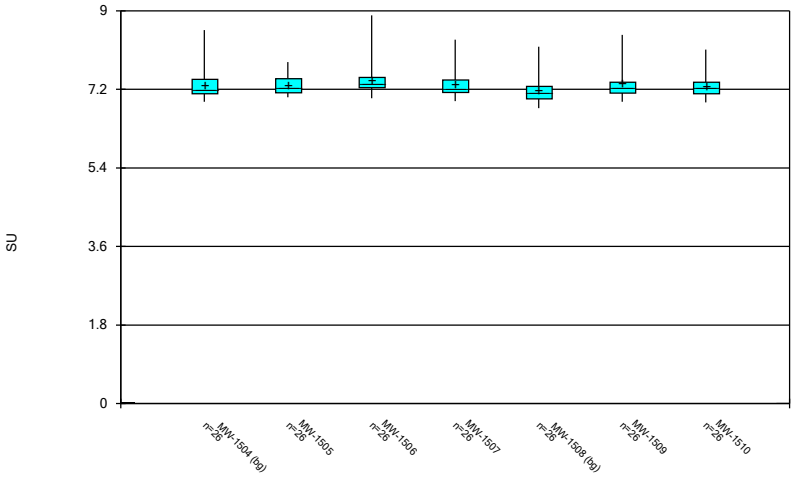


Constituent: Molybdenum, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

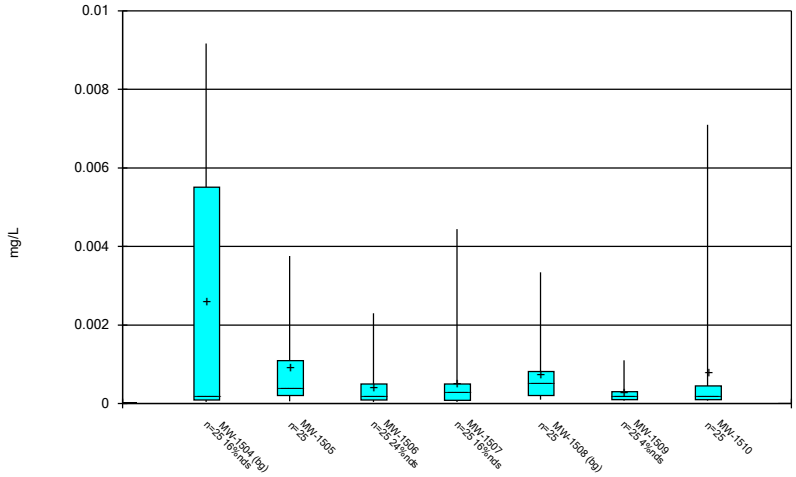


Constituent: pH, field Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

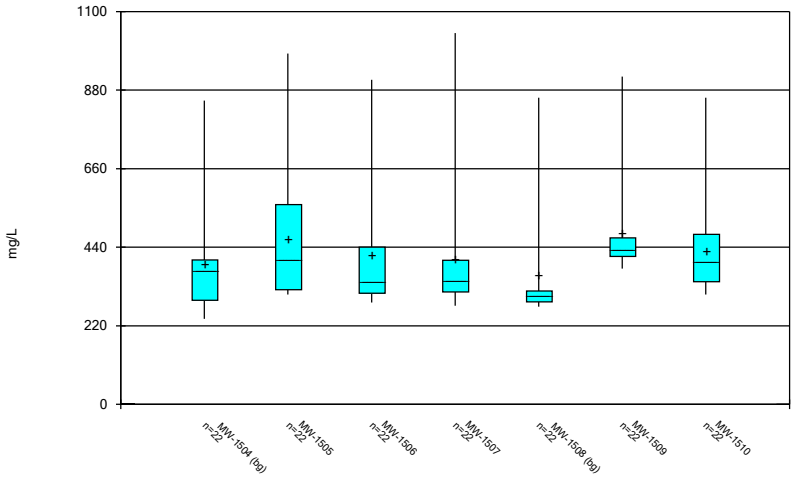


Constituent: Selenium, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Box & Whiskers Plot

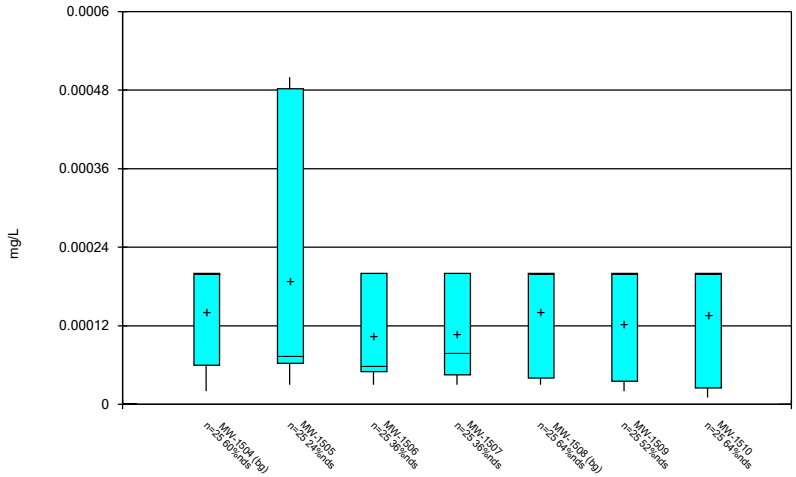


Constituent: Sulfate, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

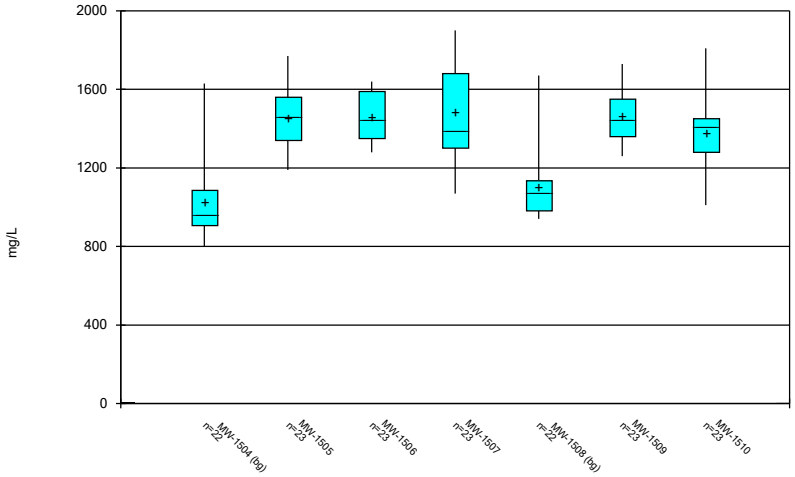
Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/22/2024 3:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Outlier Summary

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 3:10 PM

	MW-1505 Chromium, total (mg/L)	MW-1510 Chromium, total (mg/L)	MW-1507 Combined Radium 226 + 228 (pCi/L)	MW-1508 Combined Radium 226 + 228 (pCi/L)	MW-1510 Combined Radium 226 + 228 (pCi/L)
6/14/2016	0.0332 (o)				
2/8/2017			16.587 (o)	12.465 (o)	6.828 (o)
4/12/2018		0.0274 (o)			

Tukey's Outlier Test - Significant Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 2:52 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Sulfate, total (mg/L)	**MW-1506**	**Yes**	**909**	**NP**	**NaN**	**21**	**408.2**	**179.7**	**ln(x)**	**ShapiroWilk**
Sulfate, total (mg/L)	**MW-1507**	**Yes**	**1040**	**NP**	**NaN**	**21**	**400.9**	**174**	**ln(x)**	**ShapiroWilk**
Sulfate, total (mg/L)	**MW-1508 (bg)**	**Yes**	**734,859**	**NP**	**NaN**	**21**	**346.8**	**151.5**	**ln(x)**	**ShapiroWilk**
Sulfate, total (mg/L)	**MW-1509**	**Yes**	**918,776**	**NP**	**NaN**	**21**	**468.8**	**130.6**	**ln(x)**	**ShapiroWilk**

Tukey's Outlier Test - All Results

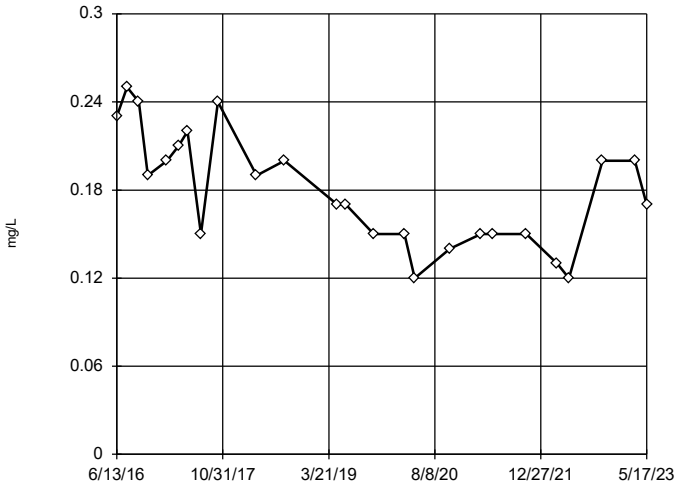
Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 2:52 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Fluoride, total (mg/L)	MW-1504 (bg)	No	n/a	NP	NaN	25	0.1796	0.03867	x^(1/3)	ShapiroWilk
Fluoride, total (mg/L)	MW-1505	No	n/a	NP	NaN	25	0.1016	0.06067	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-1506	No	n/a	NP	NaN	25	0.0888	0.05191	ln(x)	ShapiroWilk
Fluoride, total (mg/L)	MW-1507	No	n/a	NP	NaN	25	0.0624	0.01415	x^2	ShapiroWilk
Fluoride, total (mg/L)	MW-1508 (bg)	No	n/a	NP	NaN	25	0.0808	0.01187	x^2	ShapiroWilk
Fluoride, total (mg/L)	MW-1509	No	n/a	NP	NaN	25	0.1212	0.02877	normal	ShapiroWilk
Fluoride, total (mg/L)	MW-1510	No	n/a	NP	NaN	25	0.0916	0.02641	x^2	ShapiroWilk
Sulfate, total (mg/L)	MW-1504 (bg)	No	n/a	NP	NaN	21	384.1	145.6	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	MW-1505	No	n/a	NP	NaN	21	455.8	190.4	ln(x)	ShapiroWilk
Sulfate, total (mg/L)	**MW-1506**	**Yes**	**909**	**NP**	**NaN**	**21**	**408.2**	**179.7**	**ln(x)**	**ShapiroWilk**
Sulfate, total (mg/L)	**MW-1507**	**Yes**	**1040**	**NP**	**NaN**	**21**	**400.9**	**174**	**ln(x)**	**ShapiroWilk**
Sulfate, total (mg/L)	**MW-1508 (bg)**	**Yes**	**734,859**	**NP**	**NaN**	**21**	**346.8**	**151.5**	**ln(x)**	**ShapiroWilk**
Sulfate, total (mg/L)	**MW-1509**	**Yes**	**918,776**	**NP**	**NaN**	**21**	**468.8**	**130.6**	**ln(x)**	**ShapiroWilk**
Sulfate, total (mg/L)	MW-1510	No	n/a	NP	NaN	21	420.6	125.7	ln(x)	ShapiroWilk

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1504 (bg)



n = 25

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

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

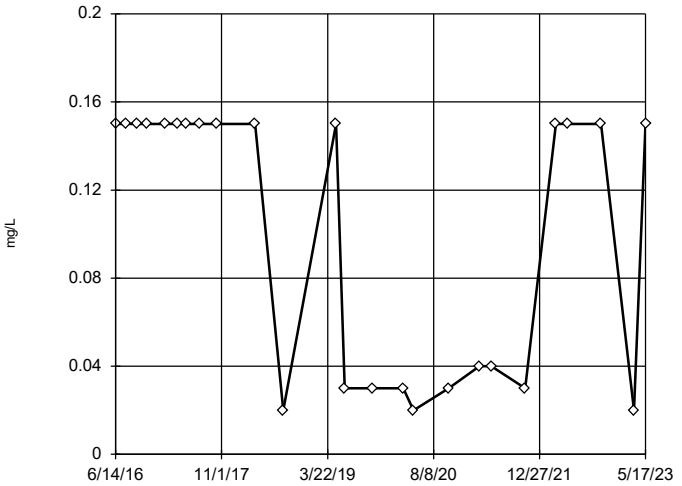
High cutoff = 0.4467, low cutoff = 0.04532, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1505



n = 25

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

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

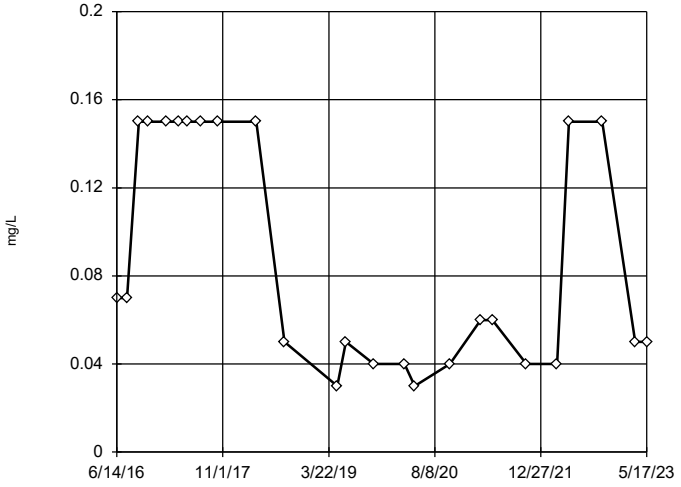
High cutoff = 18.75, low cutoff = 0.00024, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1506



n = 25

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

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

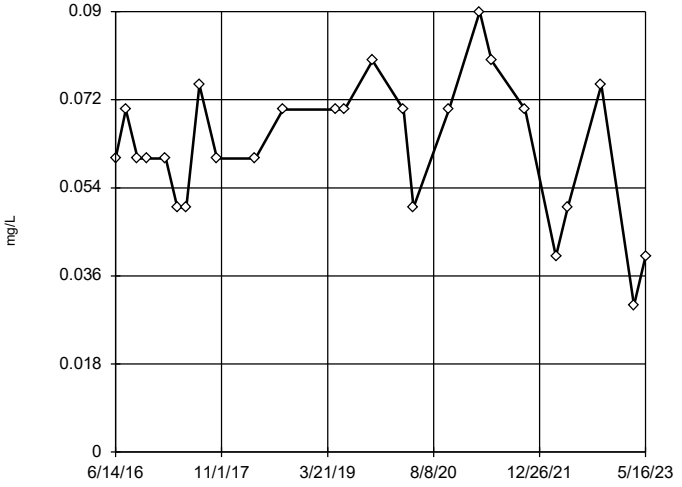
High cutoff = 7.91, low cutoff = 0.0007585, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1507



n = 25

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

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

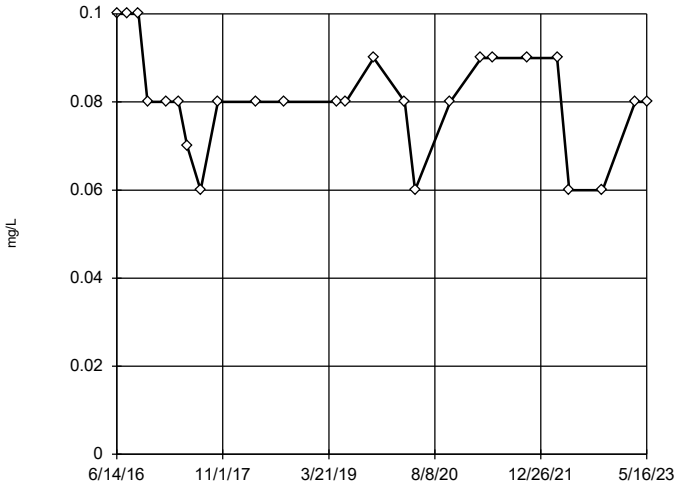
High cutoff = 0.11, low cutoff = -0.06856, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1508 (bg)



n = 25

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

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

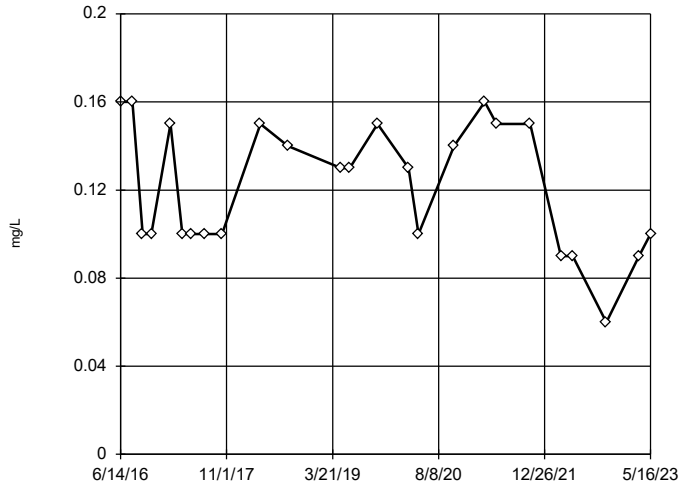
High cutoff = 0.1149, low cutoff = 0.03606, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1509



n = 25

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

Ladder of Powers transformations did not improve normality; analysis run on raw data.

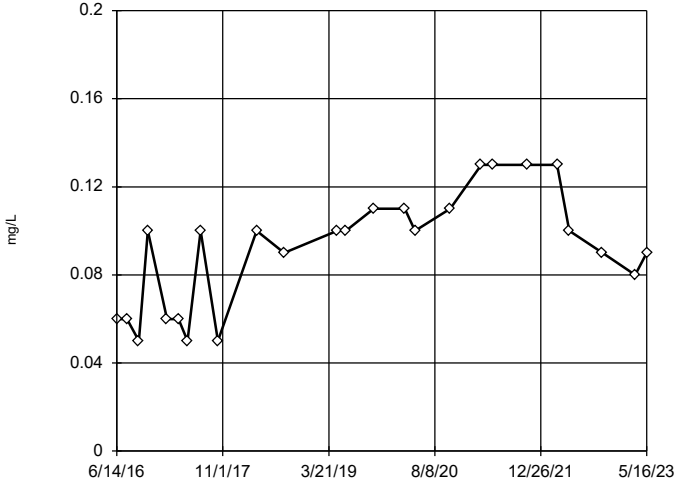
High cutoff = 0.3, low cutoff = -0.05, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1510



n = 25

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

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

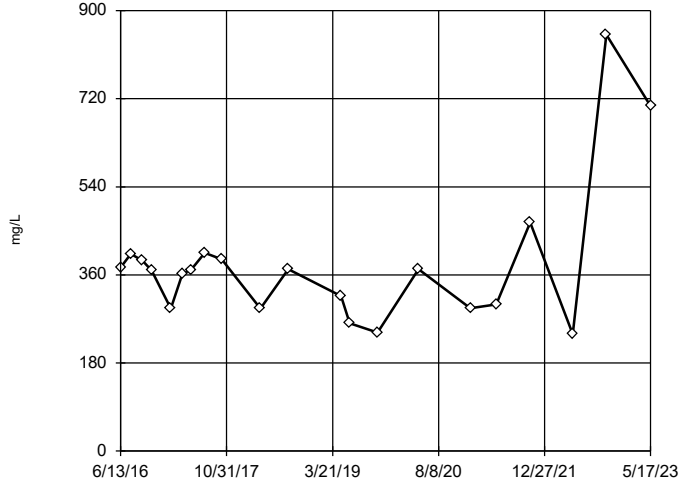
High cutoff = 0.1939, low cutoff = -0.148, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1504 (bg)



n = 21

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

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

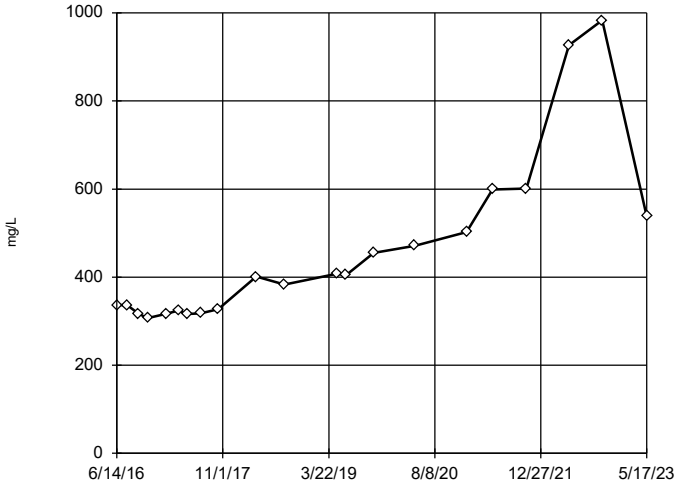
High cutoff = 1008, low cutoff = 115, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1505



n = 21

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

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

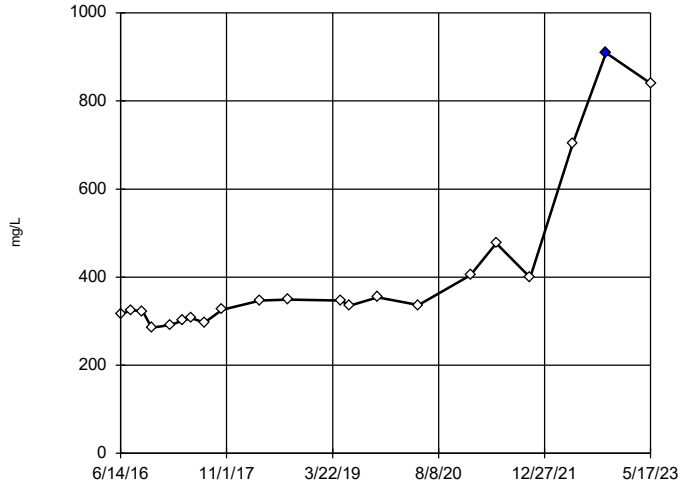
High cutoff = 2206, low cutoff = 75.63, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1506



n = 21

Outlier is drawn as solid. Tukey's method selected by user.

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

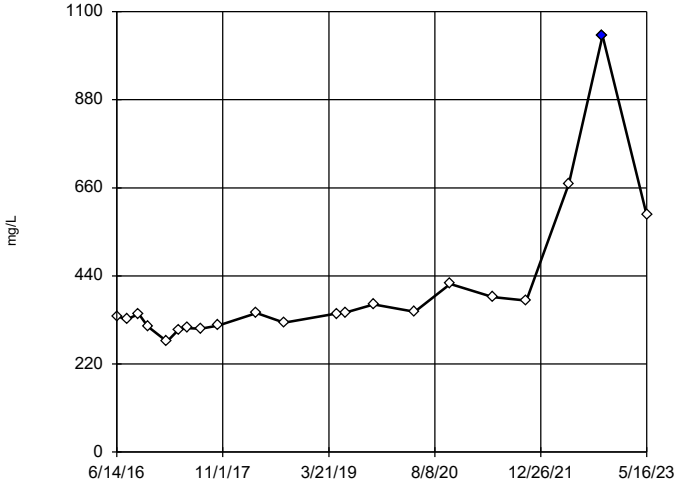
High cutoff = 864, low cutoff = 144.5, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1507



n = 21

Outlier is drawn as solid. Tukey's method selected by user.

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

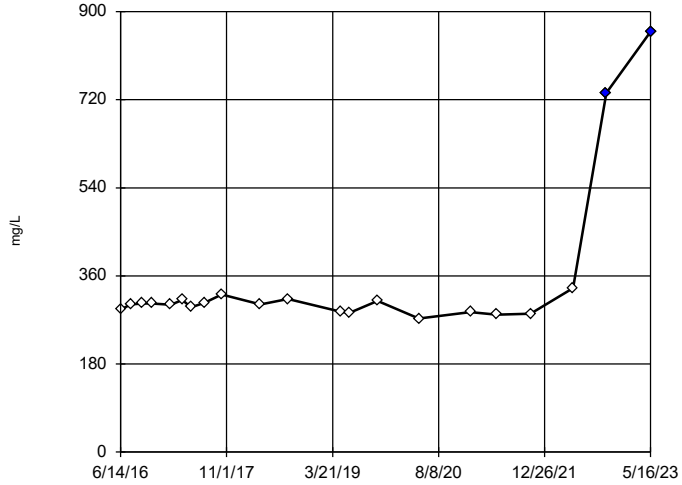
High cutoff = 684.7, low cutoff = 176, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1508 (bg)



n = 21

Outliers are drawn as solid.
Tukey's method selected by user.

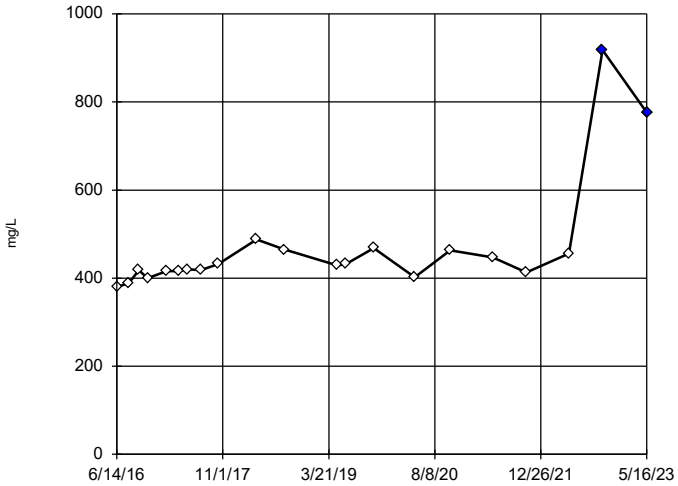
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 402.9, low cutoff = 221.8, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/22/2024 2:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening

MW-1509



n = 21

Outliers are drawn as solid.
Tukey's method selected by user.

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

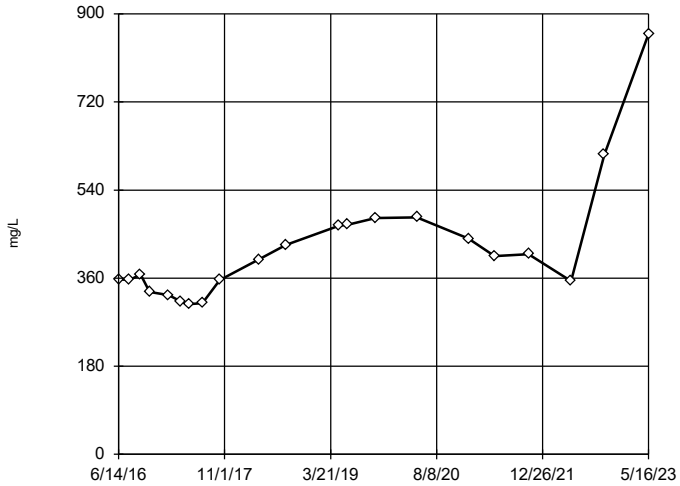
High cutoff = 650.9, low cutoff = 295.5, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/22/2024 2:51 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tukey's Outlier Screening

MW-1510



n = 21

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

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

High cutoff = 1191, low cutoff = 134.8, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 1/22/2024 2:51 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Test - Upgradient Wells - Significant Results

Mitchell BAP Data: Mitchell BAP Printed 1/29/2024, 9:22 AM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Combined Radium 226 + 228 (pCi/L)	**MW-1504,MW-1508**	**Yes**	**0.01901**	**NP**	**NaN**	**50**	**0.8871**	**1.751**	**ln(x)**	**ShapiroFrancia**
pH, field (SU)	**MW-1504,MW-1508**	**Yes**	**8.56,8.18**	**NP**	**NaN**	**52**	**7.244**	**0.3336**	**ln(x)**	**ShapiroFrancia**

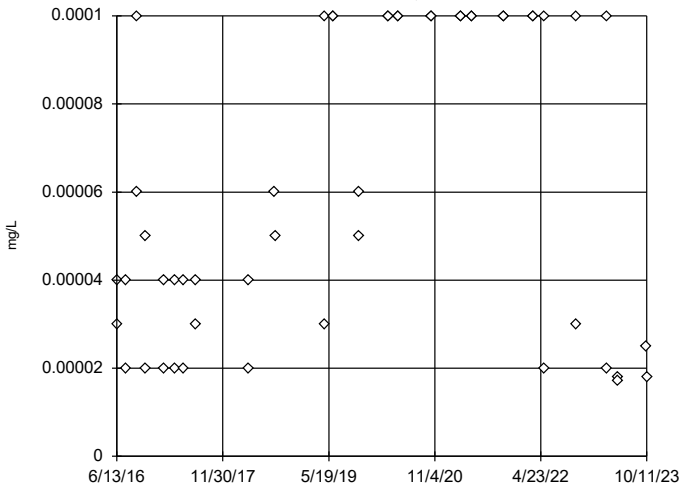
Tukey's Outlier Test - Upgradient Wells - All Results

Mitchell BAP Data: Mitchell BAP Printed 1/29/2024, 9:22 AM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.00006136	0.00003488	ln(x)	ShapiroFrancia
Arsenic, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.0004916	0.000345	ln(x)	ShapiroFrancia
Barium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.03746	0.008062	normal	ShapiroFrancia
Beryllium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.0000436	0.00001407	x^2	ShapiroFrancia
Boron, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	44	0.9812	1.516	ln(x)	ShapiroWilk
Cadmium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.0000351	0.00001348	ln(x)	ShapiroFrancia
Calcium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	44	219.8	20.77	sqrt(x)	ShapiroWilk
Chloride, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	44	149.8	55.62	normal	ShapiroWilk
Chromium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.0006278	0.0004696	ln(x)	ShapiroFrancia
Cobalt, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	48	0.0005558	0.0007053	ln(x)	ShapiroWilk
Combined Radium 226 + 228 (pCi/L)	**MW-1504,MW-1508**	**Yes**	**0.01901**	**NP**	**NaN**	**50**	**0.8871**	**1.751**	**ln(x)**	**ShapiroFrancia**
Fluoride, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	52	0.1304	0.05667	ln(x)	ShapiroFrancia
Lead, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.0004017	0.0005295	ln(x)	ShapiroFrancia
Lithium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.007052	0.003822	ln(x)	ShapiroFrancia
Mercury, total (mg/L)	MW-1504,MW-1508	n/a	n/a	NP	NaN	50	0.000004672	0.000001061	unknown	ShapiroFrancia
Molybdenum, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.0008256	0.0006636	ln(x)	ShapiroFrancia
pH, field (SU)	**MW-1504,MW-1508**	**Yes**	**8.56,8.18**	**NP**	**NaN**	**52**	**7.244**	**0.3336**	**ln(x)**	**ShapiroFrancia**
Selenium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.001679	0.002644	ln(x)	ShapiroFrancia
Thallium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	50	0.0001414	0.00007761	ln(x)	ShapiroFrancia
Total Dissolved Solids [TDS] (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	44	1065	198.3	ln(x)	ShapiroWilk

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

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

High cutoff = 0.004869, low cutoff = 5.6e-7, based on IQR multiplier of 3.

Constituent: Antimony, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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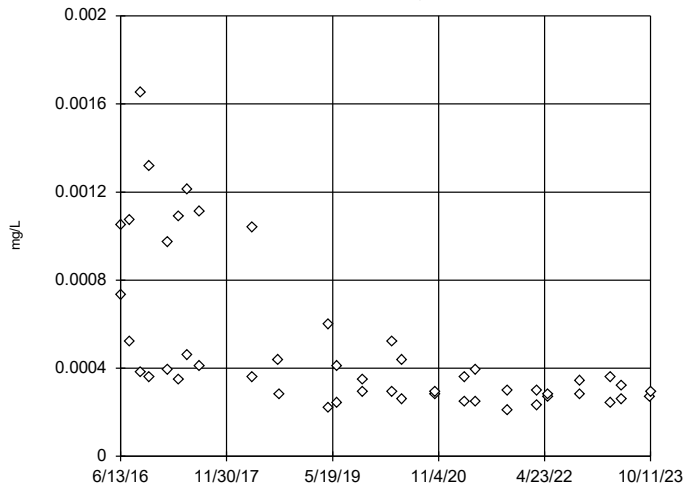
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

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

High cutoff = 0.003331, low cutoff = 0.00004371, based on IQR multiplier of 3.

Constituent: Arsenic, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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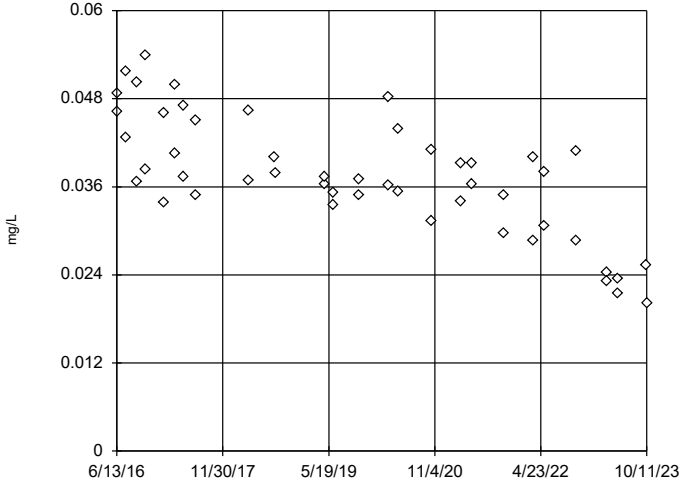
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 0.07205, low cutoff = 0.00485, based on IQR multiplier of 3.

Constituent: Barium, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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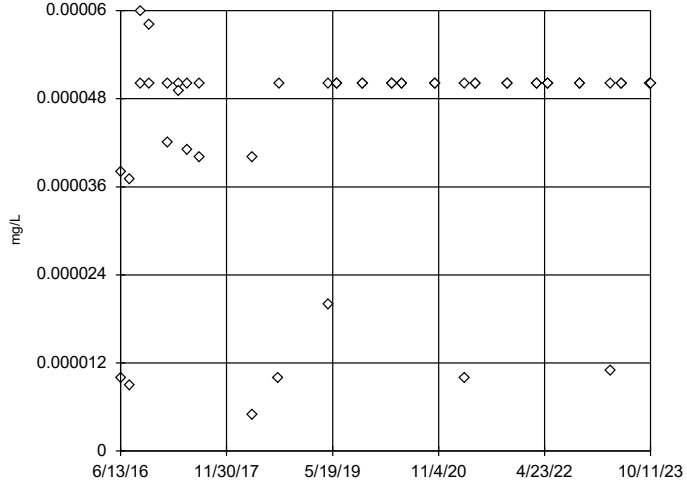
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

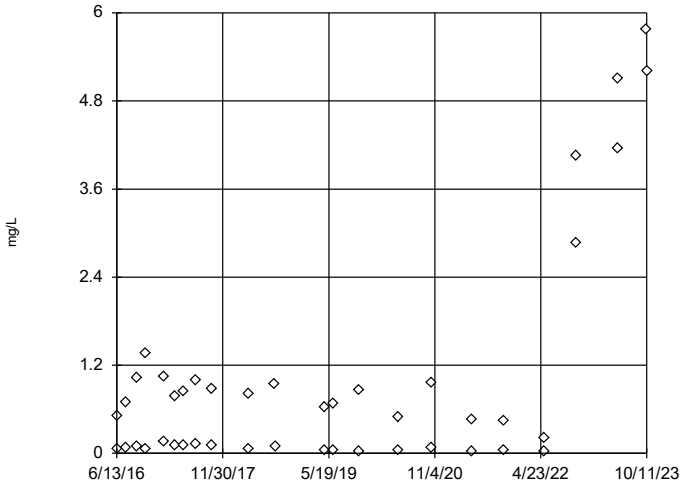
Data were square transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.00006952, low cutoff = -0.0000247, based on IQR multiplier of 3.

Constituent: Beryllium, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 44

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

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

High cutoff = 1929, low cutoff = 0.00003759, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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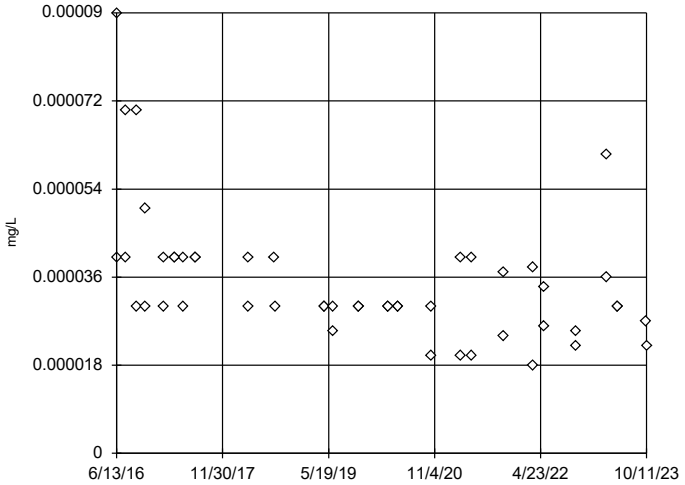
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

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

High cutoff = 0.00009481, low cutoff = 0.00001266, based on IQR multiplier of 3.

Constituent: Cadmium, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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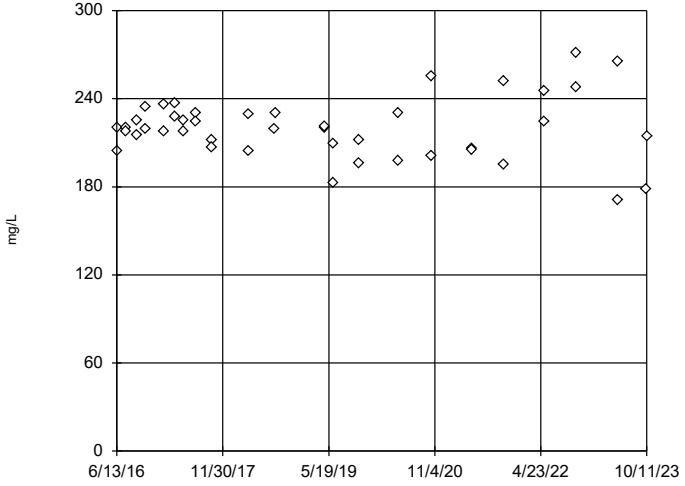
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 44

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

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

High cutoff = 308.1, low cutoff = 143.6, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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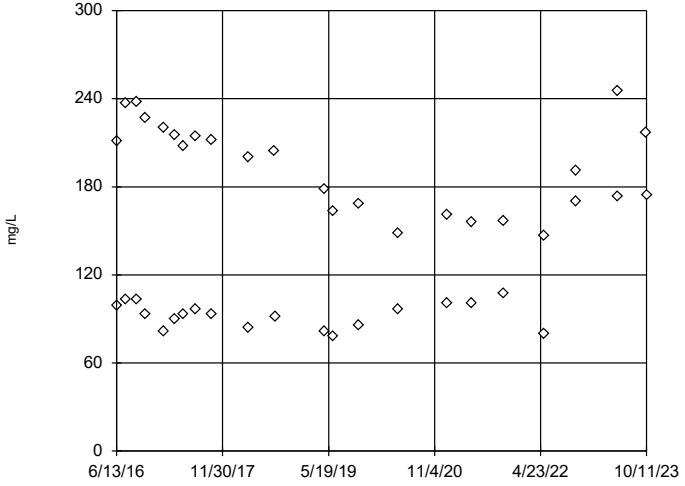
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 44

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

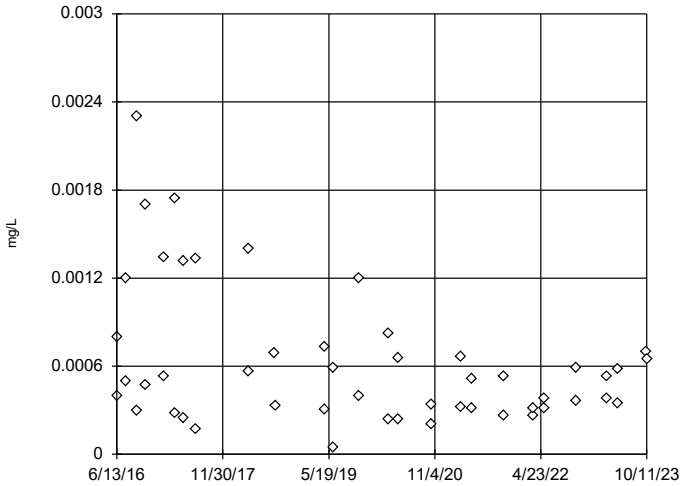
Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 539.5, low cutoff = -238.6, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

No outliers found. Tukey's method select-ed by user.

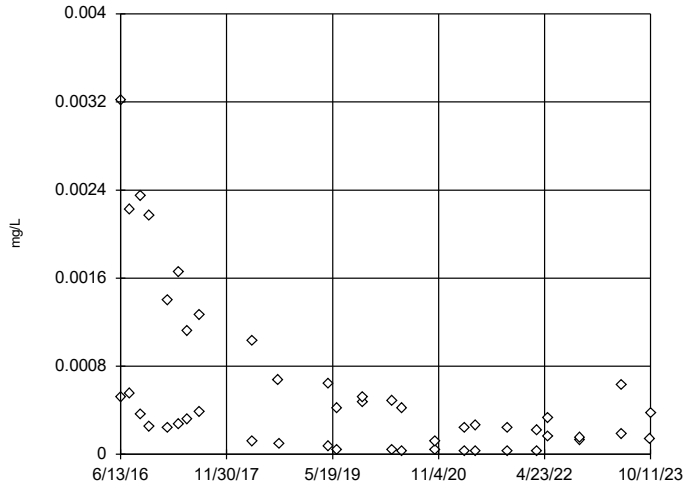
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.008886, low cutoff = 0.00002502, based on IQR multiplier of 3.

Constituent: Chromium, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 48

No outliers found. Tukey's method select-ed by user.

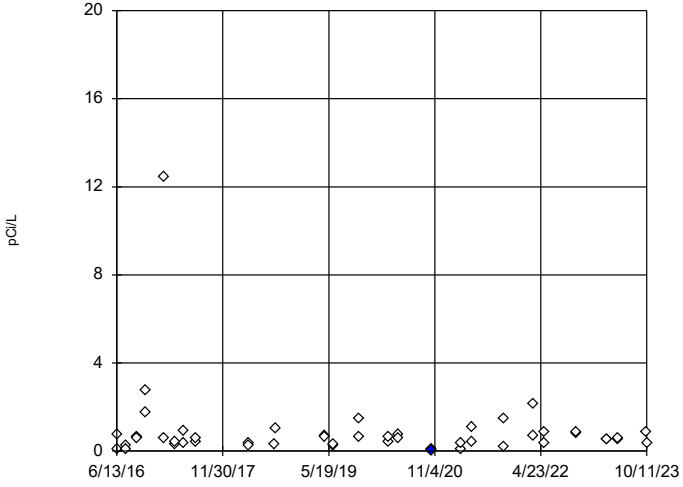
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.07208, low cutoff = 9.7e-7, based on IQR multiplier of 3.

Constituent: Cobalt, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

Outlier is drawn as solid. Tukey's method select-ed by user.

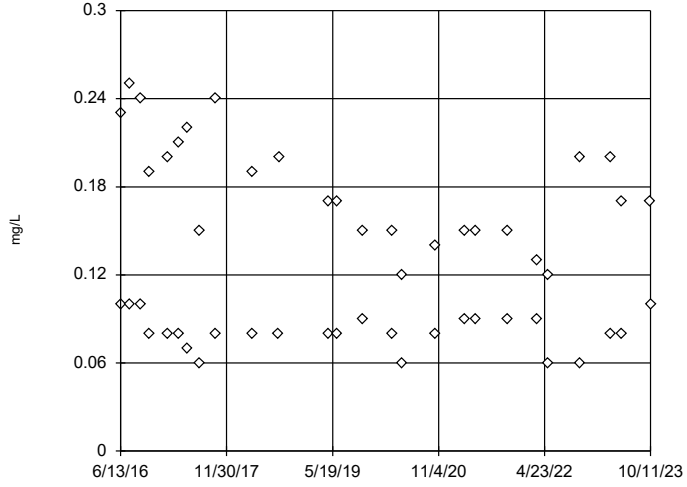
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 13.35, low cutoff = 0.02102, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 52

No outliers found. Tukey's method select-ed by user.

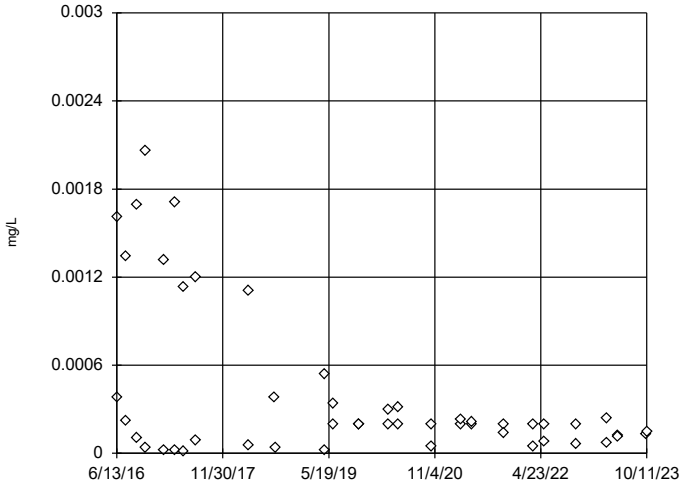
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 1.631, low cutoff = 0.008337, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

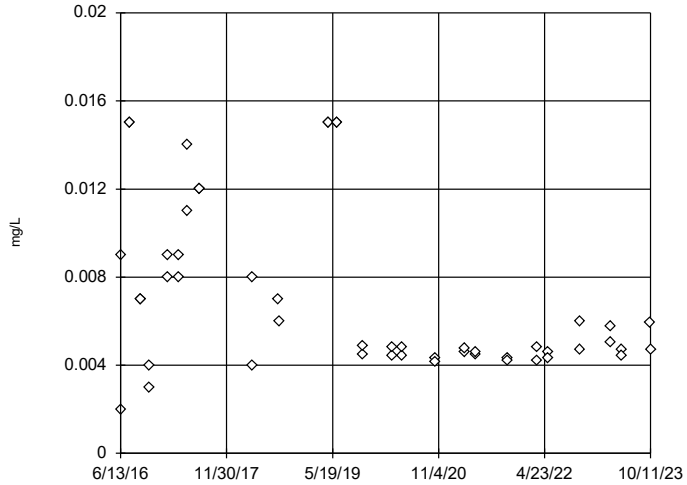
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.02793, low cutoff = 0.000001066, based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

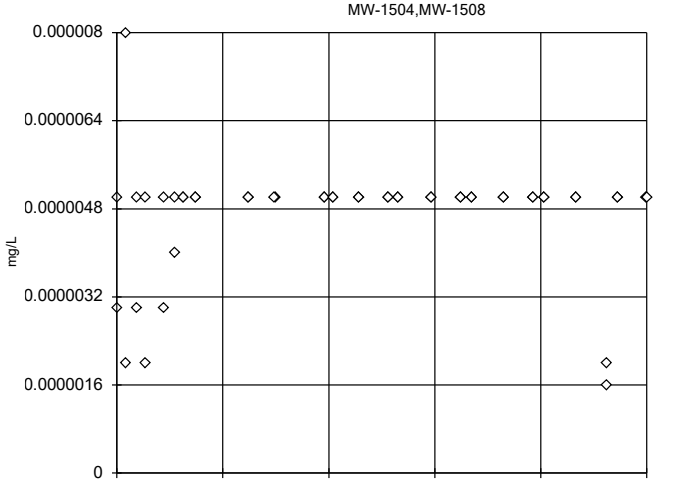
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.07521, low cutoff = 0.0005307, based on IQR multiplier of 3.

Constituent: Lithium, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

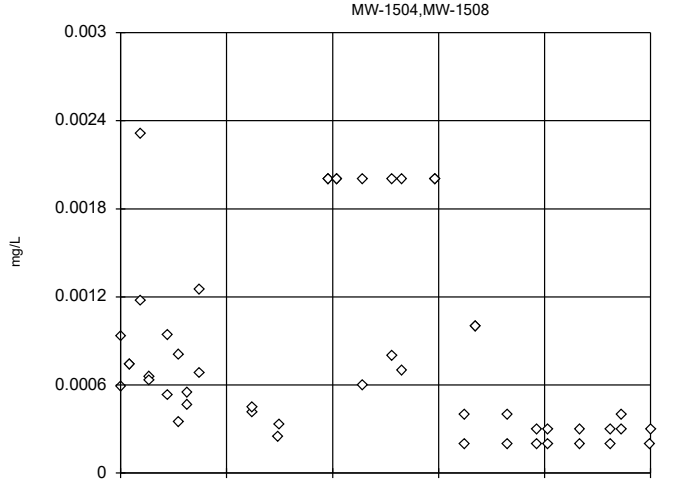
Ladder of Powers transformations did not improve normality; analysis run on raw data.

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Mercury, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

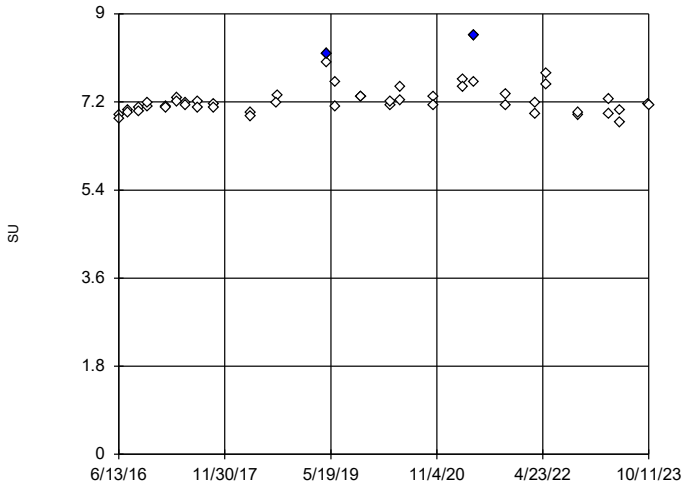
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.0507, low cutoff = 0.0000064, based on IQR multiplier of 3.

Constituent: Molybdenum, total Analysis Run 1/29/2024 9:20 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 52

Outliers are drawn as solid.
Tukey's method selected by user.

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

High cutoff = 8.087, low cutoff = 6.368, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/29/2024 9:21 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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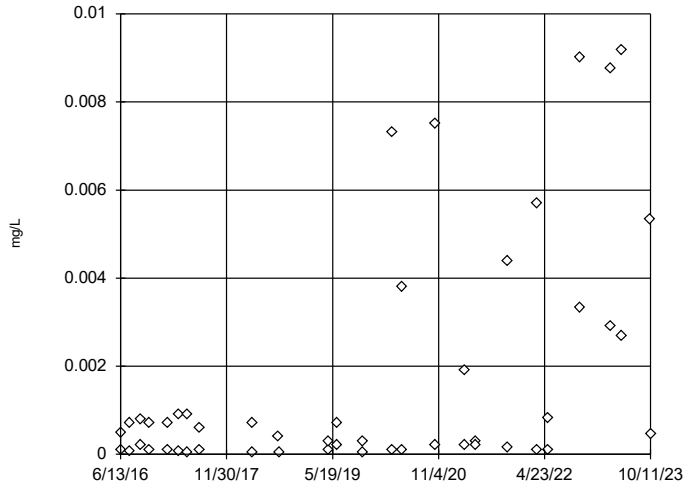
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

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

High cutoff = 26.32, low cutoff = 8.6e-9, based on IQR multiplier of 3.

Constituent: Selenium, total Analysis Run 1/29/2024 9:21 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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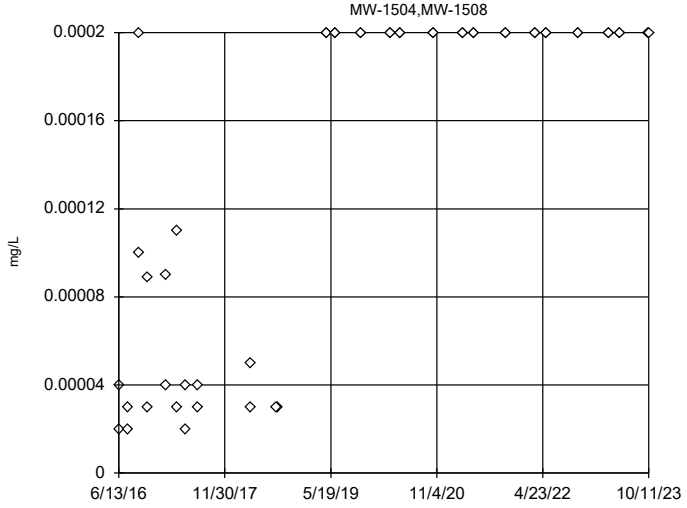
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 50

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

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

High cutoff = 0.025, low cutoff = 3.2e-7, based on IQR multiplier of 3.

