Annual