Constituent: Thallium, total Analysis Run 1/29/2024 9:21 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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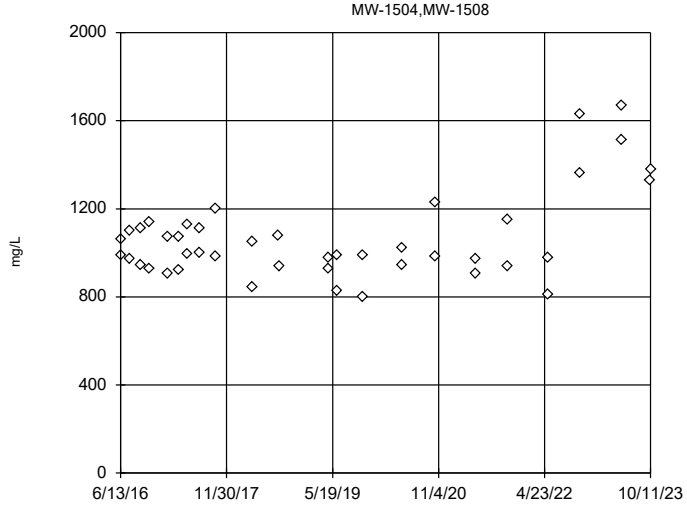
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 44

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

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

High cutoff = 1876, low cutoff = 562.9, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/29/2024 9:21 AM View: Upgradient Outlier Test
Mitchell BAP Data: Mitchell BAP

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

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 3:21 PM

Constituent	Well	Calc.	0.01	Alpha	Method
Fluoride, total (mg/L)	**MW-1509**	**-2.604**	**Yes**	**0.01**	**Mann-W**
Sulfate, total (mg/L)	**MW-1505**	**3.732**	**Yes**	**0.01**	**Mann-W**
Sulfate, total (mg/L)	**MW-1506**	**3.514**	**Yes**	**0.01**	**Mann-W**
Sulfate, total (mg/L)	**MW-1507**	**3.73**	**Yes**	**0.01**	**Mann-W**

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

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 3:21 PM

Constituent	Well	Calc.	0.01	Alpha	Method
Fluoride, total (mg/L)	MW-1504 (bg)	-1.253	No	0.01	Mann-W
Fluoride, total (mg/L)	MW-1505	0.1084	No	0.01	Mann-W
Fluoride, total (mg/L)	MW-1506	-0.5627	No	0.01	Mann-W
Fluoride, total (mg/L)	MW-1507	-1.851	No	0.01	Mann-W
Fluoride, total (mg/L)	MW-1508 (bg)	-0.7134	No	0.01	Mann-W
Fluoride, total (mg/L)	**MW-1509**	**-2.604**	**Yes**	**0.01**	**Mann-W**
Fluoride, total (mg/L)	MW-1510	0.642	No	0.01	Mann-W
Sulfate, total (mg/L)	MW-1504 (bg)	1.479	No	0.01	Mann-W
Sulfate, total (mg/L)	**MW-1505**	**3.732**	**Yes**	**0.01**	**Mann-W**
Sulfate, total (mg/L)	**MW-1506**	**3.514**	**Yes**	**0.01**	**Mann-W**
Sulfate, total (mg/L)	**MW-1507**	**3.73**	**Yes**	**0.01**	**Mann-W**
Sulfate, total (mg/L)	MW-1508 (bg)	1.658	No	0.01	Mann-W
Sulfate, total (mg/L)	MW-1509	1.479	No	0.01	Mann-W
Sulfate, total (mg/L)	MW-1510	1.389	No	0.01	Mann-W

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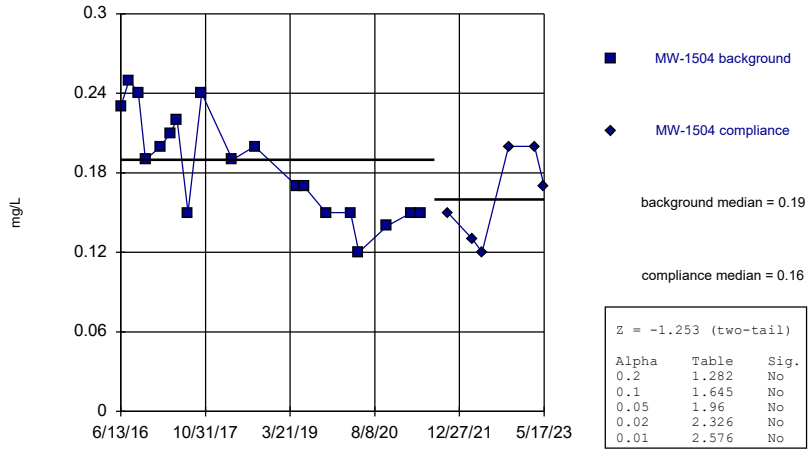
Mann-Whitney (Wilcoxon Rank Sum)

MW-1504 (bg)



Z = -1.253 (two-tail)

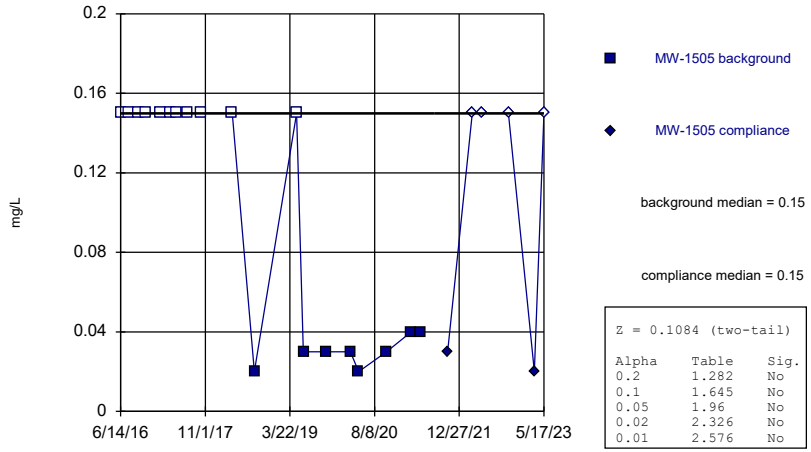
Alpha	Table	Sig.
0.2	1.282	No
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Fluoride, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)

MW-1505



Z = 0.1084 (two-tail)

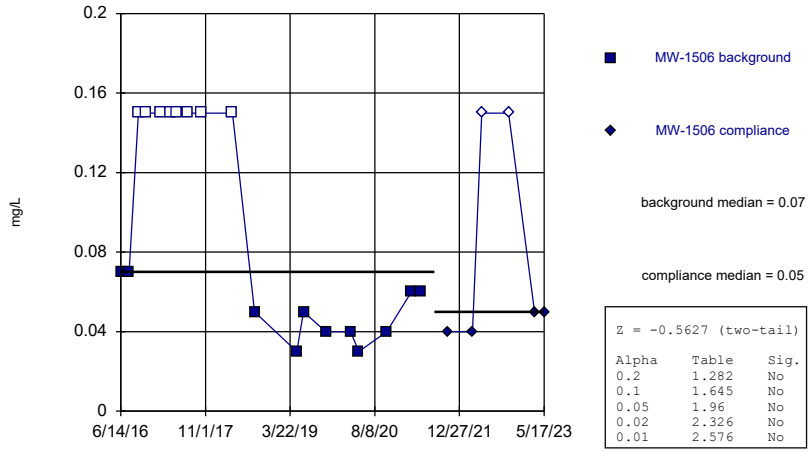
Alpha	Table	Sig.
0.2	1.282	No
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Fluoride, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)

MW-1506



Z = -0.5627 (two-tail)

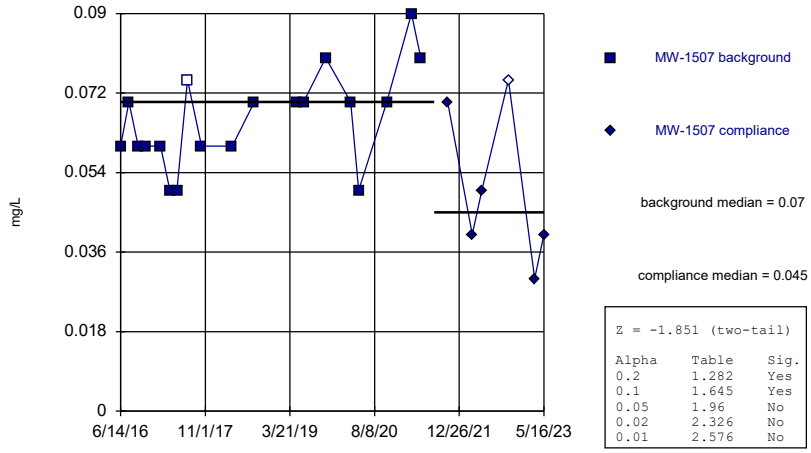
Alpha	Table	Sig.
0.2	1.282	No
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Fluoride, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)

MW-1507



Z = -1.851 (two-tail)

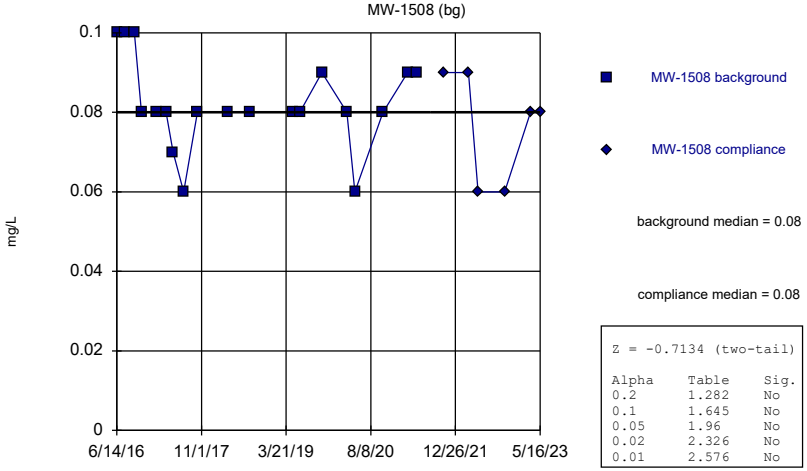
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	Yes
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Fluoride, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

MW-1508 (bg)



Z = -0.7134 (two-tail)

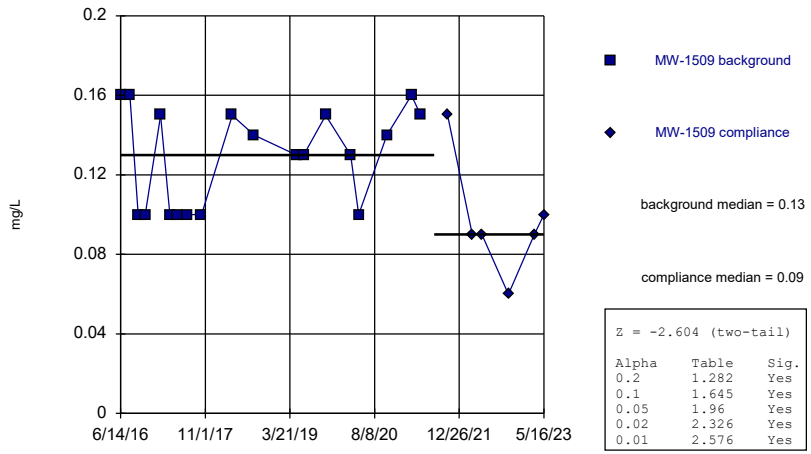
Alpha	Table	Sig.
0.2	1.282	No
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Fluoride, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

MW-1509



Z = -2.604 (two-tail)

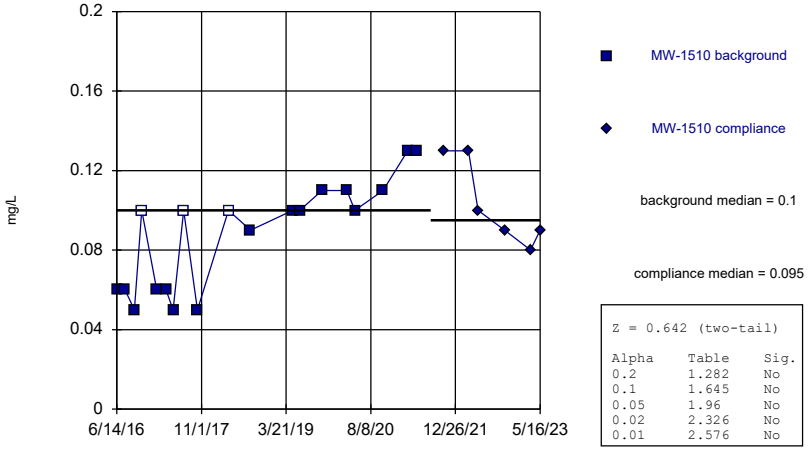
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	Yes
0.05	1.96	Yes
0.02	2.326	Yes
0.01	2.576	Yes

Constituent: Fluoride, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG
Hollow symbols indicate censored values.

Mann-Whitney (Wilcoxon Rank Sum)

MW-1510



Z = 0.642 (two-tail)

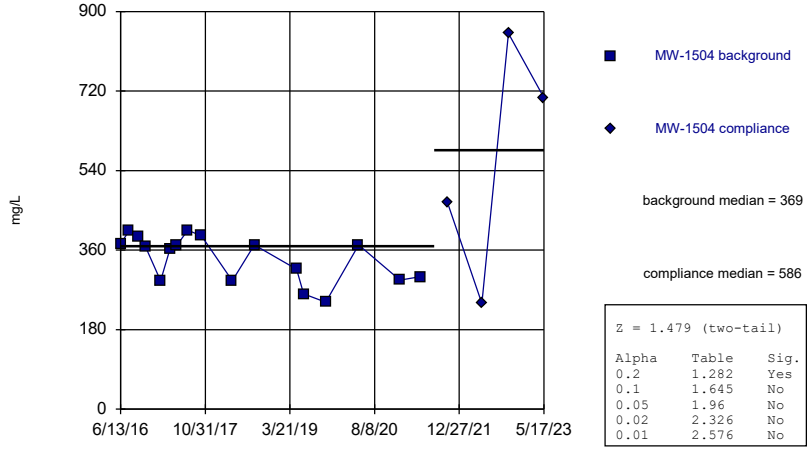
Alpha	Table	Sig.
0.2	1.282	No
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Fluoride, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

MW-1504 (bg)



Z = 1.479 (two-tail)

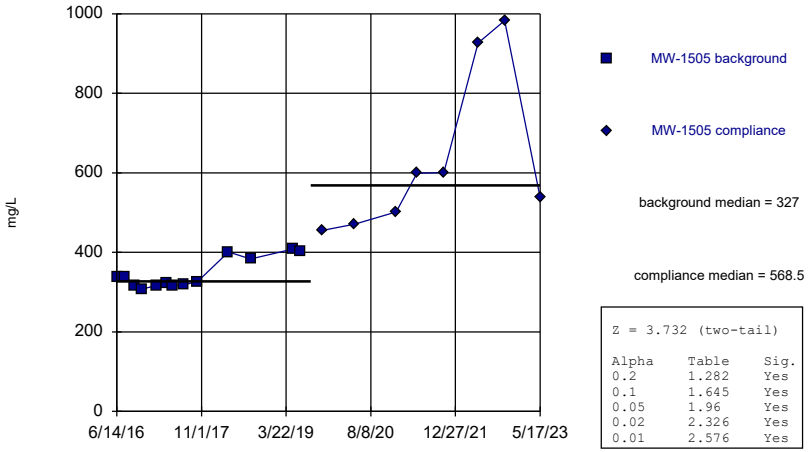
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Sulfate, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

MW-1505

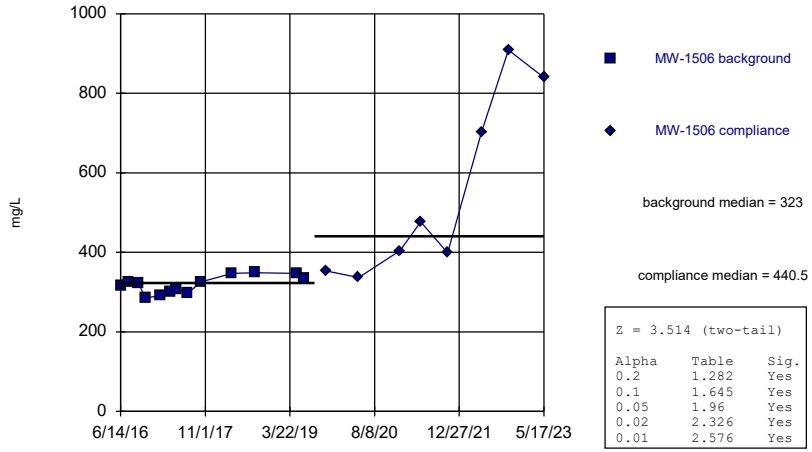


Constituent: Sulfate, total Analysis Run 1/22/2024 3:19 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

MW-1506

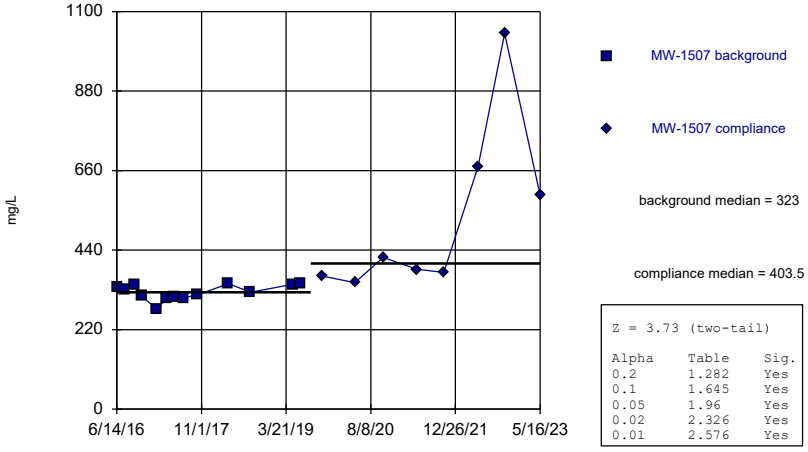


Constituent: Sulfate, total Analysis Run 1/22/2024 3:20 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

MW-1507

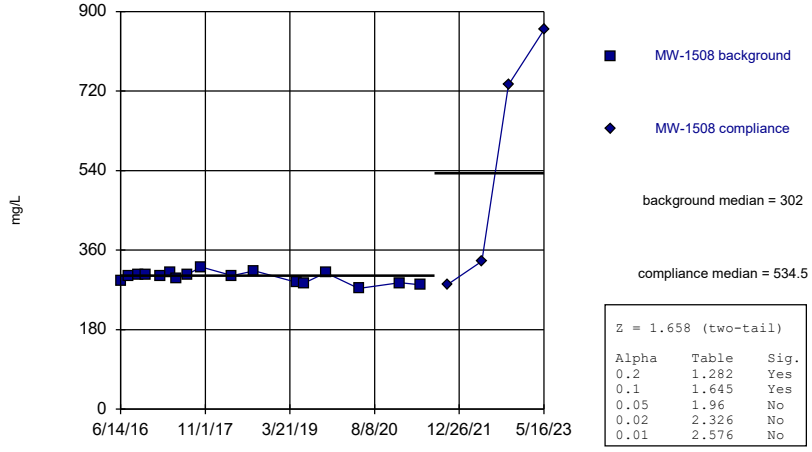


Constituent: Sulfate, total Analysis Run 1/22/2024 3:20 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

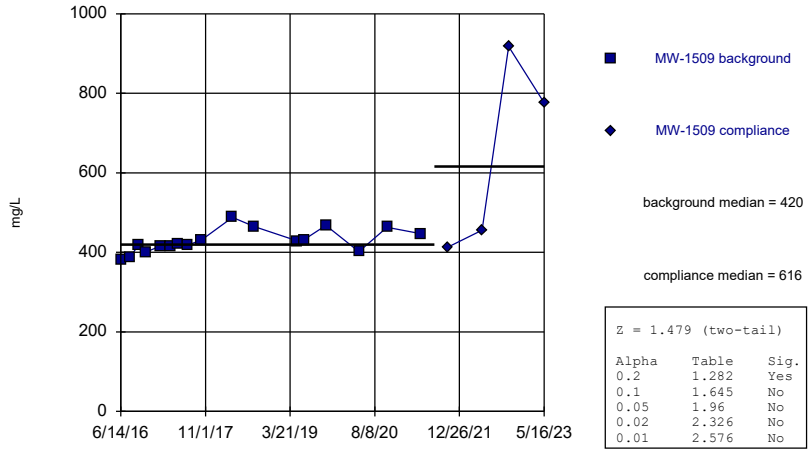
MW-1508 (bg)



Constituent: Sulfate, total Analysis Run 1/22/2024 3:20 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Mann-Whitney (Wilcoxon Rank Sum)

MW-1509



Z = 1.479 (two-tail)

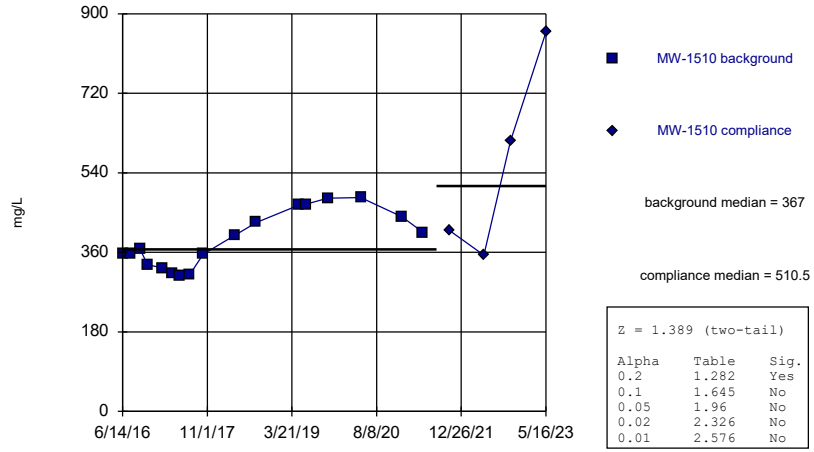
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Sulfate, total Analysis Run 1/22/2024 3:20 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Mann-Whitney (Wilcoxon Rank Sum)

MW-1510



Z = 1.389 (two-tail)

Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Sulfate, total Analysis Run 1/22/2024 3:20 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Appendix III - Upgradient Wells Trend Test - Significant Result

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 3:30 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Chloride, total (mg/L)	**MW-1508 (bg)**	**-12.97**	**-153**	**-92**	**Yes**	**22**	**0**	**n/a**	**n/a**	**0.01**	**NP**

Appendix III - Upgradient Wells Trend Test - All Results

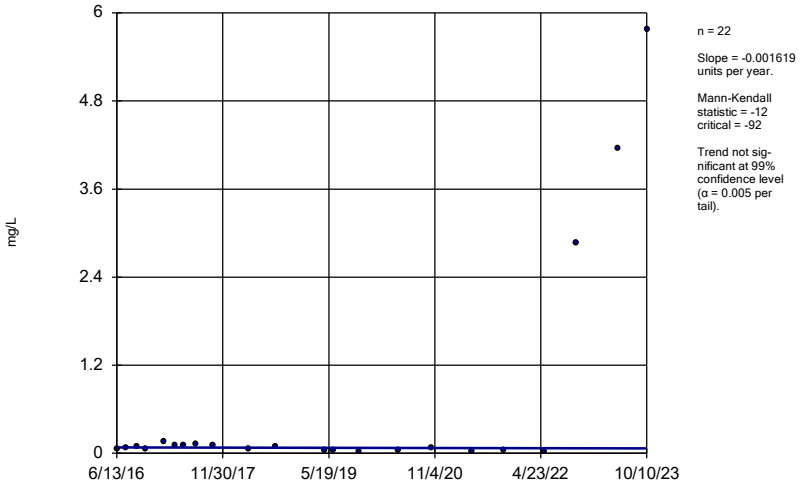
Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 3:30 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron, total (mg/L)	MW-1504 (bg)	-0.001619	-12	-92	No	22	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW-1508 (bg)	-0.0112	-7	-92	No	22	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1504 (bg)	-1.246	-14	-92	No	22	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW-1508 (bg)	-0.6242	-8	-92	No	22	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW-1504 (bg)	1.88	41	92	No	22	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	**MW-1508 (bg)**	**-12.97**	**-153**	**-92**	**Yes**	**22**	**0**	**n/a**	**n/a**	**0.01**	**NP**
pH, field (SU)	MW-1504 (bg)	0.03496	76	118	No	26	0	n/a	n/a	0.01	NP
pH, field (SU)	MW-1508 (bg)	0.01988	47	118	No	26	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1504 (bg)	22.81	35	92	No	22	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1508 (bg)	-17.1	-33	-92	No	22	0	n/a	n/a	0.01	NP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1504 (bg)

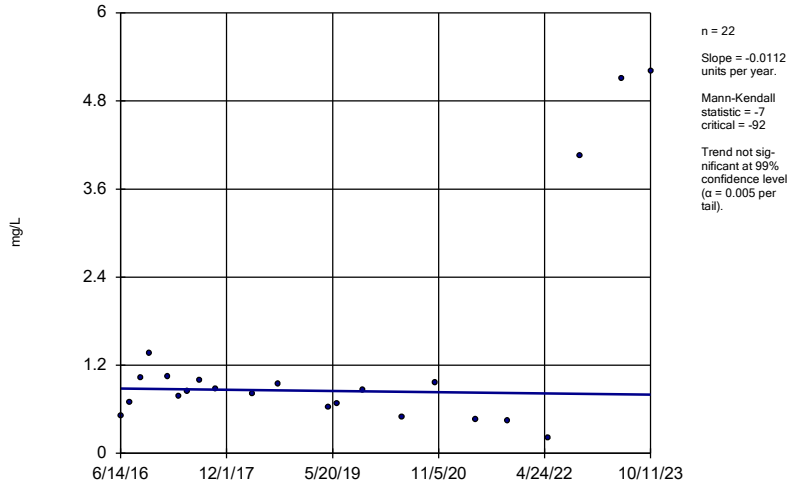


Constituent: Boron, total Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1508 (bg)

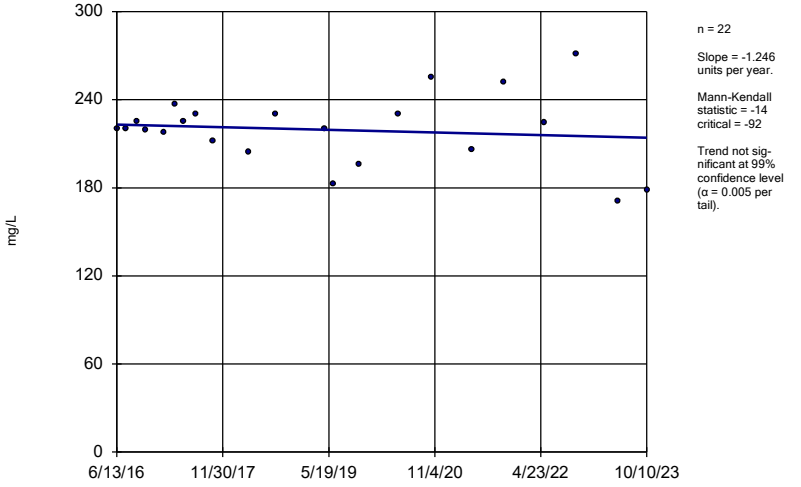


Constituent: Boron, total Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1504 (bg)

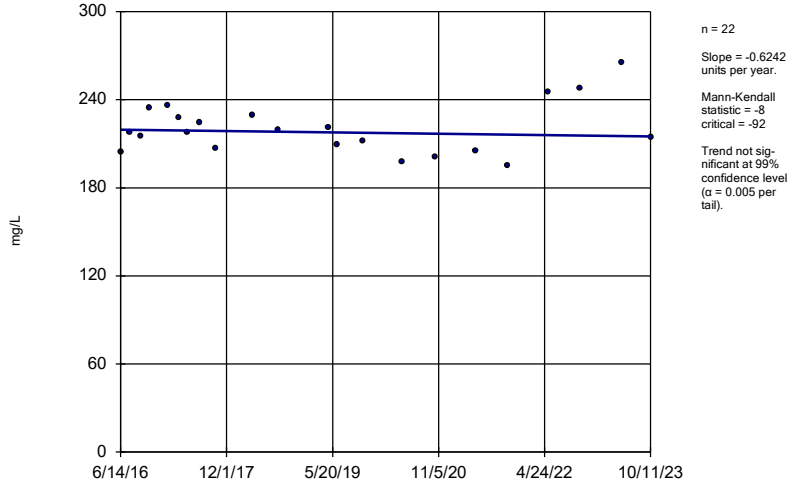


Constituent: Calcium, total Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1508 (bg)

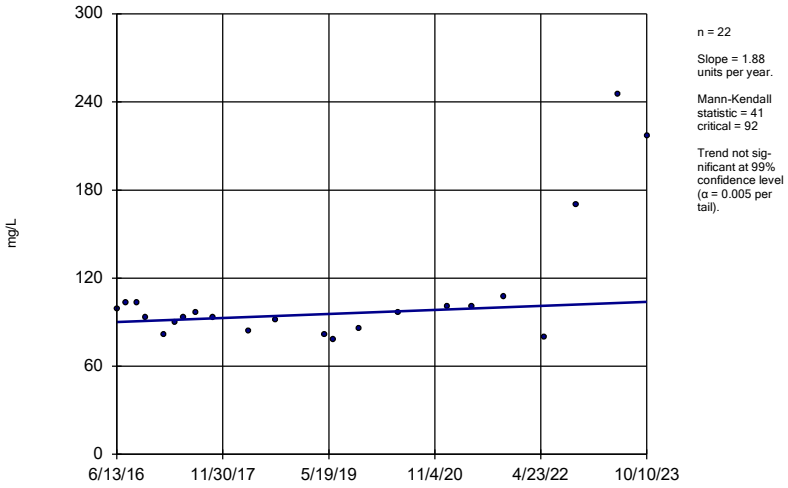


Constituent: Calcium, total Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1504 (bg)



n = 22

Slope = 1.88 units per year.

Mann-Kendall statistic = 41 critical = 92

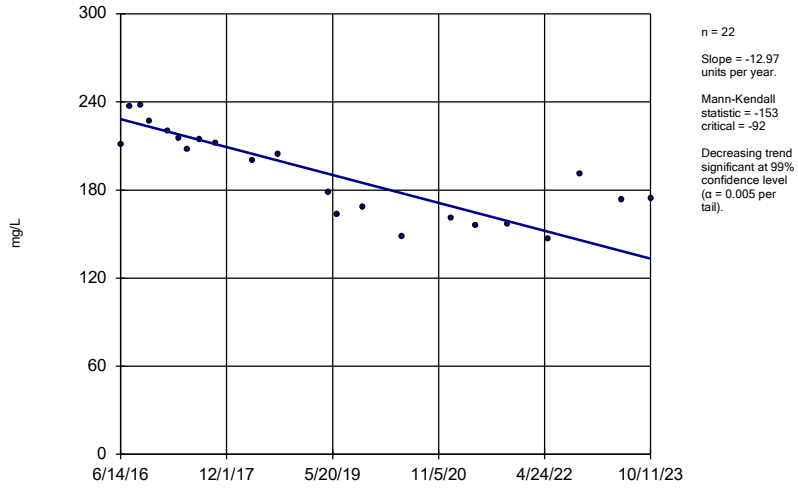
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1508 (bg)



n = 22

Slope = -12.97 units per year.

Mann-Kendall statistic = -153 critical = -92

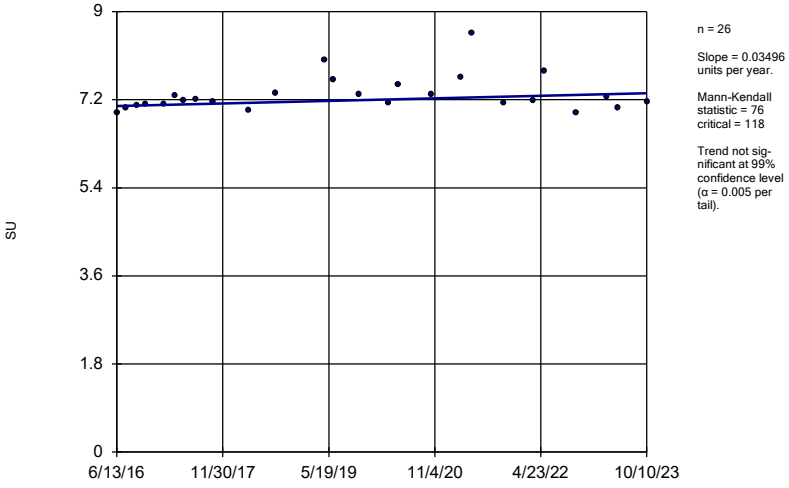
Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1504 (bg)



n = 26

Slope = 0.03496 units per year.

Mann-Kendall statistic = 76 critical = 118

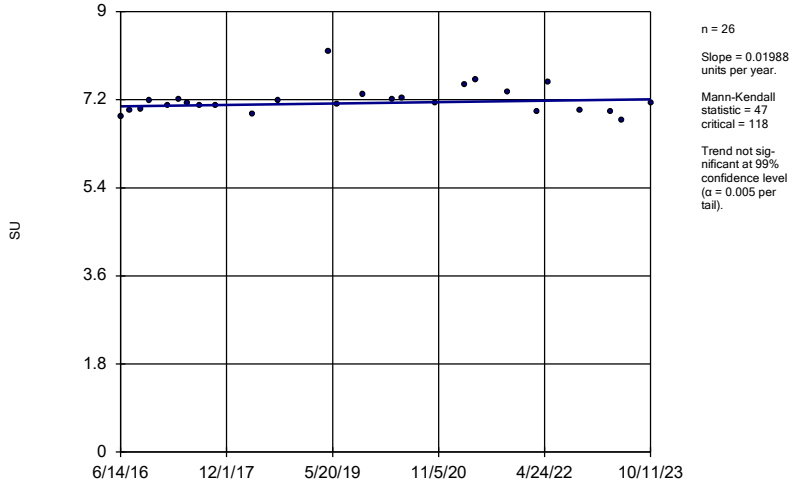
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1508 (bg)



n = 26

Slope = 0.01988 units per year.

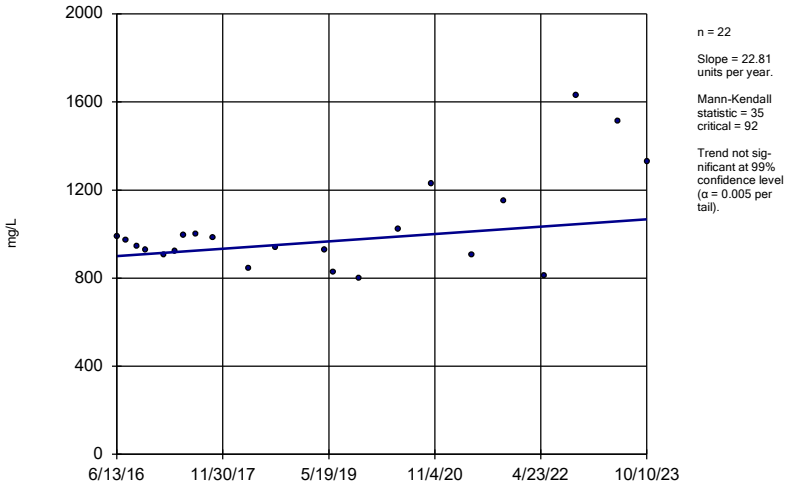
Mann-Kendall statistic = 47 critical = 118

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1504 (bg)



n = 22

Slope = 22.81 units per year.

Mann-Kendall statistic = 35
critical = 92

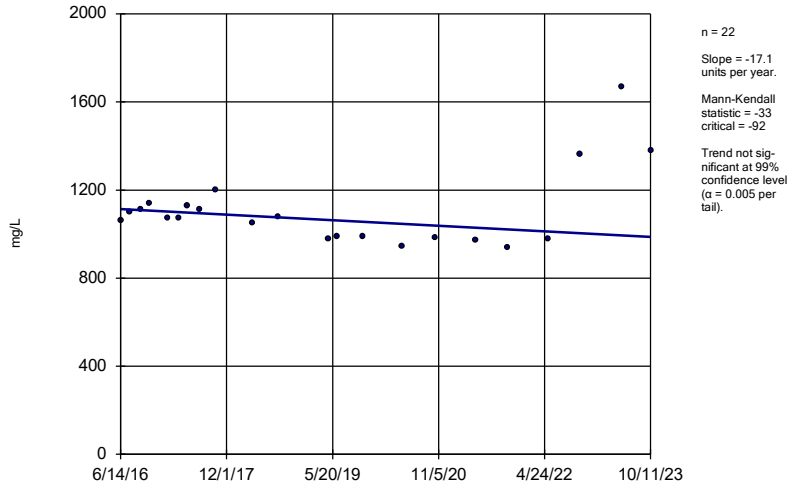
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Sen's Slope Estimator

MW-1508 (bg)



n = 22

Slope = -17.1 units per year.

Mann-Kendall statistic = -33
critical = -92

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/22/2024 3:27 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

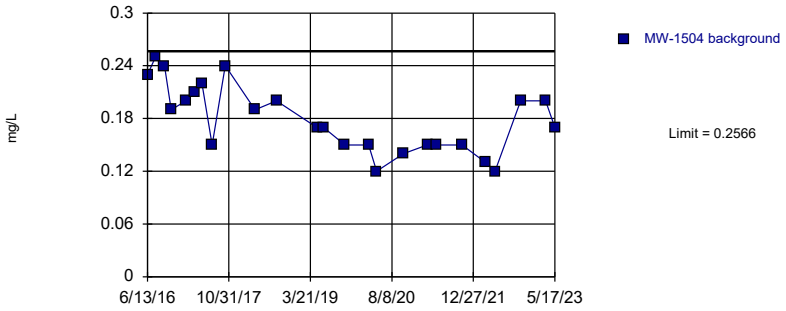
Appendix III - Intrawell Prediction Limits - All Results

Mitchell BAP Data: Mitchell BAP Printed 1/29/2024, 9:43 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Fluoride, total (mg/L)	MW-1504	0.2566	n/a	n/a	1 future	n/a	25	0.1796	0.03867	0	None	No	0.001504	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-1505	0.15	n/a	n/a	1 future	n/a	25	n/a	n/a	60	n/a	n/a	0.002832	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	MW-1506	0.15	n/a	n/a	1 future	n/a	25	n/a	n/a	40	n/a	n/a	0.002832	NP Intra (normality) 1 of 2
Fluoride, total (mg/L)	MW-1507	0.09056	n/a	n/a	1 future	n/a	25	0.0624	0.01415	8	None	No	0.001504	Param Intra 1 of 2
Fluoride, total (mg/L)	MW-1508	0.1	n/a	n/a	1 future	n/a	25	n/a	n/a	0	n/a	n/a	0.002832	NP Intra (normality) 1 of 2
Fluoride, total (mg/L)	MW-1509	0.16	n/a	n/a	1 future	n/a	25	n/a	n/a	0	n/a	n/a	0.002832	NP Intra (normality) 1 of 2
Fluoride, total (mg/L)	MW-1510	0.1442	n/a	n/a	1 future	n/a	25	0.0916	0.02641	12	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-1504	438.9	n/a	n/a	1 future	n/a	17	119145	34535	0	None	x^2	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-1505	408	n/a	n/a	1 future	n/a	13	n/a	n/a	0	n/a	n/a	0.009692	NP Intra (normality) 1 of 2
Sulfate, total (mg/L)	MW-1506	368.7	n/a	n/a	1 future	n/a	13	319.2	21.75	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-1507	373.2	n/a	n/a	1 future	n/a	13	323.9	21.63	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-1508	325.7	n/a	n/a	1 future	n/a	17	298.4	12.87	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-1509	491.5	n/a	n/a	1 future	n/a	17	428.4	29.69	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW-1510	523.4	n/a	n/a	1 future	n/a	17	388.1	63.62	0	None	No	0.001504	Param Intra 1 of 2

Prediction Limit

Intrawell Parametric, MW-1504 (bg)



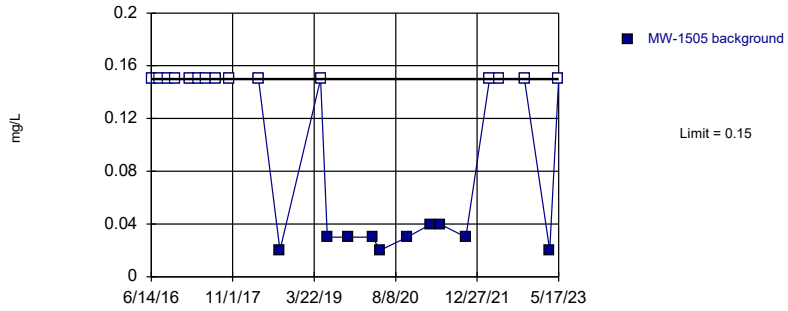
Background Data Summary: Mean=0.1796, Std. Dev.=0.03867, n=25. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.943, critical = 0.888. Kappa = 1.99 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-1505



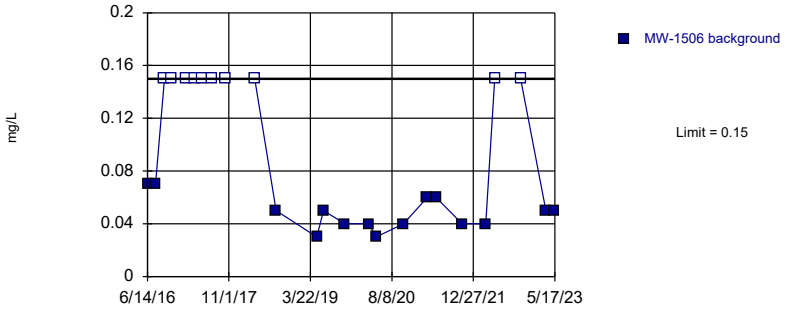
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 25 background values. 60% NDs. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-1506



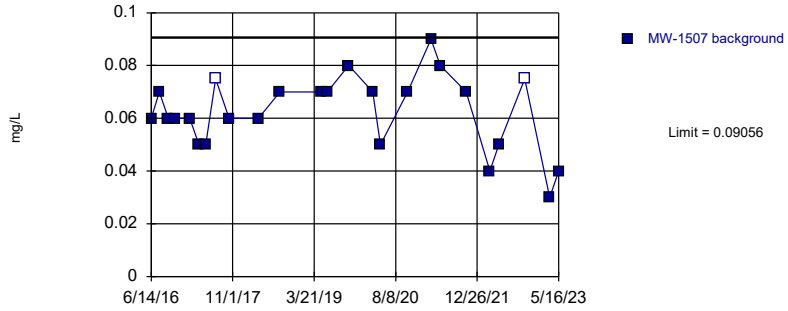
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 25 background values. 40% NDs. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

Hollow symbols indicate censored values.

Prediction Limit

Intrawell Parametric, MW-1507

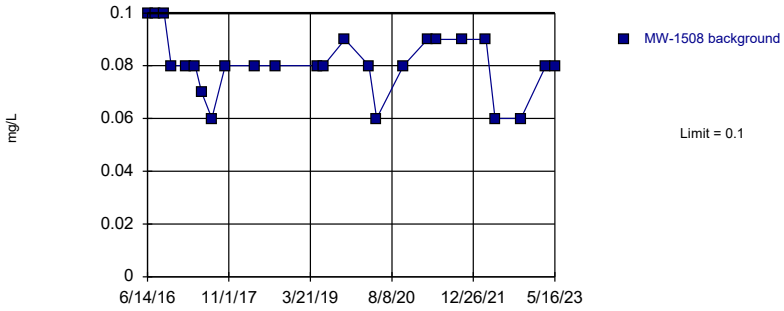


Background Data Summary: Mean=0.0624, Std. Dev.=0.01415, n=25, 8% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9565, critical = 0.888. Kappa = 1.99 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

Prediction Limit

Intrawell Non-parametric, MW-1508 (bg)



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 25 background values. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

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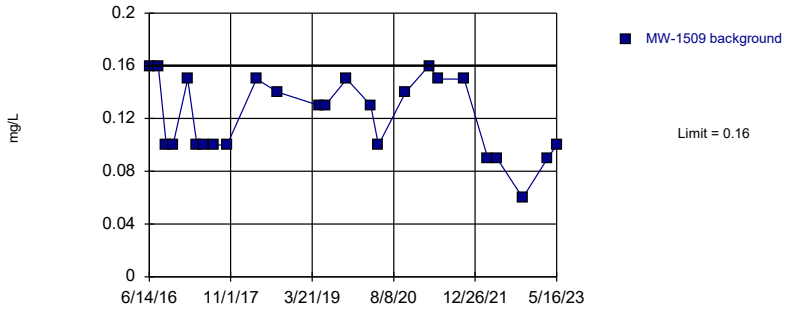
Prediction Limit

Intrawell Non-parametric, MW-1509



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 25 background values. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

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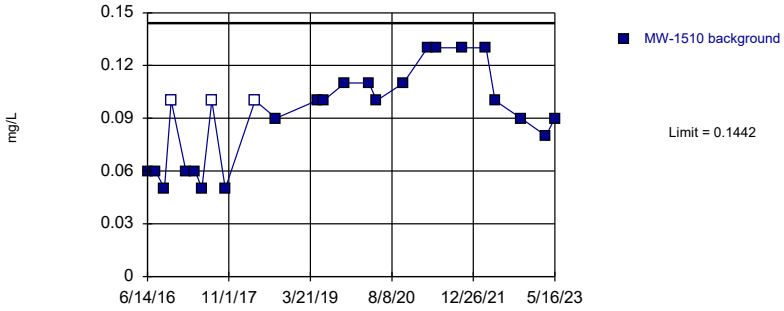
Hollow symbols indicate censored values.

Prediction Limit

Intrawell Parametric, MW-1510



Background Data Summary: Mean=0.0916, Std. Dev.=0.02641, n=25, 12% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8993, critical = 0.888. Kappa = 1.99 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

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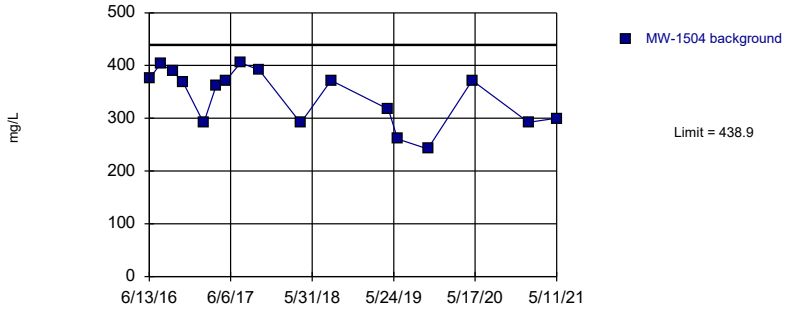
Prediction Limit

Intrawell Parametric, MW-1504 (bg)

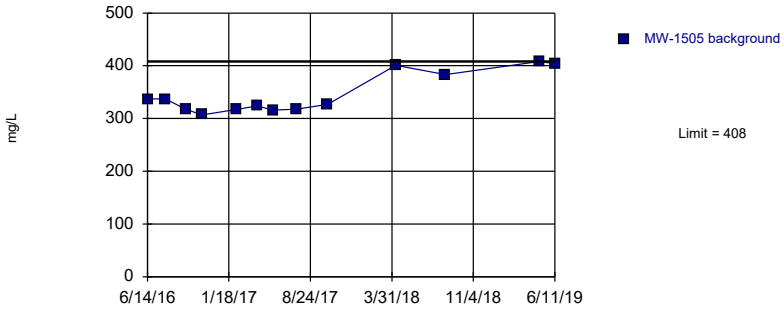


Background Data Summary (based on square transformation): Mean=119145, Std. Dev.=34535, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8967, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell
Mitchell BAP Data: Mitchell BAP

Prediction Limit

Intrawell Non-parametric, MW-1505

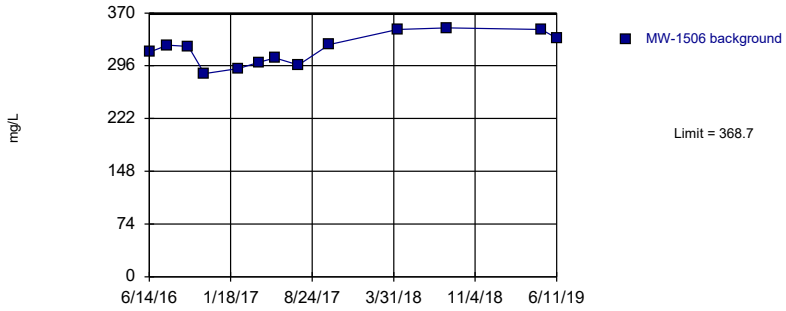


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 13 background values. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2). Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell Mitchell BAP Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1506

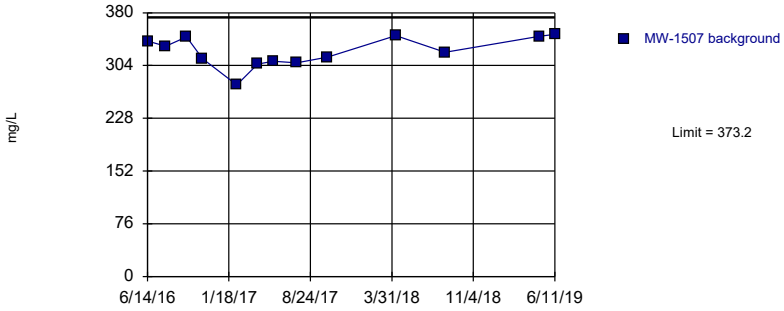


Background Data Summary: Mean=319.2, Std. Dev.=21.75, n=13. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9405, critical = 0.866. Kappa = 2.279 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell Mitchell BAP Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1507

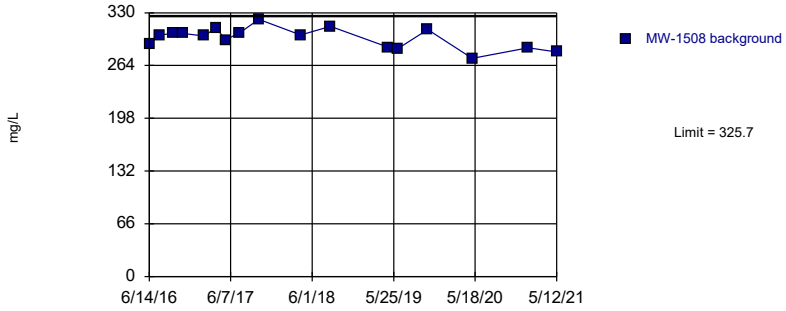


Background Data Summary: Mean=323.9, Std. Dev.=21.63, n=13. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9109, critical = 0.866. Kappa = 2.279 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell Mitchell BAP Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1508 (bg)

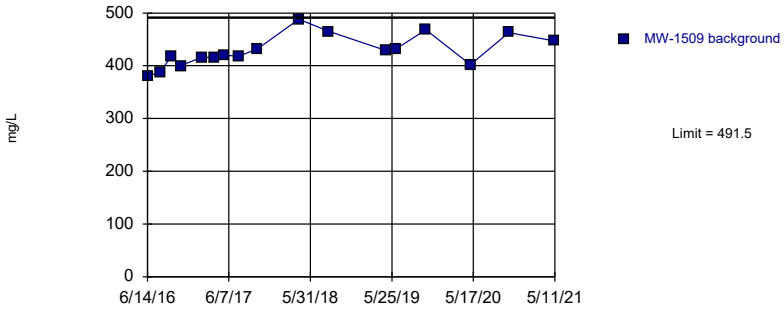


Background Data Summary: Mean=298.4, Std. Dev.=12.87, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9729, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell Mitchell BAP Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1509



Background Data Summary: Mean=428.4, Std. Dev.=29.69, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9605, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell Mitchell BAP Data: Mitchell BAP

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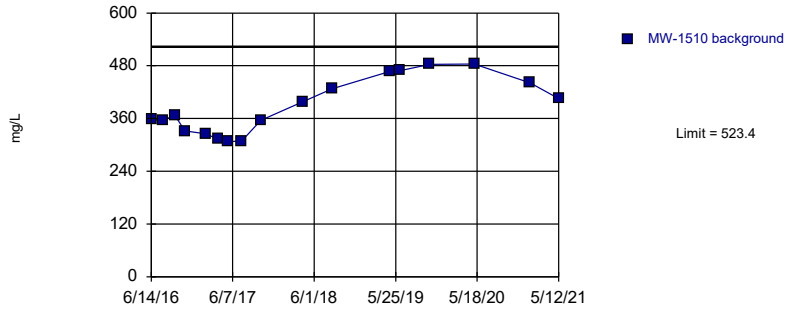
Prediction Limit

Intrawell Parametric, MW-1510



Background Data Summary: Mean=388.1, Std. Dev.=63.62, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9067, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 1/29/2024 9:42 AM View: Appendix III - Intrawell Mitchell BAP Data: Mitchell BAP

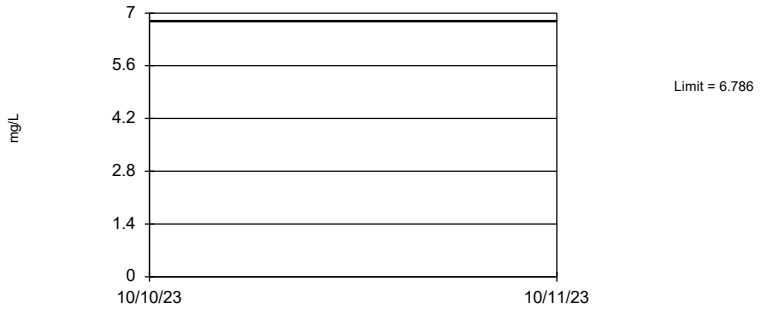
Appendix III - Interwell Prediction Limits - All Results

Mitchell BAP Data: Mitchell BAP Printed 1/29/2024, 9:41 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron, total (mg/L)	n/a	6.786	n/a	n/a	5 future	n/a	44	-1.136	1.624	0	None	ln(x)	0.001504	Param Inter 1 of 2
Calcium, total (mg/L)	n/a	258.8	n/a	n/a	5 future	n/a	44	219.8	20.77	0	None	No	0.001504	Param Inter 1 of 2
Chloride, total (mg/L)	n/a	245	n/a	n/a	5 future	n/a	44	n/a	n/a	0	n/a	n/a	0.0009784	NP Inter (normality) 1 of 2
pH, field (SU)	n/a	8.56	6.77	n/a	5 future	n/a	52	n/a	n/a	0	n/a	n/a	0.001398	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	n/a	1670	n/a	n/a	5 future	n/a	44	n/a	n/a	0	n/a	n/a	0.0009784	NP Inter (normality) 1 of 2

Prediction Limit

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=-1.136, Std. Dev.=1.624, n=44. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9311, critical = 0.924. Kappa = 1.879 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Assumes 5 future values.

Constituent: Boron, total Analysis Run 1/29/2024 9:27 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

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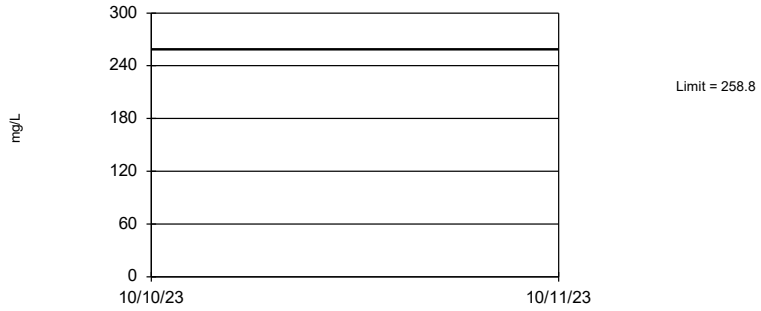
Prediction Limit

Interwell Parametric



Background Data Summary: Mean=219.8, Std. Dev.=20.77, n=44. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9784, critical = 0.924. Kappa = 1.879 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Assumes 5 future values.

Constituent: Calcium, total Analysis Run 1/29/2024 9:27 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

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Prediction Limit

Interwell Non-parametric

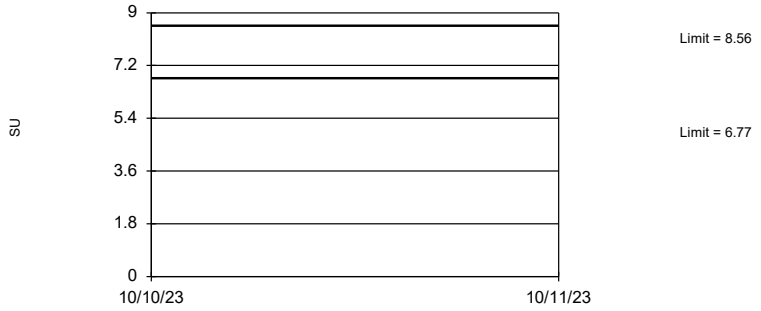
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 44 background values. Annual per-constituent alpha = 0.009741. Individual comparison alpha = 0.0009784 (1 of 2). Assumes 5 future values.

Constituent: Chloride, total Analysis Run 1/29/2024 9:27 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

Sanitas™ v.10.0.15 Software licensed to Groundwater Stats Consulting. UG

Prediction Limit

Interwell Non-parametric

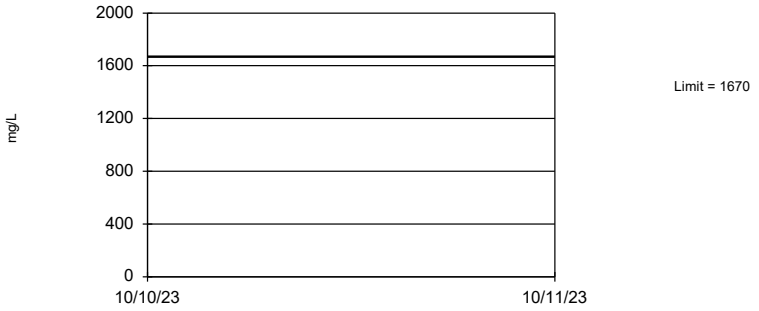


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 52 background values. Annual per-constituent alpha = 0.01393. Individual comparison alpha = 0.001398 (1 of 2). Assumes 5 future values.

Constituent: pH, field Analysis Run 1/29/2024 9:27 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

Prediction Limit

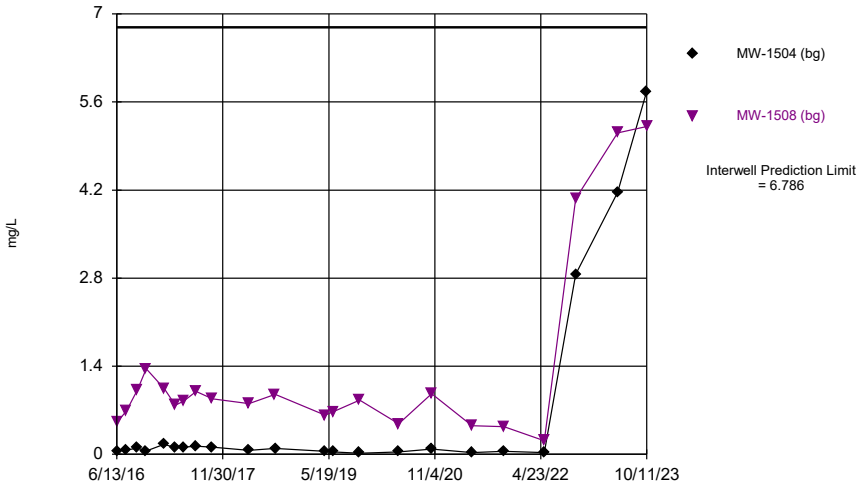
Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 44 background values. Annual per-constituent alpha = 0.009741. Individual comparison alpha = 0.0009784 (1 of 2). Assumes 5 future values.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/29/2024 9:27 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

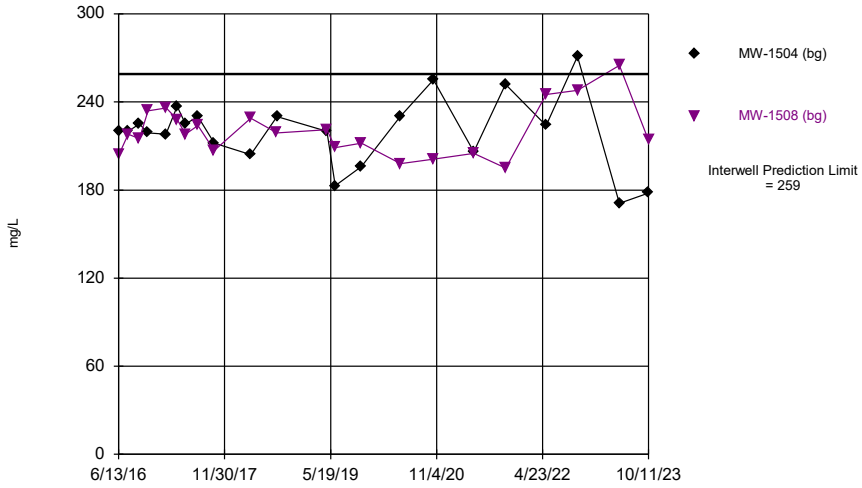
Time Series



Constituent: Boron, total Analysis Run 1/29/2024 9:28 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

Sanitas™ v.10.0.15 Software licensed to Groundwater Stats Consulting. UG

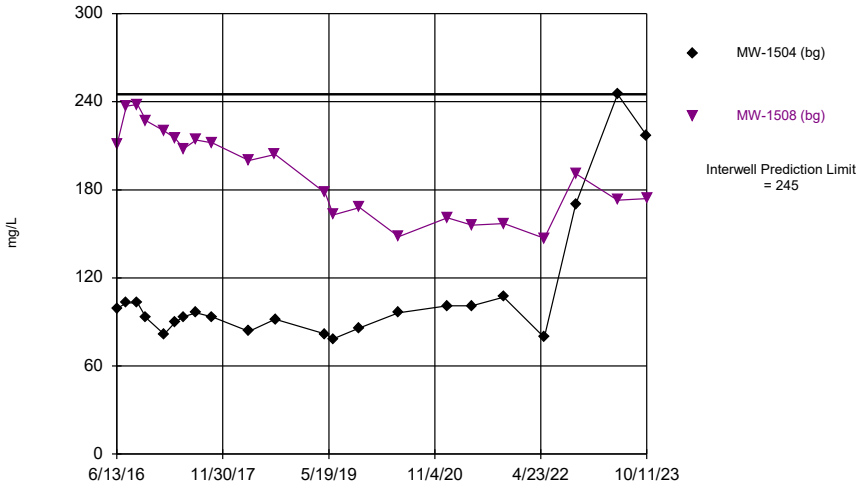
Time Series



Constituent: Calcium, total Analysis Run 1/29/2024 9:28 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

Sanitas™ v.10.0.15 Software licensed to Groundwater Stats Consulting. UG

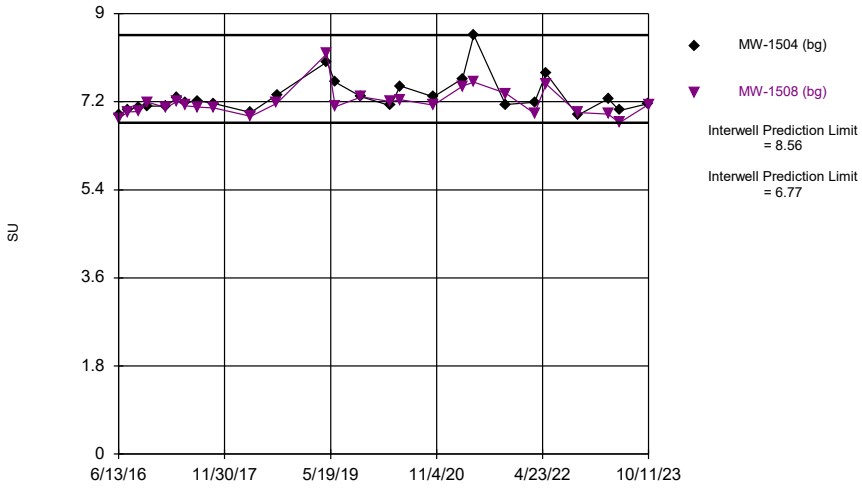
Time Series



Constituent: Chloride, total Analysis Run 1/29/2024 9:28 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

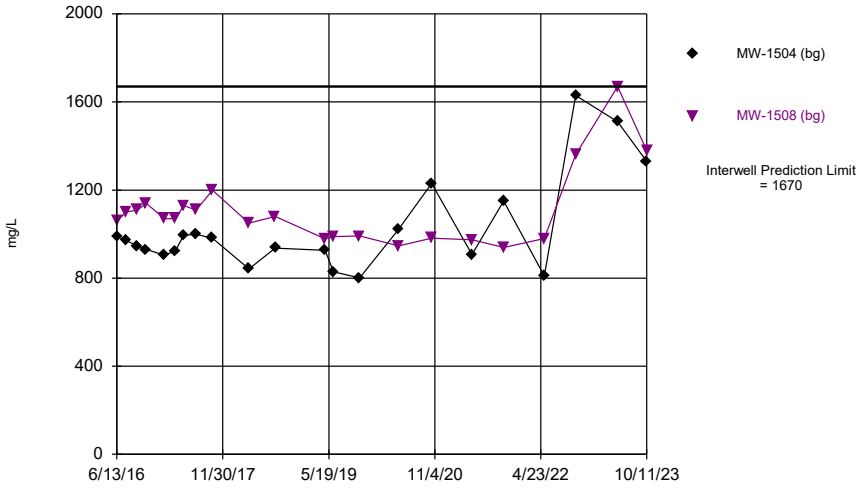
Sanitas™ v.10.0.15 Software licensed to Groundwater Stats Consulting. UG

Time Series



Constituent: pH, field Analysis Run 1/29/2024 9:29 AM View: Appendix III - Interwell
Mitchell BAP Data: Mitchell BAP

Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/29/2024 9:29 AM View: Appendix III - Interwell Mitchell BAP Data: Mitchell BAP

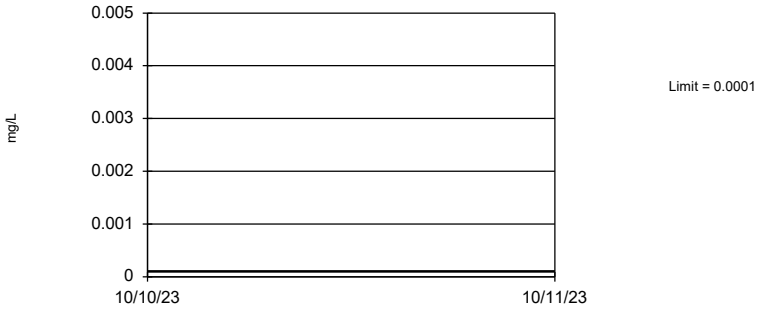
Upper Tolerance Limits Summary Table

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 4:09 PM

Constituent	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony, total (mg/L)	0.0001	n/a	n/a	n/a	n/a	50	42	n/a	0.07694	NP Inter(normality)
Arsenic, total (mg/L)	0.00165	n/a	n/a	n/a	n/a	50	0	n/a	0.07694	NP Inter(normality)
Barium, total (mg/L)	0.05411	n/a	n/a	n/a	n/a	50	0	No	0.05	Inter
Beryllium, total (mg/L)	0.00006	n/a	n/a	n/a	n/a	50	68	n/a	0.07694	NP Inter(NDs)
Cadmium, total (mg/L)	0.00009	n/a	n/a	n/a	n/a	50	2	n/a	0.07694	NP Inter(normality)
Chromium, total (mg/L)	0.001753	n/a	n/a	n/a	n/a	50	0	x^(1/3)	0.05	Inter
Cobalt, total (mg/L)	0.00233	n/a	n/a	n/a	n/a	48	0	x^(1/3)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	1.878	n/a	n/a	n/a	n/a	49	0	sqrt(x)	0.05	Inter
Fluoride, total (mg/L)	0.2899	n/a	n/a	n/a	n/a	52	0	ln(x)	0.05	Inter
Lead, total (mg/L)	0.002657	n/a	n/a	n/a	n/a	50	20	ln(x)	0.05	Inter
Lithium, total (mg/L)	0.015	n/a	n/a	n/a	n/a	50	12	n/a	0.07694	NP Inter(normality)
Mercury, total (mg/L)	0.000008	n/a	n/a	n/a	n/a	50	82	n/a	0.07694	NP Inter(NDs)
Molybdenum, total (mg/L)	0.001591	n/a	n/a	n/a	n/a	50	18	ln(x)	0.05	Inter
Selenium, total (mg/L)	0.01466	n/a	n/a	n/a	n/a	50	8	ln(x)	0.05	Inter
Thallium, total (mg/L)	0.0002	n/a	n/a	n/a	n/a	50	62	n/a	0.07694	NP Inter(NDs)

Tolerance Limit

Interwell Non-parametric



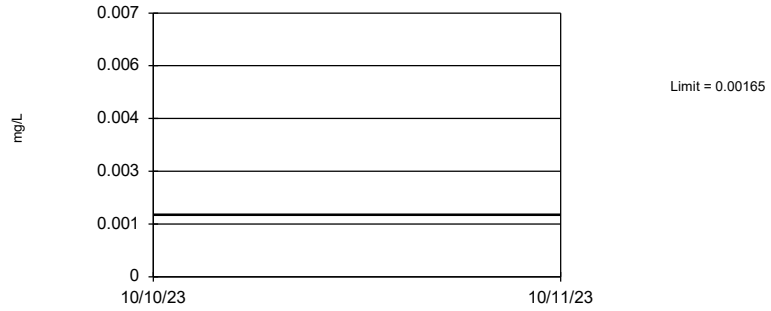
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 42% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Antimony, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



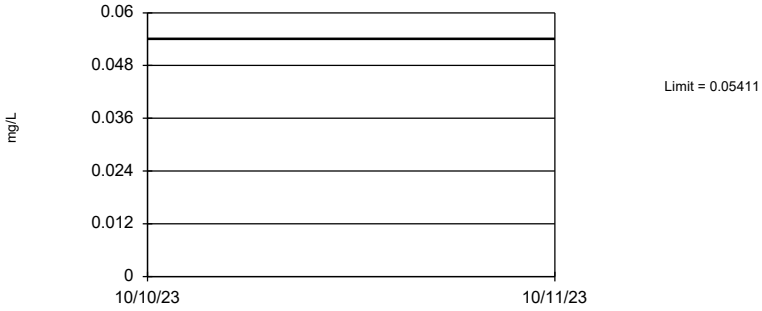
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Arsenic, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



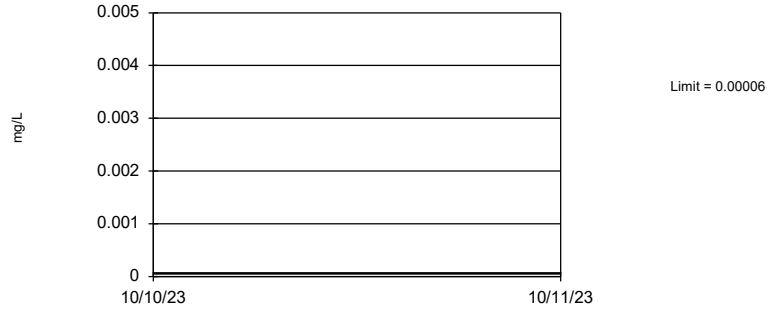
95% coverage. Background Data Summary: Mean=0.03746, Std. Dev.=0.008062, n=50. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.983, critical = 0.935. Report alpha = 0.05.

Constituent: Barium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



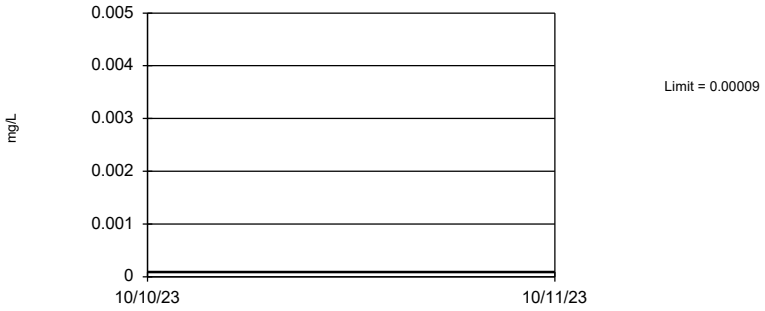
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 50 background values. 68% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Beryllium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



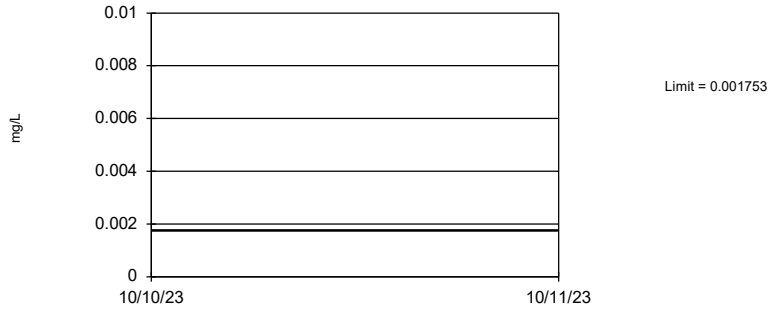
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 2% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Cadmium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



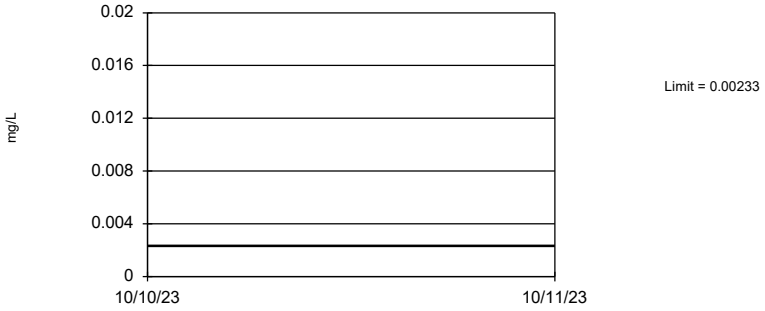
95% coverage. Background Data Summary (based on cube root transformation): Mean=0.08129, Std. Dev.=0.01903, n=50. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9397, critical = 0.935. Report alpha = 0.05.

Constituent: Chromium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



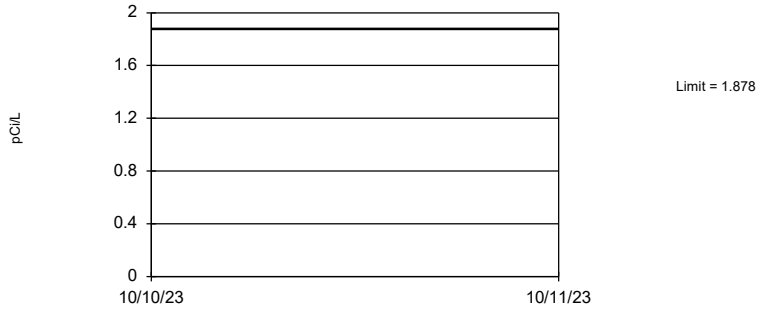
95% coverage. Background Data Summary (based on cube root transformation): Mean=0.07068, Std. Dev.=0.02982, n=48. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9303, critical = 0.929. Report alpha = 0.05.

Constituent: Cobalt, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric

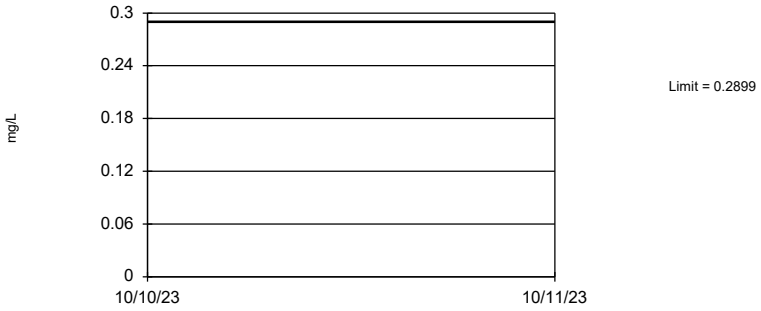


95% coverage. Background Data Summary (based on square root transformation): Mean=0.7503, Std. Dev.=0.2994, n=49. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9577, critical = 0.929. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric



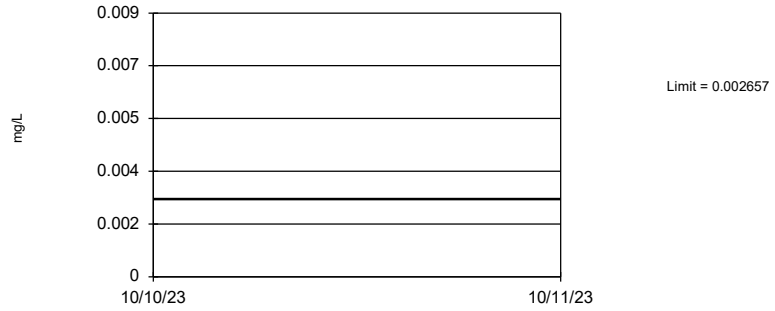
95% coverage. Background Data Summary (based on natural log transformation): Mean=-2.129, Std. Dev.=0.4341, n=52. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9386, critical = 0.937. Report alpha = 0.05.

Constituent: Fluoride, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



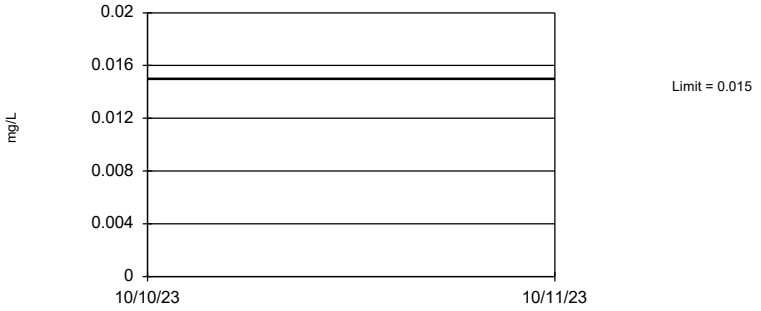
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-8.9, Std. Dev.=1.438, n=50, 20% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9611, critical = 0.935. Report alpha = 0.05.

Constituent: Lead, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 12% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Lithium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric

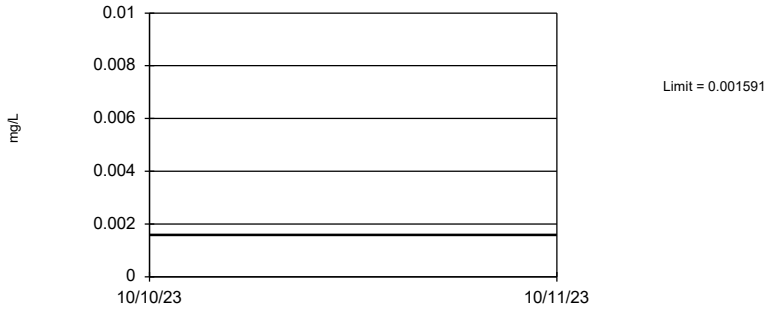
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 50 background values. 82% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Mercury, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



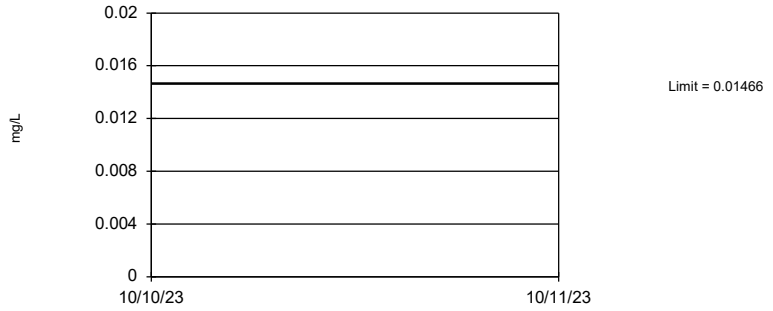
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-7.793, Std. Dev.=0.6537, n=50, 18% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9433, critical = 0.935. Report alpha = 0.05.

Constituent: Molybdenum, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



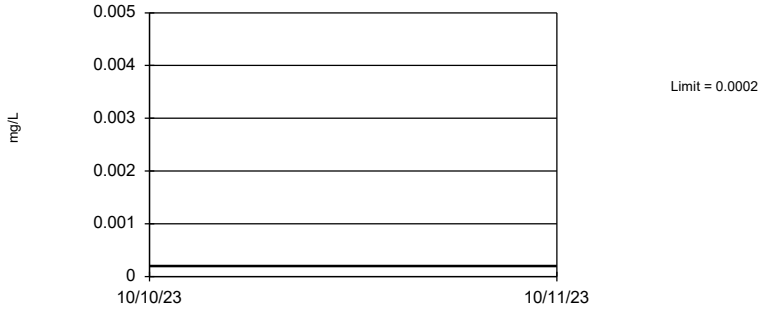
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.643, Std. Dev.=1.656, n=50, 8% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9503, critical = 0.935. Report alpha = 0.05.

Constituent: Selenium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 50 background values. 62% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Thallium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

MITCHELL BAP GWPS				
Constituent Name	**Compliance Limit**	**CCR-Rule Specified**	**Background Limit**	**GWPS**
Antimony, Total (mg/L)	0.006		0.0001	0.006
Arsenic, Total (mg/L)	0.01		0.0017	0.01
Barium, Total (mg/L)	2		0.054	2
Beryllium, Total (mg/L)	0.004		0.00006	0.004
Cadmium, Total (mg/L)	0.005		0.00009	0.005
Chromium, Total (mg/L)	0.1		0.0018	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0023	0.006
Combined Radium, Total (pCi/L)	5		1.88	5
Fluoride, Total (mg/L)	4		0.29	4
Lead, Total (mg/L)	n/a	0.015	0.0027	0.015
Lithium, Total (mg/L)	n/a	0.04	0.015	0.04
Mercury, Total (mg/L)	0.002		0.000008	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.0016	0.1
Selenium, Total (mg/L)	0.05		0.015	0.05
Thallium, Total (mg/L)	0.002		0.0002	0.002

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

Appendix IV - Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 4:14 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	MW-1505	0.00005	0.00003	0.006	No	25	0.00002107	8	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1506	0.00005	0.000028	0.006	No	25	0.00003155	4	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1507	0.00007	0.00003	0.006	No	25	0.00003065	4	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1509	0.000033	0.000026	0.006	No	25	0.00001327	4	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1510	0.00003	0.00002	0.006	No	25	0.000008687	8	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1505	0.00073	0.00031	0.01	No	25	0.0007706	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1506	0.0006665	0.0003689	0.01	No	25	0.000367	0	None	x^(1/3)	0.01	Param.
Arsenic, total (mg/L)	MW-1507	0.00151	0.00037	0.01	No	25	0.001274	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1509	0.0004546	0.0003422	0.01	No	25	0.0001128	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW-1510	0.000438	0.0003069	0.01	No	25	0.0001458	0	None	x^(1/3)	0.01	Param.
Barium, total (mg/L)	MW-1505	0.05131	0.03866	2	No	25	0.01269	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1506	0.05637	0.0448	2	No	25	0.0116	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1507	0.06907	0.04746	2	No	25	0.02168	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1509	0.05411	0.04225	2	No	25	0.0119	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1510	0.04131	0.03403	2	No	25	0.007302	0	None	No	0.01	Param.
Beryllium, total (mg/L)	MW-1505	0.00005	0.000011	0.004	No	25	0.00003158	48	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW-1506	0.00005	0.000012	0.004	No	25	0.00001834	44	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW-1507	0.00005681	0.00001868	0.004	No	25	0.00005038	40	Kaplan-Meier	x^(1/3)	0.01	Param.
Beryllium, total (mg/L)	MW-1509	0.00005	0.00001	0.004	No	25	0.00001939	64	Kaplan-Meier	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW-1510	0.00005	0.000015	0.004	No	25	0.00001832	60	Kaplan-Meier	No	0.01	NP (NDs)
Cadmium, total (mg/L)	MW-1505	0.00003	0.00002	0.005	No	25	0.000008	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW-1506	0.000022	0.000012	0.005	No	25	0.000008368	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW-1507	0.00004245	0.00002685	0.005	No	25	0.0000164	0	None	sqrt(x)	0.01	Param.
Cadmium, total (mg/L)	MW-1509	0.00002	0.00001	0.005	No	25	0.000006639	12	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW-1510	0.00001	0.000005	0.005	No	25	0.00001907	24	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1505	0.00238	0.00049	0.1	No	24	0.003394	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1506	0.001493	0.0006635	0.1	No	25	0.001283	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW-1507	0.005085	0.001572	0.1	No	25	0.006302	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW-1509	0.00105	0.000552	0.1	No	25	0.0009152	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1510	0.001515	0.0006944	0.1	No	24	0.001567	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1505	0.0004581	0.0001883	0.006	No	25	0.0005918	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1506	0.0005362	0.0002535	0.006	No	25	0.000316	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1507	0.00125	0.0003386	0.006	No	25	0.001317	0	None	x^(1/3)	0.01	Param.
Cobalt, total (mg/L)	MW-1509	0.0003024	0.0001736	0.006	No	24	0.0001261	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW-1510	0.0002322	0.0001448	0.006	No	24	0.00008565	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1505	1.102	0.602	5	No	25	0.5013	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1506	1.05	0.5246	5	No	25	0.5272	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1507	1.242	0.7112	5	No	24	0.5204	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1509	1.131	0.6247	5	No	25	0.5629	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1510	0.8556	0.4757	5	No	24	0.3723	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1505	0.15	0.03	4	No	26	0.06	57.69	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	MW-1506	0.15	0.04	4	No	26	0.05099	38.46	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW-1507	0.07072	0.05621	4	No	26	0.01488	7.692	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1509	0.1349	0.1074	4	No	26	0.02819	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1510	0.1056	0.07979	4	No	26	0.02647	11.54	None	No	0.01	Param.
Lead, total (mg/L)	MW-1505	0.0003713	0.0001199	0.015	No	25	0.0008031	12	None	ln(x)	0.01	Param.
Lead, total (mg/L)	MW-1506	0.000379	0.000168	0.015	No	25	0.00028	4	None	x^(1/3)	0.01	Param.
Lead, total (mg/L)	MW-1507	0.00117	0.000201	0.015	No	25	0.001376	16	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW-1509	0.0001633	0.00007514	0.015	No	25	0.00008839	0	None	No	0.01	Param.
Lead, total (mg/L)	MW-1510	0.0001595	0.00008657	0.015	No	25	0.0001107	0	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	MW-1505	0.008	0.00534	0.04	No	25	0.003194	4	None	No	0.01	NP (normality)
Lithium, total (mg/L)	MW-1506	0.013	0.00771	0.04	No	25	0.003744	4	None	No	0.01	NP (normality)
Lithium, total (mg/L)	MW-1507	0.01262	0.008699	0.04	No	25	0.004754	4	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	MW-1509	0.01351	0.008973	0.04	No	25	0.004548	4	None	No	0.01	Param.
Lithium, total (mg/L)	MW-1510	0.01144	0.007587	0.04	No	25	0.003868	0	None	No	0.01	Param.
Mercury, total (mg/L)	MW-1505	0.000005	0.000003	0.002	No	25	0.000001999	68	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1506	0.000005	0.000004	0.002	No	25	0.000001143	68	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1507	0.000006	0.000004	0.002	No	25	0.000004828	44	None	No	0.01	NP (normality)
Mercury, total (mg/L)	MW-1509	0.000005	0.000003	0.002	No	25	0.000001194	76	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1510	0.000008	0.000003	0.002	No	25	0.000003823	72	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	MW-1505	0.0009305	0.000306	0.1	No	25	0.00145	20	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1506	0.001049	0.0005494	0.1	No	25	0.0005443	0	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1507	0.00191	0.0007415	0.1	No	25	0.002643	4	None	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1509	0.0006436	0.000324	0.1	No	25	0.0007037	20	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1510	0.00092	0.00028	0.1	No	25	0.0008741	24	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW-1505	0.001062	0.0002943	0.05	No	25	0.001093	0	None	x^(1/3)	0.01	Param.
Selenium, total (mg/L)	MW-1506	0.00019	0.00005647	0.05	No	25	0.0005582	24	Kaplan-Meier	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW-1507	0.0002768	0.00008303	0.05	No	25	0.0008536	16	Kaplan-Meier	ln(x)	0.01	Param.

Appendix IV - Confidence Intervals - All Results (No Significant)

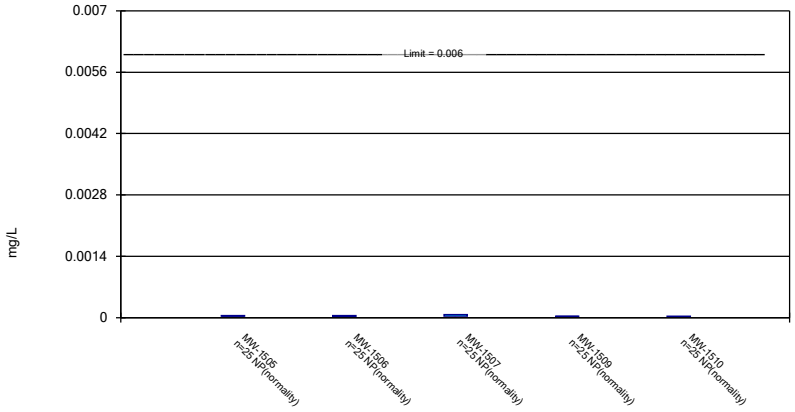
Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 4:14 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Selenium, total (mg/L)	MW-1509	0.0003102	0.0001463	0.05	No	25	0.0002761	4	None	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW-1510	0.00059	0.0001	0.05	No	25	0.00157	0	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1505	0.000464	0.000065	0.002	No	25	0.0001961	24	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1506	0.0002	0.00005	0.002	No	25	0.00007382	36	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1507	0.0002	0.00005	0.002	No	25	0.00007227	36	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1509	0.0002	0.00004	0.002	No	25	0.00008331	52	None	No	0.01	NP (NDs)
Thallium, total (mg/L)	MW-1510	0.0002	0.00003	0.002	No	25	0.00008665	64	None	No	0.01	NP (NDs)

Sanitas™ v.10.0.15 . UG

Non-Parametric Confidence Interval

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

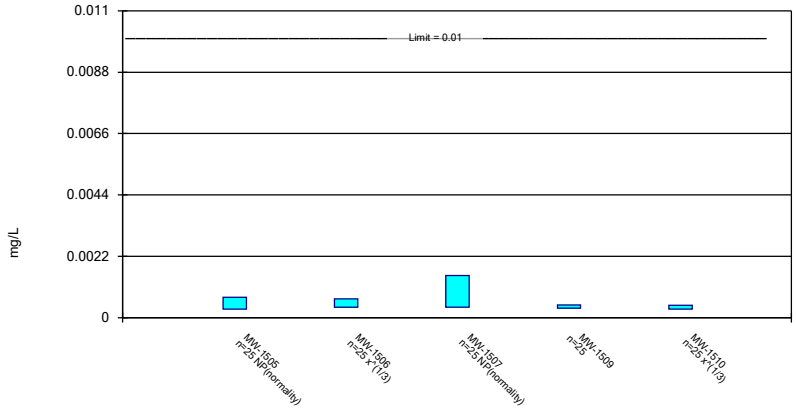


Constituent: Antimony, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Parametric Confidence Interval

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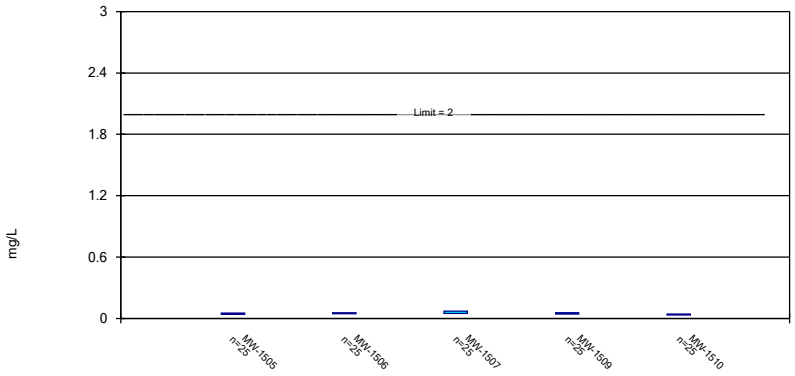
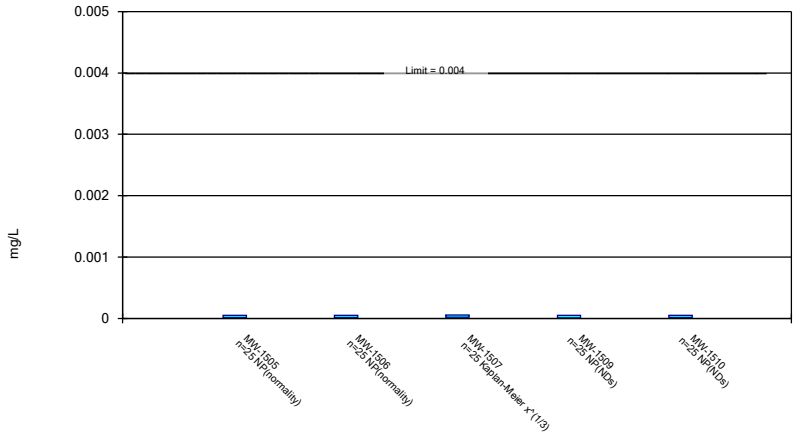


Constituent: Barium, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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.

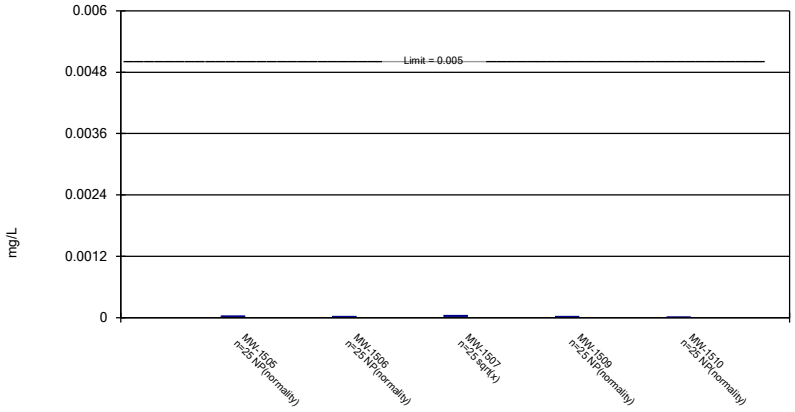


Constituent: Beryllium, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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.

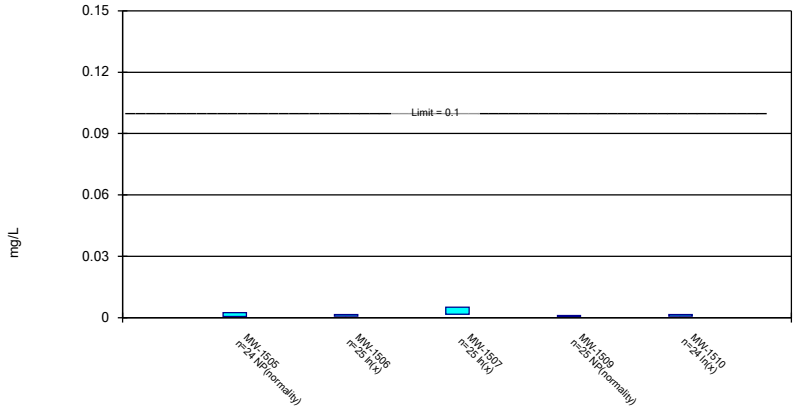


Constituent: Cadmium, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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.

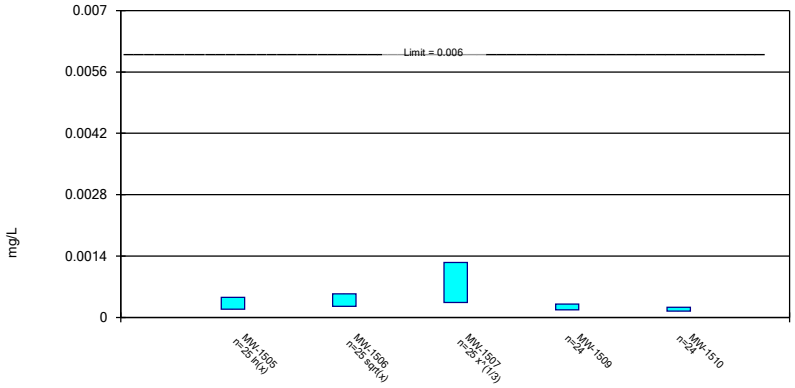


Constituent: Chromium, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Parametric Confidence Interval

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

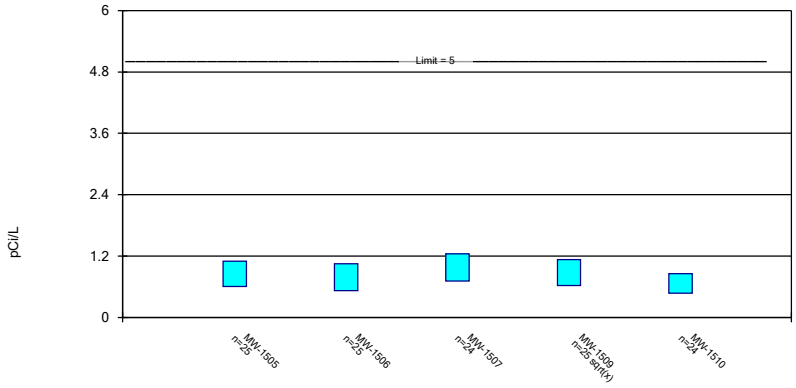


Constituent: Cobalt, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Parametric Confidence Interval

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

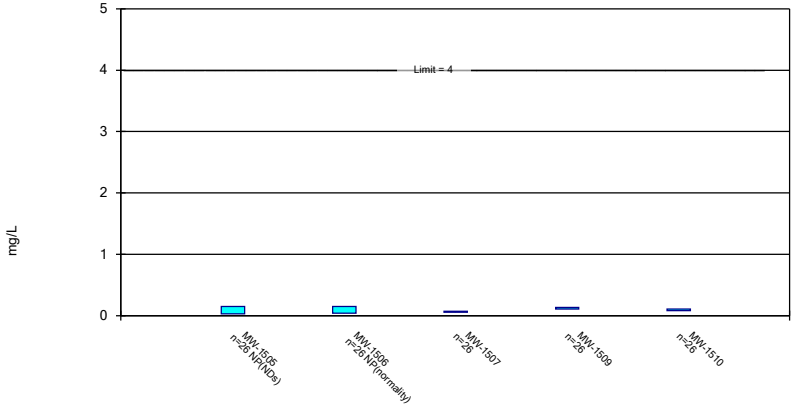


Constituent: Combined Radium 226 + 228 Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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.

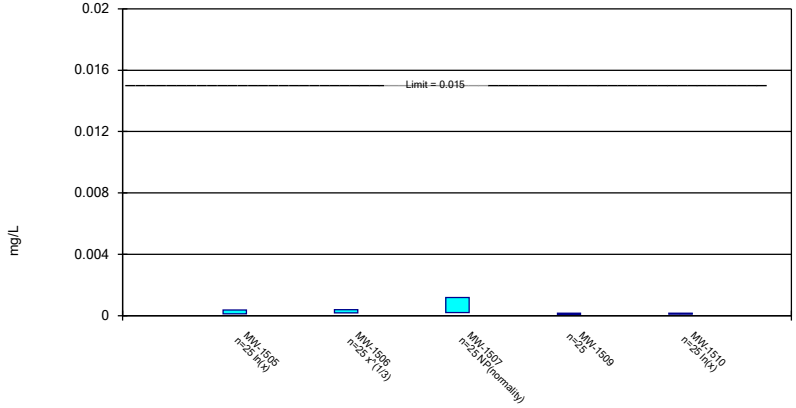


Constituent: Fluoride, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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.

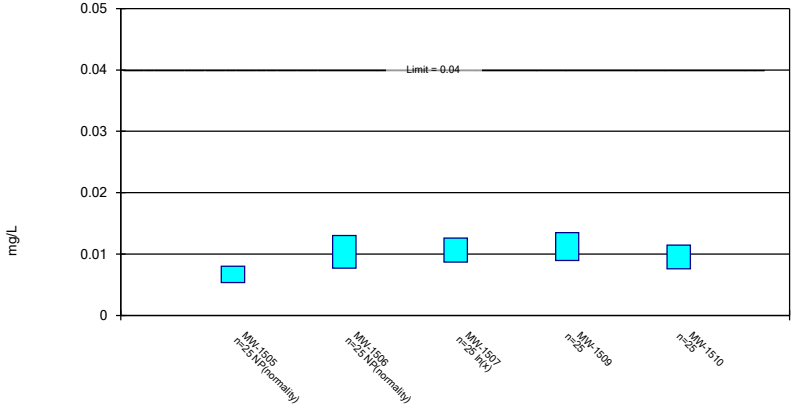


Constituent: Lead, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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.

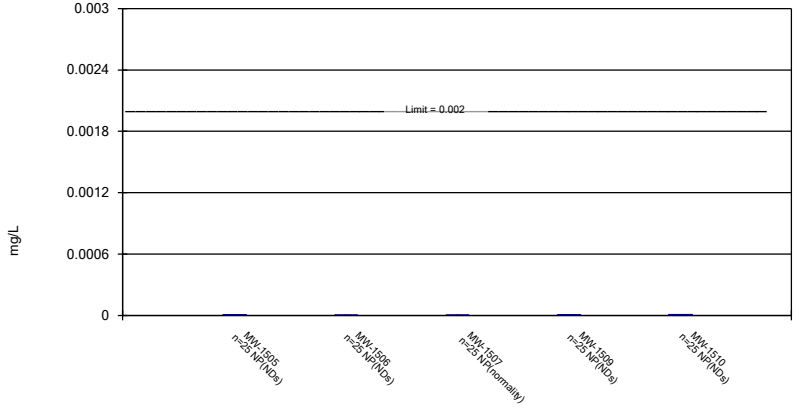


Constituent: Lithium, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Non-Parametric Confidence Interval

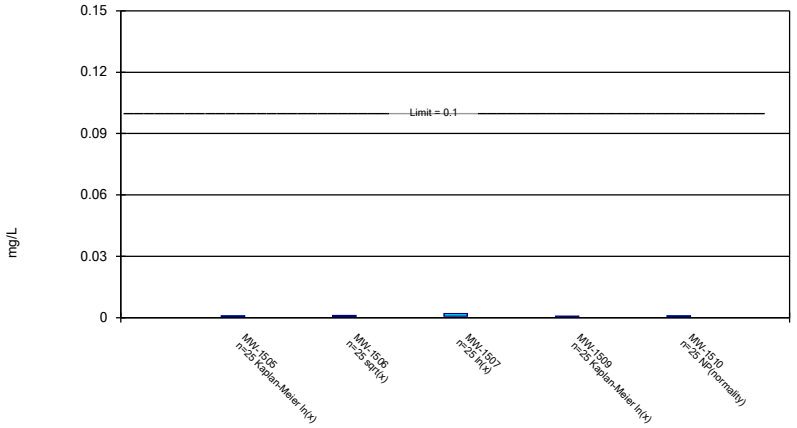
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Mercury, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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.

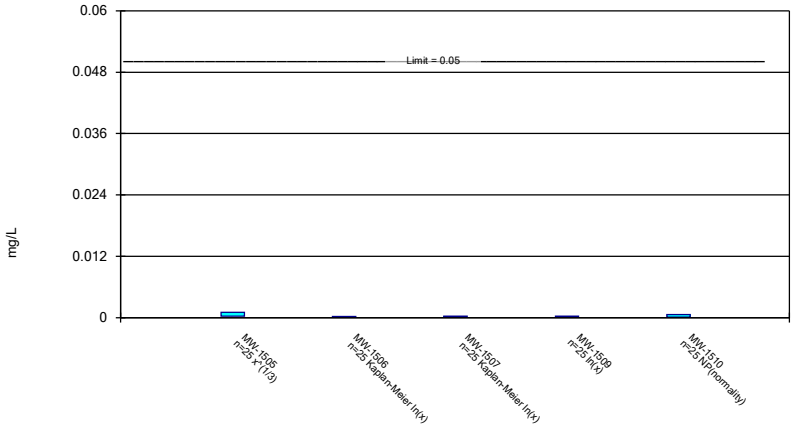


Constituent: Molybdenum, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

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.

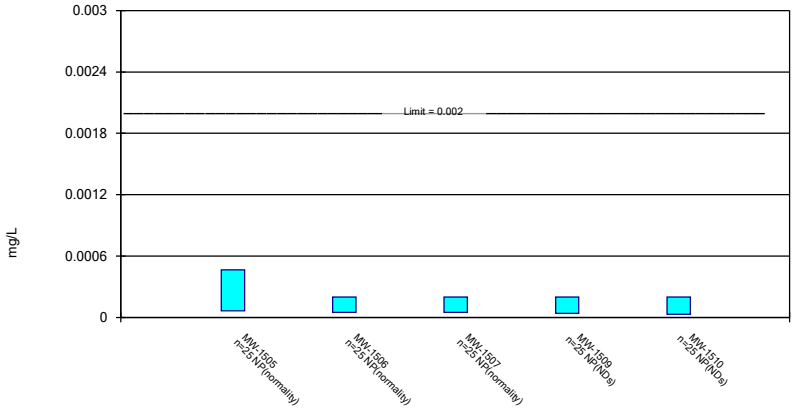


Constituent: Selenium, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Non-Parametric Confidence Interval

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



Constituent: Thallium, total Analysis Run 1/22/2024 4:12 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Geosyntec consultants

engineers | scientists | innovators

STATISTICAL ANALYSIS SUMMARY, BOTTOM ASH POND

Mitchell Plant

Moundsville, West Virginia

Prepared for

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Columbus, Ohio 43215-2372

Prepared by

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Worthington, Ohio 43085

Project Number: CHA8500B

July 17, 2024

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LIST OF ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

BAP	bottom ash pond
CCR	coal combustion residuals
CFR	code of federal regulations
GWPS	groundwater protection standard
LCL	lower confidence limit
mg/L	milligrams per liter
QA/QC	quality assurance/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

1. INTRODUCTION

In accordance with United States Environmental Protection Agency (USEPA) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (Code of Federal Regulations [CFR] Title 40, Section 257, Subpart D), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Mitchell Power Plant in Moundsville, West Virginia. Recent groundwater monitoring results were used to identify concentrations of Appendix IV constituents that are above the groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, calcium, chloride, and total dissolved solids (TDS), at the BAP (Geosyntec 2018). An alternative source was not identified following the detection monitoring events; thus, the BAP has been in assessment monitoring since 2018. During the most recent assessment monitoring event, completed in October 2023, Appendix III detections of sulfate were observed above background levels and the unit remained in assessment monitoring (Geosyntec 2024).

An annual sampling event for Appendix IV parameters required by 40 CFR 257.95(b) was completed in March 2024, and a semiannual sampling event for Appendix III and Appendix IV parameters required by 40 CFR 257.95(d)(1) was completed in April 2024. The results of these annual and semiannual assessment monitoring events are documented in this report.

Before the statistical analyses were conducted, 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 that would impact data usability were identified.

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 statistically significant levels (SSLs) above previously established GWPSs. No SSLs were identified; however, concentrations of Appendix III parameters remained above background. Therefore, the unit will remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

Samples were collected for analysis from each upgradient and downgradient well to meet the requirements of 40 CFR 257.95(b) in March 2024 and 40 CFR 257.95(d)(1) in April 2024 as part of the assessment monitoring program. Samples from the April 2024 sample event were analyzed for all Appendix III and Appendix IV parameters, whereas samples from the March 2024 event were analyzed for Appendix IV parameters only. A summary of data collected during these assessment monitoring events is presented in in Table 1.

Chemical analysis was completed by a National Environmental Laboratory Accreditation Program-certified analytical laboratory. The laboratory completed analysis of quality assurance and quality control (QA/QC) samples such as laboratory reagent blanks, continuing calibration verification samples, and laboratory fortified blanks.

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.10.0.16 statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues that would impact data usability were noted.

2.2 Statistical Analysis

Statistical analyses for the BAP 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 April 2024 were screened for potential outliers. No outliers were identified for these events.

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, nonparametric confidence limits were calculated in some cases (e.g., when the data were not normally distributed or when the nondetect 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). The calculated confidence limits (Attachment B) were compared to the GWPSs provided in Table 2. The GWPSs were established during a previous statistical analysis as either (a) the background concentration or (b) the maximum contaminant level and risk-based levels specified in 40 CFR 257.95(h)(2), whichever was greater (Geosyntec 2024).

No SSLs were identified at the Mitchell BAP.

2.2.2 Evaluation of Potential Appendix III SSIs

The Appendix III results was analyzed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the April 2024 assessment monitoring event from each compliance well were compared to

previously established prediction limits to assess whether the results were statistically above background values (Table 3). The SSIs above the upper prediction limits (UPLs) were noted:

- Sulfate concentrations were above the intrawell UPL of 408 milligrams per liter (mg/L) at MW-1505 (569 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (611 mg/L), the intrawell UPL of 373 mg/L at MW-1507 (533 mg/L), and the intrawell UPL of 492 mg/L at MW-1509 (614 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the April 2024 sample was above the UPL or, in the case of pH, below the lower prediction limit. 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

Annual and semiannual assessment monitoring events were 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 prevented data usage. A review of outliers identified no potential outliers in the March and April 2024 data. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval was above the GWPSs. No SSLs were identified. Appendix III results were compared to previously established prediction limits; concentrations of sulfate were identified above background levels at select downgradient wells.

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

3. REFERENCES

Geosyntec. 2018. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. Geosyntec Consultants, Inc. January.

Geosyntec. 2020. Statistical Analysis Plan – Mitchell Plant. Geosyntec Consultants, Inc. October.

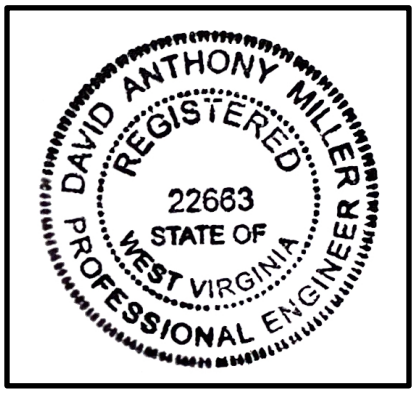
Geosyntec. 2024. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. Geosyntec Consultants, Inc. February.

TABLES

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Mitchell Bottom Ash Pond 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

22663	West Virginia	07.19.2024
License Number	Licensing State	Date

ATTACHMENT B
Statistical Analysis Output

Table 1. Groundwater Data Summary
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Parameter	Unit	MW-1504		MW-1505		MW-1506		MW-1507	
		3/7/2024	4/23/2024	3/11/2024	4/23/2024	3/7/2024	4/23/2024	3/7/2024	4/23/2024
Antimony	µg/L	0.030 J1	0.023 J1	0.079 J1	0.042 J1	0.030 J1	0.025 J1	0.031 J1	0.026 J1
Arsenic	µg/L	0.40	0.31	0.33	0.25	0.21	0.21	0.18	0.17
Barium	µg/L	32.1	30.3	23.6	23.2	25.1	24.5	25.0	24.3
Beryllium	µg/L	0.015 J1	0.008 J1	0.05 U1	0.05 U1	0.05 U1	0.05 U1	0.05 U1	0.05 U1
Boron	mg/L	--	3.55	--	4.88	--	4.15	--	4.86
Cadmium	µg/L	0.039	0.035	0.014 J1	0.011 J1	0.010 J1	0.005 J1	0.037	0.018 J1
Calcium	mg/L	--	229	--	219	--	206	--	208
Chloride	mg/L	--	182	--	209	--	208	--	215
Chromium	µg/L	0.42	0.39	0.39	0.39	0.41	0.57	0.34	0.47
Cobalt	µg/L	0.299	0.325	0.140	0.090	0.089	0.089	0.060	0.080
Combined Radium	pCi/L	0.22	1.08	0.28	0.83	0.46	0.76	0.41	0.66
Fluoride	mg/L	0.16	0.17	0.15 U1	0.15 U1	0.15 U1	0.07 J1	0.08	0.09
Lead	µg/L	0.33	0.20	0.19 J1	0.10 J1	0.2 U1	0.05 J1	0.06 J1	0.2 U1
Lithium	mg/L	0.00596	0.00598	0.00558	0.00572	0.00686	0.00725	0.00553	0.00570
Mercury	µg/L	0.005 U1	0.005 U1	0.0023	0.002 J1	0.005 U1	0.005 U1	0.005 U1	0.005 U1
Molybdenum	µg/L	0.3 J1	0.4 J1	0.5	0.1 J1	0.4 J1	0.5	0.6	0.4 J1
Selenium	µg/L	6.32	3.91	2.64	1.99	1.16	0.73	0.36 J1	0.30 J1
Sulfate	mg/L	--	654	--	569	--	611	--	533
Thallium	µg/L	0.02 J1	0.2 U1	0.04 J1	0.03 J1	0.02 J1	0.2 U1	0.03 J1	0.2 U1
Total Dissolved Solids	mg/L	--	1,460	--	1,300	--	1,380	--	1,310
pH	SU	7.0	7.1	7.3	7.4	7.3	7.3	7.3	7.3

Notes:
--: not sampled
J1: Estimated value. Parameter was detected in concentrations below the reporting limit.
mg/L: milligrams per liter
pCi/L: picocuries per liter
SU: standard unit
U1: Non-detect value. For statistical analysis, parameters that were not detected were replaced with the reporting limit.
µg/L: micrograms per liter

Table 1. Groundwater Data Summary
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Parameter	Unit	MW-1508		MW-1509		MW-1510	
		3/6/2024	4/24/2024	3/6/2024	4/23/2024	3/6/2024	4/24/2024
Antimony	µg/L	0.045 J1	0.015 J1	0.097 J1	0.024 J1	0.064 J1	0.021 J1
Arsenic	µg/L	0.24	0.21	0.19	0.19	0.23	0.18
Barium	µg/L	20.4	21.0	24.7	24.0	22.7	20.7
Beryllium	µg/L	0.05 U1	0.05 U1	0.05 U1	0.05 U1	0.05 U1	0.05 U1
Boron	mg/L	--	4.95 M1	--	4.98	--	4.52
Cadmium	µg/L	0.040	0.026	0.013 J1	0.007 J1	0.012 J1	0.02 U1
Calcium	mg/L	--	230 M1	--	193	--	115
Chloride	mg/L	--	156	--	203	--	157
Chromium	µg/L	0.38	0.30	0.29 J1	0.28 J1	0.34	0.31
Cobalt	µg/L	0.449	0.185	0.121	0.058	0.128	0.081
Combined Radium	pCi/L	0.81	0.46	0.43	1.09	0.68	1.03
Fluoride	mg/L	0.09	0.09	0.10 J1	0.13 J1	0.12 J1	0.12 J1
Lead	µg/L	0.12 J1	0.09 J1	0.2 U1	0.05 J1	0.06 J1	0.2 U1
Lithium	mg/L	0.00420	0.00447	0.00881	0.00910	0.00626	0.00632
Mercury	µg/L	0.005 U1	0.005	0.005 U1	0.005 U1	0.005	0.005 U1
Molybdenum	µg/L	0.3 J1	0.2 J1	0.3 J1	0.3 J1	0.3 J1	0.2 J1
Selenium	µg/L	0.86	0.89	0.07 J1	0.06 J1	2.28	2.11
Sulfate	mg/L	--	719	--	614	--	389
Thallium	µg/L	0.03 J1	0.02 J1	0.03 J1	0.2 U1	0.2 U1	0.2 U1
Total Dissolved Solids	mg/L	--	1,470	--	1,360	--	1,030
pH	SU	7.0	7.1	7.2	7.2	7.3	7.3

Notes:
--: not sampled
J1: Estimated value. Parameter was detected in concentrations below the reporting limit.
mg/L: milligrams per liter
pCi/L: picocuries per liter
SU: standard unit
U1: Non-detect value. For statistical analysis, parameters that were not detected were replaced with the reporting limit.
µg/L: micrograms per liter

Table 2: Appendix IV Groundwater Protection Standards
Statistical Analysis Summary
Mitchell Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600		0.000100	0.00600
Arsenic, Total (mg/L)	0.0100		0.00165	0.0100
Barium, Total (mg/L)	2.00		0.0541	2.00
Beryllium, Total (mg/L)	0.00400		0.0000600	0.00400
Cadmium, Total (mg/L)	0.00500		0.0000900	0.00500
Chromium, Total (mg/L)	0.100		0.00175	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.00233	0.00600
Combined Radium, Total (pCi/L)	5.00		1.88	5.00
Fluoride, Total (mg/L)	4.00		0.290	4.00
Lead, Total (mg/L)	n/a	0.0150	0.00266	0.0150
Lithium, Total (mg/L)	n/a	0.0400	0.0150	0.0400
Mercury, Total (mg/L)	0.00200		0.00000800	0.00200
Molybdenum, Total (mg/L)	n/a	0.100	0.00159	0.100
Selenium, Total (mg/L)	0.0500		0.01470	0.0500
Thallium, Total (mg/L)	0.00200		0.000200	0.00200

Notes:

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

CCR: Coal Combustion Residual

GWPS: Groundwater Protection Standard

MCL: Maximum Contaminant Level

mg/L: milligrams per liter

pCi/L: picocuries per liter

Table 3. Appendix III Data Summary
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Analyte	Unit	Description	MW-1505	MW-1506	MW-1507	MW-1509	MW-1510
			4/23/2024	4/23/2024	4/23/2024	4/23/2024	4/24/2024
Boron	mg/L	Interwell Background Value (UPL)	6.79				
		Analytical Result	4.88	4.15	4.86	4.98	4.52
Calcium	mg/L	Interwell Background Value (UPL)	259				
		Analytical Result	219	206	208	193	115
Chloride	mg/L	Interwell Background Value (UPL)	245				
		Analytical Result	209	208	215	203	157
Fluoride	mg/L	Intrawell Background Value (UPL)	0.150	0.150	0.0906	0.160	0.144
		Analytical Result	0.05	0.07	0.09	0.13	0.12
pH	SU	Interwell Background Value (UPL)	8.6				
		Interwell Background Value (LPL)	6.8				
		Analytical Result	7.4	7.3	7.3	7.2	7.3
Sulfate	mg/L	Intrawell Background Value (UPL)	408	369	373	492	523
		Analytical Result	**569**	**611**	**533**	**614**	389
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,670				
		Analytical Result	1,300	1,380	1,310	1,360	1,030

Notes:

1. Bold values exceed the background value.

2. Background values are shaded gray.

LPL: lower prediction limit

mg/L: milligrams per liter

SU: standard units

UPL: upper prediction limit

GROUNDWATER STATS CONSULTING

June 28, 2024

Geosyntec Consultants
Attn: Ms. Allison Kreinberg
500 W. Wilson Bridge Road, Suite 250
Worthington, OH 43085

RE: Mitchell Bottom Ash Pond (BAP)
Assessment Monitoring Summary – March & April 2024

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 for the March and April 2024 sample events for American Electric Power Company's Mitchell BAP. 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 United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling at each of the wells below began at Mitchell Bottom Ash Pond for the CCR program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** MW-1504 and MW-1508
- **Downgradient wells:** MW-1505, MW-1506, MW-1507, MW-1509, and MW-1510

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 Andrew Collins, Project Manager of GSC.

The CCR Assessment Monitoring 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 graphs and box plots for Appendix IV parameters are provided for all wells and constituents; and are used to evaluate concentrations over the entire record as well as to view variation within and across wells (Figures A and B). All data were initially screened for outliers and trends in December 2017.

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, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data for parametric tolerance limits. 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.

For all constituents, a substitution of the most recent reporting limit is used for non-detect data. In the time series plots, a single reporting limit substitution is used across all wells for a given parameter since the wells are plotted as a group. For calculating confidence intervals, the substitution is performed for individual wells and may differ across wells. This generally gives the most conservative limit in each case. Note that when there are no detections present in downgradient wells for a given constituent, statistical analyses are not required. All downgradient well/constituent pairs contained detected measurements

and were, therefore, analyzed in this report. If records contain 100% non-detects in future analyses, a summary of those well/constituent pairs will be provided.

Summary of Background Screening – Conducted in January 2024

Outlier Screening

Prior to evaluating Appendix IV parameters, upgradient well data were 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. Tukey's outlier test on pooled upgradient identified a low value for combined radium 226 + 228; however, this value was similar to several other observations upgradient of the facility and was not flagged. No new measurements among pooled upgradient well data were flagged during the update and visual screening with time series graphs confirmed previously flagged outliers for Appendix IV parameters.

Additionally, downgradient well data through October 2023 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. No new outliers among downgradient wells were flagged during the update. All flagged values may be seen on the Outlier Summary following this letter (Figure C).

Interwell Upper Tolerance Limits

Interwell upper tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data through October 2023 for the Appendix IV constituents discussed above (Figure D). These limits are updated on an annual basis and will be updated again during the Fall 2024 sample event. Parametric tolerance limits are calculated, with a target of 95% confidence and 95% coverage, when data follow a normal or transformed-normal distribution such as for barium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, molybdenum, and selenium. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

These limits were compared to the Maximum Contaminant Levels (MCLs) and the CCR-Rule specified levels in the Groundwater Protection Standards (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 on an annual basis at the end of each year.

Evaluation of Appendix IV Parameters – March & April 2024

Prior to evaluating Appendix IV parameters, background data are screened through visual screening for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits. No additional values were flagged as outliers during this analysis.

Confidence Intervals

Confidence intervals were then constructed on downgradient wells with data through April 2024 for each of the Appendix IV parameters using the highest limit of the MCL or background limit as discussed above for the GWPS (Figure F). As mentioned above, the most recent reporting limit is substituted for historical non-detects within a given well, and the reporting limits vary among individual wells. These intervals were constructed as either parametric or nonparametric confidence intervals depending on the data distribution and percentage of non-detects.

When data followed a normal or transformed-normal distribution, parametric confidence intervals were used for Appendix IV parameters. Nonparametric confidence intervals, which use the largest and smallest order statistics depending on the sample size as interval limits, were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available.

Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. A summary of the confidence interval results follows this letter and no exceedances were identified.

Trend Test Evaluation – Appendix IV

When confidence interval exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable at the 95% confidence level. Utilizing the 95% confidence level for trend tests readily identifies significant trends and is more sensitive than the 99% confidence level without drastically increasing the false negative rate. Upgradient wells are included in the trend analyses for all parameters found to exceed their prediction limit in downgradient wells. When similar patterns exist upgradient of the site, it is an indication of variability in groundwater which may be unrelated to practices at the site. Since no exceedances were identified, no trend tests were required.

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

For Groundwater Stats Consulting,

Tristan Clark
Groundwater Analyst

Andrew Collins
Project Manager

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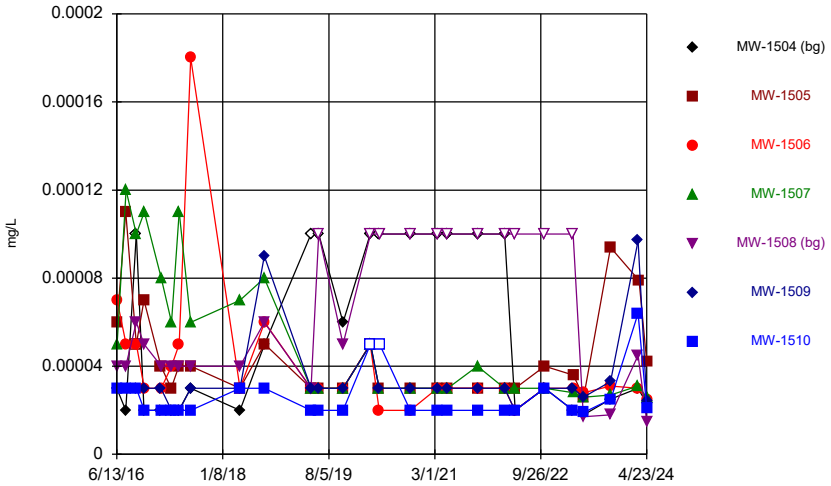
Hollow symbols indicate censored values.

Time Series



Constituent: Antimony, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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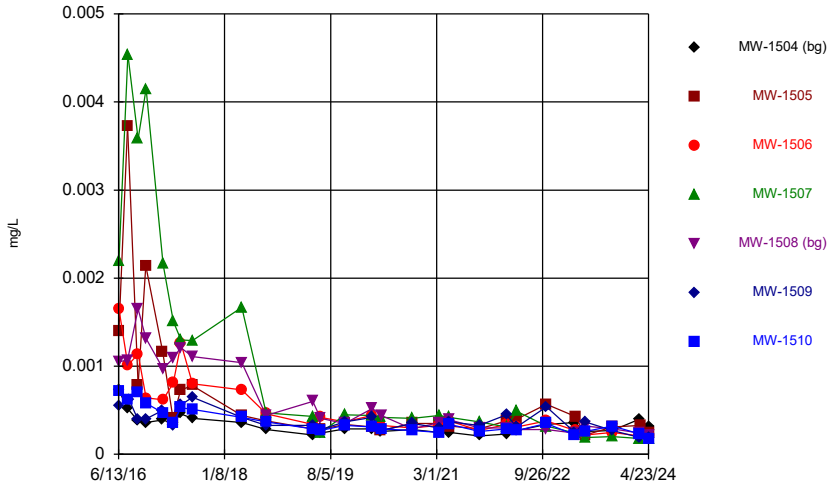
Time Series



Constituent: Arsenic, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
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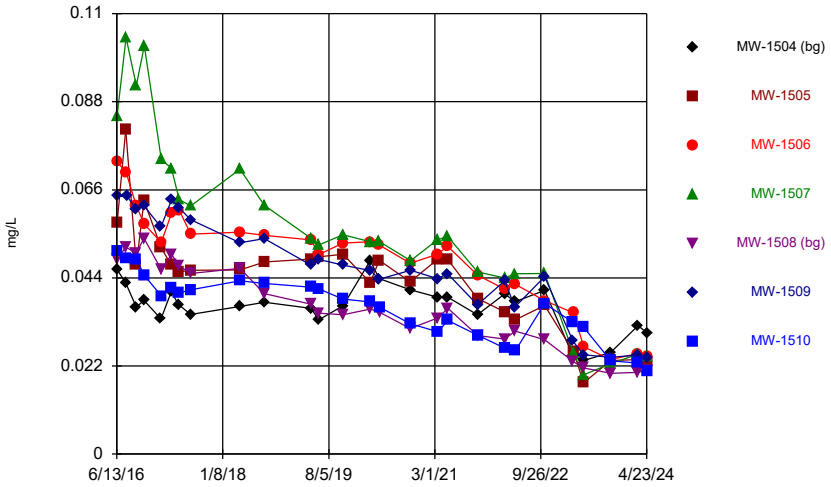
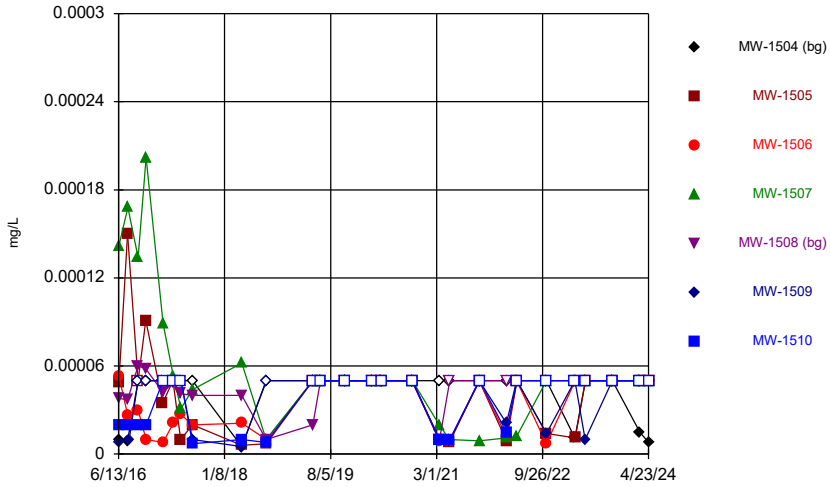
Time Series



Constituent: Barium, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

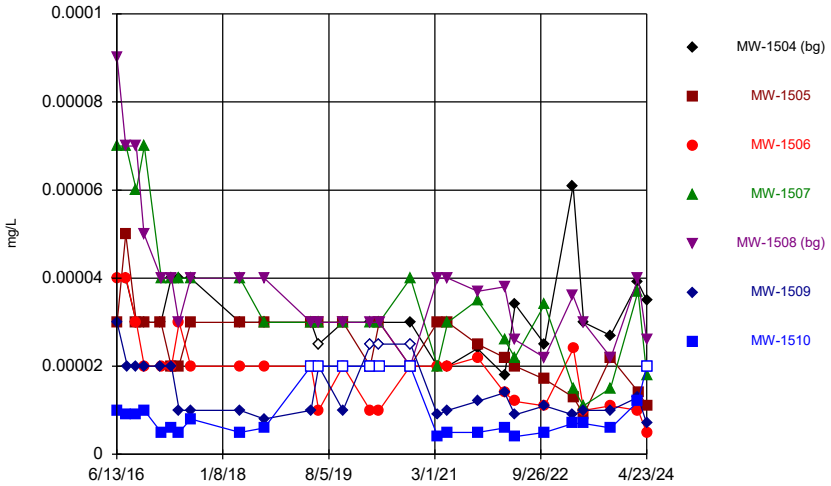
Time Series



Constituent: Beryllium, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

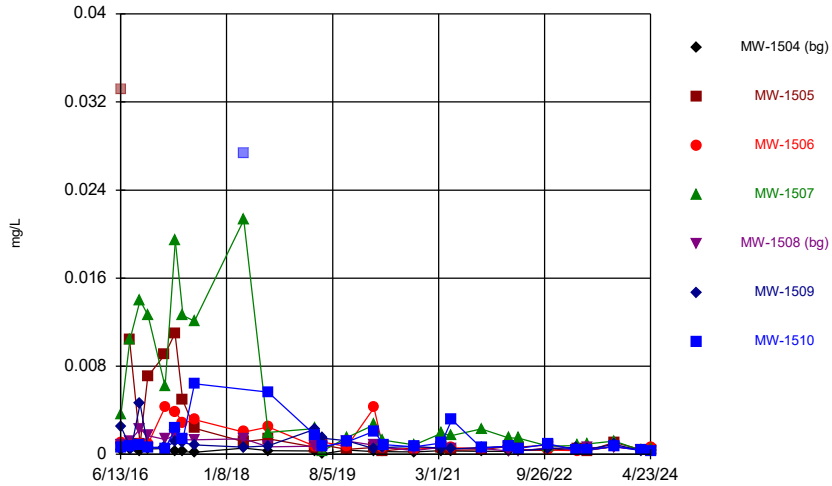
Time Series



Constituent: Cadmium, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG

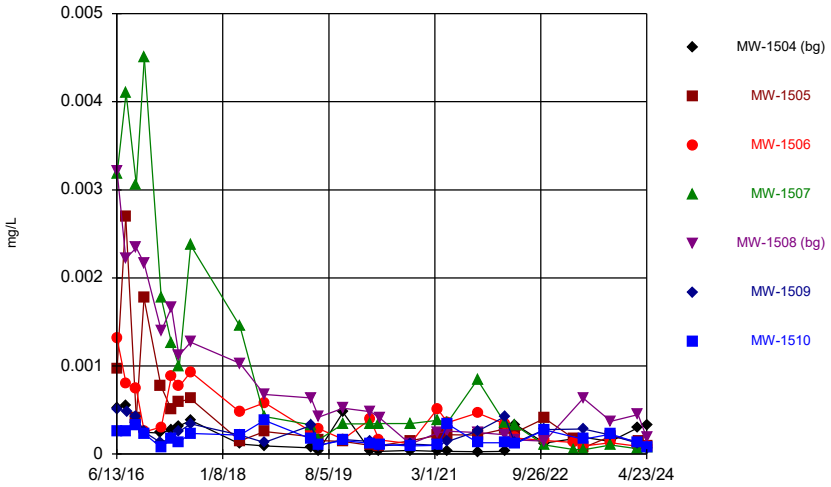
Time Series



Constituent: Chromium, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG

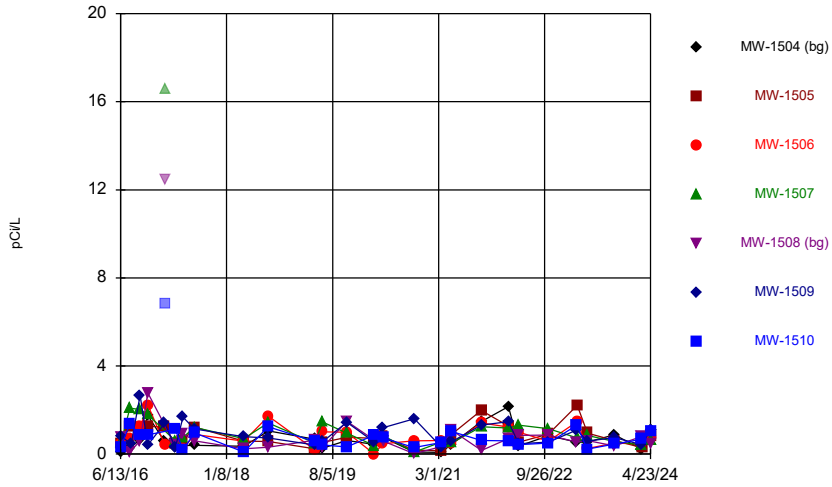
Time Series



Constituent: Cobalt, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG

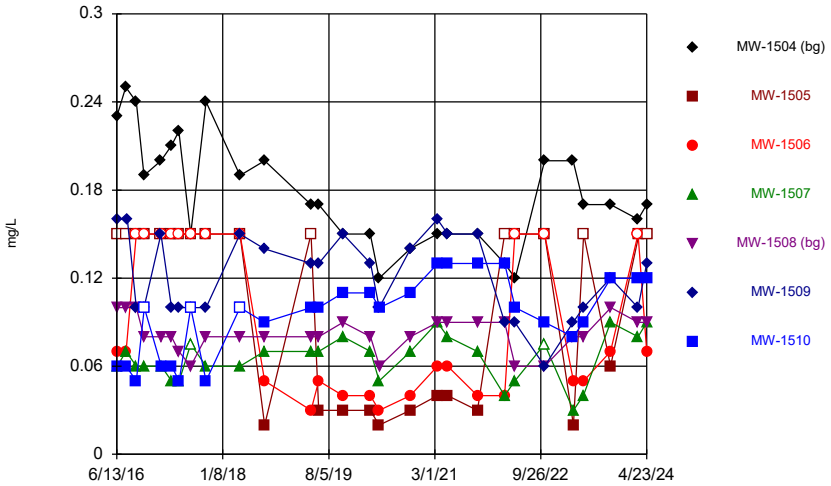
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

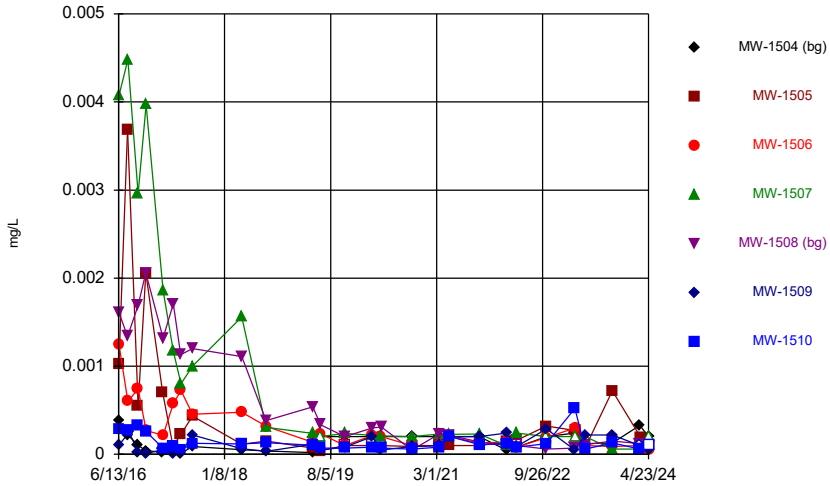
Time Series



Constituent: Fluoride, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

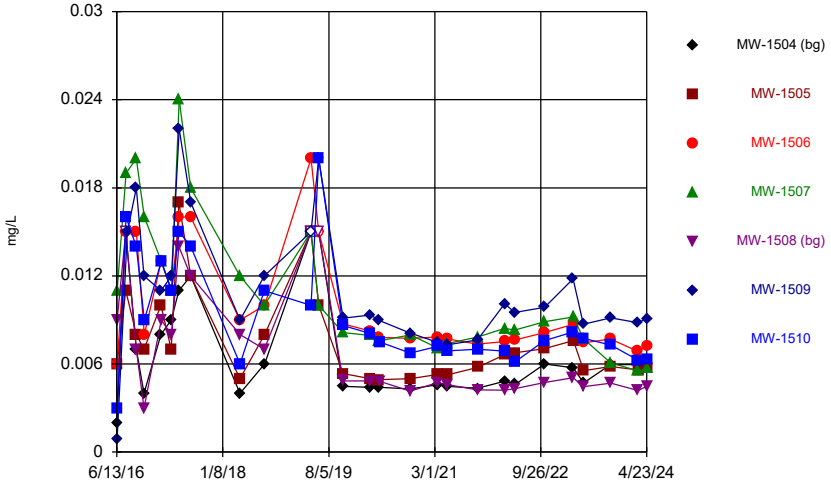
Time Series



Constituent: Lead, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

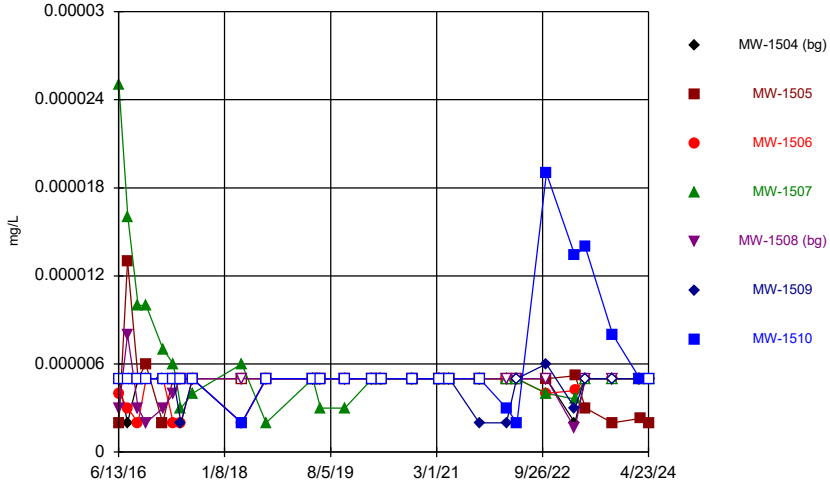
Time Series



Constituent: Lithium, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

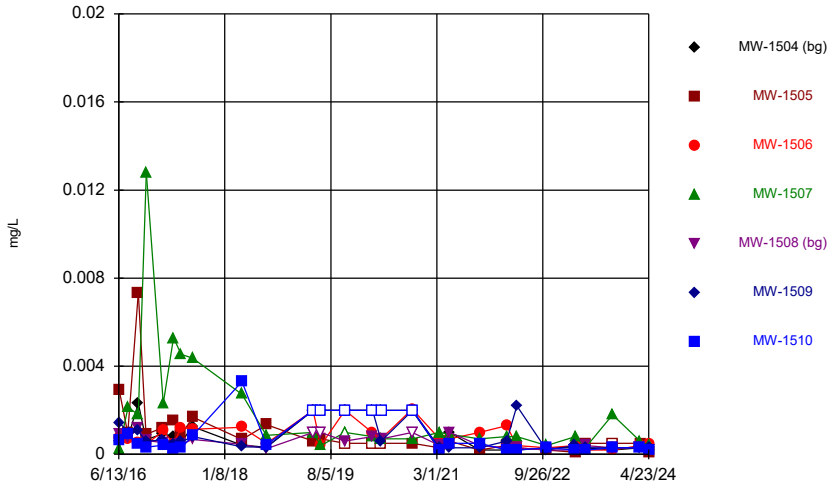
Time Series



Constituent: Mercury, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

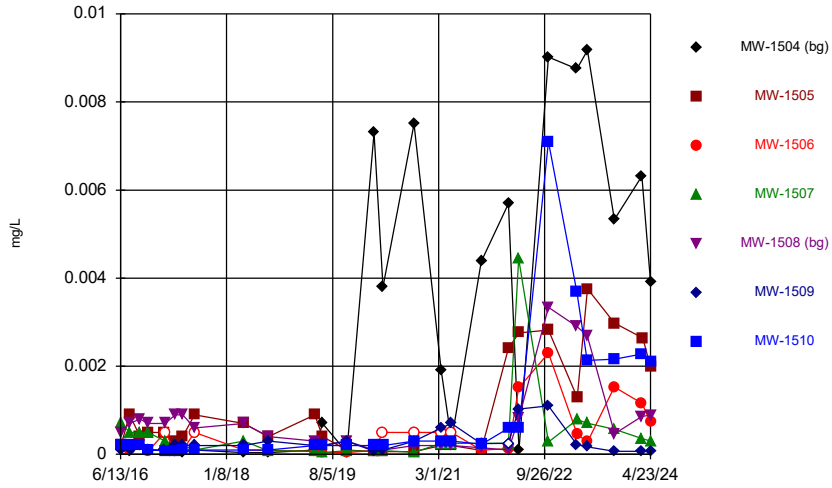
Time Series



Constituent: Molybdenum, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

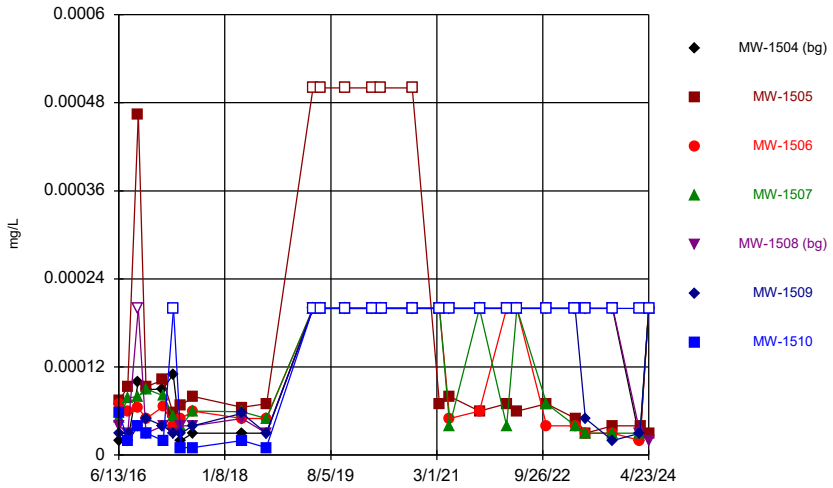
Time Series



Constituent: Selenium, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

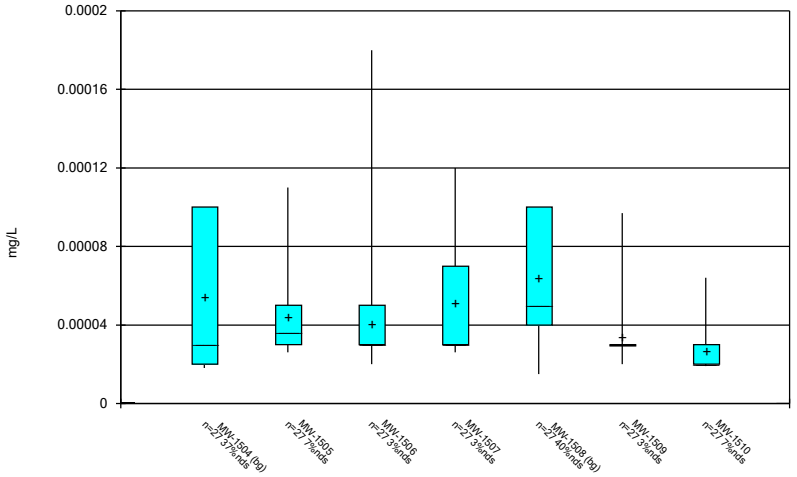
Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Time Series



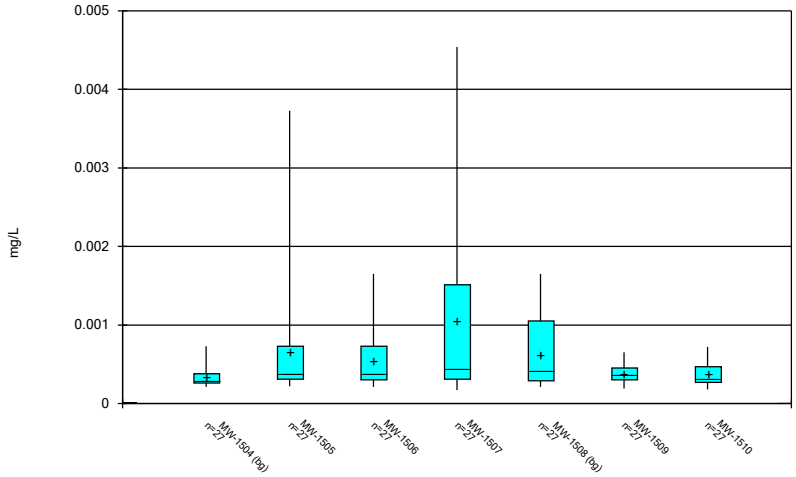
Constituent: Thallium, total Analysis Run 6/26/2024 7:41 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



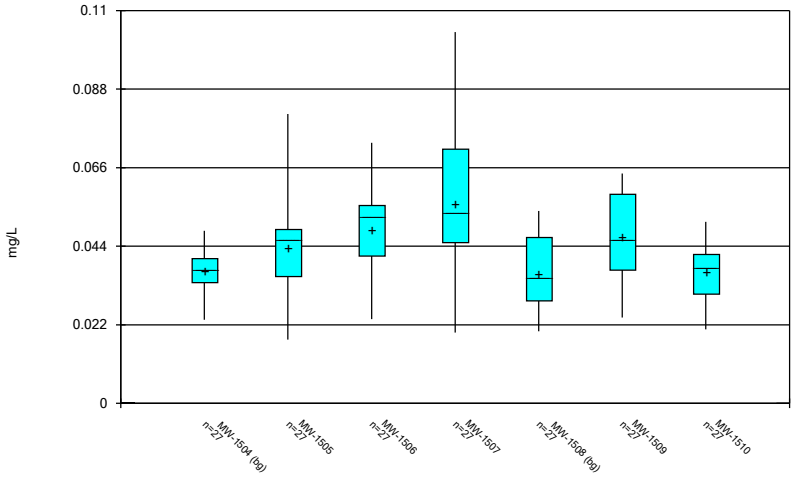
Constituent: Antimony, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



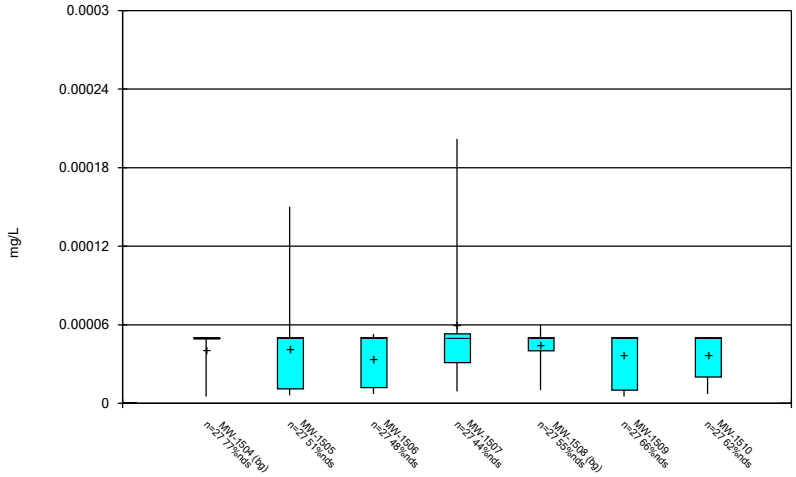
Constituent: Arsenic, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



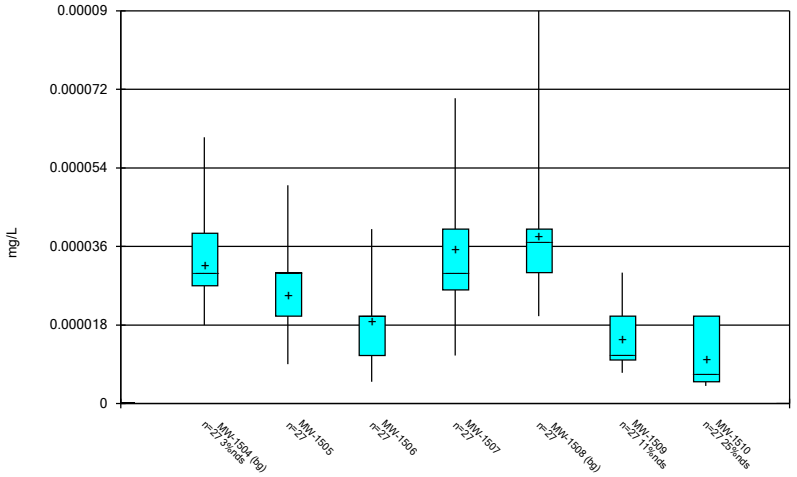
Constituent: Barium, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



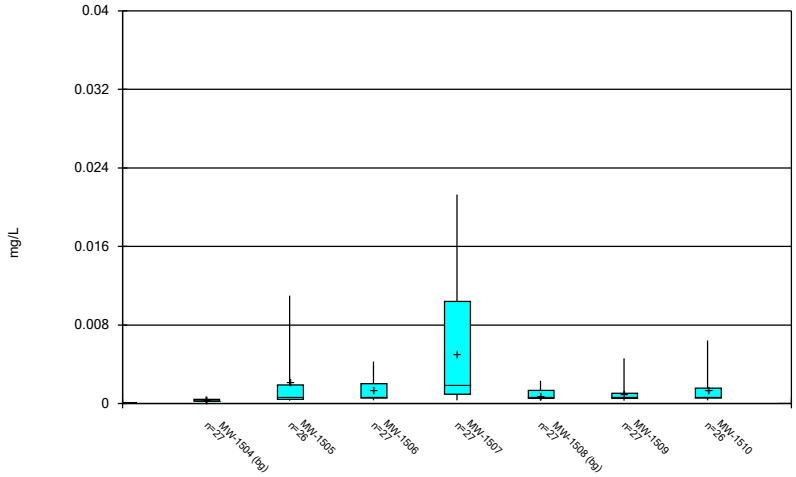
Constituent: Beryllium, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



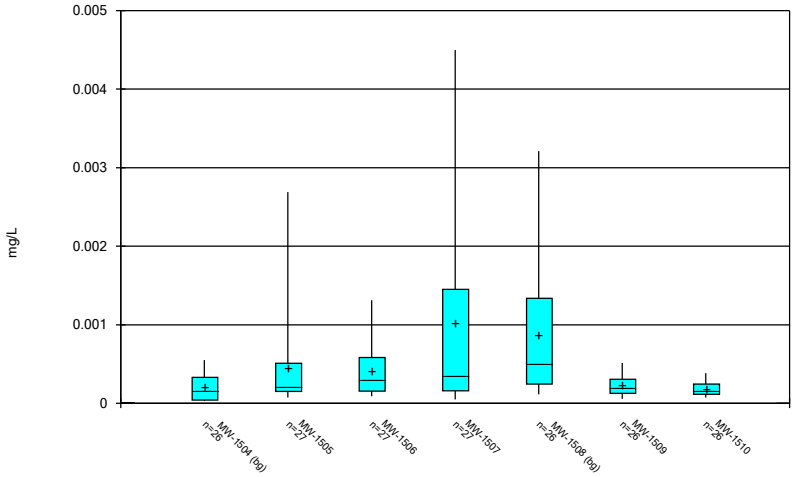
Constituent: Cadmium, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



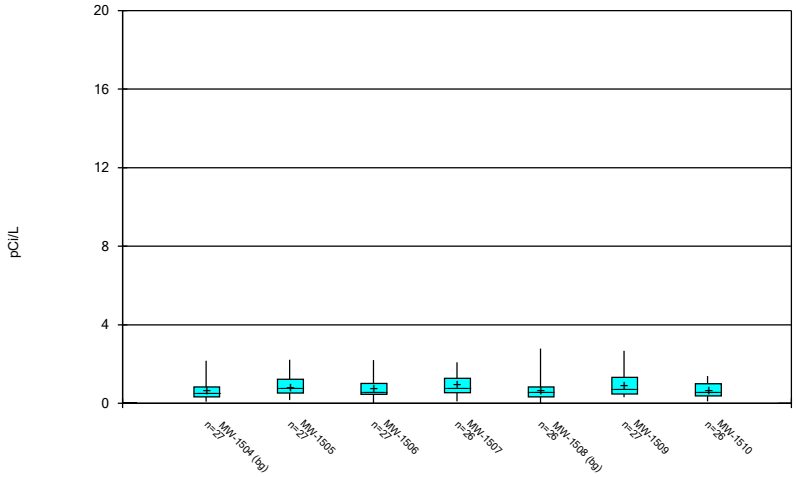
Constituent: Chromium, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



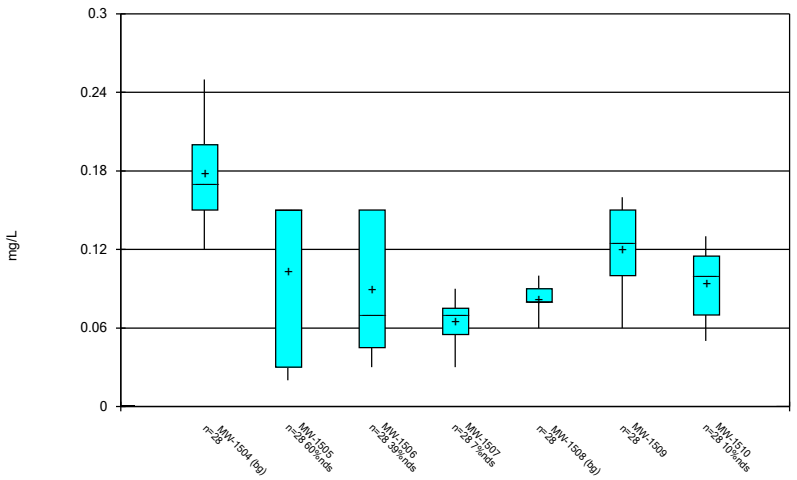
Constituent: Cobalt, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



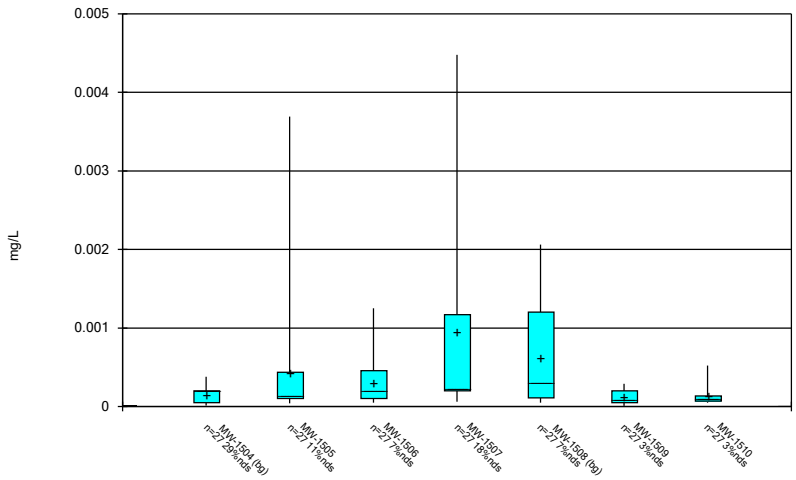
Constituent: Combined Radium 226 + 228 Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



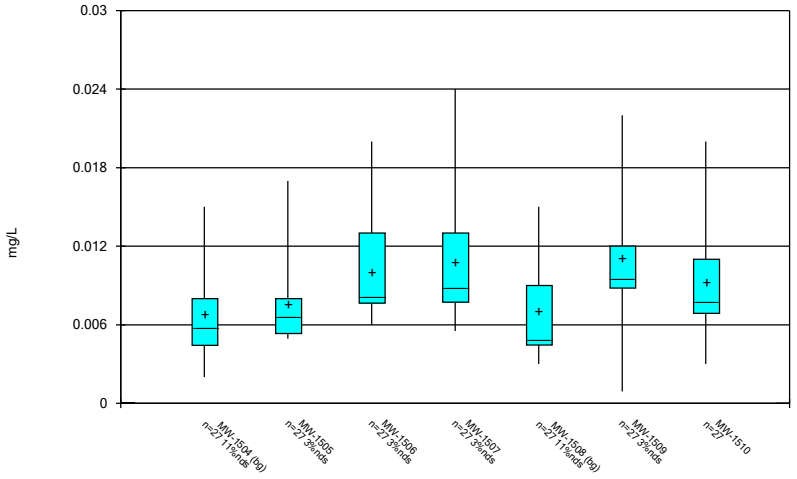
Constituent: Fluoride, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



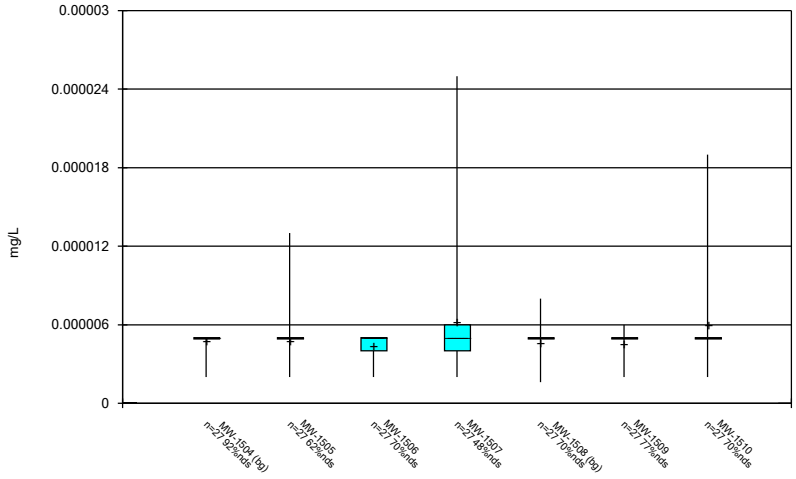
Constituent: Lead, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



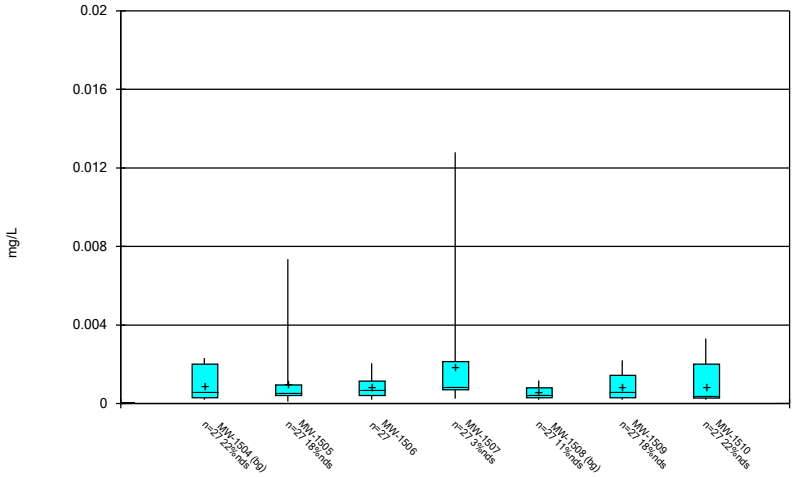
Constituent: Lithium, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Mercury, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Molybdenum, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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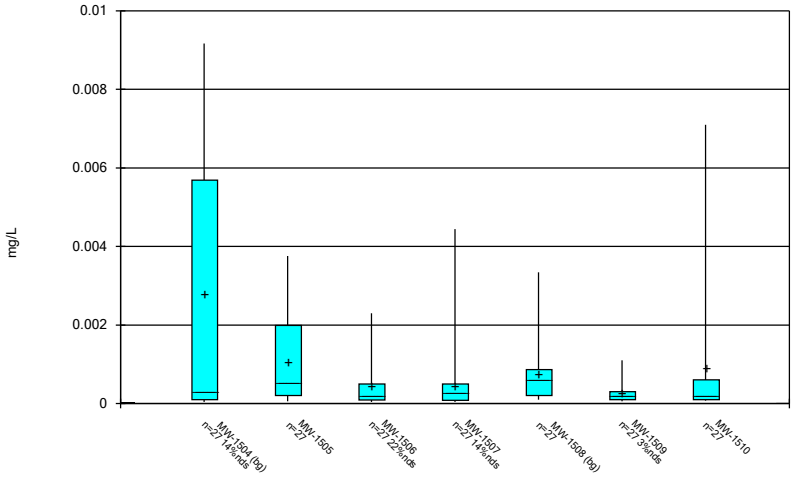
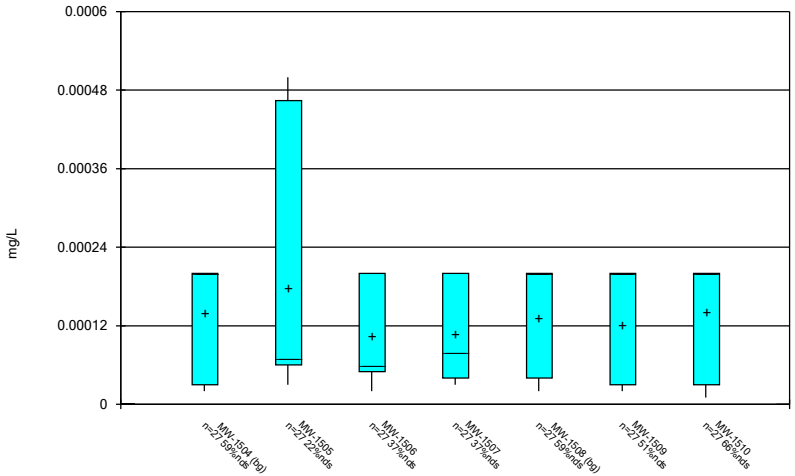
Box & Whiskers Plot



Constituent: Selenium, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.16 Software licensed to Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 6/26/2024 7:42 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Outlier Summary

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 6/26/2024, 7:50 PM

	MW-1505 Chromium, total (mg/L)	MW-1510 Chromium, total (mg/L)	MW-1507 Combined Radium 226 + 228 (pCi/L)	MW-1508 Combined Radium 226 + 228 (pCi/L)	MW-1510 Combined Radium 226 + 228 (pCi/L)
6/14/2016	0.0332 (o)				
2/8/2017			16.587 (o)	12.465 (o)	6.828 (o)
4/12/2018		0.0274 (o)			

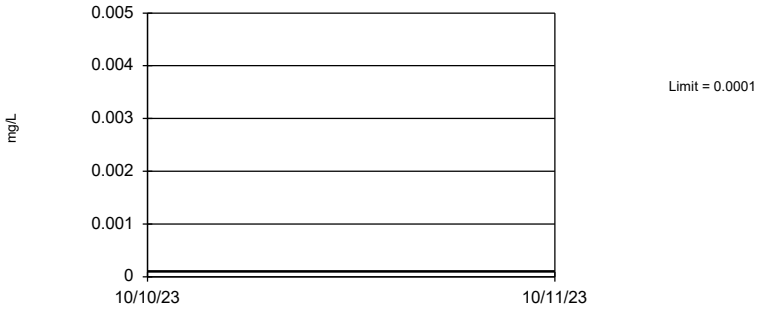
Upper Tolerance Limits Summary Table

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/22/2024, 4:09 PM

Constituent	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony, total (mg/L)	0.0001	n/a	n/a	n/a	n/a	50	42	n/a	0.07694	NP Inter(normality)
Arsenic, total (mg/L)	0.00165	n/a	n/a	n/a	n/a	50	0	n/a	0.07694	NP Inter(normality)
Barium, total (mg/L)	0.05411	n/a	n/a	n/a	n/a	50	0	No	0.05	Inter
Beryllium, total (mg/L)	0.00006	n/a	n/a	n/a	n/a	50	68	n/a	0.07694	NP Inter(NDs)
Cadmium, total (mg/L)	0.00009	n/a	n/a	n/a	n/a	50	2	n/a	0.07694	NP Inter(normality)
Chromium, total (mg/L)	0.001753	n/a	n/a	n/a	n/a	50	0	x^(1/3)	0.05	Inter
Cobalt, total (mg/L)	0.00233	n/a	n/a	n/a	n/a	48	0	x^(1/3)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	1.878	n/a	n/a	n/a	n/a	49	0	sqrt(x)	0.05	Inter
Fluoride, total (mg/L)	0.2899	n/a	n/a	n/a	n/a	52	0	ln(x)	0.05	Inter
Lead, total (mg/L)	0.002657	n/a	n/a	n/a	n/a	50	20	ln(x)	0.05	Inter
Lithium, total (mg/L)	0.015	n/a	n/a	n/a	n/a	50	12	n/a	0.07694	NP Inter(normality)
Mercury, total (mg/L)	0.000008	n/a	n/a	n/a	n/a	50	82	n/a	0.07694	NP Inter(NDs)
Molybdenum, total (mg/L)	0.001591	n/a	n/a	n/a	n/a	50	18	ln(x)	0.05	Inter
Selenium, total (mg/L)	0.01466	n/a	n/a	n/a	n/a	50	8	ln(x)	0.05	Inter
Thallium, total (mg/L)	0.0002	n/a	n/a	n/a	n/a	50	62	n/a	0.07694	NP Inter(NDs)

Tolerance Limit

Interwell Non-parametric



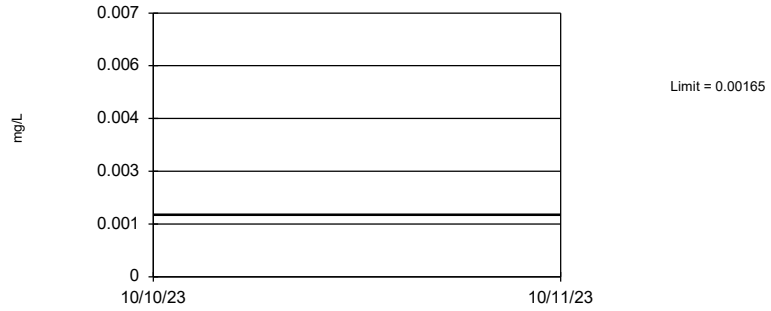
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 42% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Antimony, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



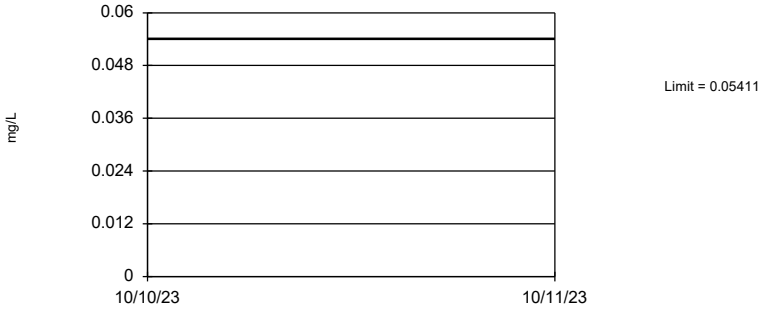
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Arsenic, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



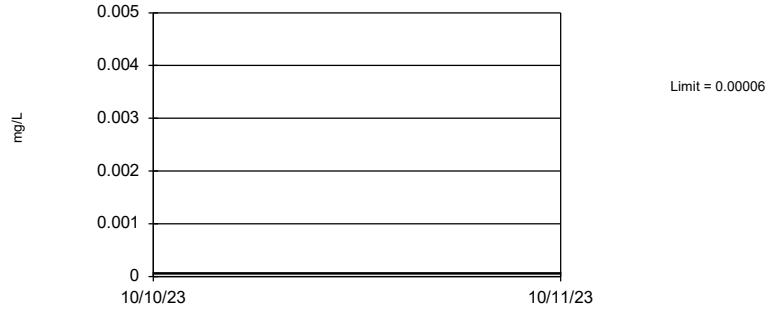
95% coverage. Background Data Summary: Mean=0.03746, Std. Dev.=0.008062, n=50. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.983, critical = 0.935. Report alpha = 0.05.

Constituent: Barium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



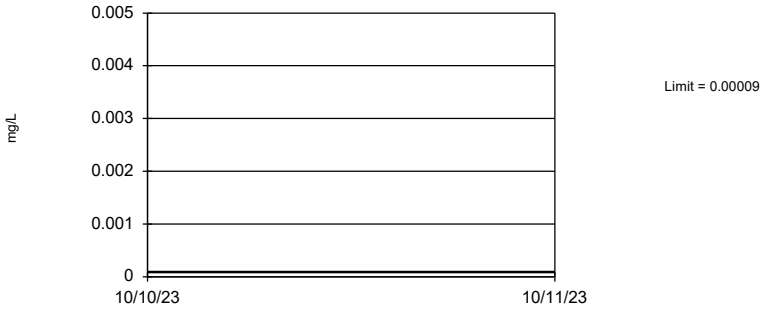
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 50 background values. 68% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Beryllium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



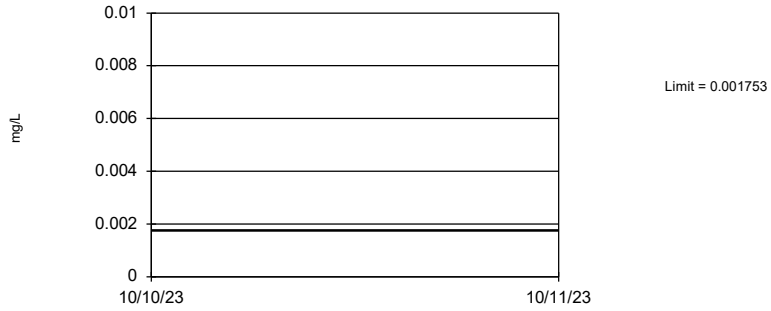
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 2% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Cadmium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



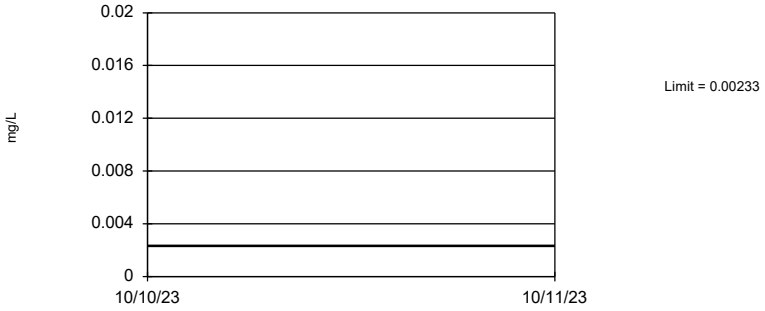
95% coverage. Background Data Summary (based on cube root transformation): Mean=0.08129, Std. Dev.=0.01903, n=50. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9397, critical = 0.935. Report alpha = 0.05.

Constituent: Chromium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



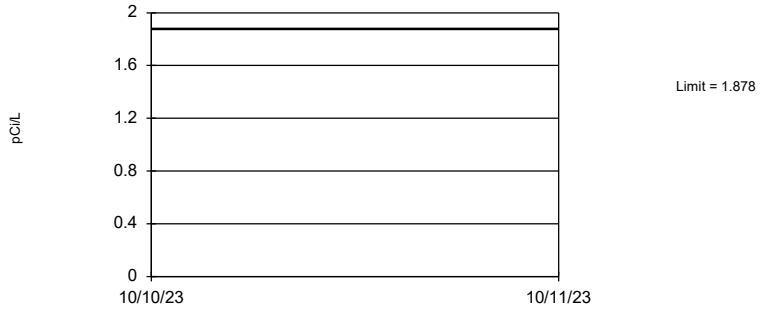
95% coverage. Background Data Summary (based on cube root transformation): Mean=0.07068, Std. Dev.=0.02982, n=48. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9303, critical = 0.929. Report alpha = 0.05.

Constituent: Cobalt, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric

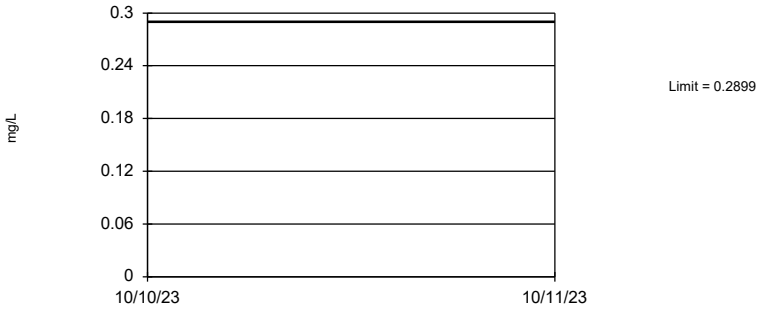


95% coverage. Background Data Summary (based on square root transformation): Mean=0.7503, Std. Dev.=0.2994, n=49. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9577, critical = 0.929. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric



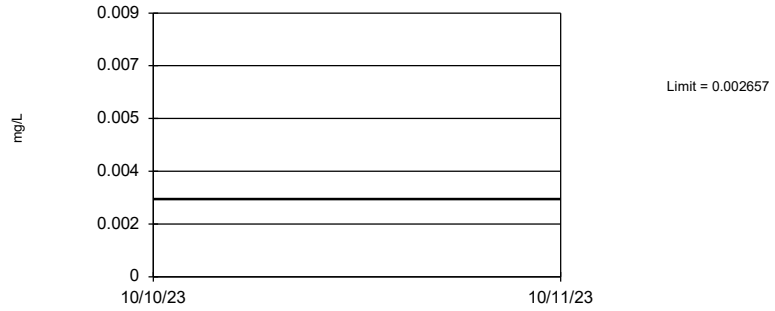
95% coverage. Background Data Summary (based on natural log transformation): Mean=-2.129, Std. Dev.=0.4341, n=52. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9386, critical = 0.937. Report alpha = 0.05.

Constituent: Fluoride, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



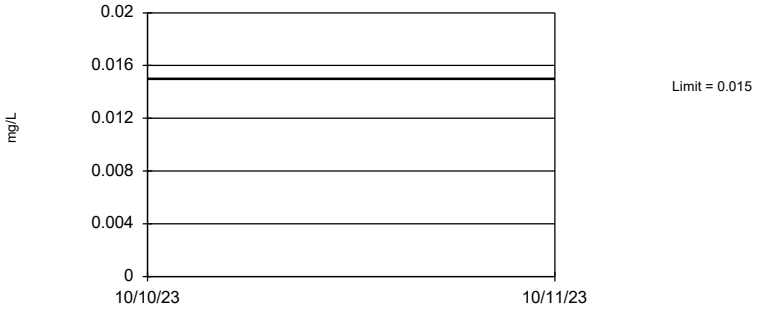
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-8.9, Std. Dev.=1.438, n=50, 20% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9611, critical = 0.935. Report alpha = 0.05.

Constituent: Lead, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. 12% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Lithium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric

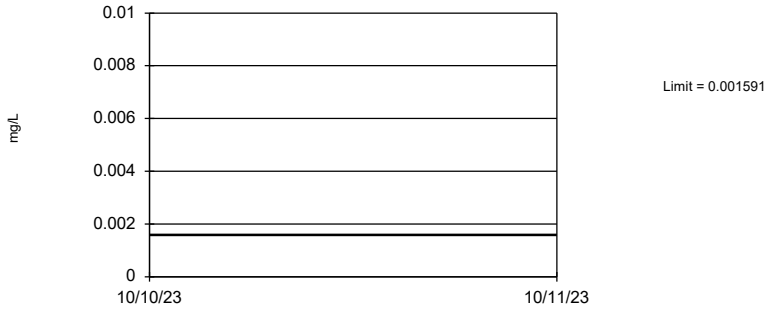
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 50 background values. 82% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Mercury, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



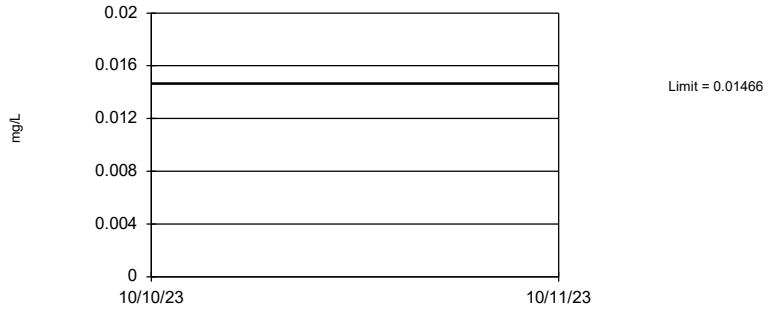
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-7.793, Std. Dev.=0.6537, n=50, 18% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9433, critical = 0.935. Report alpha = 0.05.

Constituent: Molybdenum, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Parametric



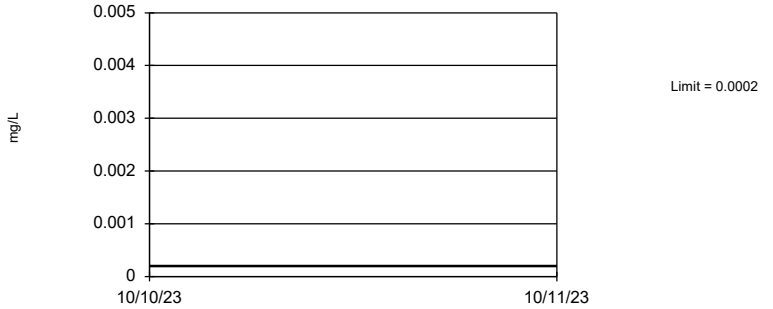
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.643, Std. Dev.=1.656, n=50, 8% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9503, critical = 0.935. Report alpha = 0.05.

Constituent: Selenium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.15 . UG

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 50 background values. 62% NDs. 91.21% coverage at alpha=0.01; 94.34% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.07694.

Constituent: Thallium, total Analysis Run 1/22/2024 4:06 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

MITCHELL BAP GWPS				
Constituent Name	**Compliance Limit**	**CCR-Rule Specified**	**Background Limit**	**GWPS**
Antimony, Total (mg/L)	0.006		0.0001	0.006
Arsenic, Total (mg/L)	0.01		0.0017	0.01
Barium, Total (mg/L)	2		0.054	2
Beryllium, Total (mg/L)	0.004		0.00006	0.004
Cadmium, Total (mg/L)	0.005		0.00009	0.005
Chromium, Total (mg/L)	0.1		0.0018	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0023	0.006
Combined Radium, Total (pCi/L)	5		1.88	5
Fluoride, Total (mg/L)	4		0.29	4
Lead, Total (mg/L)	n/a	0.015	0.0027	0.015
Lithium, Total (mg/L)	n/a	0.04	0.015	0.04
Mercury, Total (mg/L)	0.002		0.000008	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.0016	0.1
Selenium, Total (mg/L)	0.05		0.015	0.05
Thallium, Total (mg/L)	0.002		0.0002	0.002

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 6/26/2024, 7:49 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	MW-1505	0.00005	0.00003	0.006	No	27	0.00004396	0.00002142	7.407	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1506	0.00005	0.000028	0.006	No	27	0.00004015	0.00003054	3.704	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1507	0.00007	0.00003	0.006	No	27	0.00005067	0.00003014	3.704	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1509	0.000033	0.000026	0.006	No	27	0.00003407	0.00001798	3.704	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1510	0.00003	0.00002	0.006	No	27	0.00002626	0.00001127	7.407	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1505	0.00073	0.00031	0.01	No	27	0.0006537	0.0007478	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1506	0.0005924	0.0003412	0.01	No	27	0.0005367	0.000365	0	None	ln(x)	0.01	Param.
Arsenic, total (mg/L)	MW-1507	0.00151	0.00031	0.01	No	27	0.001059	0.00125	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1509	0.0004411	0.0003248	0.01	No	27	0.000383	0.0001218	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW-1510	0.0004265	0.0002956	0.01	No	27	0.0003707	0.0001482	0	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	MW-1505	0.04982	0.03695	2	No	27	0.04339	0.01349	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1506	0.05493	0.04243	2	No	27	0.04868	0.0131	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1507	0.0666	0.04496	2	No	27	0.05578	0.02268	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1509	0.05266	0.04018	2	No	27	0.04642	0.01308	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1510	0.0404	0.03257	2	No	27	0.03649	0.008213	0	None	No	0.01	Param.
Beryllium, total (mg/L)	MW-1505	0.00005	0.000011	0.004	No	27	0.00004148	0.00003044	51.85	None	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW-1506	0.00005	0.000012	0.004	No	27	0.00003381	0.00001823	48.15	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW-1507	0.000053	0.000031	0.004	No	27	0.00005915	0.00004848	44.44	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW-1509	0.00005	0.000014	0.004	No	27	0.00003693	0.00001901	66.67	None	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW-1510	0.00005	0.00002	0.004	No	27	0.00003667	0.00001801	62.96	None	No	0.01	NP (NDs)
Cadmium, total (mg/L)	MW-1505	0.00003	0.00002	0.005	No	27	0.00002493	0.000008489	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW-1506	0.00002212	0.00001415	0.005	No	27	0.00001885	0.000008708	0	None	sqrt(x)	0.01	Param.
Cadmium, total (mg/L)	MW-1507	0.00004133	0.00002669	0.005	No	27	0.0000353	0.00001613	0	None	sqrt(x)	0.01	Param.
Cadmium, total (mg/L)	MW-1509	0.00002	0.00001	0.005	No	27	0.0000147	0.000006574	11.11	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW-1510	0.000012	0.000005	0.005	No	27	0.00001015	0.000006243	25.93	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1505	0.0014	0.00045	0.1	No	26	0.00223	0.0033	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1506	0.00201	0.00055	0.1	No	27	0.001335	0.001256	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1507	0.004433	0.001349	0.1	No	27	0.005059	0.006201	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW-1509	0.001024	0.000556	0.1	No	27	0.0009615	0.0009007	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW-1510	0.001384	0.0006366	0.1	No	26	0.001363	0.001534	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1505	0.0004194	0.0001783	0.006	No	27	0.0004387	0.0005762	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1506	0.0004999	0.0002318	0.006	No	27	0.0004069	0.0003171	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1507	0.001115	0.0002965	0.006	No	27	0.001026	0.001295	0	None	x^(1/3)	0.01	Param.
Cobalt, total (mg/L)	MW-1509	0.0002889	0.0001643	0.006	No	26	0.0002266	0.0001278	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW-1510	0.0002237	0.0001404	0.006	No	26	0.000182	0.00008553	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1505	1.066	0.5942	5	No	27	0.8299	0.494	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1506	1.018	0.5308	5	No	27	0.7742	0.5104	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1507	1.194	0.6919	5	No	26	0.9427	0.5146	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1509	1.102	0.6284	5	No	27	0.9188	0.5504	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1510	0.8577	0.5027	5	No	26	0.6802	0.3642	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1505	0.15	0.04	4	No	28	0.1036	0.05921	60.71	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	MW-1506	0.15	0.05	4	No	28	0.08964	0.05059	39.29	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW-1507	0.07222	0.05778	4	No	28	0.065	0.01546	7.143	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1509	0.1336	0.1079	4	No	28	0.1207	0.02748	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1510	0.107	0.08228	4	No	28	0.09464	0.02646	10.71	None	No	0.01	Param.
Lead, total (mg/L)	MW-1505	0.000434	0.0001	0.015	No	27	0.0004373	0.0007763	11.11	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW-1506	0.0003511	0.000155	0.015	No	27	0.0003	0.0002768	7.407	None	x^(1/3)	0.01	Param.
Lead, total (mg/L)	MW-1507	0.00117	0.0002	0.015	No	27	0.0009417	0.001343	18.52	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW-1509	0.0001428	0.00006304	0.015	No	27	0.0001159	0.00008602	3.704	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW-1510	0.0001519	0.00008543	0.015	No	27	0.0001395	0.0001079	3.704	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	MW-1505	0.008	0.00534	0.04	No	27	0.007531	0.003116	3.704	None	No	0.01	NP (normality)
Lithium, total (mg/L)	MW-1506	0.013	0.00764	0.04	No	27	0.01003	0.003698	3.704	None	No	0.01	NP (normality)
Lithium, total (mg/L)	MW-1507	0.01259	0.008425	0.04	No	27	0.01085	0.00481	3.704	None	sqrt(x)	0.01	Param.
Lithium, total (mg/L)	MW-1509	0.01317	0.008966	0.04	No	27	0.01107	0.004412	3.704	None	No	0.01	Param.
Lithium, total (mg/L)	MW-1510	0.01072	0.007312	0.04	No	27	0.009276	0.003815	0	None	sqrt(x)	0.01	Param.
Mercury, total (mg/L)	MW-1505	0.000005	0.000003	0.002	No	27	0.000004722	0.000002059	62.96	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1506	0.000005	0.0000042	0.002	No	27	0.000004378	0.000001113	70.37	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1507	0.000006	0.000004	0.002	No	27	0.000006207	0.000004652	48.15	None	No	0.01	NP (normality)
Mercury, total (mg/L)	MW-1509	0.000005	0.000003	0.002	No	27	0.000004519	0.000001156	77.78	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1510	0.000005	0.000003	0.002	No	27	0.000005978	0.000003683	70.37	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	MW-1505	0.0008128	0.0002684	0.1	No	27	0.0009796	0.001408	18.52	Kapla...	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1506	0.001	0.0005387	0.1	No	27	0.0008267	0.0005343	0	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1507	0.001748	0.0007104	0.1	No	27	0.001859	0.002569	3.704	None	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1509	0.00143	0.00032	0.1	No	27	0.0008648	0.0006954	18.52	None	No	0.01	NP (normality)
Molybdenum, total (mg/L)	MW-1510	0.00092	0.00027	0.1	No	27	0.0008519	0.0008576	22.22	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW-1505	0.001166	0.0003484	0.05	No	27	0.001034	0.001117	0	None	x^(1/3)	0.01	Param.
Selenium, total (mg/L)	MW-1506	0.0002269	0.00006535	0.05	No	27	0.0004578	0.0005576	22.22	Kapla...	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW-1507	0.0003986	0.0001467	0.05	No	27	0.0004522	0.0008259	14.81	None	ln(x)	0.01	Param.

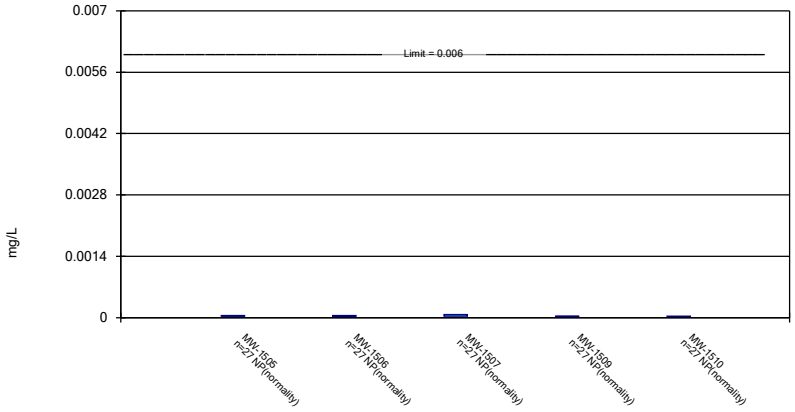
Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 6/26/2024, 7:49 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Selenium, total (mg/L)	MW-1509	0.0002845	0.0001337	0.05	No	27	0.000273	0.000272	3.704	None	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW-1510	0.0006	0.0001	0.05	No	27	0.00089	0.001555	0	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1505	0.000464	0.00006	0.002	No	27	0.0001765	0.0001928	22.22	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1506	0.0002	0.00005	0.002	No	27	0.0001048	0.0000752	37.04	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1507	0.0002	0.00005	0.002	No	27	0.0001082	0.00007336	37.04	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1509	0.0002	0.00004	0.002	No	27	0.0001214	0.00008346	51.85	None	No	0.01	NP (NDs)
Thallium, total (mg/L)	MW-1510	0.0002	0.00003	0.002	No	27	0.0001414	0.00008495	66.67	None	No	0.01	NP (NDs)

Non-Parametric Confidence Interval

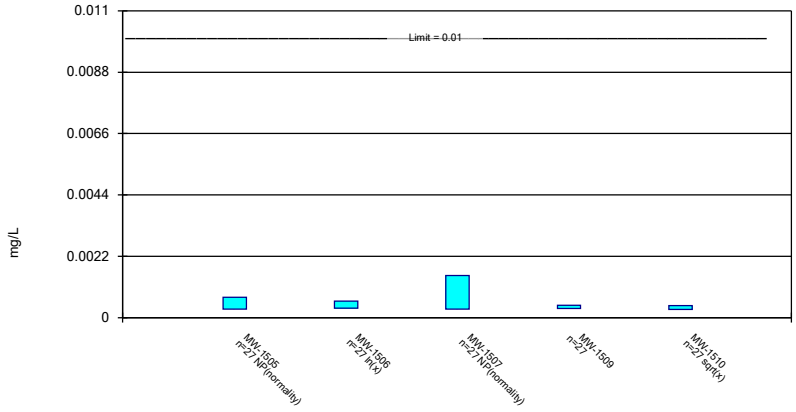
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Antimony, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

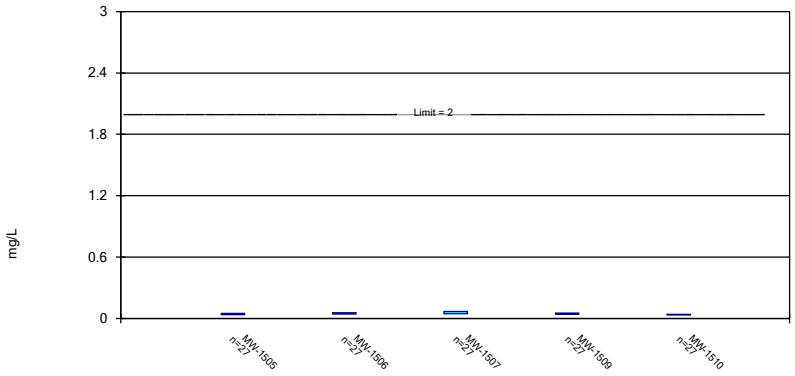
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

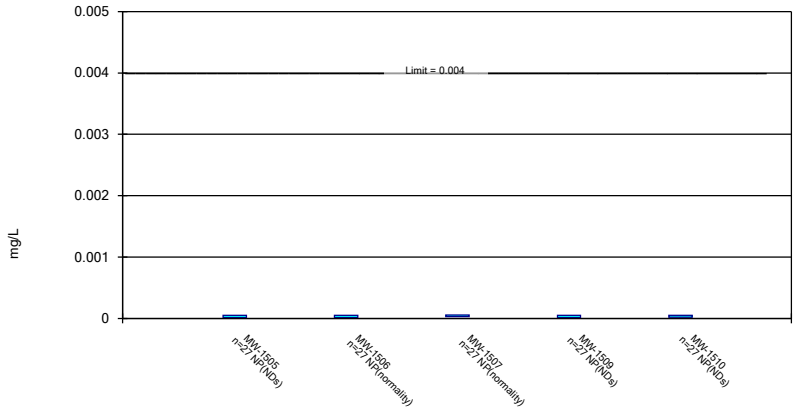
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

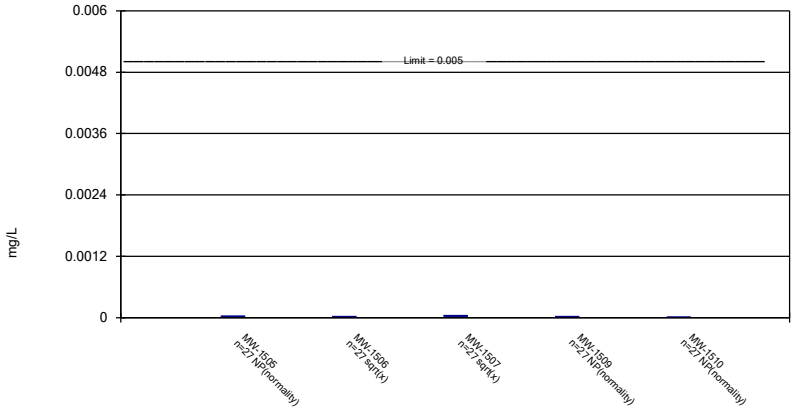
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Beryllium, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

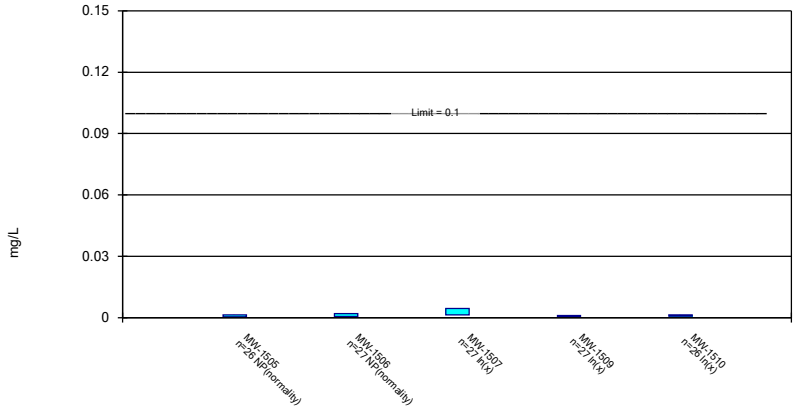
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

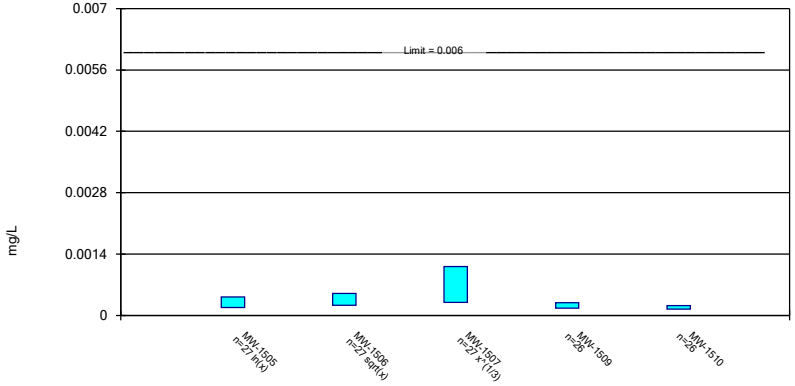
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

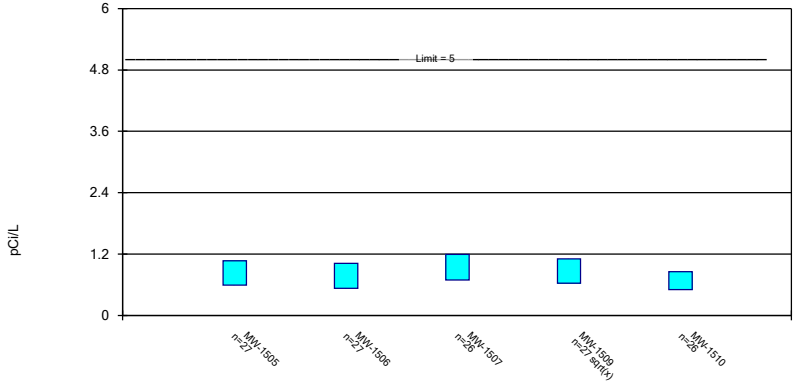
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

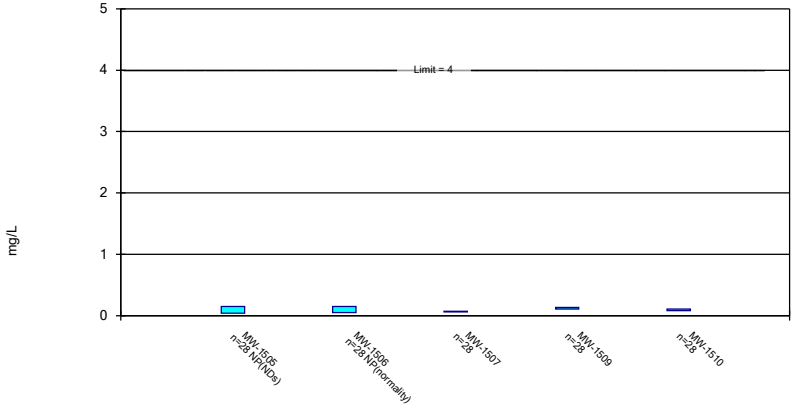
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

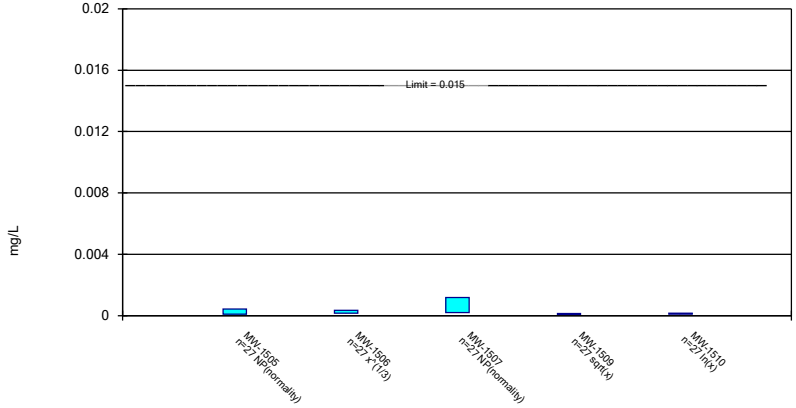
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

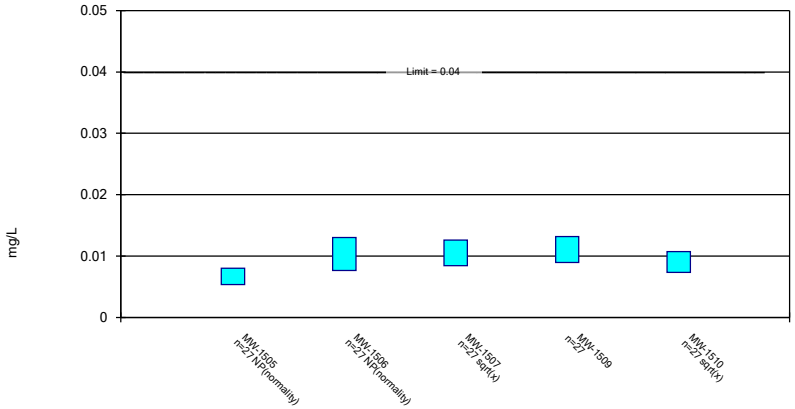
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

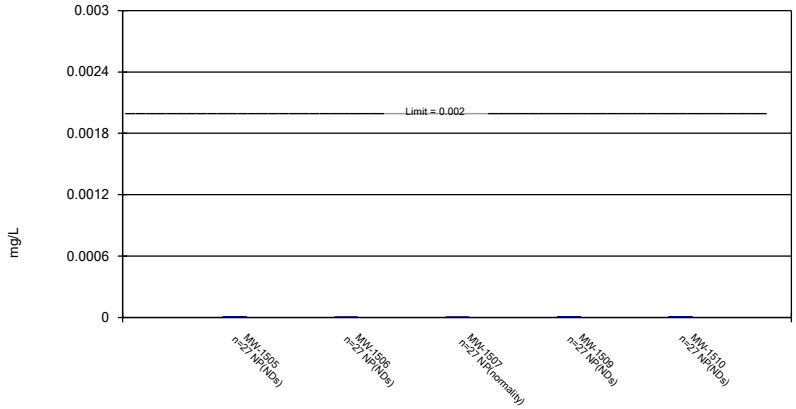
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

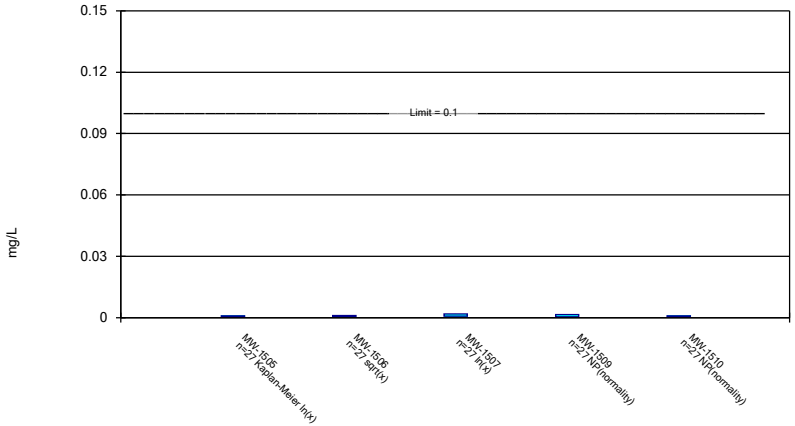
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Mercury, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

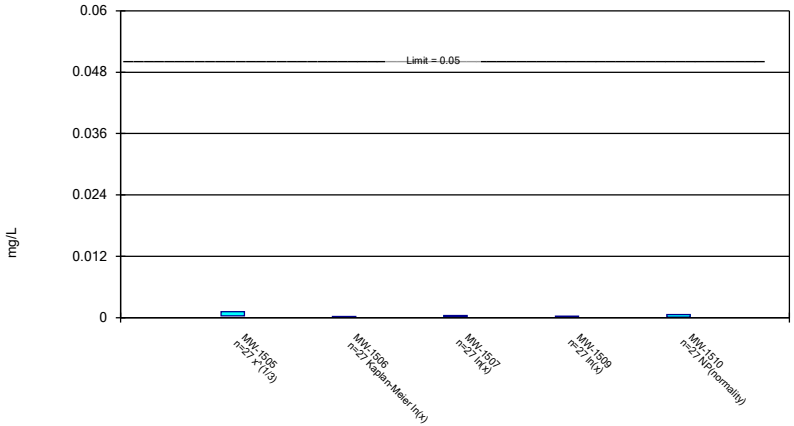
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

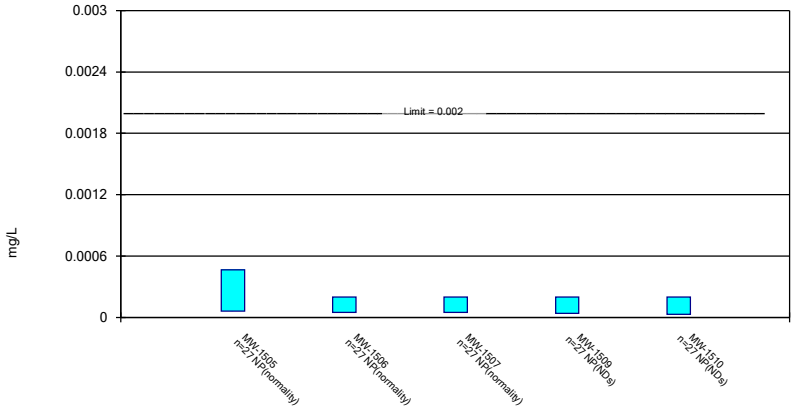
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

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



Constituent: Thallium, total Analysis Run 6/26/2024 7:46 PM View: Confidence Interval
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Geosyntec consultants

engineers | scientists | innovators

STATISTICAL ANALYSIS SUMMARY 2024 2ND SEMIANNUAL EVENT BOTTOM ASH POND

Mitchell Plant

Moundsville, West Virginia

Prepared for

American Electric Power
1 Riverside Plaza
Columbus, Ohio 43215-2372

Prepared by

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Project Number: CHA8500B

December 2024

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ACRONYMS AND ABBREVIATIONS

BAP	bottom ash pond
CCR	coal combustion residuals
CFR	code of federal regulations
GWPS	groundwater protection standard
LPL	lower prediction limit
mg/L	milligrams per liter
PQL	practical quantitation limit
QA/QC	quality assurance/quality control
SSI	statistically significant increase
SSL	statistically significant level
TDS	total dissolved solids
UPL	upper prediction limit

1. INTRODUCTION

In accordance with United States Environmental Protection Agency regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (Code of Federal Regulations [CFR] Title 40, Section 257, Subpart D), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Mitchell Power Plant in Moundsville, West Virginia. Recent groundwater monitoring results were used to identify concentrations of Appendix IV constituents that are above the groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, calcium, chloride, and total dissolved solids (TDS), at the BAP (Geosyntec 2018). An alternative source was not identified following the detection monitoring events; thus, the BAP has been in assessment monitoring since 2018. A semiannual sampling event for Appendix III parameters and Appendix IV parameters, as required by 40 CFR 257.95(d)(1), was completed in September 2024. The results of the September 2024 assessment sampling event are documented in this report.

Before the statistical analyses were conducted, 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 that would impact data usability were identified.

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. GWPSs were reestablished for the Appendix IV parameters following calculation of site-specific background values. Confidence intervals were calculated from the Appendix IV parameter data at the compliance wells to assess whether any were present at statistically significant levels (SSLs) above the corresponding GWPS. No SSLs were identified; however, concentrations of Appendix III parameters remained above background. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

One set of samples was collected for analysis from each upgradient and downgradient well to meet the requirements of 40 CFR 257.95(d)(1) in September 2024 as part of the assessment monitoring program. Samples from the September 2024 sample event were analyzed for all Appendix III and Appendix IV parameters. A summary of data collected during this assessment monitoring event is presented in Table 1.

Chemical analysis was completed by a National Environmental Laboratory Accreditation Program-certified analytical laboratory. The laboratory completed analysis of quality assurance and quality control (QA/QC) samples such as laboratory reagent blanks, continuing calibration verification samples, and laboratory fortified blanks.

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.10.0.23a statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues that would impact data usability were noted.

2.2 Statistical Analysis

Statistical analyses for the BAP 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 September 2024 were screened for potential outliers. No outliers were identified in the data (Attachment B).

2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix IV parameter in accordance with the Statistical Analysis Plan (Geosyntec 2020). The established GWPS was set to whichever was greater of the background concentration and the maximum contaminant level for each Appendix IV parameter. To determine background concentrations, an upper tolerance limit was calculated using data that were pooled from the background wells collected during the background monitoring and assessment monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for barium, chromium, cobalt, combined radium, lead, and selenium. Nonparametric tolerance limits were calculated for antimony, arsenic, cadmium, fluoride, lithium, and molybdenum due to apparent non-normal distributions, and for beryllium, mercury, and thallium due to a high nondetect frequency. Upper 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, nonparametric

confidence limits were calculated in some cases (e.g., when the data were not normally distributed or when the nondetect frequency was too high). An SSL was concluded if the lower confidence limit exceeded the GWPS (i.e., if the entire confidence interval exceeded the GWPS). The calculated confidence limits (Attachment B) were compared to the GWPSs provided in Table 2.

No SSLs were identified at the Mitchell BAP.

2.2.3 Updating Appendix III Prediction Limits

Upper prediction limits (UPLs) were previously established for all Appendix III parameters following the background monitoring period (Geosyntec 2018). Intrawell tests were used to evaluate potential SSIs for fluoride and sulfate, whereas interwell tests were used to evaluate potential SSIs for boron, calcium, chloride, pH, and TDS. Prediction limits have been updated periodically during the assessment monitoring period as sufficient data became available.

For intrawell tests, insufficient data was available to compare against the existing background dataset, and so the prediction limits were not updated for the intrawell tests at this time. The intrawell prediction limits were previously calculated using historical data through May 2023 (Geosyntec 2024). The established intrawell prediction limits were used to evaluate potential SSIs for fluoride and sulfate.

Prediction limits for the interwell tests were recalculated using data collected through the September 2024 assessment monitoring event. New upgradient well data were tested for outliers prior to being added to the background dataset. Upgradient well data were also evaluated for statistically significant trends using the Sen's Slope/Mann-Kendall trend test, and the results are included in Attachment B. The boron, calcium, chloride, pH, and TDS prediction limits were calculated using a one-of-two retesting procedure, as during detection monitoring.

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

Interwell UPLs and, in the case of pH, the lower prediction limit (LPL), were updated for boron, calcium, chloride, pH, and TDS using historical data through September 2024. The updated prediction limits are summarized in Table 3. Intrawell prediction limits for fluoride and sulfate were previously updated using historical data through May 2023. The prediction limits were calculated for a one-of-two retesting procedure: If at least one sample in a series of two is neither less than the LPL nor greater than the UPL, then it can be concluded that an SSI has not occurred. In practice, where the initial result is neither under the LPL nor above the UPL, a second sample will not be collected. The retesting procedures allow achieving an acceptably high statistical power

to detect changes at downgradient wells for constituents evaluated using intrawell prediction limits.

2.2.4 Evaluation of Potential Appendix III SSIs

The Appendix III results were analyzed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the September 2024 assessment monitoring event from each compliance well were compared to updated interwell prediction limits and previously calculated intrawell prediction limits to assess whether the results were statistically above background values (Table 3). The following concentrations were above the UPLs:

- Boron concentrations were above the interwell UPL of 5.77 milligrams per liter (mg/L) at MW-1507 (5.99 mg/L).

- Fluoride concentrations were above the intrawell UPL of 0.160 mg/L at MW-1509 (0.17 mg/L).

- Sulfate concentrations were above the intrawell UPL of 408 mg/L at MW-1505 (560 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (576 mg/L), the intrawell UPL of 373 mg/L at MW-1507 (518 mg/L), and the intrawell UPL of 492 mg/L at MW-1509 (567 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the September 2024 sample was above the UPL or, in the case of pH, below the 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 prevented data usage. A review of outliers identified no potential outliers in the September 2024 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 was above the GWPSs. No SSLs were identified. Appendix III parameters were compared to updated prediction limits; concentrations of boron, fluoride, and sulfate were identified above the prediction limits.

3. REFERENCES

Geosyntec. 2018. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. Geosyntec Consultants, Inc. January.

Geosyntec. 2020. Statistical Analysis Plan – Mitchell Plant. Geosyntec Consultants, Inc. October.

Geosyntec. 2024. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. Geosyntec Consultants, Inc. February.

TABLES

Table 1. Groundwater Data Summary
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Parameter	Unit	MW-1504	MW-1505	MW-1506	MW-1507	MW-1508	MW-1509	MW-1510
		9/17/2024	9/17/2024	9/17/2024	9/17/2024	9/18/2024	9/17/2024	9/18/2024
Antimony	µg/L	0.020 J1	0.027 J1	0.034 J1	0.023 J1	0.014 J1	0.026 J1	0.023 J1
Arsenic	µg/L	0.22	0.24	0.43	0.23	0.21	0.22	0.27
Barium	µg/L	29.5	25.1	28.7	27.3	20.5	22.9	25.5
Beryllium	µg/L	2.5 U1	0.05 U1	0.012 J1	0.05 U1	0.05 U1	0.05 U1	0.05 U1
Boron	mg/L	5.48	4.75	4.43	5.99	5.20	4.09	3.19
Cadmium	µg/L	0.031	0.012 J1	0.010 J1	0.027	0.021	0.007 J1	0.02 U1
Calcium	mg/L	224	219 M1	205	216	234	161	124
Chloride	mg/L	254	224	211	229	169	186	163
Chromium	µg/L	0.22 J1	0.28 J1	0.99	0.77	0.23 J1	0.35	0.35
Cobalt	µg/L	0.101	0.062	0.209	0.119	0.163	0.076	0.131
Combined Radium	pCi/L	2.60	0.92	0.78	0.55	1.00	0.30	0 U1
Fluoride	mg/L	0.16	0.15 U1	0.15 U1	0.08	0.09	0.17	0.13 J1
Lead	µg/L	0.20 U1	0.07 J1	0.24	0.05 J1	0.06 J1	0.20 U1	0.20 U1
Lithium	mg/L	0.008 J1	0.00592	0.00774	0.00582	0.00454	0.00798	0.00662
Mercury	µg/L	0.005 U1	0.002 J1	0.003 J1	0.005 U1	0.005 U1	0.005 U1	0.009
Molybdenum	µg/L	0.4 J1	0.1 J1	0.2 J1	0.4 J1	0.3 J1	0.5	0.3 J1
Selenium	µg/L	3.24	0.89	0.69	0.18 J1	0.67	0.11 J1	0.86
Sulfate	mg/L	607	560	576	518	623	567	364
Thallium	µg/L	0.2 U1	0.05 J1	0.05 J1	0.03 J1	0.02 J1	0.03 J1	0.04 J1
Total Dissolved Solids	mg/L	1,570	1,390	1,420	1,350	1,410	1,330	1,110
pH	SU	7.1	7.4	7.4	7.3	7.0	7.4	7.3

Notes:
J1: Estimated value. Parameter was detected in concentrations below the reporting limit.
mg/L: milligrams per liter
M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.
pCi/L: picocuries per liter
SU: standard unit
U1: Non-detect value. For statistical analysis, parameters that were not detected were replaced with the reporting limit.
µg/L: micrograms per liter

Table 2: Appendix IV Groundwater Protection Standards
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600		0.000100	0.00600
Arsenic, Total (mg/L)	0.0100		0.00165	0.0100
Barium, Total (mg/L)	2.00		0.0537	2.00
Beryllium, Total (mg/L)	0.00400		0.0000600	0.00400
Cadmium, Total (mg/L)	0.00500		0.0000900	0.00500
Chromium, Total (mg/L)	0.100		0.00189	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.00327	0.00600
Combined Radium, Total (pCi/L)	5.00		1.98	5.00
Fluoride, Total (mg/L)	4.00		0.250	4.00
Lead, Total (mg/L)	n/a	0.0150	0.00223	0.0150
Lithium, Total (mg/L)	n/a	0.0400	0.0150	0.0400
Mercury, Total (mg/L)	0.00200		0.00000800	0.00200
Molybdenum, Total (mg/L)	n/a	0.100	0.00231	0.100
Selenium, Total (mg/L)	0.0500		0.0157	0.0500
Thallium, Total (mg/L)	0.00200		0.000200	0.00200

Notes:

1. Calculated UTL (upper tolerance limit) represents site-specific background values.

CCR: coal combustion residual

GWPS: groundwater protection standard

MCL: maximum contaminant level

mg/L: milligrams per liter

n/a: not applicable

pCi/L: picocuries per liter

Table 3. Appendix III Data Summary
Statistical Analysis Summary
Mitchell Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Analyte	Unit	Description	MW-1505	MW-1506	MW-1507	MW-1509	MW-1510
			9/17/2024	9/17/2024	9/17/2024	9/17/2024	9/18/2024
Boron	mg/L	Interwell Background Value (UPL)	5.77				
		Analytical Result	4.75	4.43	**5.99**	4.09	3.19
Calcium	mg/L	Interwell Background Value (UPL)	258				
		Analytical Result	219	205	216	161	124
Chloride	mg/L	Interwell Background Value (UPL)	254				
		Analytical Result	224	211	229	186	163
Fluoride	mg/L	Intrawell Background Value (UPL)	0.150	0.150	0.0906	0.160	0.144
		Analytical Result	0.05	0.05	0.08	**0.17**	0.13
pH	SU	Interwell Background Value (UPL)	8.6				
		Interwell Background Value (LPL)	6.8				
		Analytical Result	7.4	7.4	7.3	7.4	7.3
Sulfate	mg/L	Intrawell Background Value (UPL)	408	369	373	492	523
		Analytical Result	**560**	**576**	**518**	**567**	364
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,670				
		Analytical Result	1,390	1,420	1,350	1,330	1,110

Notes:

1. Bold values exceed the background value.

2. Background values are shaded gray.

LPL: lower prediction limit

mg/L: milligrams per liter

SU: standard units

UPL: upper prediction limit

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Mitchell Bottom Ash Pond 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

Signature

22663	West Virginia	12.24.2024
License Number	Licensing State	Date

ATTACHMENT B
Statistical Analysis Output

GROUNDWATER STATS CONSULTING

December 23, 2024

Geosyntec Consultants
Attn: Ms. Allison Kreinberg
500 W. Wilson Bridge Road, Suite 250
Worthington, OH 43085

RE: Mitchell Bottom Ash Pond (BAP)
Background Update & September 2024 Assessment Monitoring Analysis

Dear Ms. Kreinberg,

Groundwater Stats Consulting (GSC), formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis and background update of interwell statistical limits through 2024 for American Electric Power Company's Mitchell Bottom Ash Pond. 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 USEPA Unified Guidance (2009).

Sampling at each of the wells below began at Mitchell Bottom Ash Pond for the CCR program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** MW-1504 and MW-1508
- **Downgradient wells**: MW-1505, MW-1506, MW-1507, MW-1509, and MW-1510

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 background update and analysis were reviewed by Dr. Jim Loftis, Civil & Environmental Engineering professor emeritus at Colorado State University 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.

Due to varying detection limits in background data sets due to improved laboratory practices, a substitution of the most recent reporting limit is used for all non-detects. In some cases, the reporting limit provided by the laboratory contains varying limits for a given parameter; therefore, the substitution may differ from well to well. Reporting limit changes may vary based on laboratory capabilities. For beryllium, the most recent reporting limit of 0.0005 mg/L was substituted across all wells because of an elevated reporting limit due to dilution in upgradient well MW-1504.

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 were included previously and demonstrated 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

All data were initially screened for outliers and trends in December 2017. As a result of that screening, the statistical methods implemented at this site are listed below.

Summary of Statistical Methods – Appendix III Parameters

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

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are non-detects, 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. Non-detects are handled as follows:

- 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, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data for parametric limits. 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.

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.

December 2017 – Initial Background Screening

Intrawell prediction limits combined with a 1-of-2 verification strategy were recommended for fluoride and sulfate; and interwell prediction limits combined with a 1-of-2 verification strategy were recommended for boron, calcium, chloride, pH, and TDS. All proposed background data were screened for outliers and trends during the background screening. The findings of those reports were submitted at that time. 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 Parameters Background Update and Evaluation

Fall 2023

Prior to updating background data during the Fall 2023 analysis, Tukey's outlier test and visual screening were used to re-evaluate data through May 2023 at all wells for parameters using intrawell prediction limits (fluoride and sulfate) and through October 2023 at all upgradient wells for parameters utilizing interwell prediction limits (boron, calcium, chloride, pH, and TDS). No additional values were flagged as outliers.

For constituents requiring intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through May 2021 to the new compliance samples through May 2023 at each well to evaluate whether the groups are statistically different at the 99% confidence level. Any records that were truncated during previous updates used curtailed portions of the respective record for comparison using the Mann-Whitney test. Discussions of any truncated records were included in previous background update reports. Because all records for sulfate have recent increases

in concentrations above historic levels, none of the records for sulfate were updated at that time. A list of well/constituent pairs using a truncated portion of their record follows this report.

For parameters which are 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 at the 99% confidence level. For chloride in upgradient well MW-1508, although earlier concentrations were higher than more recent concentrations, no adjustment was required to the record since the statistical limit was representative of present-day groundwater quality conditions, was a nonparametric prediction limit constructed based on the highest report concentration among the upgradient wells, and was not influenced by the magnitude of the trend. 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.

Fall 2024

Prior to updating background data during the Fall 2024 analysis, Tukey's outlier test and visual screening were used to re-evaluate data through September 2024 at all upgradient wells for parameters utilizing interwell prediction limits (boron, calcium, chloride, pH, and TDS). Tukey's outlier test identified an elevated values for pH, but this value was not dramatically higher than remaining observations within its respective record and was not flagged in the database.

For parameters which use intrawell prediction limits (fluoride and sulfate), background values were not re-evaluated for new outliers as these records had insufficient samples for updating statistical limits during this evaluation period.

<u>Interwell – Trend Test Evaluation</u>

For parameters which are tested using interwell prediction limits, the Sen's Slope/Mann-Kendall trend test was used to evaluate data in upgradient wells to determine whether concentrations are statistically increasing, decreasing or stable (Figure E). Statistically significant trends were identified for the following well/constituent pairs:

Increasing
- None

Decreasing
- Chloride: MW-1508

For chloride in upgradient well MW-1508, although earlier concentrations were higher than more recent concentrations, no adjustment was required to the record since the statistical limit was representative of current groundwater quality conditions, was a nonparametric prediction limit constructed based on the highest reported concentration among the upgradient wells, and was not influenced by the magnitude of the trend. Note that while no significant trends were identified when evaluating the entire record, changes in concentrations of more recent data were noted for boron and TDS at both upgradient wells and for chloride at upgradient well MW-1504. These changes are possibly the result of closure activities since 2021, but more information would be required to confirm this. As more data are collected, all upgradient well data will be re-evaluated for possible deselection of earlier portions of the record if the measurements no longer represent current groundwater quality conditions and resulting statistical limits are insensitive to changes downgradient of the facility.

Prediction Limits

Intrawell limits constructed from carefully screened background data from within each well serve to provide statistical limits that are representative of the background data population, and that will rapidly identify a change in more recent compliance data from within a given well. The most recent sample from the same well is compared to its respective background. This statistical method removes the element of variation from across wells and eliminates the chance of mistaking spatial variation for a release from the facility. Intrawell prediction limits are updated when a minimum of 4 compliance samples is available. Intrawell prediction limits, combined with a 1-of-2 resample plan, were constructed for fluoride and sulfate using screened background data through May 2023 at each well, unless otherwise specified (Figure F). No comparison of the September 2024 compliance data to statistical limits was made in this analysis.

Interwell prediction limits, which pool upgradient well data to establish a background limit for an individual constituent, were updated during this analysis after visual screening for new outliers and trends. The most recent sample from each downgradient well is compared to the interwell prediction limits to determine whether initial exceedances are present. Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed using all pooled upgradient well data through September 2024 for boron, calcium, chloride, pH, and TDS (Figure G). Time series plots were included with the interwell prediction limit graphs to display concentrations at upgradient wells that were used to construct the statistical limits. No comparison of the September 2024 compliance data to statistical limits was made in this analysis.

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of one additional sample to determine whether the initial exceedance is confirmed. When the resample confirms the initial exceedance, a statistically significant increase (SSI) is identified, and further research is required to identify the cause of the exceedance (i.e., impact from the site, natural variation, or an off-site source). If a resample falls within the statistical limit, the initial exceedance is considered to be a false positive result; therefore, no further action is necessary.

Evaluation of Appendix IV Parameters – Fall 2024

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. For the current analysis, Tukey's outlier test on pooled upgradient identified a low value for combined radium 226 + 228; however, this value was not substantially lower than remaining observations upgradient of the facility upgradient of the facility and was not flagged. Visual screening with time series graphs confirmed previously flagged outliers for Appendix IV parameters., and no new measurements were flagged as outliers among pooled upgradient well data.

Additionally, downgradient well data through September 2024 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, values that are marginally high relative to the rest of the data are retained unless there is particular justification for excluding them. Examples include elevated observations early in the record for chromium and combined radium 226 + 228 since the measurements were inconsistent with remaining concentrations, possibly as a result of elevated turbidity levels found early in the record. No new outliers among downgradient wells were flagged during this analysis. All flagged values may be seen on the Outlier Summary following this letter (Figure C).

Interwell Upper Tolerance Limits

Interwell upper tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data through September 2024 for the Appendix IV constituents discussed above (Figure G). Following the summary table, time series plots for the upgradient wells display the data from which the limits are calculated. Parametric tolerance limits are calculated, with a target of 95% confidence and 95% coverage, when data follow a normal or transformed-normal distribution such as for barium, chromium, cobalt, combined radium 226 + 228, lead, and selenium. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution,

non-parametric tolerance limits were used. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

The upper tolerance limits were compared to the Maximum Contaminant Levels (MCLs) and the CCR-Rule specified levels in the Groundwater Protection Standards (GWPS) table following this letter to determine the highest limit for use as the GWPS in the Confidence Interval comparisons described below (Figure H).

Confidence Intervals

Confidence intervals were then constructed using all available data through September 2024 on downgradient wells for each of the Appendix IV parameters. These intervals were constructed as either parametric or nonparametric confidence intervals depending on the data distribution and percentage of non-detects. When data followed a normal or transformed-normal distribution, parametric confidence intervals were used for Appendix IV parameters. Nonparametric confidence intervals were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available.

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 report, and no confidence interval exceedances were noted for any of the Appendix IV parameters.

Trend Test Evaluation

When confidence interval exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable at the 95% confidence level. Utilizing the 95% confidence level for trend tests readily identifies significant trends and is more sensitive than the 99% confidence level without drastically increasing the false negative rate. Upgradient wells are included in the trend analyses for all parameters found to exceed their confidence interval in downgradient wells. When similar patterns exist upgradient of the site, it is an indication of variability in groundwater which may be

unrelated to practices at the site. Since no exceedances were identified, no trend tests were required.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Mitchell Bottom Ash Pond. 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
Senior Statistician

Date Ranges

Date: 12/16/2024 2:23 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sulfate, total (mg/L)

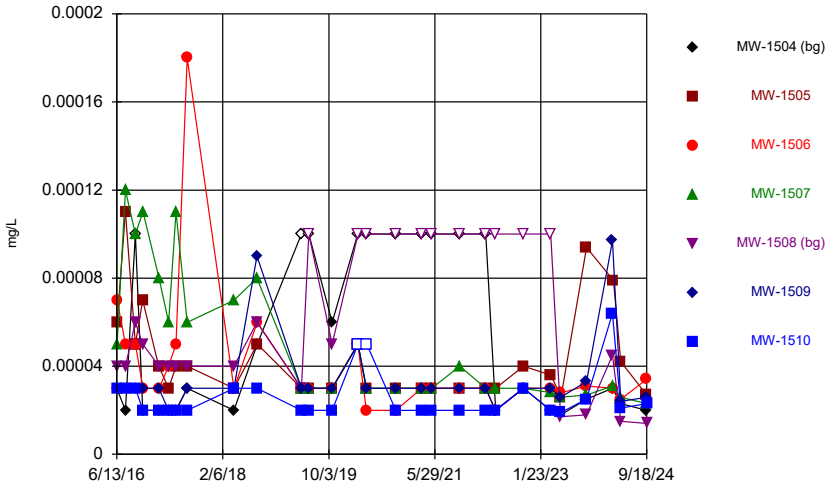
- MW-1504 overall:6/13/2016-5/11/2021
- MW-1505 overall:6/14/2016-6/11/2019
- MW-1506 overall:6/14/2016-6/11/2019
- MW-1507 overall:6/14/2016-6/11/2019
- MW-1508 overall:6/14/2016-5/12/2021
- MW-1509 overall:6/14/2016-5/11/2021
- MW-1510 overall:6/14/2016-5/12/2021

FIGURE A

Time Series

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

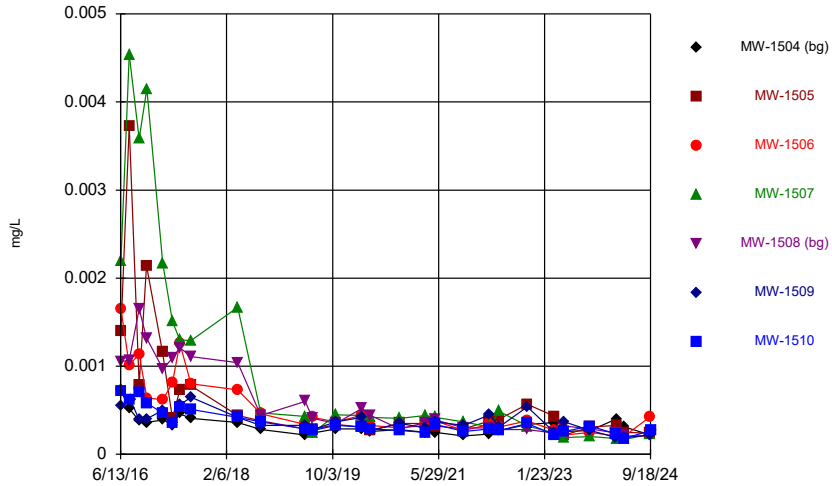
Time Series



Constituent: Antimony, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

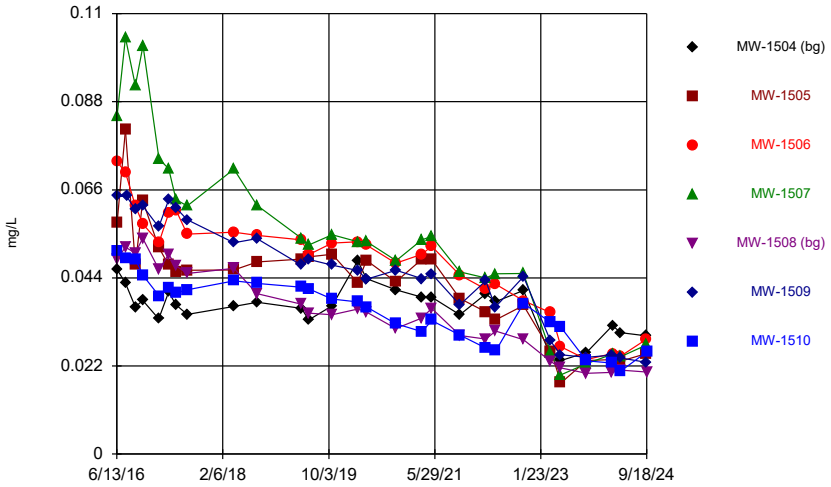
Time Series



Constituent: Arsenic, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

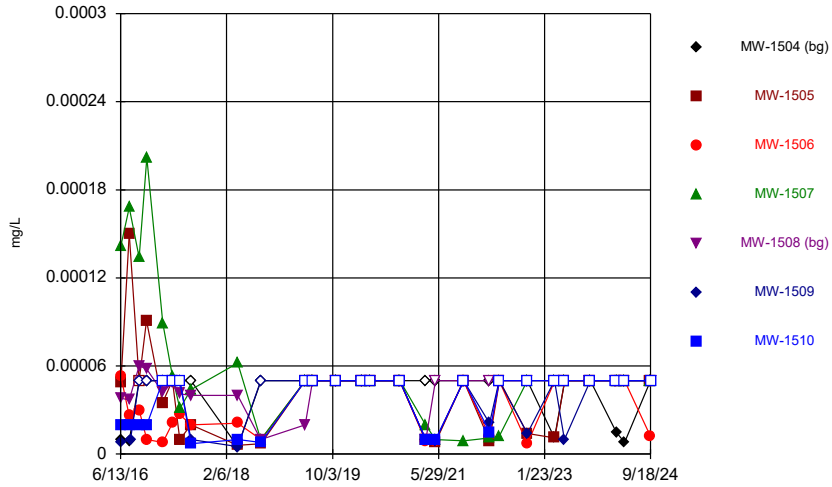
Time Series



Constituent: Barium, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

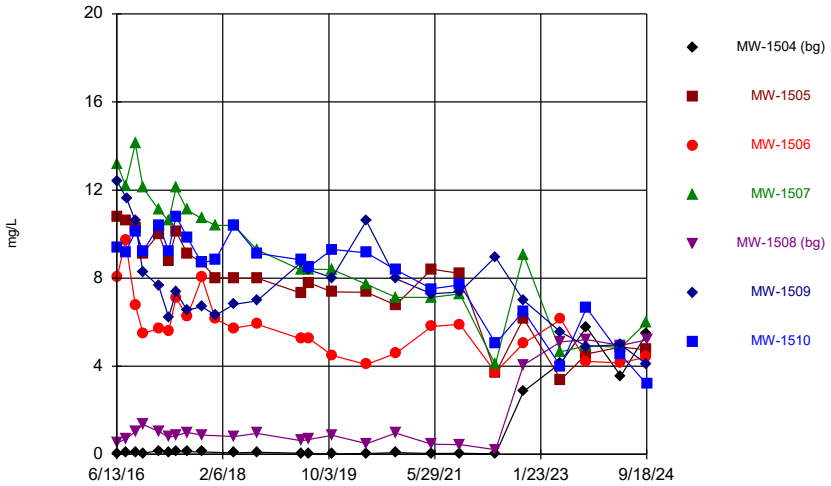
Time Series



Constituent: Beryllium, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

Time Series



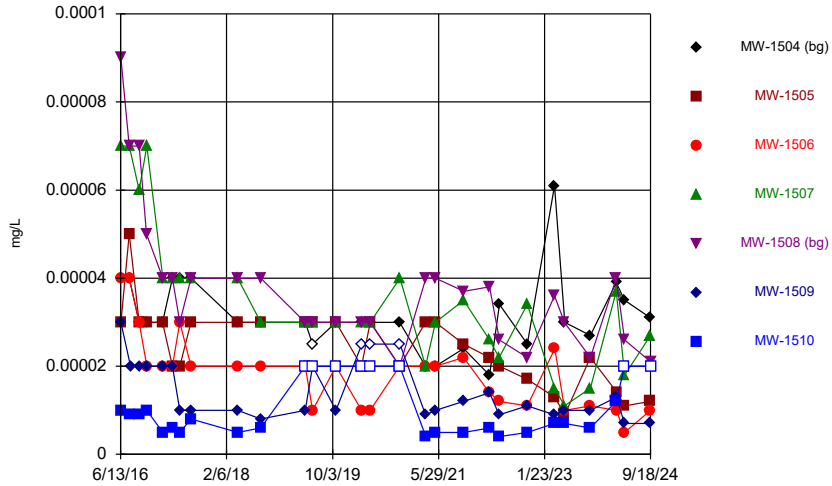
Constituent: Boron, total Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

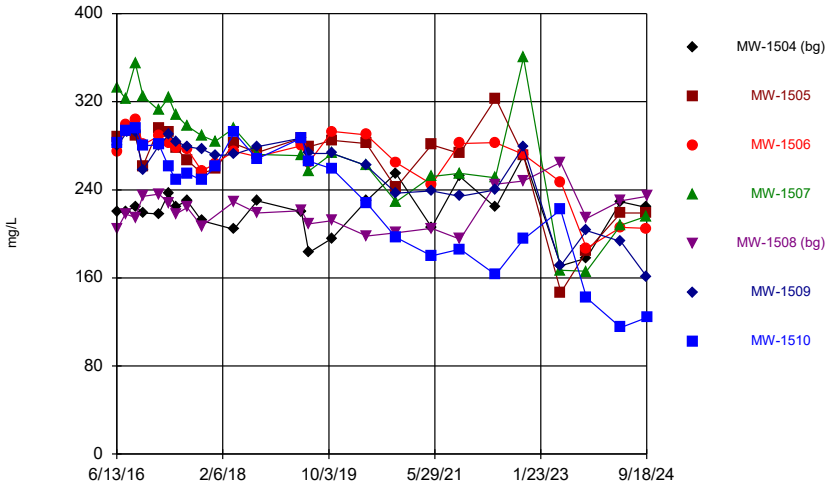


Constituent: Cadmium, total Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

Time Series

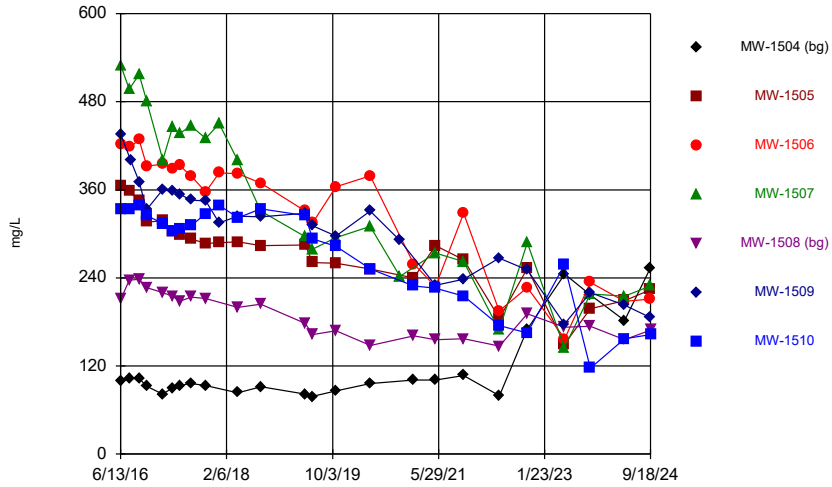


Constituent: Calcium, total Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

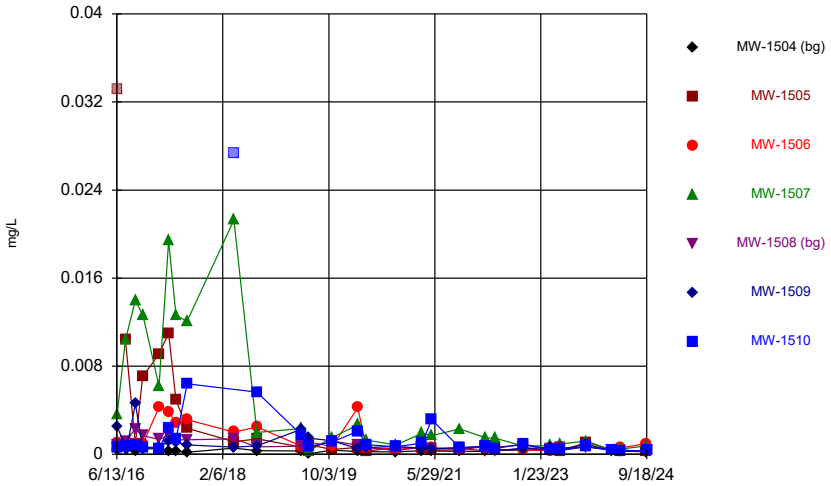
Time Series



Constituent: Chloride, total Analysis Run 12/16/2024 2:04 PM

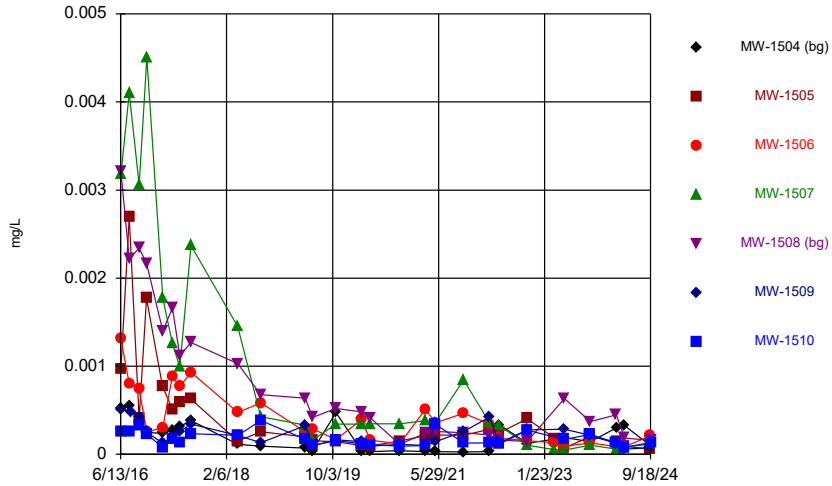
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Time Series



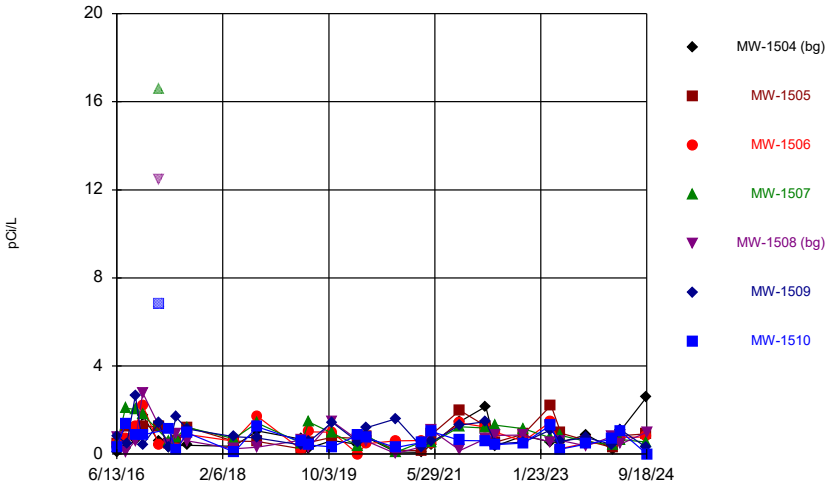
Constituent: Chromium, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Time Series



Constituent: Cobalt, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

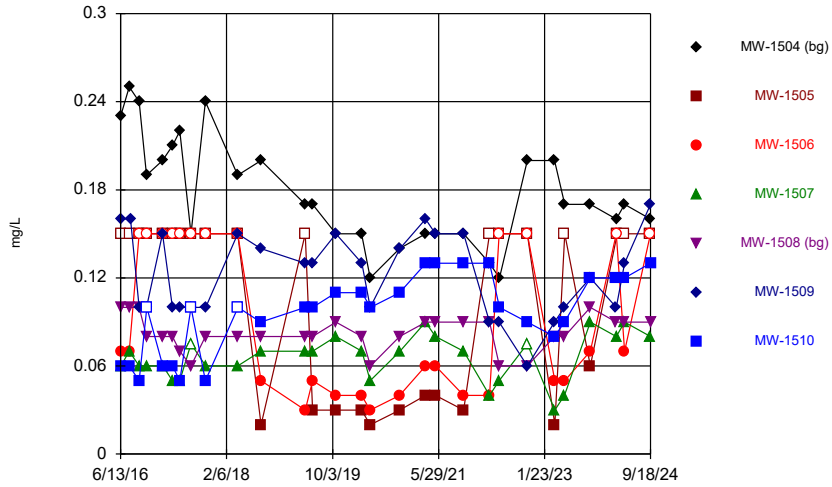
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Hollow symbols indicate censored values.

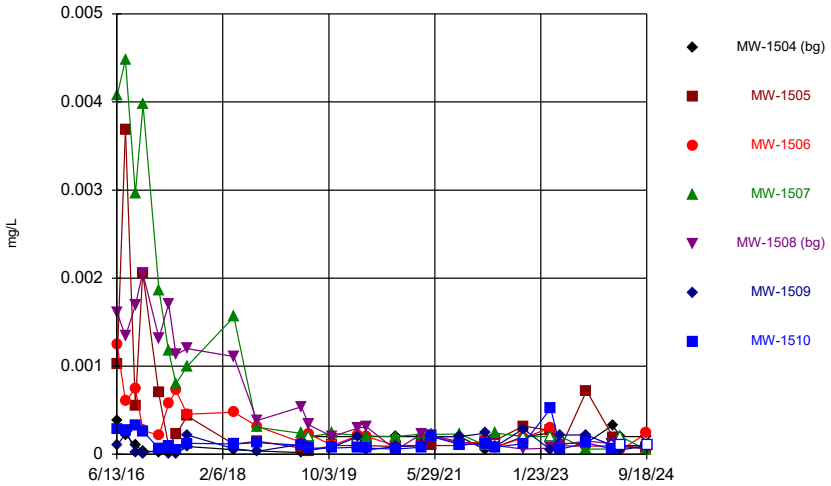
Time Series



Constituent: Fluoride, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

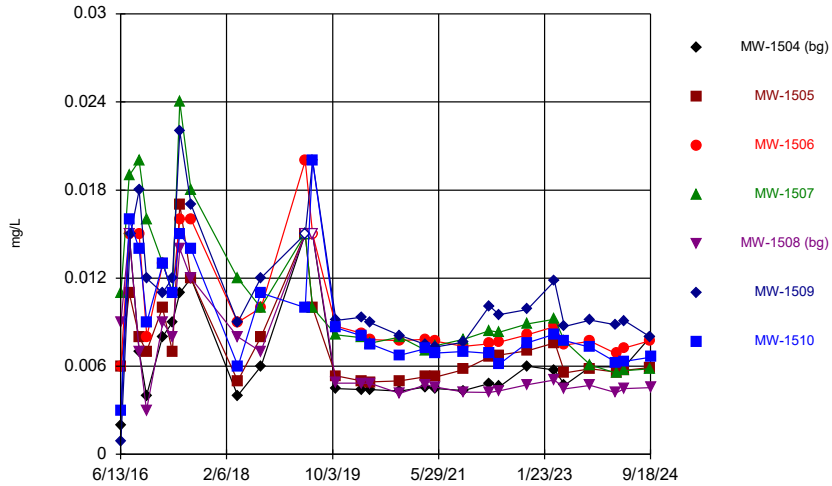
Time Series



Constituent: Lead, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

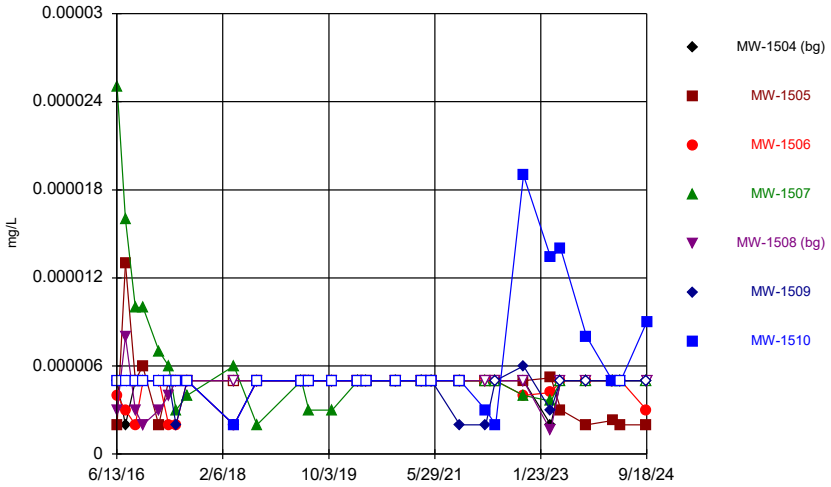
Time Series



Constituent: Lithium, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

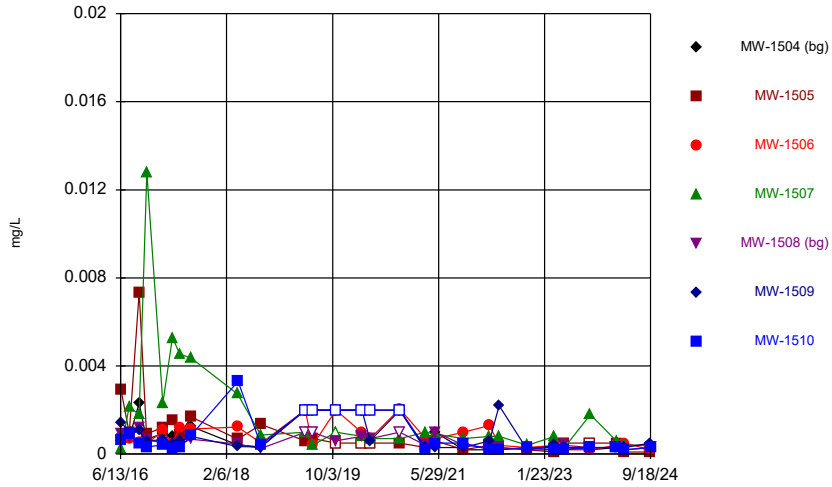
Time Series



Constituent: Mercury, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

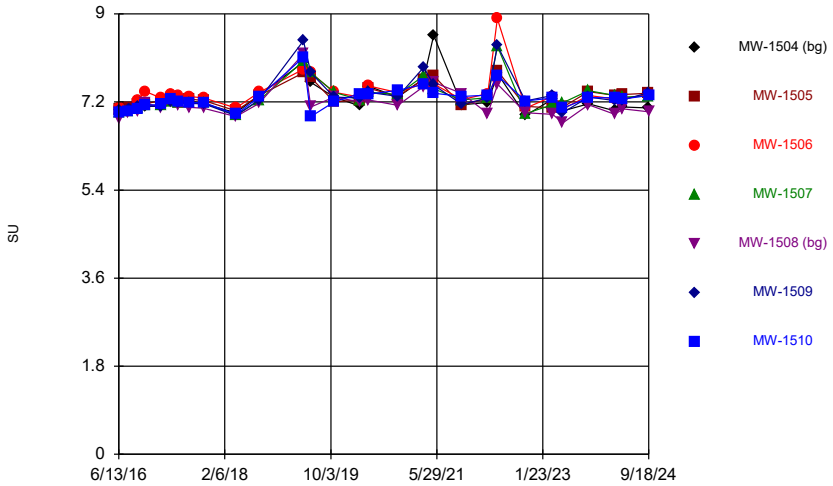
Time Series



Constituent: Molybdenum, total Analysis Run 12/16/2024 2:04 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

Time Series



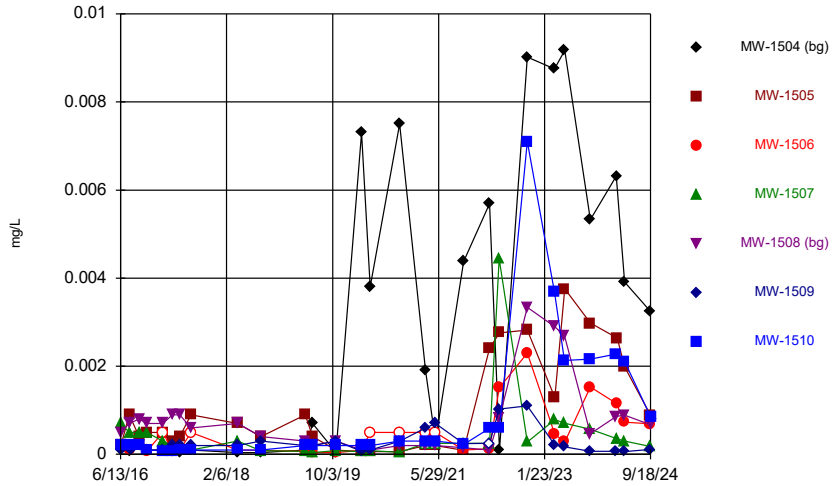
Constituent: pH, field Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

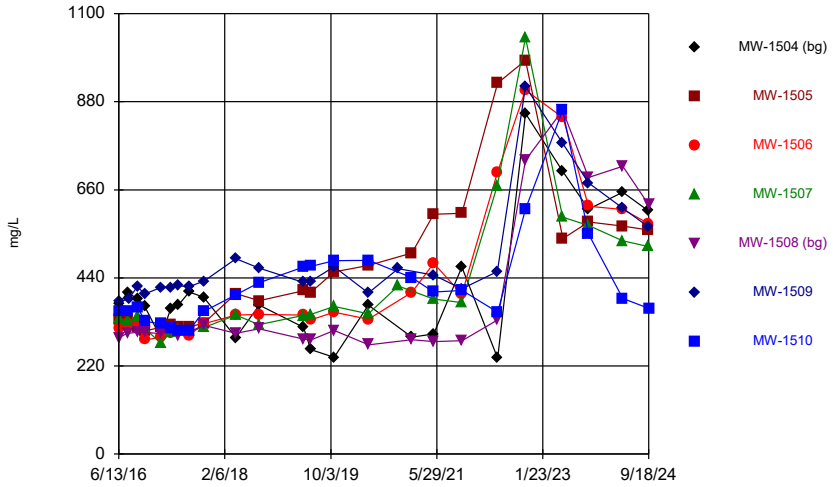


Constituent: Selenium, total Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

Time Series



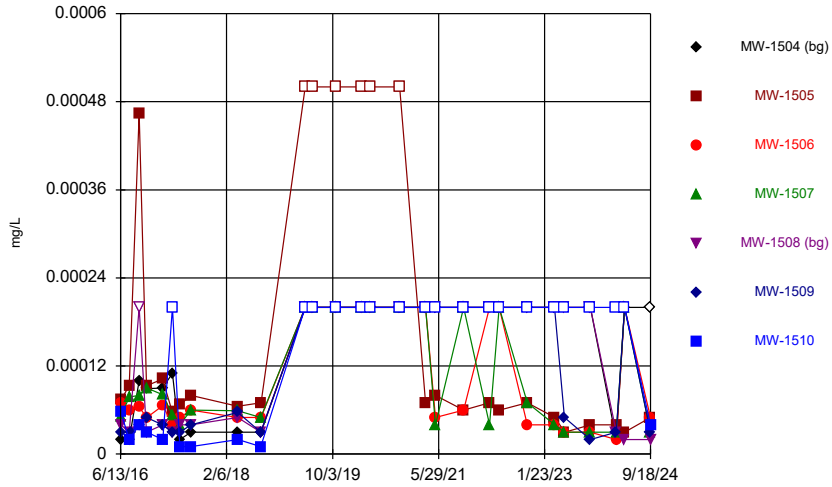
Constituent: Sulfate, total Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.10.0.23a Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

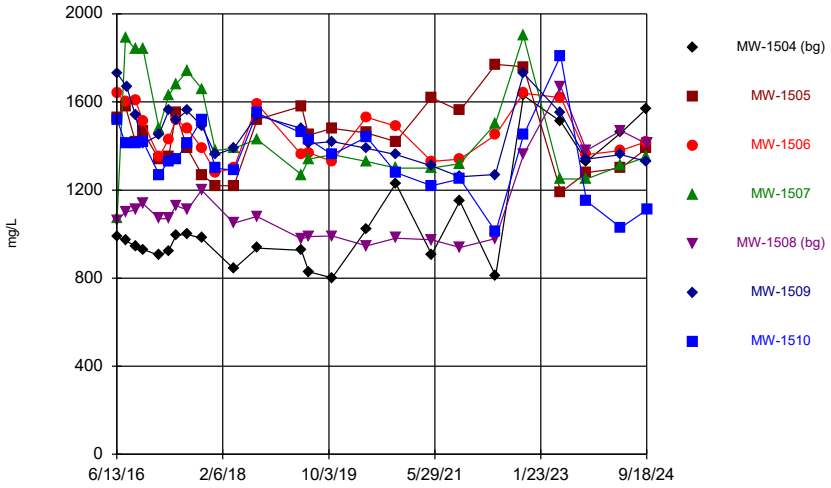
Time Series



Constituent: Thallium, total Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Time Series



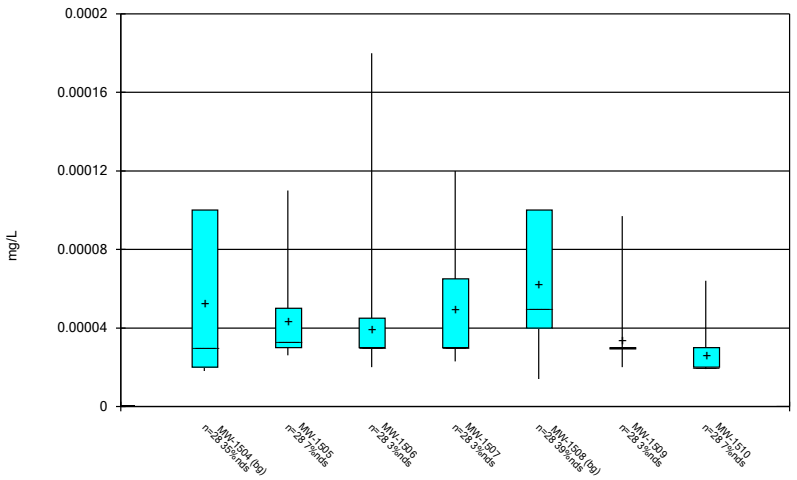
Constituent: Total Dissolved Solids [TDS] Analysis Run 12/16/2024 2:04 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE B

Box Plots

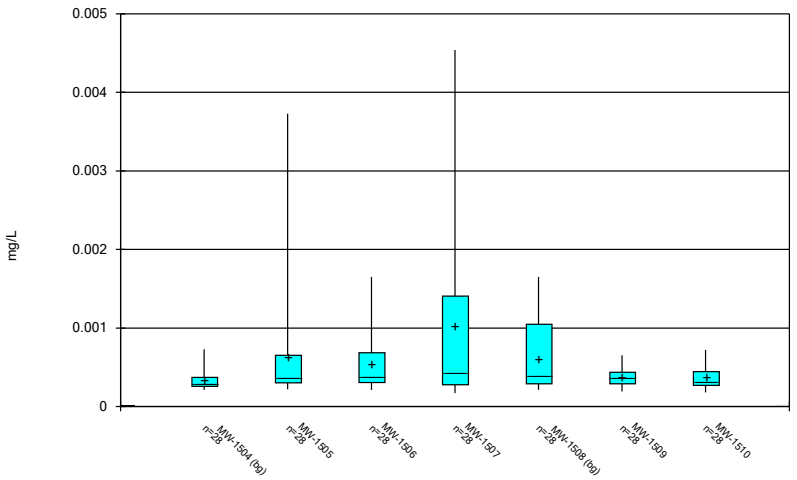
Box & Whiskers Plot



Constituent: Antimony, total Analysis Run 12/16/2024 2:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

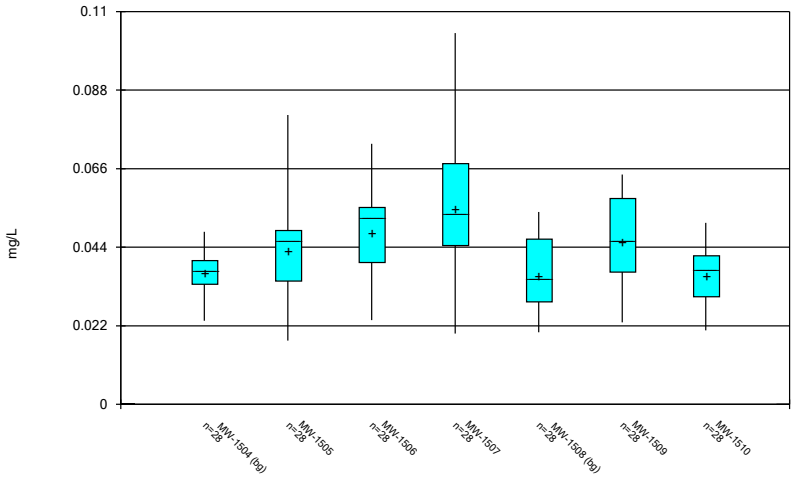
Box & Whiskers Plot



Constituent: Arsenic, total Analysis Run 12/16/2024 2:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

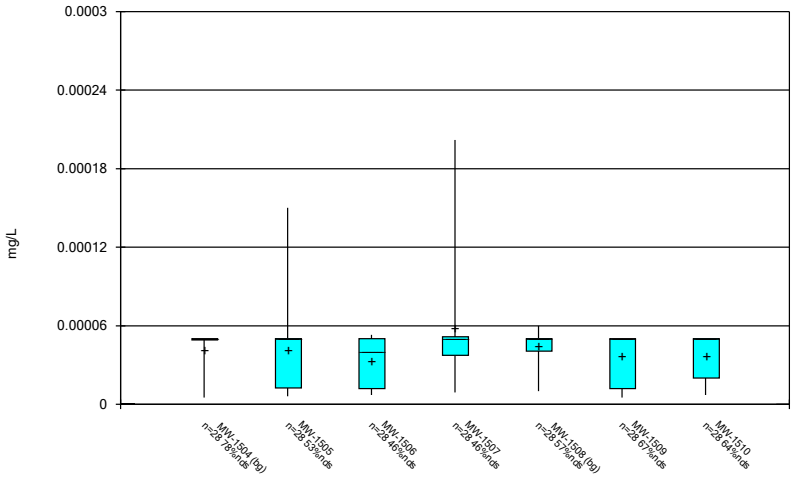
Box & Whiskers Plot



Constituent: Barium, total Analysis Run 12/16/2024 2:05 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

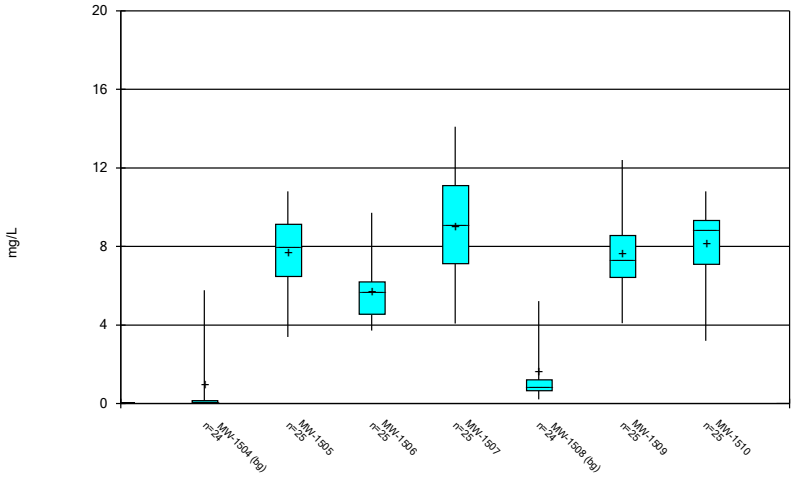
Box & Whiskers Plot



Constituent: Beryllium, total Analysis Run 12/16/2024 2:05 PM

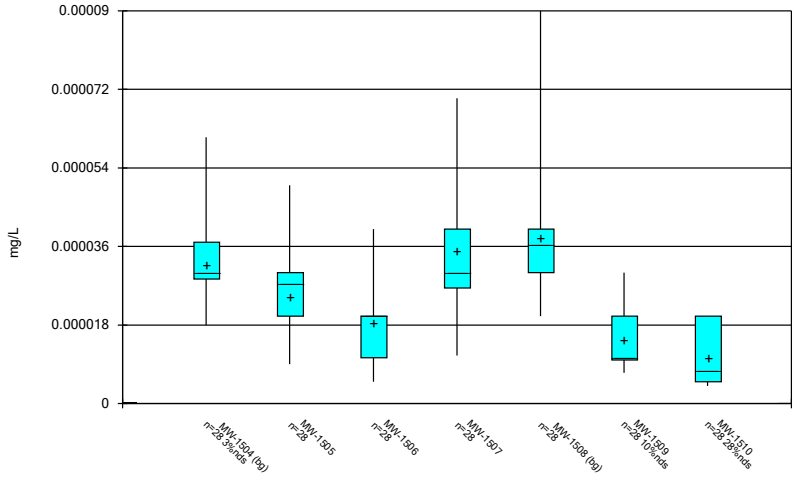
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



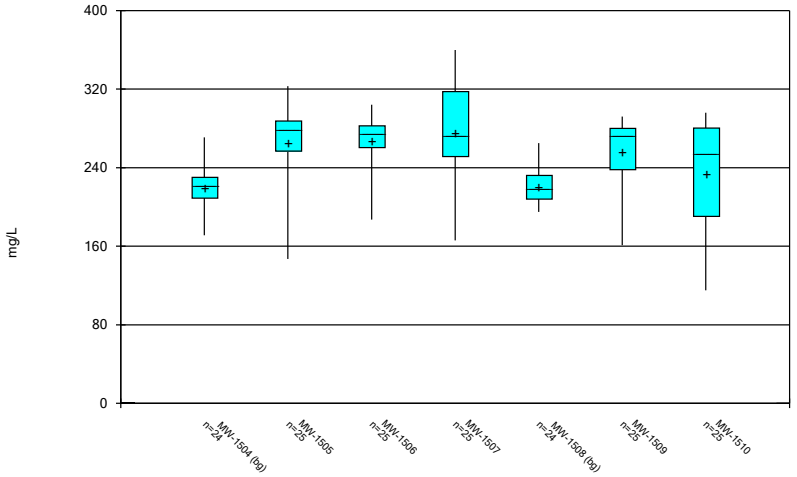
Constituent: Boron, total Analysis Run 12/16/2024 2:05 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



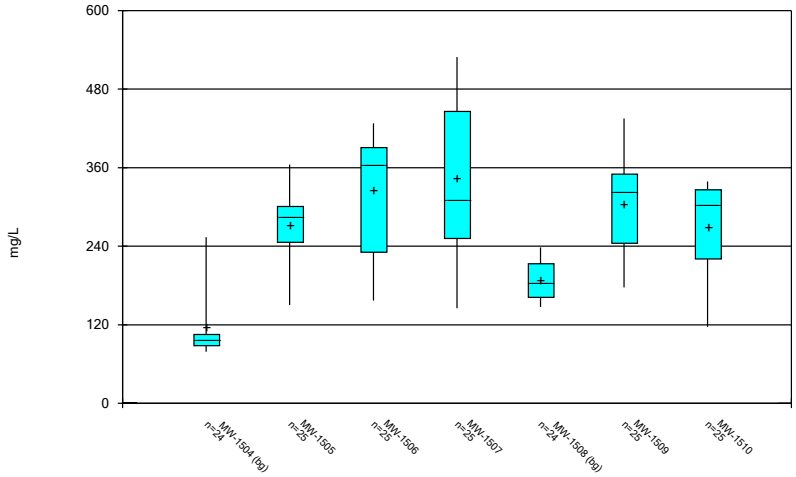
Constituent: Cadmium, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



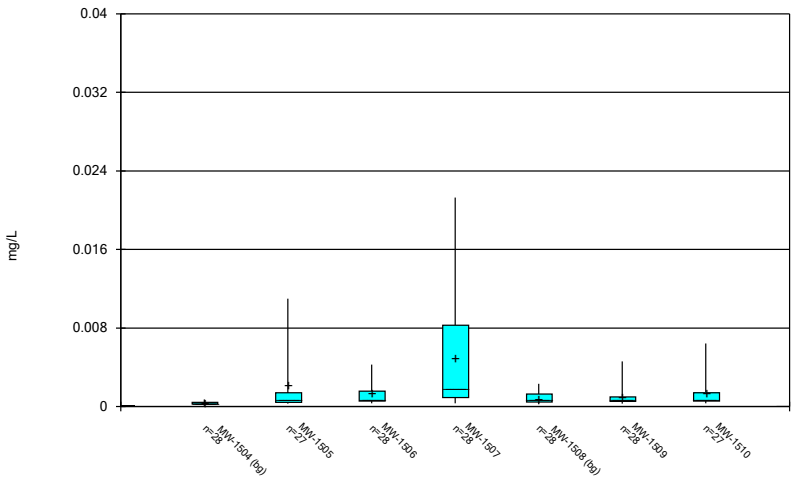
Constituent: Calcium, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



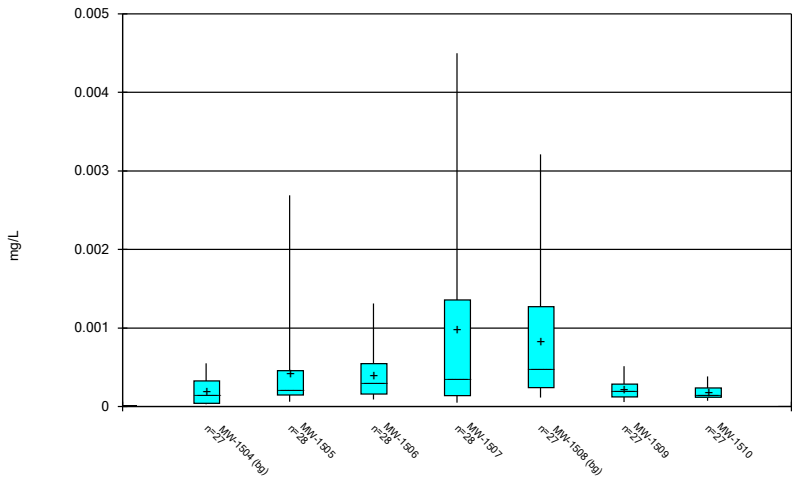
Constituent: Chloride, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



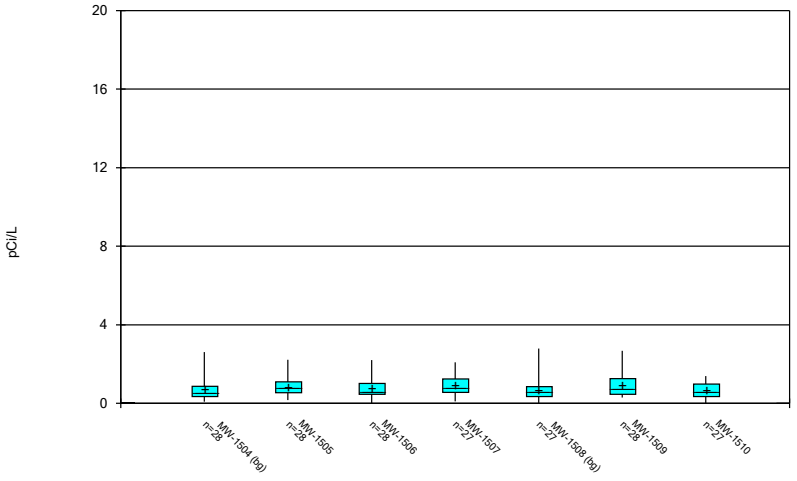
Constituent: Chromium, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



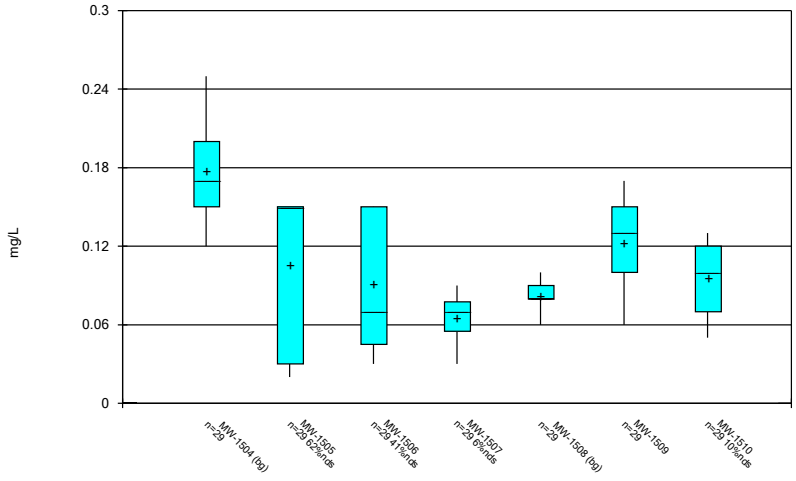
Constituent: Cobalt, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



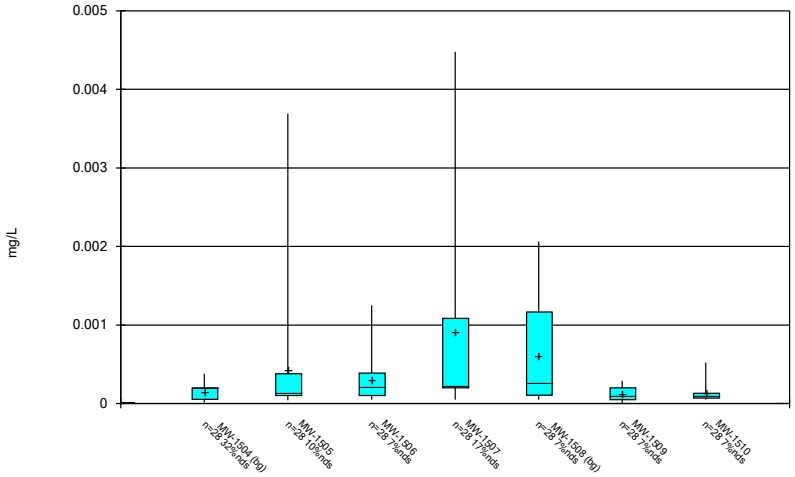
Constituent: Combined Radium 226 + 228 Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Fluoride, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

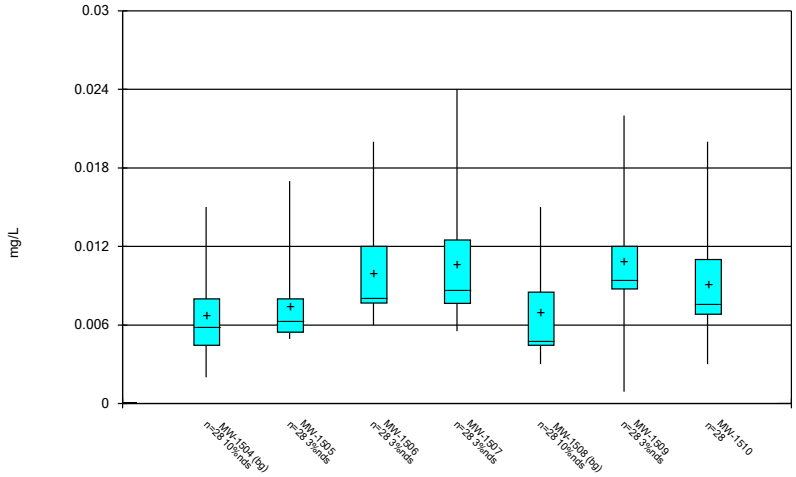
Box & Whiskers Plot



Constituent: Lead, total Analysis Run 12/16/2024 2:06 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

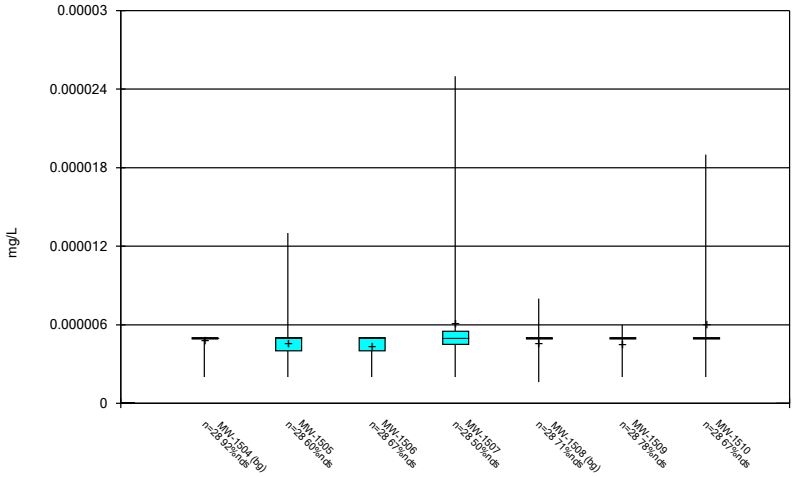
Box & Whiskers Plot



Constituent: Lithium, total Analysis Run 12/16/2024 2:06 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

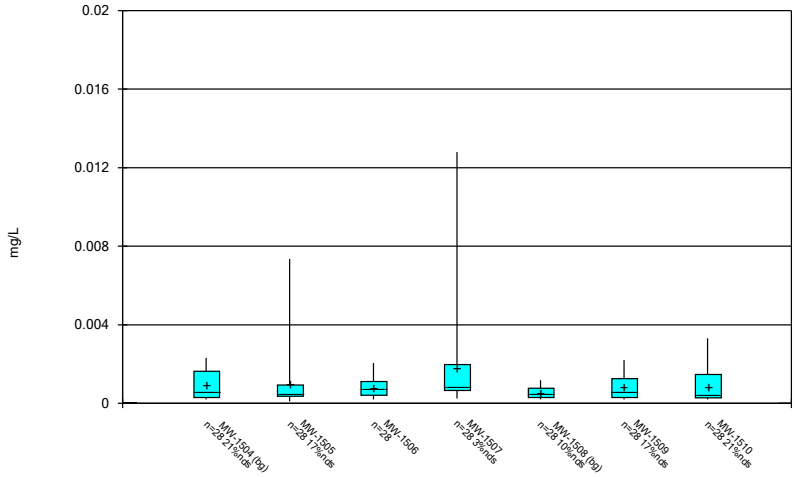
Box & Whiskers Plot



Constituent: Mercury, total Analysis Run 12/16/2024 2:06 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

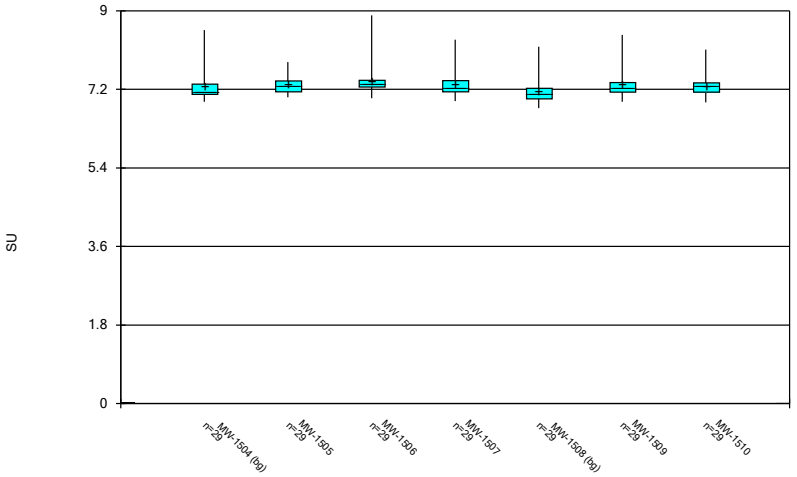
Box & Whiskers Plot



Constituent: Molybdenum, total Analysis Run 12/16/2024 2:06 PM

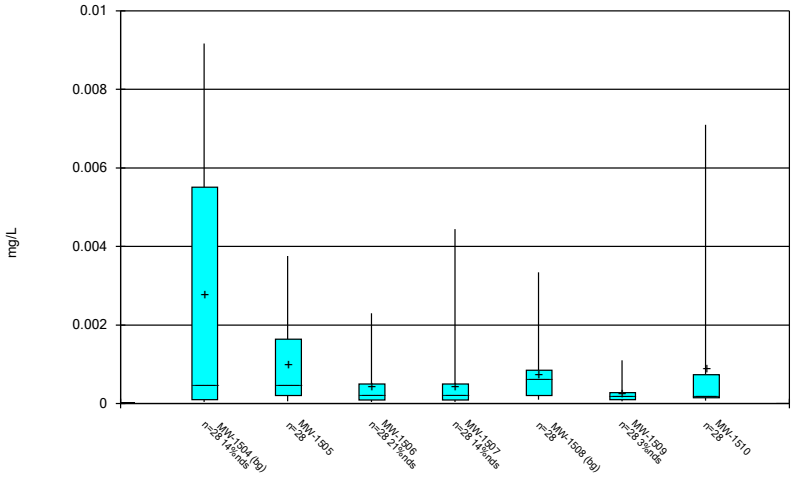
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



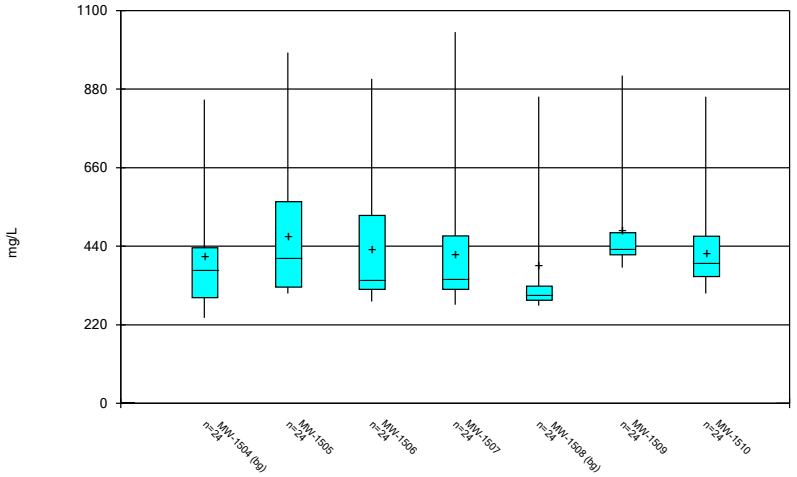
Constituent: pH, field Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



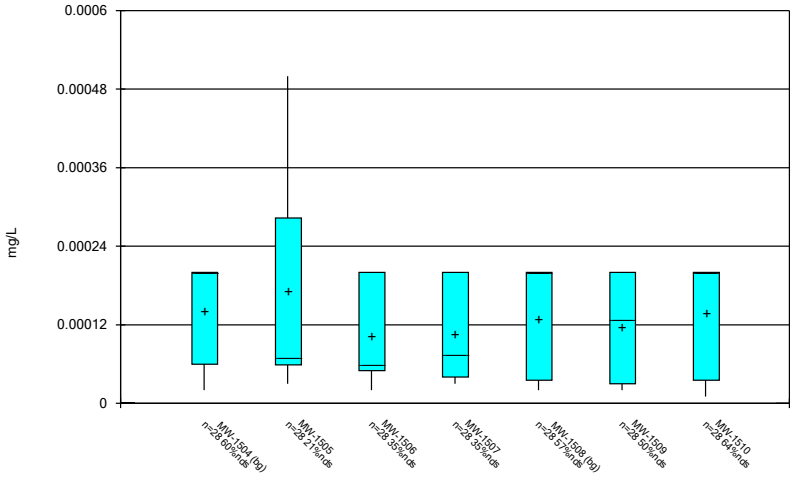
Constituent: Selenium, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



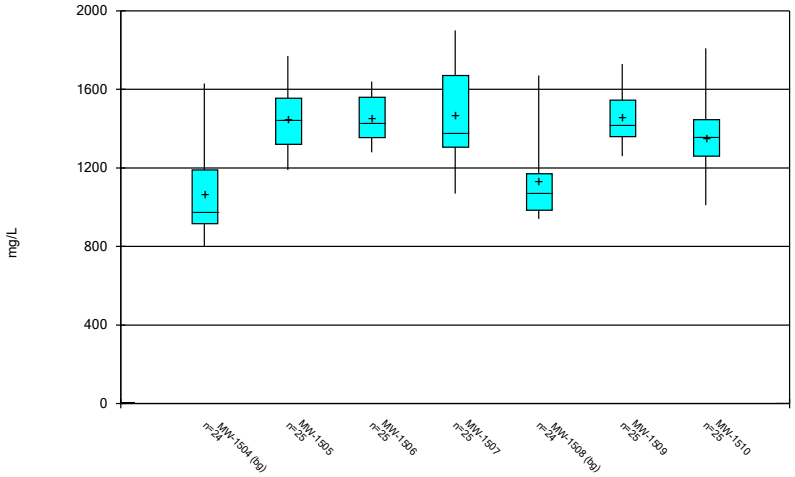
Constituent: Sulfate, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 12/16/2024 2:06 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 12/16/2024 2:06 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE C

Outlier Summary and Tukey's Outlier Test

Outlier Summary

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:09 PM

	MW-1505 Chromium, total (mg/L)	MW-1510 Chromium, total (mg/L)	MW-1507 Combined Radium 226 + 228 (pCi/L)	MW-1508 Combined Radium 226 + 228 (pCi/L)	MW-1510 Combined Radium 226 + 228 (pCi/L)
6/14/2016	0.0332 (o)				
2/8/2017			16.587 (o)	12.465 (o)	6.828 (o)
4/12/2018		0.0274 (o)			

Tukey's Outlier Test - Upgradient Wells - Significant Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:12 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Combined Radium 226 + 228 (pCi/L)	**MW-1504,MW-1508**	**Yes**	**0.01901**	**NP**	**NaN**	**56**	**0.9022**	**1.673**	**ln(x)**	**ShapiroFrancia**
pH, field (SU)	**MW-1504,MW-1508**	**Yes**	**8.56**	**NP**	**NaN**	**58**	**7.222**	**0.3224**	**ln(x)**	**ShapiroFrancia**

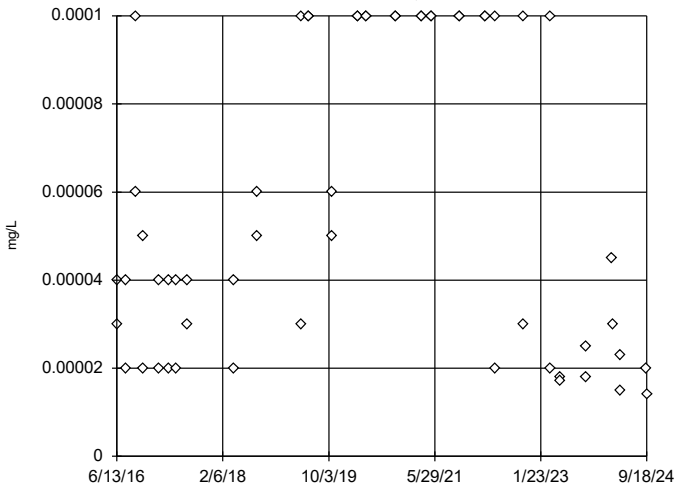
Tukey's Outlier Test - Upgradient Wells - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:12 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.00005741	0.00003505	ln(x)	ShapiroFrancia
Arsenic, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.0004673	0.000334	ln(x)	ShapiroFrancia
Barium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.03619	0.008621	normal	ShapiroFrancia
Beryllium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.00004291	0.00001472	x^2	ShapiroFrancia
Boron, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	48	1.299	1.813	ln(x)	ShapiroWilk
Cadmium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.00003477	0.00001296	ln(x)	ShapiroFrancia
Calcium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	48	220.6	20.07	normal	ShapiroWilk
Chloride, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	48	153.2	55.5	normal	ShapiroWilk
Chromium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.0005952	0.000454	ln(x)	ShapiroFrancia
Cobalt, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	54	0.0005222	0.0006722	ln(x)	ShapiroFrancia
Combined Radium 226 + 228 (pCi/L)	**MW-1504,MW-1508**	**Yes**	**0.01901**	**NP**	**NaN**	**56**	**0.9022**	**1.673**	**ln(x)**	**ShapiroFrancia**
Fluoride, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	58	0.13	0.05493	ln(x)	ShapiroFrancia
Lead, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.0003765	0.000506	ln(x)	ShapiroFrancia
Lithium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.006888	0.003665	ln(x)	ShapiroFrancia
Mercury, total (mg/L)	MW-1504,MW-1508	n/a	n/a	NP	NaN	56	0.000004707	0.000001007	unknown	ShapiroFrancia
Molybdenum, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.0007711	0.0006466	ln(x)	ShapiroFrancia
pH, field (SU)	**MW-1504,MW-1508**	**Yes**	**8.56**	**NP**	**NaN**	**58**	**7.222**	**0.3224**	**ln(x)**	**ShapiroFrancia**
Selenium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.001783	0.002605	ln(x)	ShapiroFrancia
Thallium, total (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	56	0.000135	0.00008049	ln(x)	ShapiroFrancia
Total Dissolved Solids [TDS] (mg/L)	MW-1504,MW-1508	No	n/a	NP	NaN	48	1100	222.5	ln(x)	ShapiroWilk

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

High cutoff = 0.01014, low cutoff = 2.1e-7, based on IQR multiplier of 3.

Constituent: Antimony, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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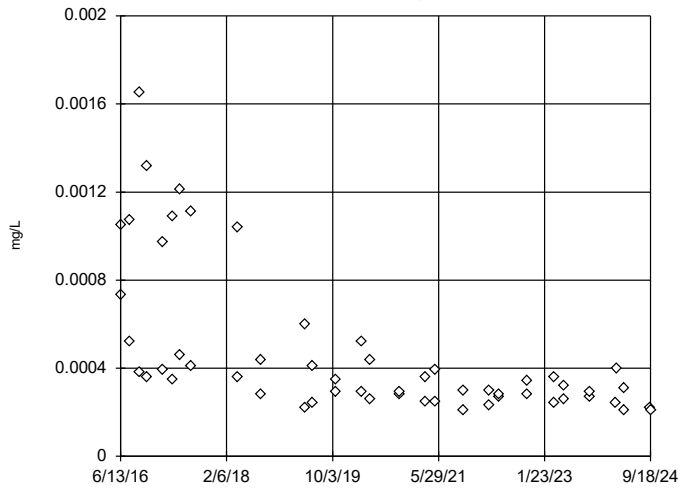
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

High cutoff = 0.002081, low cutoff = 0.00005836, based on IQR multiplier of 3.

Constituent: Arsenic, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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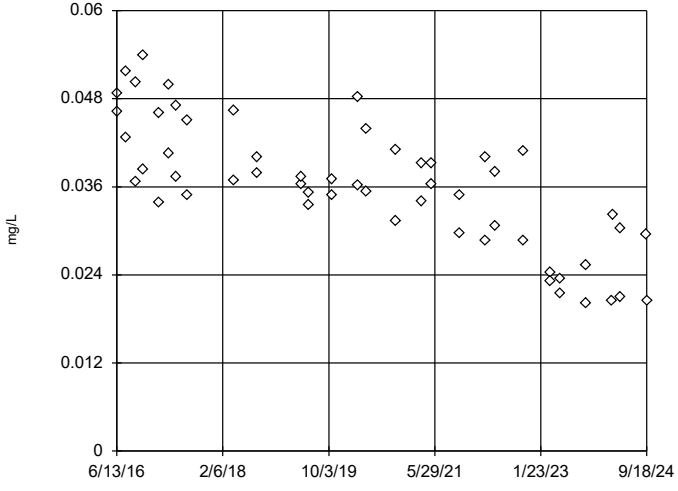
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 0.0723, low cutoff = -0.00085, based on IQR multiplier of 3.

Constituent: Barium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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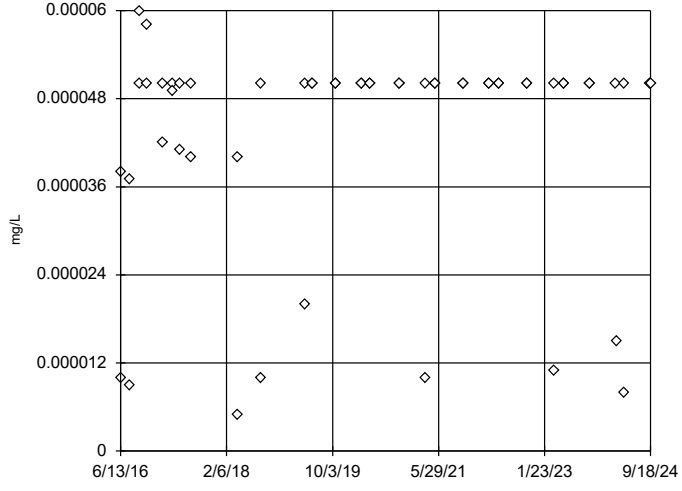
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

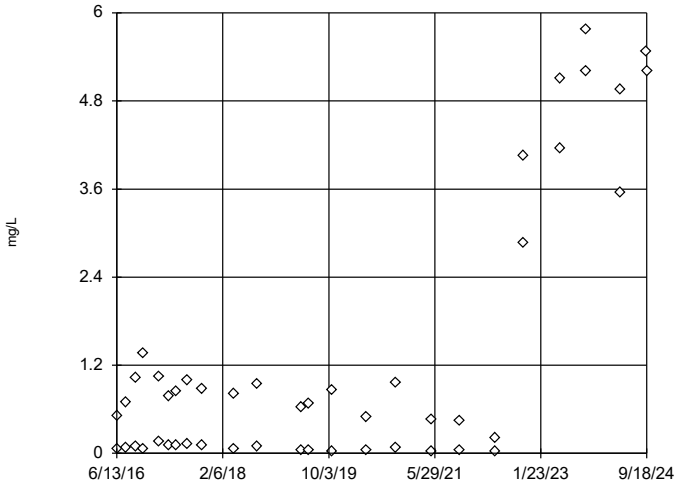
High cutoff = 0.00006952, low cutoff = -0.0000247, based on IQR multiplier of 3.

Constituent: Beryllium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 48

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

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

High cutoff = 1643, low cutoff = 0.00005589, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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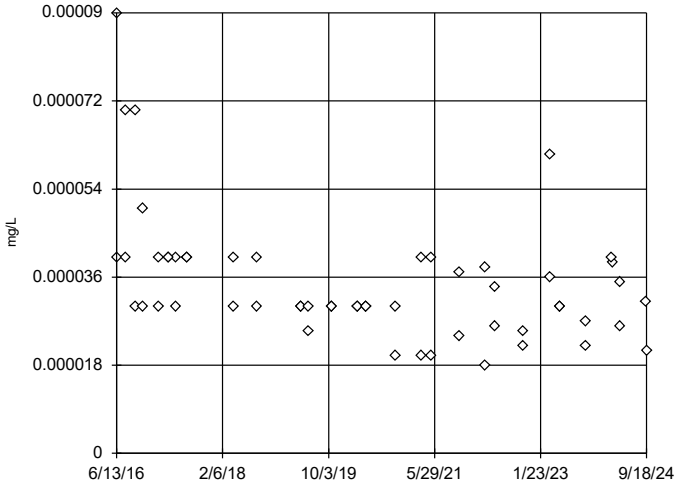
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

High cutoff = 0.00009481, low cutoff = 0.00001266, based on IQR multiplier of 3.

Constituent: Cadmium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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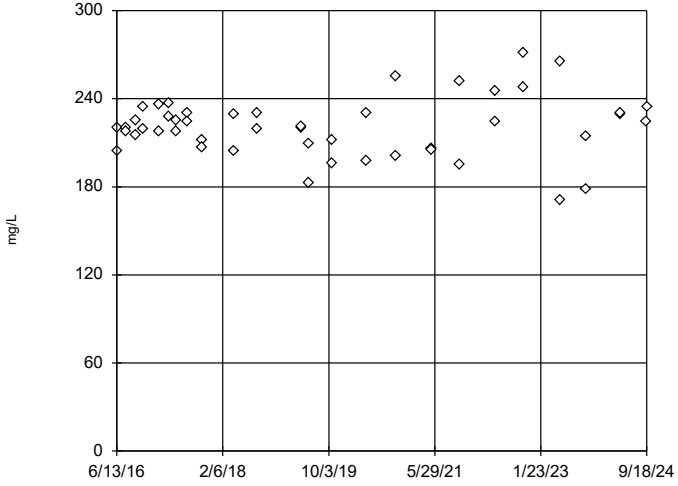
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 48

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

Ladder of Powers transformations did not improve normality; analysis run on raw data.

High cutoff = 296, low cutoff = 142, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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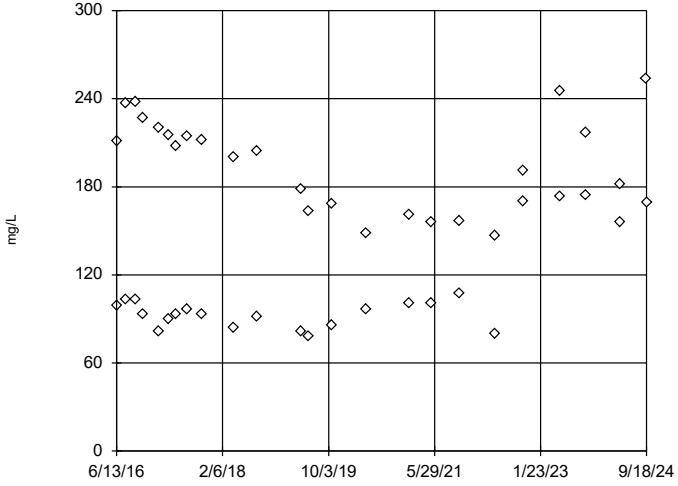
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 48

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

Ladder of Powers transformations did not improve normality; analysis run on raw data.

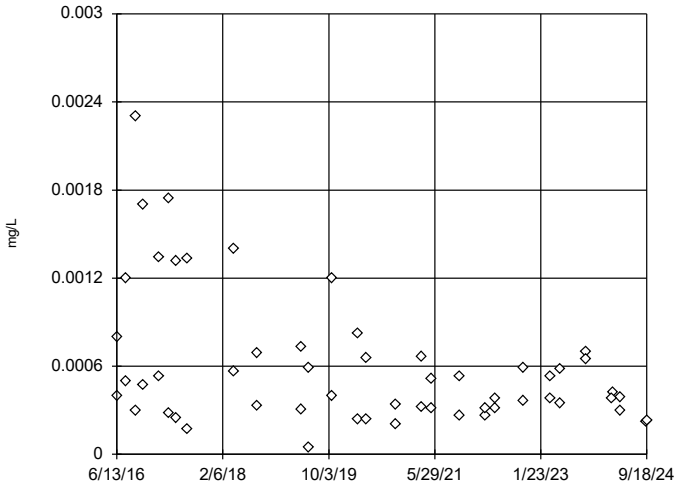
High cutoff = 535.3, low cutoff = -233, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

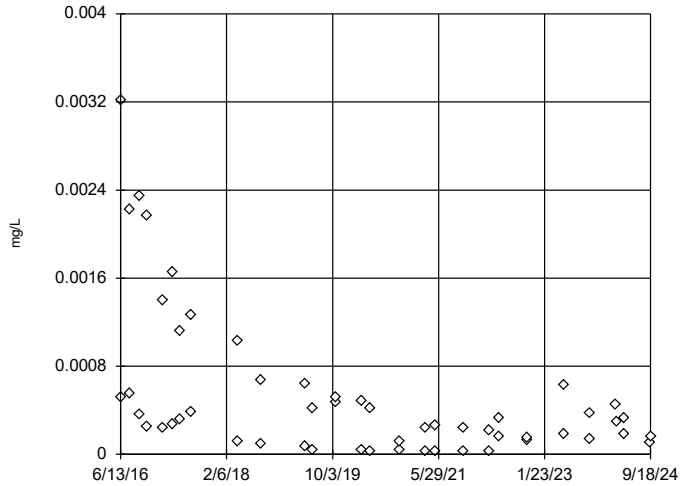
High cutoff = 0.007176, low cutoff = 0.00002896, based on IQR multiplier of 3.

Constituent: Chromium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 54

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

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

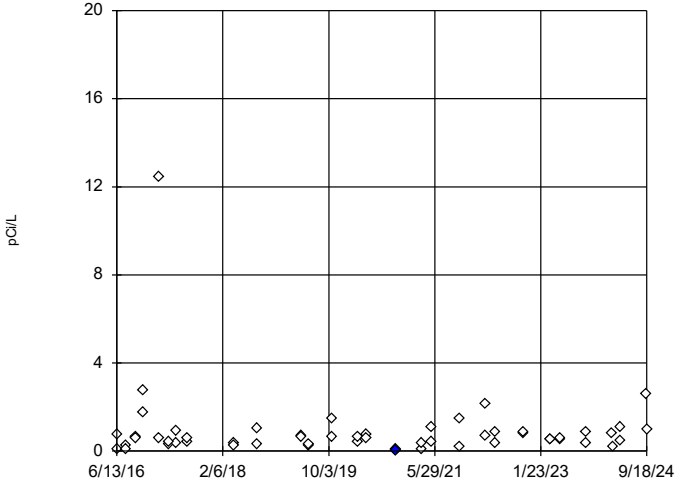
High cutoff = 0.04905, low cutoff = 0.000001299, based on IQR multiplier of 3.

Constituent: Cobalt, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

Outlier is drawn as solid. Tukey's method selected by user.

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

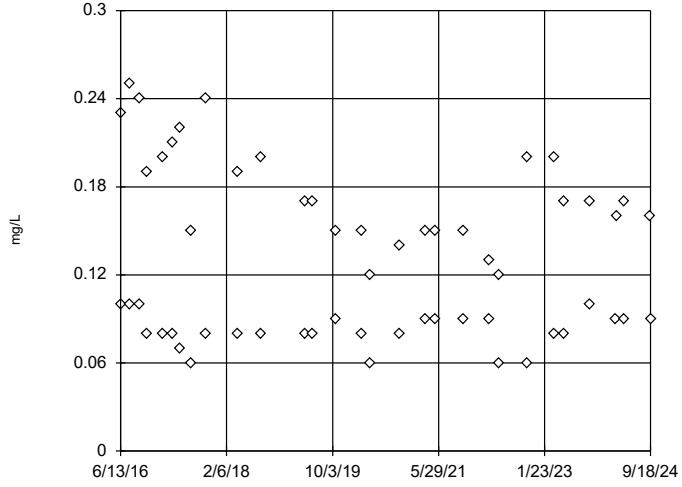
High cutoff = 13, low cutoff = 0.0227, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Te

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 58

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

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

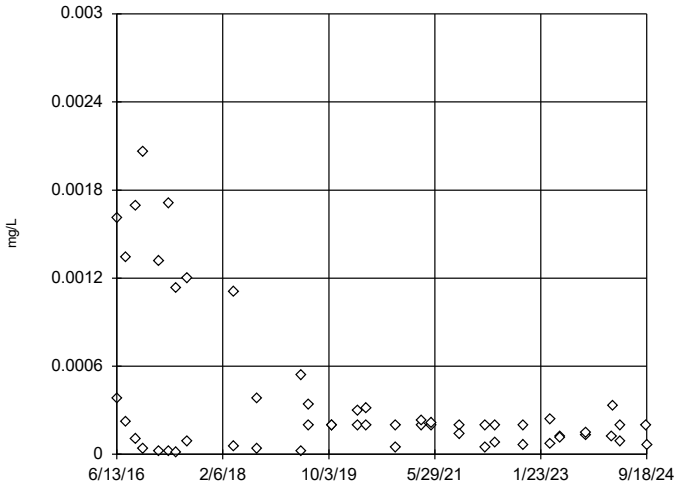
High cutoff = 1.631, low cutoff = 0.008337, based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

High cutoff = 0.0152, low cutoff = 0.000001865, based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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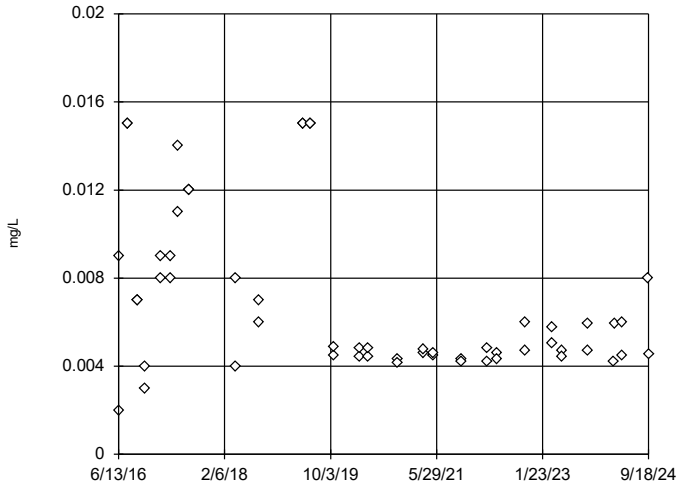
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

High cutoff = 0.04617, low cutoff = 0.0007728, based on IQR multiplier of 3.

Constituent: Lithium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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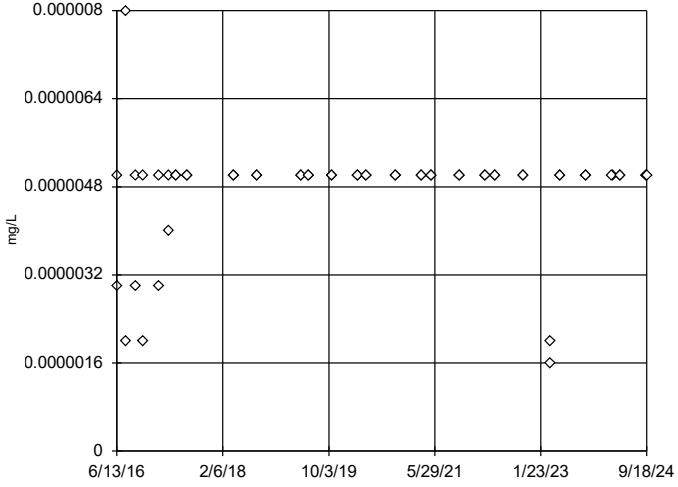
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

Ladder of Powers transformations did not improve normality; analysis run on raw data.

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Mercury, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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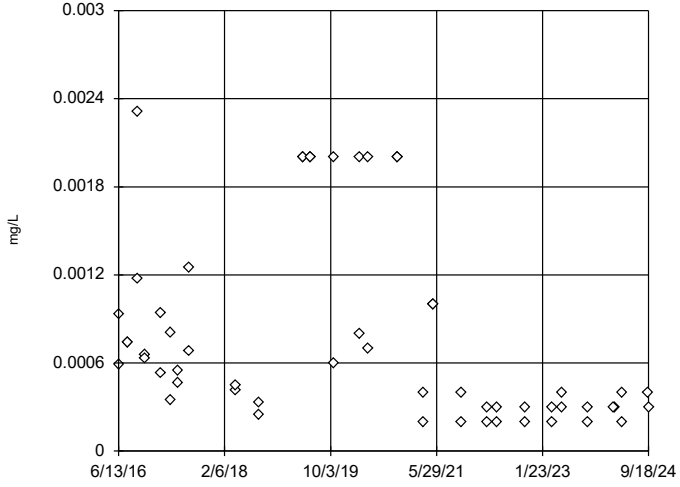
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

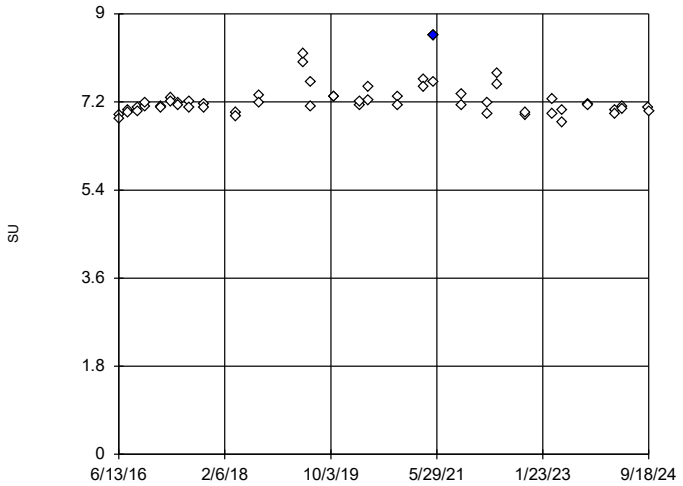
High cutoff = 0.03273, low cutoff = 0.000008888, based on IQR multiplier of 3.

Constituent: Molybdenum, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 58

Outlier is drawn as solid. Tukey's method selected by user.

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

High cutoff = 8.209, low cutoff = 6.243, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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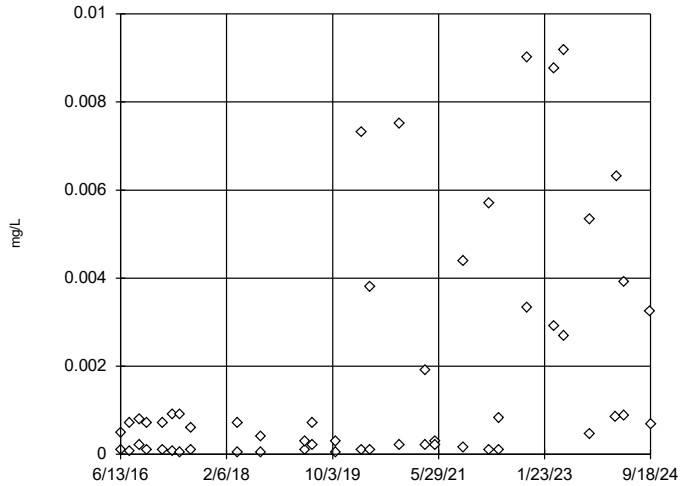
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

High cutoff = 61.31, low cutoff = 4.6e-9, based on IQR multiplier of 3.

Constituent: Selenium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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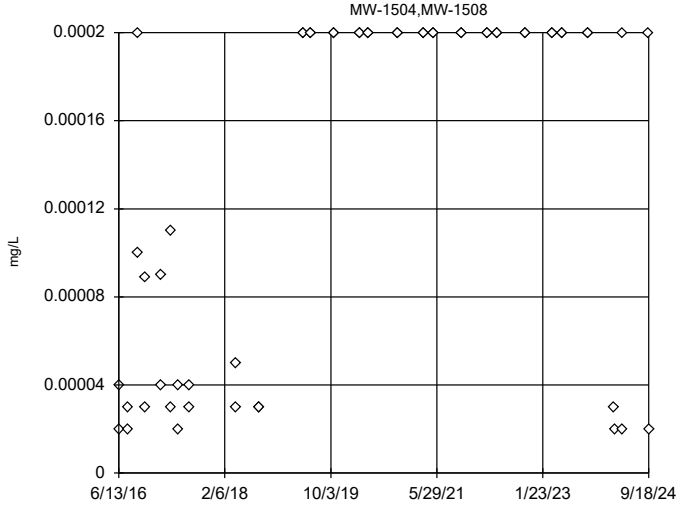
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 56

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

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

High cutoff = 0.03849, low cutoff = 1.8e-7, based on IQR multiplier of 3.

Constituent: Thallium, total Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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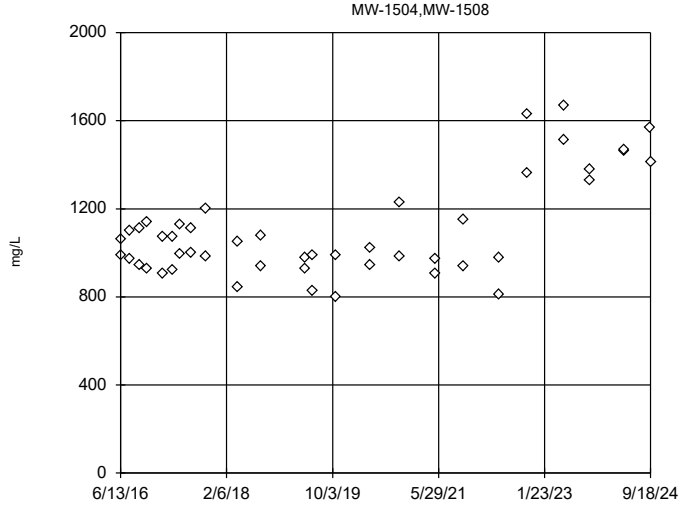
Tukey's Outlier Screening, Pooled Background

MW-1504,MW-1508



n = 48

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

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

High cutoff = 2246, low cutoff = 495.1, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/16/2024 2:10 PM View: Upgradient Outlier Test

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE D
Upgradient Trend Tests – Appendix III

Appendix III - Upgradient Wells Trend Tests - Significant Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:14 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Alpha	Method
Chloride, total (mg/L)	**MW-1508 (bg)**	**-10.16**	**-177**	**-105**	**Yes**	**24**	**0**	**n/a**	**0.01**	**NP**

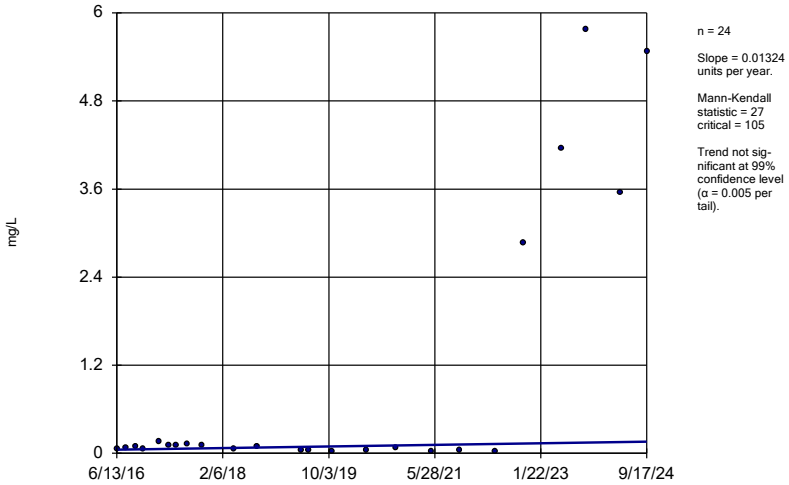
Appendix III - Upgradient Wells Trend Tests - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:14 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Alpha	Method
Boron, total (mg/L)	MW-1504 (bg)	0.01324	27	105	No	24	0	n/a	0.01	NP
Boron, total (mg/L)	MW-1508 (bg)	0.07526	32	105	No	24	0	n/a	0.01	NP
Calcium, total (mg/L)	MW-1504 (bg)	0	-4	-105	No	24	0	n/a	0.01	NP
Calcium, total (mg/L)	MW-1508 (bg)	0.8453	18	105	No	24	0	n/a	0.01	NP
Chloride, total (mg/L)	MW-1504 (bg)	4.988	82	105	No	24	0	n/a	0.01	NP
Chloride, total (mg/L)	**MW-1508 (bg)**	**-10.16**	**-177**	**-105**	**Yes**	**24**	**0**	**n/a**	**0.01**	**NP**
pH, field (SU)	MW-1504 (bg)	0.007357	28	139	No	29	0	n/a	0.01	NP
pH, field (SU)	MW-1508 (bg)	0.003049	8	139	No	29	0	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1504 (bg)	49.88	74	105	No	24	0	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW-1508 (bg)	4.365	6	105	No	24	0	n/a	0.01	NP

Sen's Slope Estimator

MW-1504 (bg)



n = 24

Slope = 0.01324 units per year.

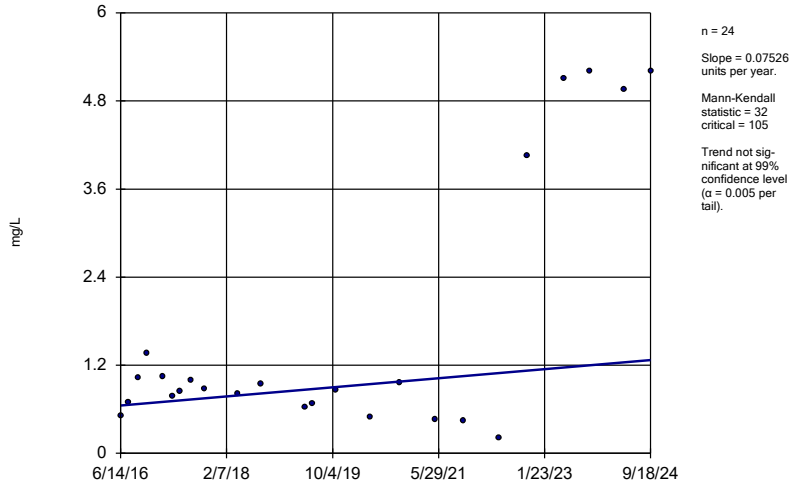
Mann-Kendall statistic = 27
critical = 105

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1508 (bg)



n = 24

Slope = 0.07526 units per year.

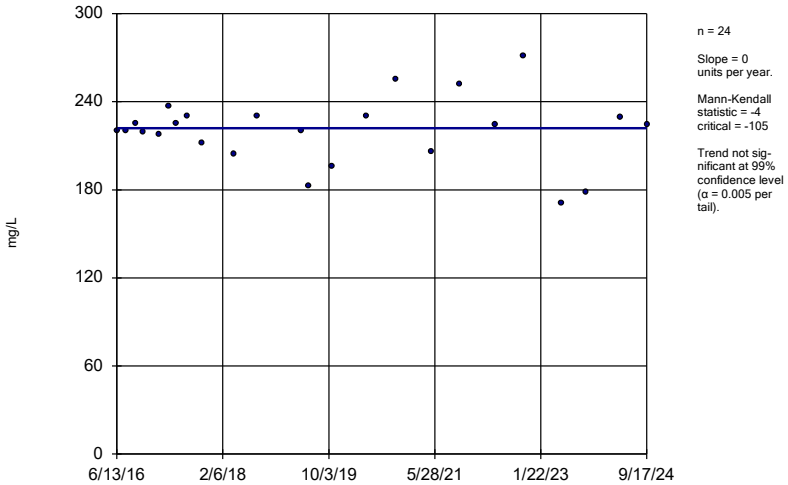
Mann-Kendall statistic = 32
critical = 105

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1504 (bg)



n = 24

Slope = 0 units per year.

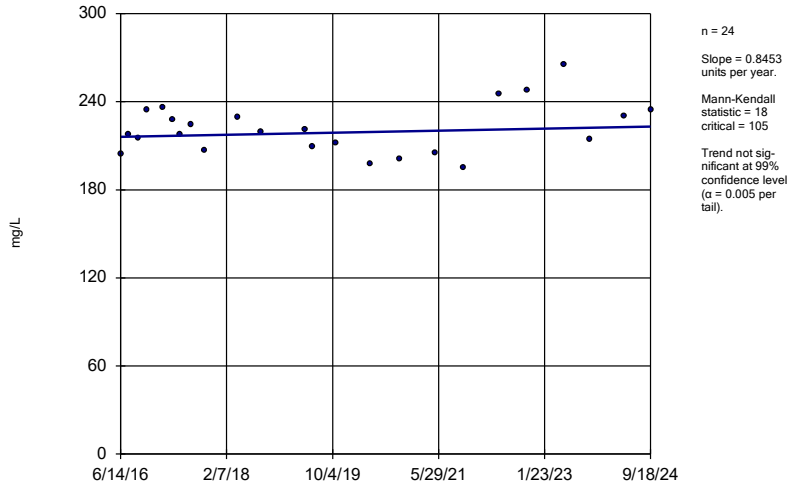
Mann-Kendall statistic = -4
critical = -105

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium, total Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1508 (bg)



n = 24

Slope = 0.8453 units per year.

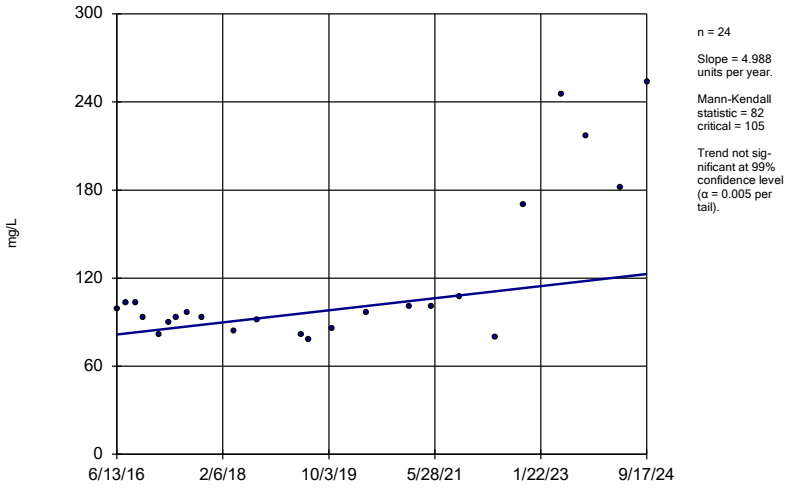
Mann-Kendall statistic = 18
critical = 105

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium, total Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1504 (bg)



n = 24

Slope = 4.988 units per year.

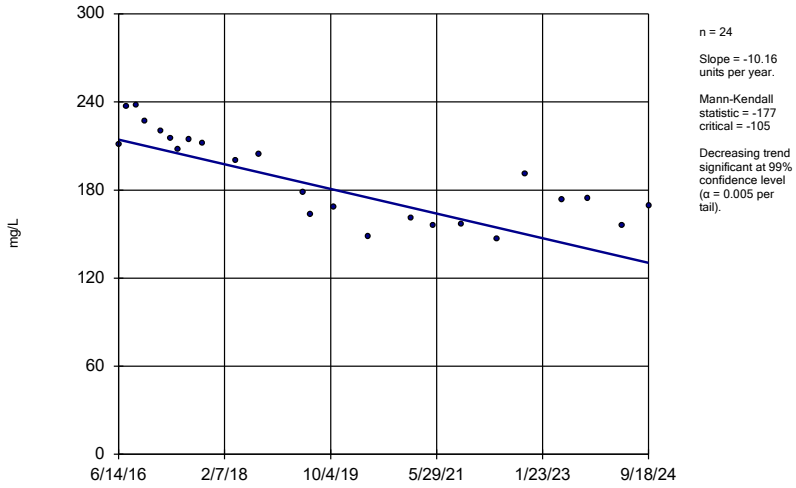
Mann-Kendall statistic = 82 critical = 105

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1508 (bg)



n = 24

Slope = -10.16 units per year.

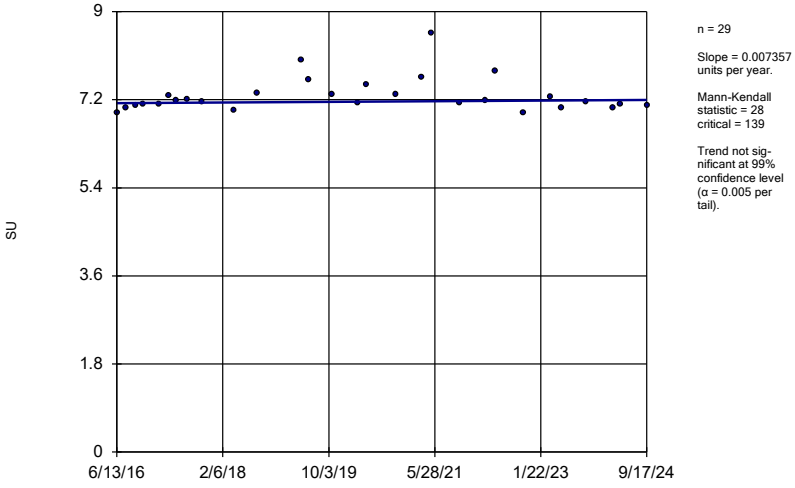
Mann-Kendall statistic = -177 critical = -105

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1504 (bg)



n = 29

Slope = 0.007357 units per year.

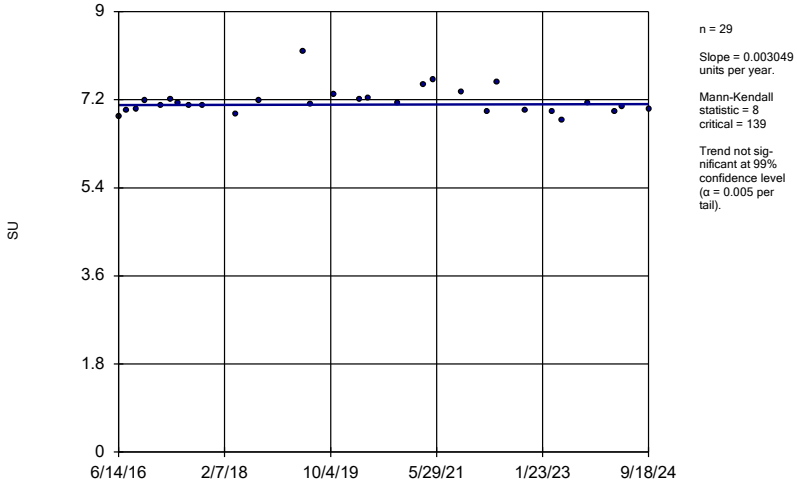
Mann-Kendall statistic = 28 critical = 139

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1508 (bg)



n = 29

Slope = 0.003049 units per year.

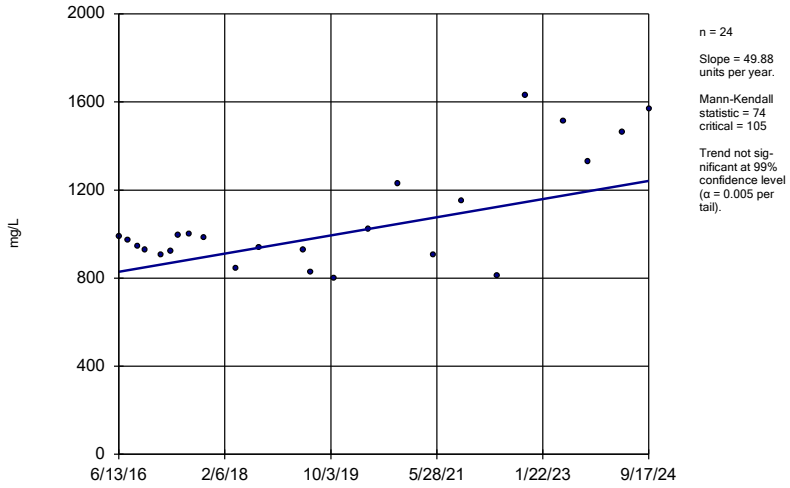
Mann-Kendall statistic = 8 critical = 139

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW-1504 (bg)



n = 24

Slope = 49.88 units per year.

Mann-Kendall statistic = 74 critical = 105

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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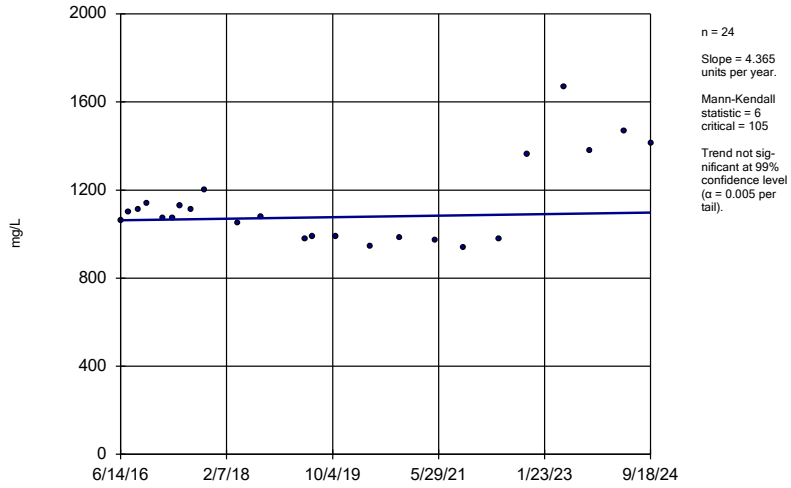
Sen's Slope Estimator

MW-1508 (bg)



n = 24

Slope = 4.365 units per year.

Mann-Kendall statistic = 6 critical = 105

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/16/2024 2:13 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE E

Intrawell PLs

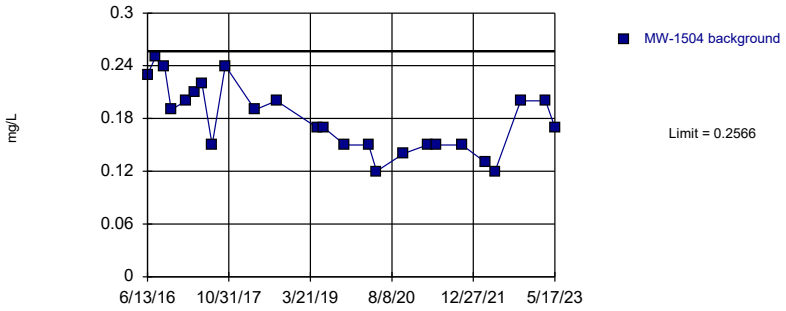
Appendix III - Intrawell Prediction Limits - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:25 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg	NBg	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Fluoride, total (mg/L)	MW-1504	0.2566	n/a	n/a	1 future	n/a	25	0.1796	0.03867	0	None	No	0.001504	Param Intra 1 of 2	
Fluoride, total (mg/L)	MW-1505	0.15	n/a	n/a	1 future	n/a	25	n/a	n/a	60	n/a	n/a	0.002832	NP Intra (NDs) 1 of 2	
Fluoride, total (mg/L)	MW-1506	0.15	n/a	n/a	1 future	n/a	25	n/a	n/a	40	n/a	n/a	0.002832	NP Intra (normality) 1 of 2	
Fluoride, total (mg/L)	MW-1507	0.09056	n/a	n/a	1 future	n/a	25	0.0624	0.01415	8	None	No	0.001504	Param Intra 1 of 2	
Fluoride, total (mg/L)	MW-1508	0.1	n/a	n/a	1 future	n/a	25	n/a	n/a	0	n/a	n/a	0.002832	NP Intra (normality) 1 of 2	
Fluoride, total (mg/L)	MW-1509	0.16	n/a	n/a	1 future	n/a	25	n/a	n/a	0	n/a	n/a	0.002832	NP Intra (normality) 1 of 2	
Fluoride, total (mg/L)	MW-1510	0.1442	n/a	n/a	1 future	n/a	25	0.0916	0.02641	12	None	No	0.001504	Param Intra 1 of 2	
Sulfate, total (mg/L)	MW-1504	438.9	n/a	n/a	1 future	n/a	17	119145	34535	0	None	x^2	0.001504	Param Intra 1 of 2	
Sulfate, total (mg/L)	MW-1505	408	n/a	n/a	1 future	n/a	13	n/a	n/a	0	n/a	n/a	0.009692	NP Intra (normality) 1 of 2	
Sulfate, total (mg/L)	MW-1506	368.7	n/a	n/a	1 future	n/a	13	319.2	21.75	0	None	No	0.001504	Param Intra 1 of 2	
Sulfate, total (mg/L)	MW-1507	373.2	n/a	n/a	1 future	n/a	13	323.9	21.63	0	None	No	0.001504	Param Intra 1 of 2	
Sulfate, total (mg/L)	MW-1508	325.7	n/a	n/a	1 future	n/a	17	298.4	12.87	0	None	No	0.001504	Param Intra 1 of 2	
Sulfate, total (mg/L)	MW-1509	491.5	n/a	n/a	1 future	n/a	17	428.4	29.69	0	None	No	0.001504	Param Intra 1 of 2	
Sulfate, total (mg/L)	MW-1510	523.4	n/a	n/a	1 future	n/a	17	388.1	63.62	0	None	No	0.001504	Param Intra 1 of 2	

Prediction Limit

Intrawell Parametric, MW-1504 (bg)



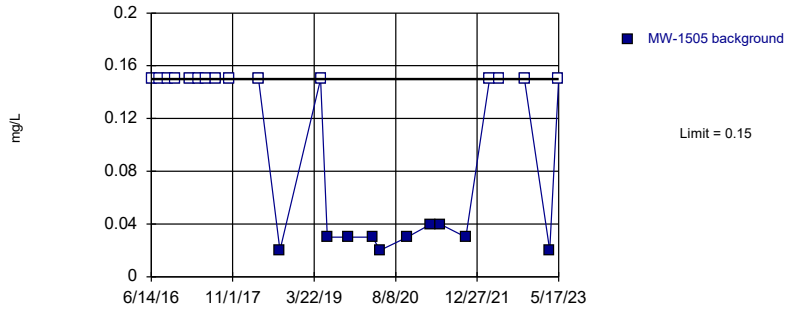
Background Data Summary: Mean=0.1796, Std. Dev.=0.03867, n=25. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.943, critical = 0.888. Kappa = 1.99 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:24 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-1505



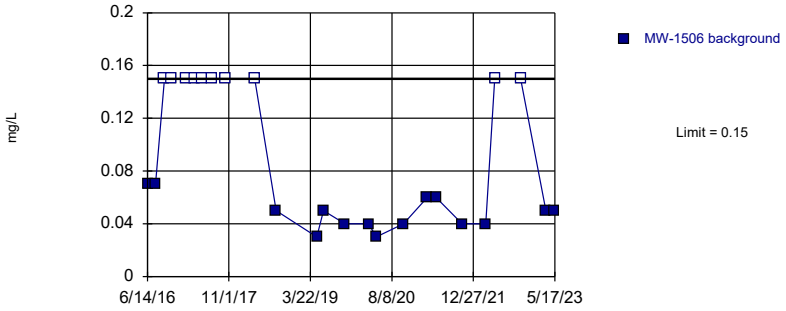
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 25 background values. 60% NDs. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:24 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Hollow symbols indicate censored values.

Prediction Limit

Intrawell Non-parametric, MW-1506



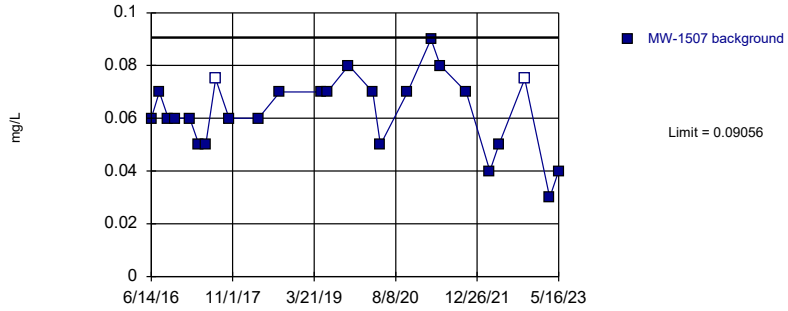
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 25 background values. 40% NDs. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:24 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Hollow symbols indicate censored values.

Prediction Limit

Intrawell Parametric, MW-1507

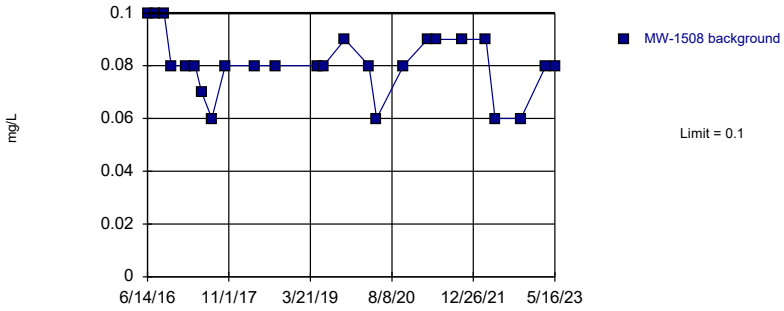


Background Data Summary: Mean=0.0624, Std. Dev.=0.01415, n=25, 8% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9565, critical = 0.888. Kappa = 1.99 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:24 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Non-parametric, MW-1508 (bg)

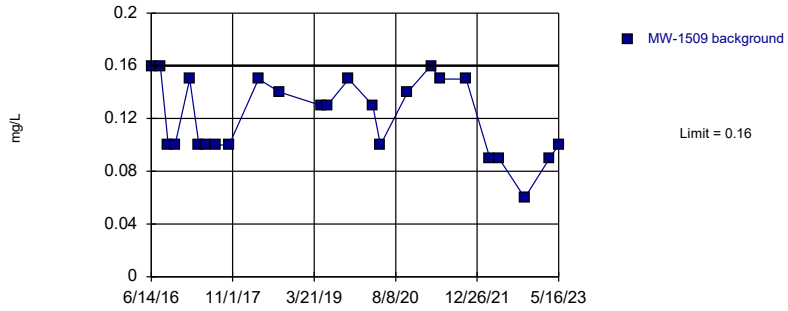


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 25 background values. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:24 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Non-parametric, MW-1509



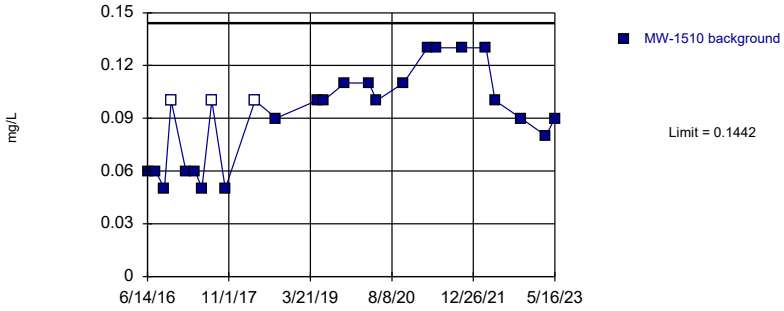
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 25 background values. Well-constituent pair annual alpha = 0.005656. Individual comparison alpha = 0.002832 (1 of 2). Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:24 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Hollow symbols indicate censored values.

Prediction Limit

Intrawell Parametric, MW-1510

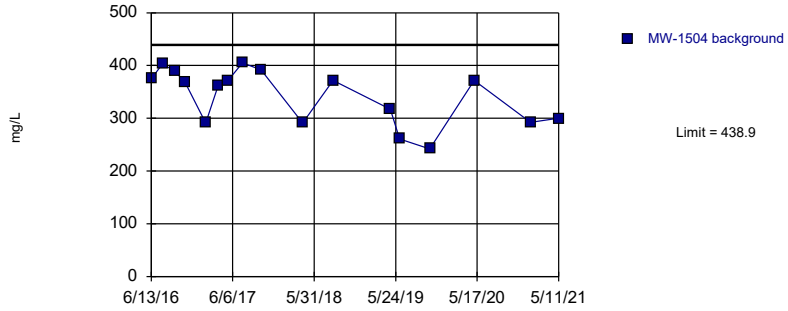


Background Data Summary: Mean=0.0916, Std. Dev.=0.02641, n=25, 12% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8993, critical = 0.888. Kappa = 1.99 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:24 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1504 (bg)

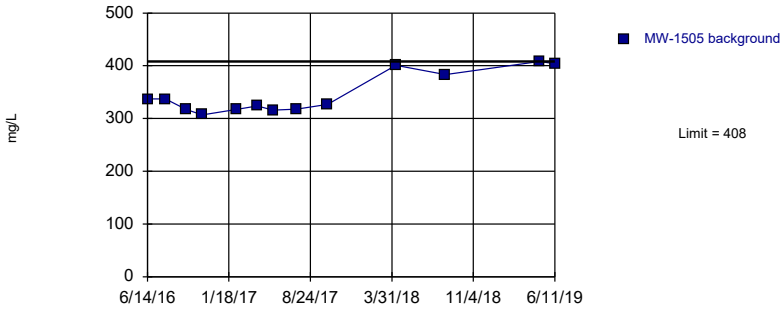


Background Data Summary (based on square transformation): Mean=119145, Std. Dev.=34535, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8967, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 12/16/2024 2:25 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Non-parametric, MW-1505

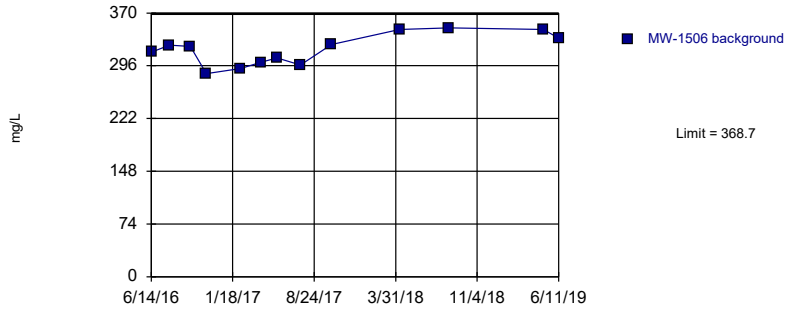


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.05 alpha level. Limit is highest of 13 background values. Well-constituent pair annual alpha = 0.01929. Individual comparison alpha = 0.009692 (1 of 2). Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 12/16/2024 2:25 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1506

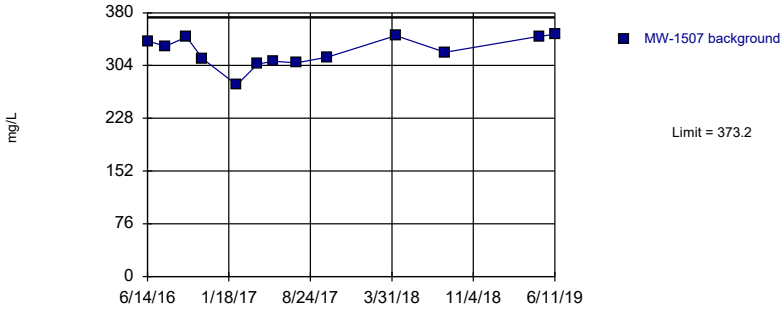


Background Data Summary: Mean=319.2, Std. Dev.=21.75, n=13. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9405, critical = 0.866. Kappa = 2.279 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 12/16/2024 2:25 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1507

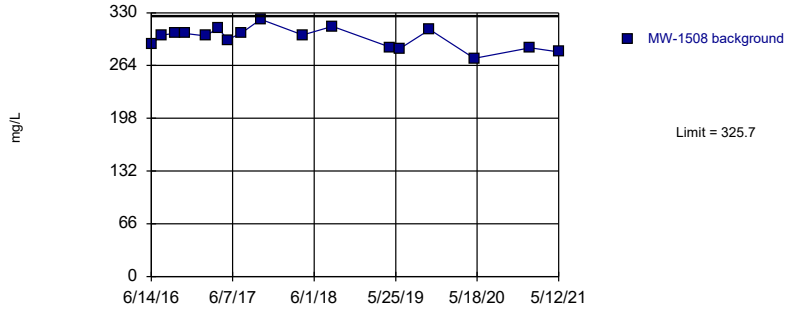


Background Data Summary: Mean=323.9, Std. Dev.=21.63, n=13. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9109, critical = 0.866. Kappa = 2.279 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 12/16/2024 2:25 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1508 (bg)

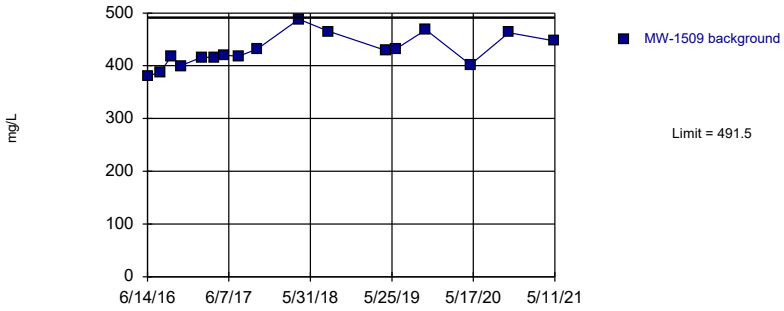


Background Data Summary: Mean=298.4, Std. Dev.=12.87, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9729, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 12/16/2024 2:25 PM View: Appendix III - Intrawell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Intrawell Parametric, MW-1509



Background Data Summary: Mean=428.4, Std. Dev.=29.69, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9605, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 12/16/2024 2:25 PM View: Appendix III - Intrawell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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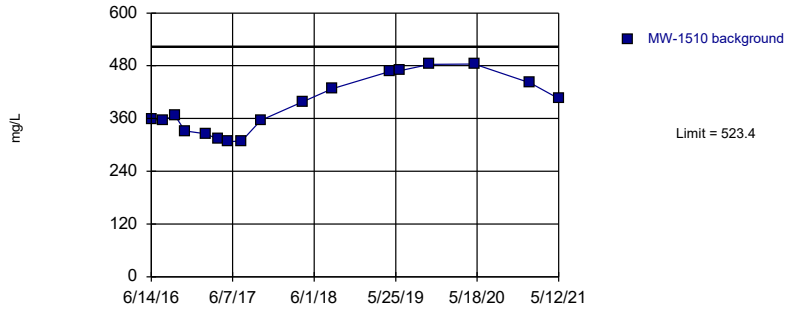
Prediction Limit

Intrawell Parametric, MW-1510



Background Data Summary: Mean=388.1, Std. Dev.=63.62, n=17. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9067, critical = 0.892. Kappa = 2.127 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.001504. Assumes 1 future value.

Constituent: Sulfate, total Analysis Run 12/16/2024 2:25 PM View: Appendix III - Intrawell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE F

Interwell PLs

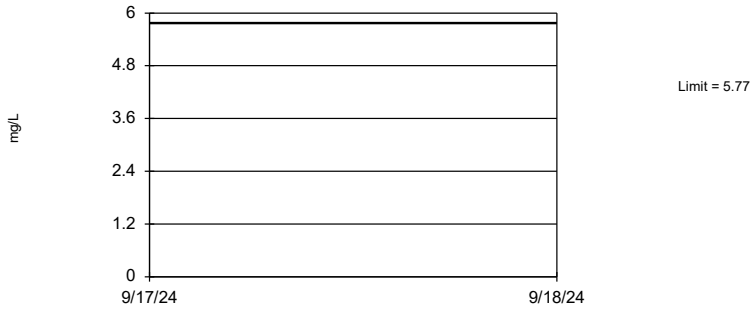
Appendix III - Interwell Prediction Limits - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:22 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg	NBg	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron, total (mg/L)	n/a	5.77	n/a	n/a	5 future	n/a	48	n/a	n/a	n/a	0	n/a	n/a	0.0008213	NP Inter (normality) 1 of 2
Calcium, total (mg/L)	n/a	258.1	n/a	n/a	5 future	n/a	48	220.6	20.07	0	None	No	0.001504	Param Inter 1 of 2	
Chloride, total (mg/L)	n/a	254	n/a	n/a	5 future	n/a	48	n/a	n/a	n/a	0	n/a	n/a	0.0008213	NP Inter (normality) 1 of 2
pH, field (SU)	n/a	8.56	6.77	n/a	5 future	n/a	58	n/a	n/a	n/a	0	n/a	n/a	0.001134	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	n/a	1670	n/a	n/a	5 future	n/a	48	n/a	n/a	n/a	0	n/a	n/a	0.0008213	NP Inter (normality) 1 of 2

Prediction Limit

Interwell Non-parametric

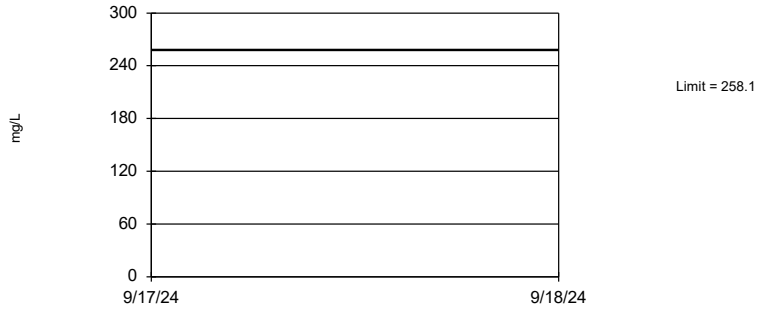


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 48 background values. Annual per-constituent alpha = 0.008182. Individual comparison alpha = 0.0008213 (1 of 2). Assumes 5 future values.

Constituent: Boron, total Analysis Run 12/16/2024 2:21 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Interwell Parametric

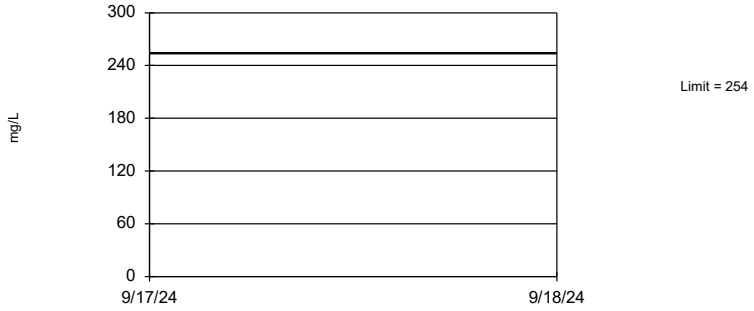


Background Data Summary: Mean=220.6, Std. Dev.=20.07, n=48. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9778, critical = 0.929. Kappa = 1.868 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Assumes 5 future values.

Constituent: Calcium, total Analysis Run 12/16/2024 2:21 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Interwell Non-parametric

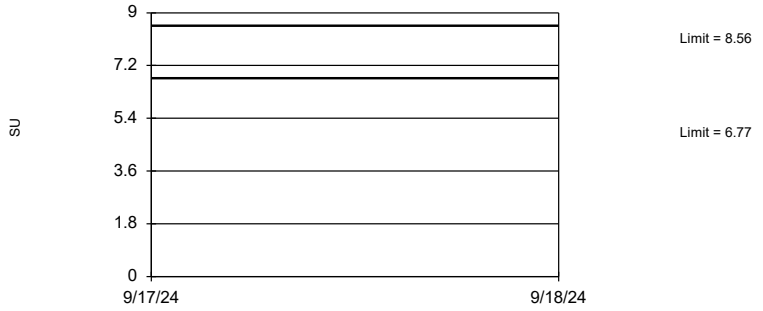


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 48 background values. Annual per-constituent alpha = 0.008182. Individual comparison alpha = 0.0008213 (1 of 2). Assumes 5 future values.

Constituent: Chloride, total Analysis Run 12/16/2024 2:21 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Interwell Non-parametric

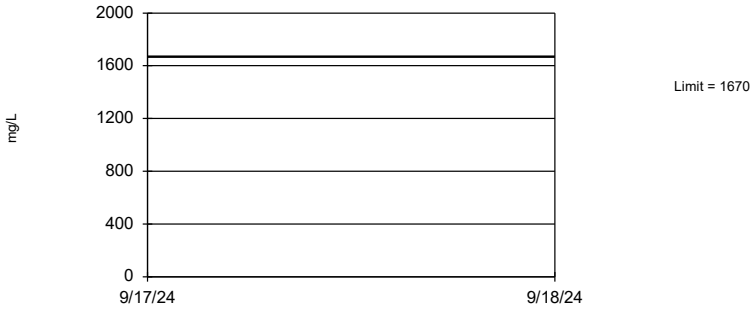


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 58 background values. Annual per-constituent alpha = 0.01131. Individual comparison alpha = 0.001134 (1 of 2). Assumes 5 future values.

Constituent: pH, field Analysis Run 12/16/2024 2:21 PM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 48 background values. Annual per-constituent alpha = 0.008182. Individual comparison alpha = 0.0008213 (1 of 2). Assumes 5 future values.

Constituent: Total Dissolved Solids [TDS] Analysis Run 12/16/2024 2:21 PM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE G

UTLs

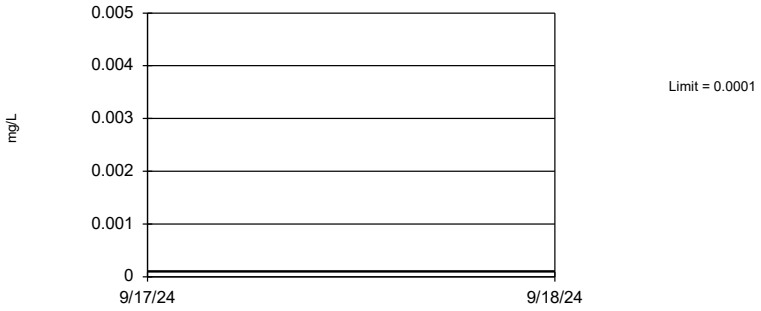
Upper Tolerance Limits Summary Table

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:28 PM

Constituent	Upper Lim.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	0.0001	56	n/a	n/a	37.5	n/a	n/a	0.05656	NP Inter(normality)
Arsenic, total (mg/L)	0.00165	56	n/a	n/a	0	n/a	n/a	0.05656	NP Inter(normality)
Barium, total (mg/L)	0.05371	56	0.03619	0.008621	0	None	No	0.05	Inter
Beryllium, total (mg/L)	0.00006	56	n/a	n/a	67.86	n/a	n/a	0.05656	NP Inter(NDs)
Cadmium, total (mg/L)	0.00009	56	n/a	n/a	1.786	n/a	n/a	0.05656	NP Inter(normality)
Chromium, total (mg/L)	0.001893	56	-7.658	0.6832	0	None	ln(x)	0.05	Inter
Cobalt, total (mg/L)	0.003274	54	-8.234	1.23	0	None	ln(x)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	1.983	55	0.7721	0.3125	0	None	sqrt(x)	0.05	Inter
Fluoride, total (mg/L)	0.25	58	n/a	n/a	0	n/a	n/a	0.05105	NP Inter(normality)
Lead, total (mg/L)	0.002229	56	-8.977	1.413	19.64	Kaplan-Meier	ln(x)	0.05	Inter
Lithium, total (mg/L)	0.015	56	n/a	n/a	10.71	n/a	n/a	0.05656	NP Inter(normality)
Mercury, total (mg/L)	0.000008	56	n/a	n/a	82.14	n/a	n/a	0.05656	NP Inter(NDs)
Molybdenum, total (mg/L)	0.00231	56	n/a	n/a	16.07	n/a	n/a	0.05656	NP Inter(normality)
Selenium, total (mg/L)	0.01568	56	-7.498	1.645	7.143	None	ln(x)	0.05	Inter
Thallium, total (mg/L)	0.0002	56	n/a	n/a	58.93	n/a	n/a	0.05656	NP Inter(NDs)

Tolerance Limit

Interwell Non-parametric

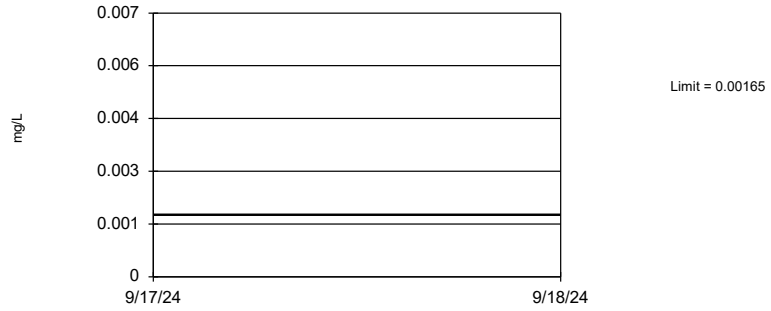


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 56 background values. 37.5% NDs. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Antimony, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

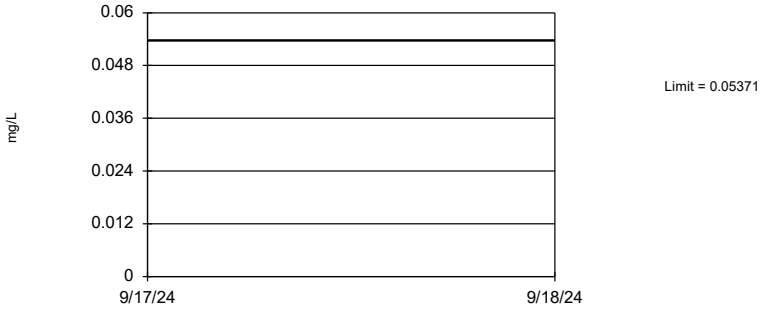


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 56 background values. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Arsenic, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

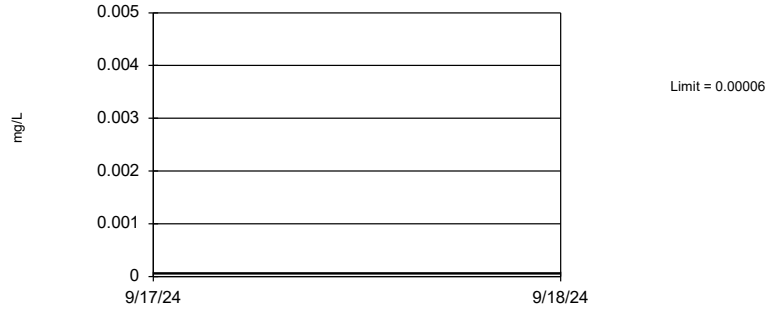


95% coverage. Background Data Summary: Mean=0.03619, Std. Dev.=0.008621, n=56. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9829, critical = 0.942. Report alpha = 0.05.

Constituent: Barium, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

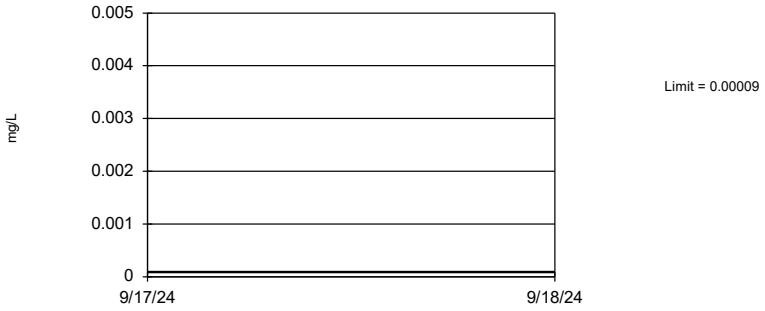


Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 56 background values. 67.86% NDs. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Beryllium, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

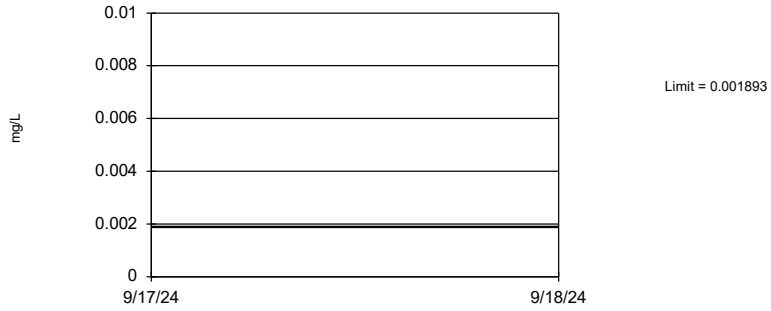


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 56 background values. 1.786% NDs. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Cadmium, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

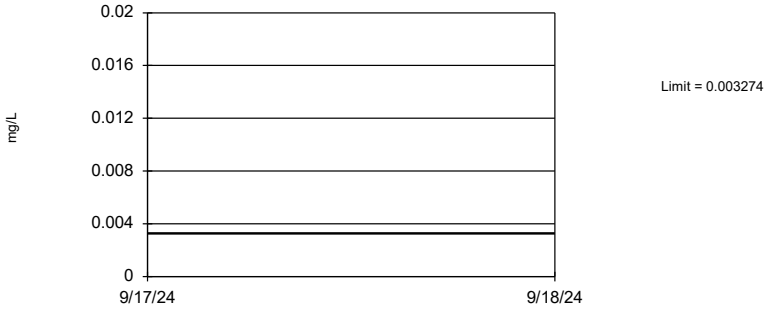


95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.658, Std. Dev.=0.6832, n=56. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9452, critical = 0.942. Report alpha = 0.05.

Constituent: Chromium, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

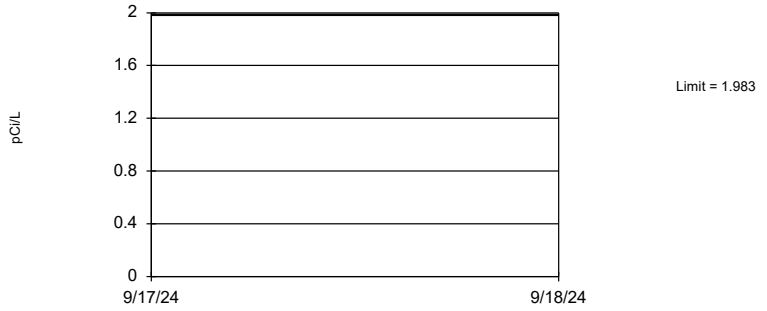


95% coverage. Background Data Summary (based on natural log transformation): Mean=-8.234, Std. Dev.=1.23, n=54. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9779, critical = 0.939. Report alpha = 0.05.

Constituent: Cobalt, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

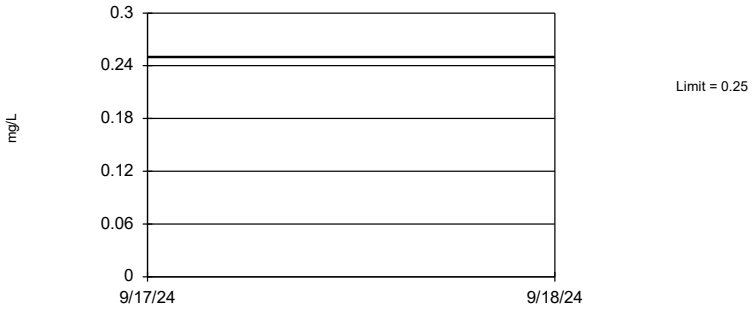


95% coverage. Background Data Summary (based on square root transformation): Mean=0.7721, Std. Dev.=0.3125, n=55. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9477, critical = 0.94. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

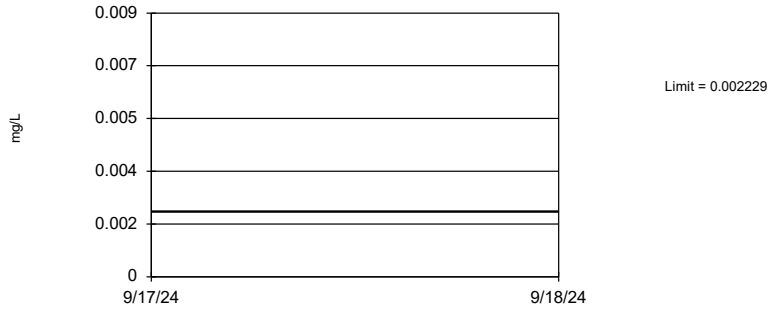


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 58 background values. 92.38% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05105.

Constituent: Fluoride, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

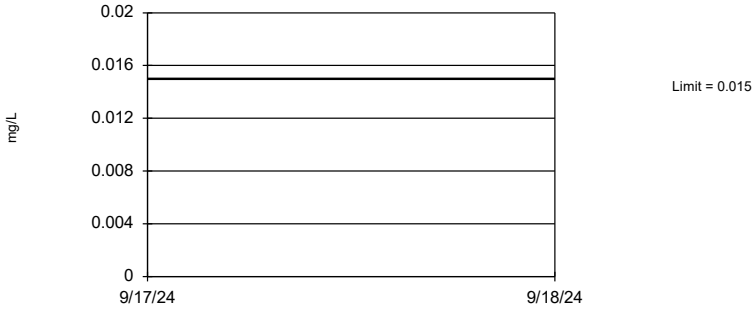


95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-8.977, Std. Dev.=1.413, n=56, 19.64% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9595, critical = 0.942. Report alpha = 0.05.

Constituent: Lead, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

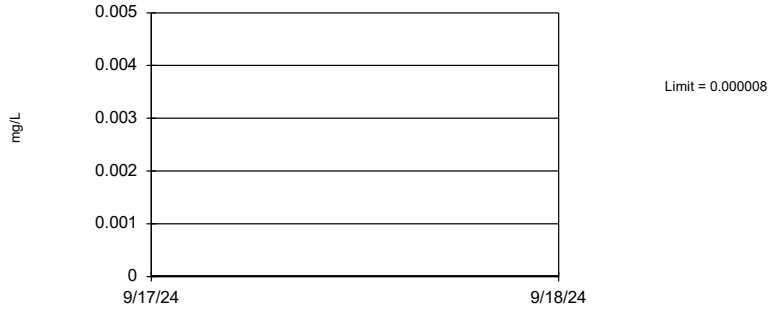


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 56 background values. 10.71% NDs. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Lithium, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

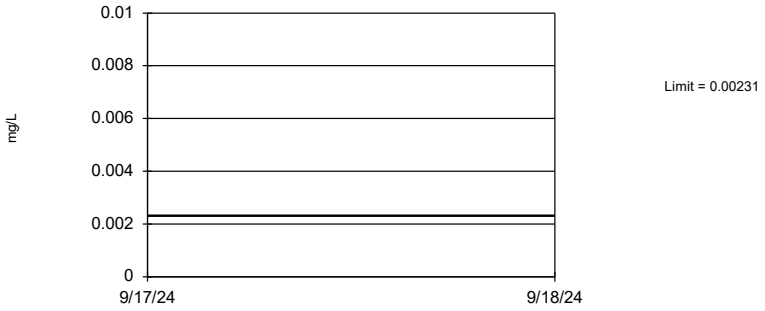


Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 56 background values. 82.14% NDs. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Mercury, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

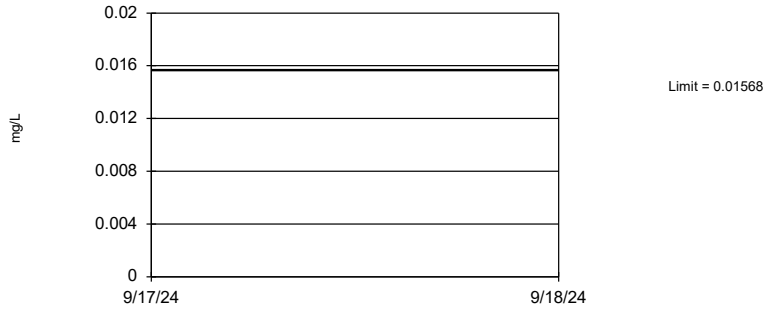


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 56 background values. 16.07% NDs. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Molybdenum, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

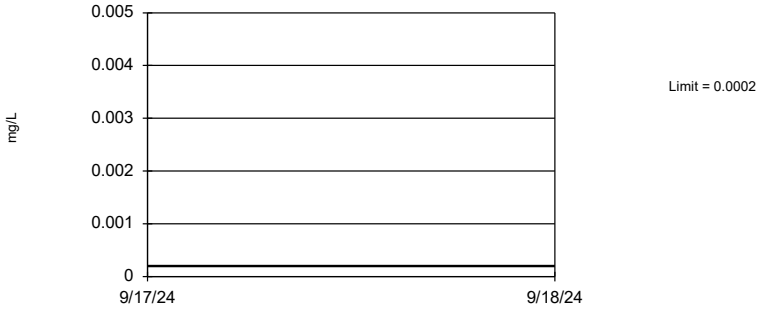


95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.498, Std. Dev.=1.645, n=56, 7.143% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9571, critical = 0.942. Report alpha = 0.05.

Constituent: Selenium, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 56 background values. 58.93% NDs. 91.99% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05656.

Constituent: Thallium, total Analysis Run 12/16/2024 2:27 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE H

GWPS

MITCHELL BAP GWPS				
Constituent Name	**Compliance Limit**	**CCR-Rule Specified**	**Background Limit**	**GWPS**
Antimony, Total (mg/L)	0.006		0.0001	0.006
Arsenic, Total (mg/L)	0.01		0.0017	0.01
Barium, Total (mg/L)	2		0.054	2
Beryllium, Total (mg/L)	0.004		0.00006	0.004
Cadmium, Total (mg/L)	0.005		0.00009	0.005
Chromium, Total (mg/L)	0.1		0.0019	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0033	0.006
Combined Radium, Total (pCi/L)	5		1.98	5
Fluoride, Total (mg/L)	4		0.25	4
Lead, Total (mg/L)	n/a	0.015	0.0022	0.015
Lithium, Total (mg/L)	n/a	0.04	0.015	0.04
Mercury, Total (mg/L)	0.002		0.000008	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.0023	0.1
Selenium, Total (mg/L)	0.05		0.016	0.05
Thallium, Total (mg/L)	0.002		0.0002	0.002

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

FIGURE I
Confidence Intervals

Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:36 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	MW-1505	0.00005	0.00003	0.006	No	28	0.00004336	0.00002126	7.143	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1506	0.00004	0.000028	0.006	No	28	0.00003993	0.00002999	3.571	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1507	0.00006	0.00003	0.006	No	28	0.00004968	0.00003003	3.571	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1509	0.000033	0.000026	0.006	No	28	0.00003379	0.00001771	3.571	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW-1510	0.00003	0.00002	0.006	No	28	0.00002614	0.00001108	7.143	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1505	0.00057	0.00031	0.01	No	28	0.0006389	0.000738	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1506	0.0005852	0.0003443	0.01	No	28	0.0005329	0.0003587	0	None	ln(x)	0.01	Param.
Arsenic, total (mg/L)	MW-1507	0.0013	0.00031	0.01	No	28	0.001029	0.001237	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW-1509	0.0004348	0.0003194	0.01	No	28	0.0003771	0.0001235	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW-1510	0.0004207	0.0002944	0.01	No	28	0.0003671	0.0001466	0	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	MW-1505	0.04912	0.03634	2	No	28	0.04273	0.01368	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1506	0.05423	0.0417	2	No	28	0.04796	0.0134	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1507	0.06546	0.04406	2	No	28	0.05476	0.0229	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1509	0.05193	0.03923	2	No	28	0.04558	0.01359	0	None	No	0.01	Param.
Barium, total (mg/L)	MW-1510	0.03998	0.0322	2	No	28	0.03609	0.008322	0	None	No	0.01	Param.
Beryllium, total (mg/L)	MW-1505	0.00005	0.000014	0.004	No	28	0.00004179	0.00002992	53.57	None	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW-1506	0.00005	0.000012	0.004	No	28	0.00003304	0.00001836	46.43	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW-1507	0.000053	0.000044	0.004	No	28	0.00005882	0.0000476	46.43	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW-1509	0.00005	0.000014	0.004	No	28	0.00003739	0.00001881	67.86	None	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW-1510	0.00005	0.00002	0.004	No	28	0.00003714	0.00001786	64.29	None	No	0.01	NP (NDs)
Cadmium, total (mg/L)	MW-1505	0.00003	0.00002	0.005	No	28	0.00002446	0.000008682	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW-1506	0.00002169	0.00001392	0.005	No	28	0.00001854	0.000008707	0	None	sqrt(x)	0.01	Param.
Cadmium, total (mg/L)	MW-1507	0.00004077	0.0000267	0.005	No	28	0.000035	0.00001591	0	None	sqrt(x)	0.01	Param.
Cadmium, total (mg/L)	MW-1509	0.00002	0.00001	0.005	No	28	0.00001443	0.000006613	10.71	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW-1510	0.000012	0.000005	0.005	No	28	0.0000105	0.000006403	28.57	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1505	0.0014	0.00042	0.1	No	27	0.002158	0.003258	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1506	0.00111	0.00057	0.1	No	28	0.001322	0.001235	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW-1507	0.004195	0.001313	0.1	No	28	0.004905	0.006139	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW-1509	0.0009924	0.0005432	0.1	No	28	0.0009397	0.0008914	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW-1510	0.001328	0.0006167	0.1	No	27	0.001325	0.001517	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1505	0.0003993	0.0001685	0.006	No	28	0.0004253	0.0005699	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1506	0.0004878	0.0002306	0.006	No	28	0.0003999	0.0003134	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1507	0.0008283	0.0002318	0.006	No	28	0.0009935	0.001282	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW-1509	0.0002824	0.0001596	0.006	No	27	0.000221	0.0001287	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW-1510	0.0002204	0.0001399	0.006	No	27	0.0001801	0.00008444	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1505	1.06	0.6064	5	No	28	0.8331	0.4851	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1506	1.008	0.5404	5	No	28	0.7744	0.5008	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1507	1.172	0.6848	5	No	27	0.9282	0.5102	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1509	1.073	0.6084	5	No	28	0.8967	0.5527	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-1510	0.8364	0.4736	5	No	27	0.655	0.3803	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1505	0.15	0.04	4	No	29	0.1052	0.05877	62.07	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	MW-1506	0.15	0.05	4	No	29	0.09172	0.05092	41.38	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW-1507	0.07259	0.05845	4	No	29	0.06552	0.01543	6.897	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1509	0.1355	0.1094	4	No	29	0.1224	0.02849	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW-1510	0.1101	0.08746	4	No	29	0.09586	0.0268	10.34	None	x^2	0.01	Param.
Lead, total (mg/L)	MW-1505	0.00032	0.0001	0.015	No	28	0.0004242	0.0007649	10.71	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW-1506	0.0003462	0.0001578	0.015	No	28	0.0002978	0.0002718	7.143	None	x^(1/3)	0.01	Param.
Lead, total (mg/L)	MW-1507	0.000999	0.0002	0.015	No	28	0.0009099	0.001328	17.86	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW-1509	0.000141	0.00006431	0.015	No	28	0.0001154	0.00008446	7.143	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW-1510	0.0001496	0.00008597	0.015	No	28	0.0001381	0.0001061	7.143	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	MW-1505	0.008	0.00555	0.04	No	28	0.007474	0.003073	3.571	None	No	0.01	NP (normality)
Lithium, total (mg/L)	MW-1506	0.011	0.0077	0.04	No	28	0.009944	0.003655	3.571	None	No	0.01	NP (normality)
Lithium, total (mg/L)	MW-1507	0.01218	0.008234	0.04	No	28	0.01067	0.004814	3.571	None	x^(1/3)	0.01	Param.
Lithium, total (mg/L)	MW-1509	0.013	0.008919	0.04	No	28	0.01096	0.004368	3.571	None	No	0.01	Param.
Lithium, total (mg/L)	MW-1510	0.01056	0.007278	0.04	No	28	0.009181	0.003777	0	None	sqrt(x)	0.01	Param.

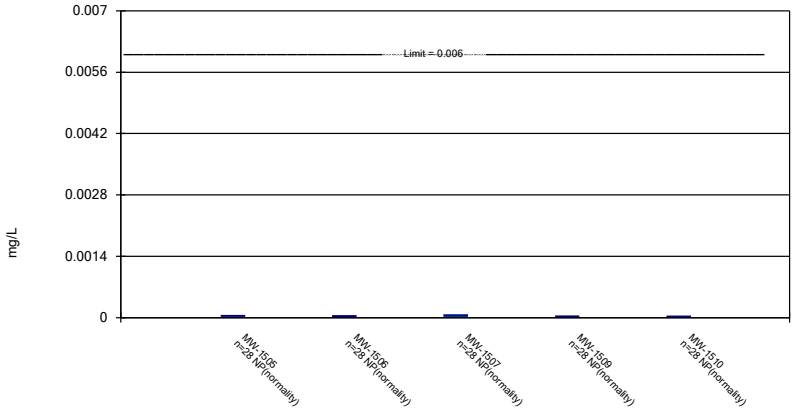
Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 12/16/2024, 2:36 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Mercury, total (mg/L)	MW-1505	0.000005	0.000003	0.002	No	28	0.000004625	0.000002085	60.71	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1506	0.000005	0.000004	0.002	No	28	0.000004329	0.000001122	67.86	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1507	0.000006	0.000004	0.002	No	28	0.000006164	0.00000457	50	None	No	0.01	NP (normality)
Mercury, total (mg/L)	MW-1509	0.000005	0.000003	0.002	No	28	0.000004536	0.000001138	78.57	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW-1510	0.000005	0.000003	0.002	No	28	0.000006086	0.000003659	67.86	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	MW-1505	0.0007561	0.0002492	0.1	No	28	0.0009482	0.001392	17.86	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1506	0.0009706	0.0005167	0.1	No	28	0.0008043	0.0005375	0	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1507	0.001672	0.0006904	0.1	No	28	0.001807	0.002536	3.571	None	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW-1509	0.00107	0.00032	0.1	No	28	0.0008518	0.0006858	17.86	None	No	0.01	NP (normality)
Molybdenum, total (mg/L)	MW-1510	0.00092	0.00028	0.1	No	28	0.0008321	0.000848	21.43	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW-1505	0.001253	0.0004012	0.05	No	28	0.001029	0.001096	0	None	sqrt(x)	0.01	Param.
Selenium, total (mg/L)	MW-1506	0.0003442	0.00007788	0.05	No	28	0.0004661	0.0005489	21.43	Kaplan-Meier	x^(1/3)	0.01	Param.
Selenium, total (mg/L)	MW-1507	0.0003872	0.0001479	0.05	No	28	0.0004425	0.0008121	14.29	None	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW-1509	0.0002757	0.0001325	0.05	No	28	0.0002671	0.0002686	3.571	None	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW-1510	0.0006	0.0001	0.05	No	28	0.0008889	0.001525	0	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1505	0.000102	0.00006	0.002	No	28	0.000172	0.0001907	21.43	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1506	0.0002	0.00005	0.002	No	28	0.0001029	0.00007452	35.71	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1507	0.0002	0.00005	0.002	No	28	0.0001054	0.00007349	35.71	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1509	0.0002	0.00004	0.002	No	28	0.0001181	0.0000837	50	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW-1510	0.0002	0.00004	0.002	No	28	0.0001377	0.00008554	64.29	None	No	0.01	NP (NDs)

Non-Parametric Confidence Interval

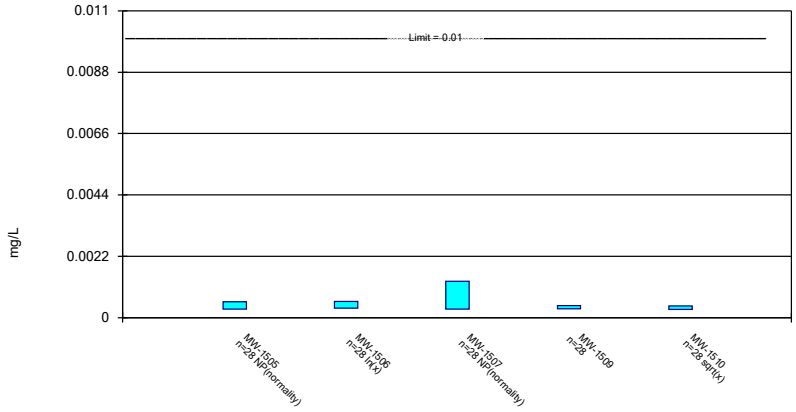
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Antimony, total Analysis Run 12/16/2024 2:34 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

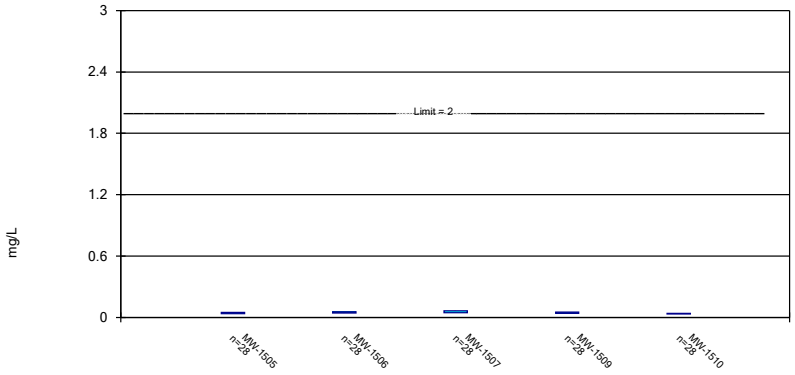
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 12/16/2024 2:34 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

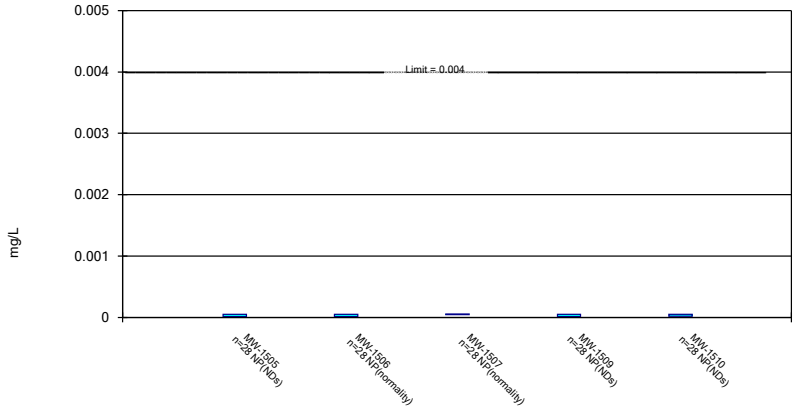
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 12/16/2024 2:34 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

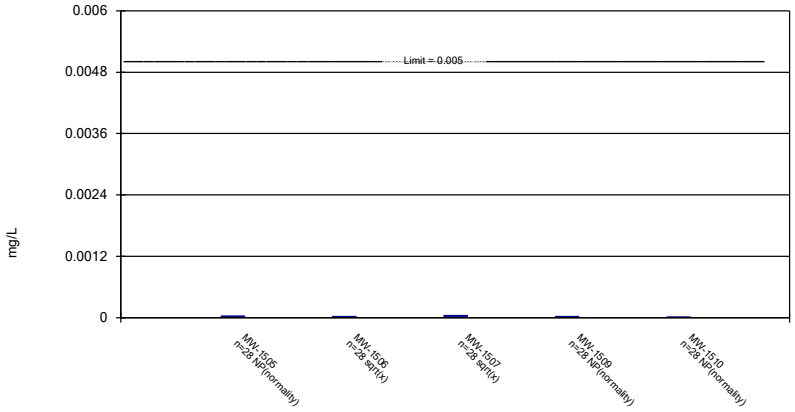
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Beryllium, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

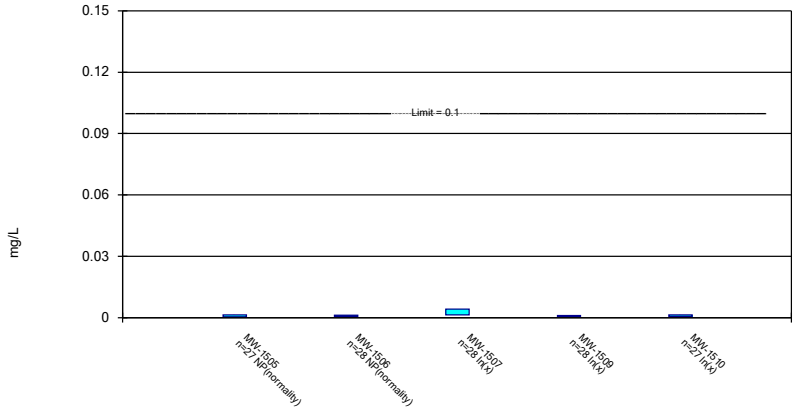
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

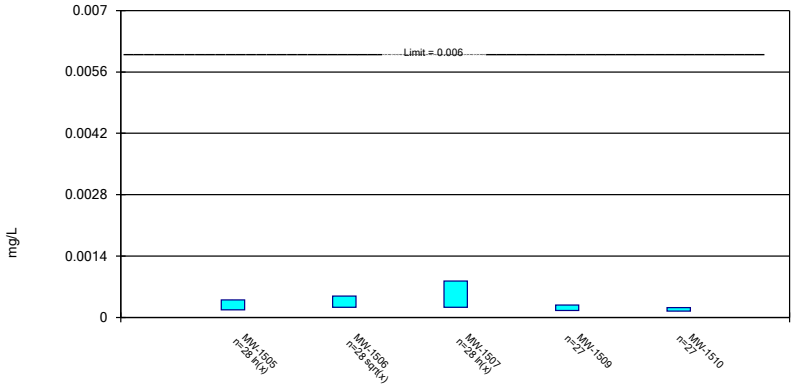
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

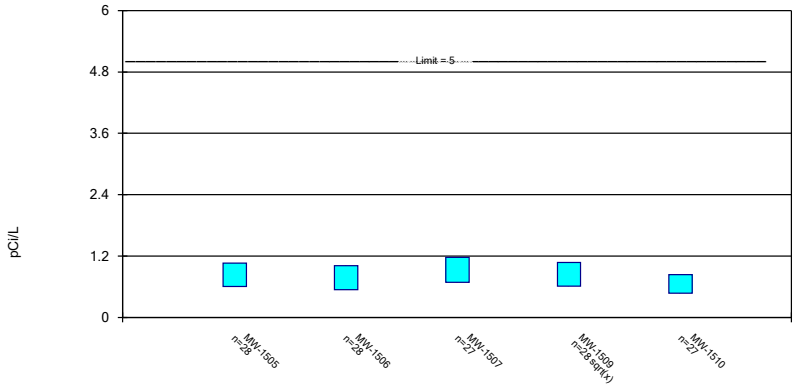
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

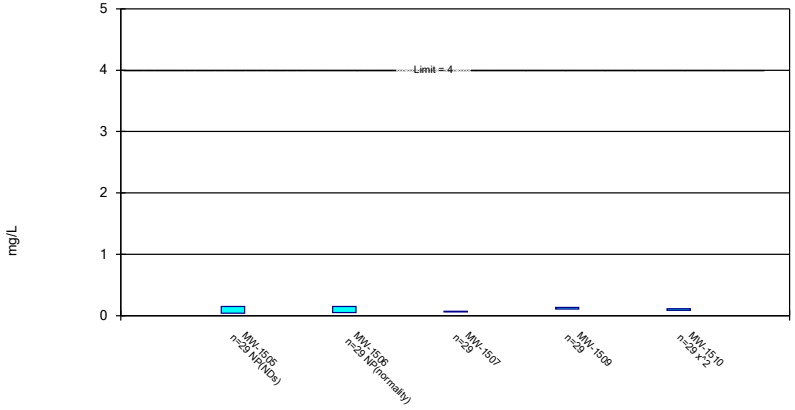
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

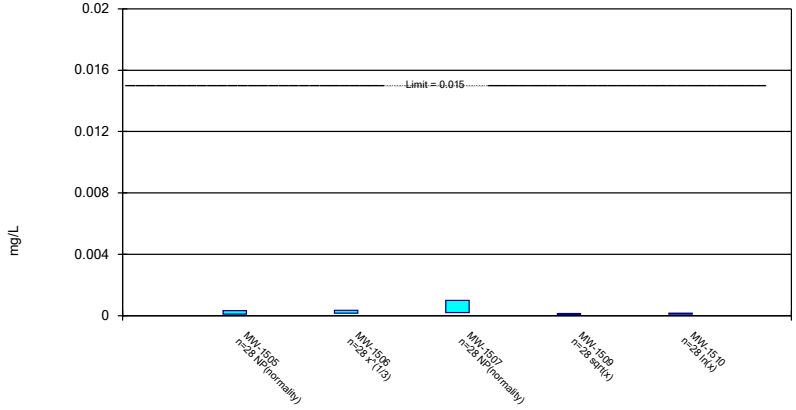
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

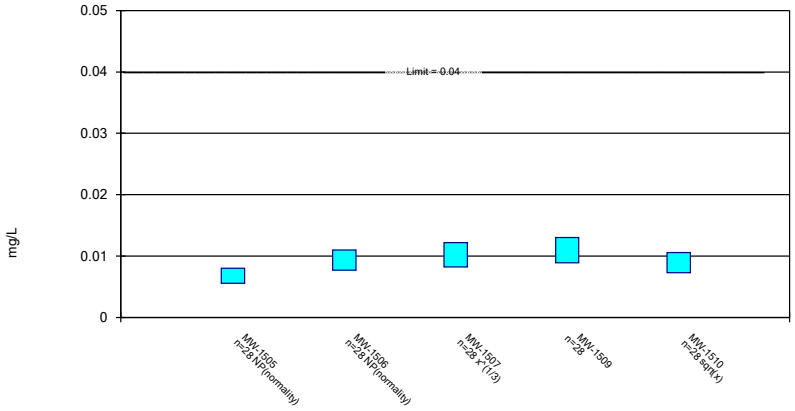
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

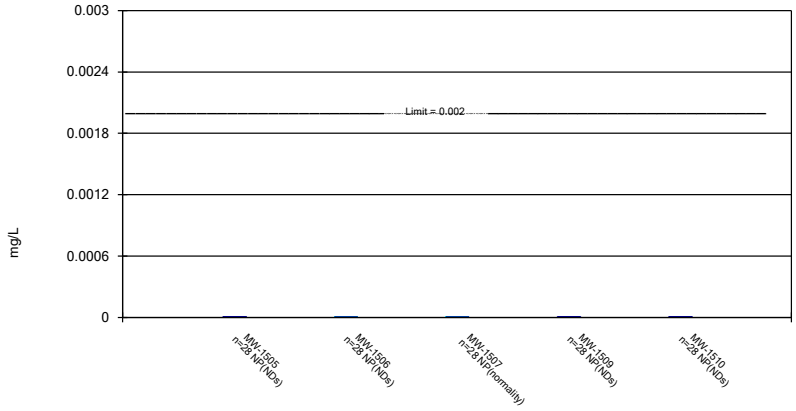
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

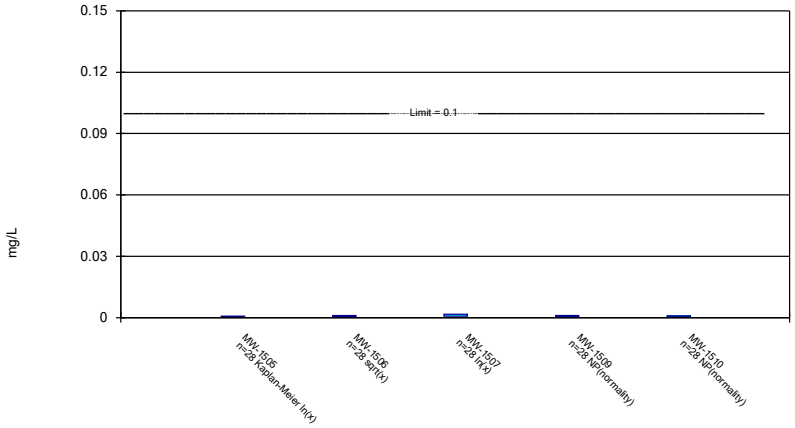
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Mercury, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

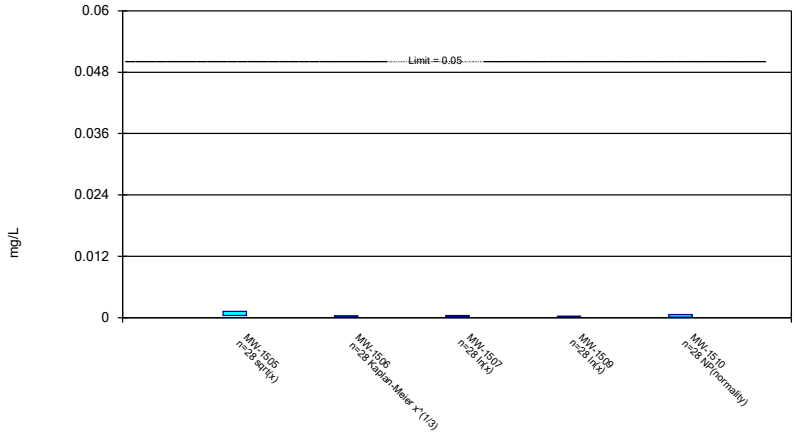
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

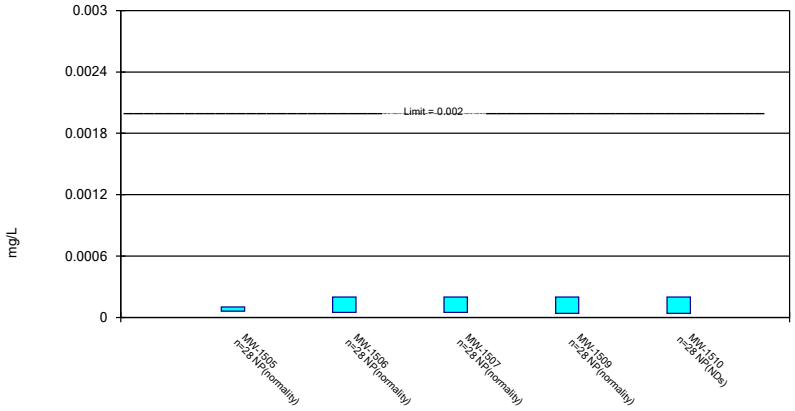
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

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



Constituent: Thallium, total Analysis Run 12/16/2024 2:35 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

APPENDIX 3 – Alternative Source Demonstrations

ASDs regarding Appendix IV SSLs above the GWPS were not necessary because no SSLs were identified from the completed sampling events required by 40 CFR 257.95(d)(1) and their corresponding statistical analyses in 2024. Alternative source demonstrations are not applicable to this annual report.

APPENDIX 4 - Notices for Monitoring Program Transitions

No transition between monitoring requirements occurred in 2024; the CCR unit was in assessment monitoring at the beginning of 2024 until its closure. Notices for monitoring program transitions are not applicable to this annual report.

APPENDIX 5 - Well Installation/Decommissioning Logs

No wells were installed or decommissioned in 2024. Well installation/decommissioning logs are not applicable to this annual report.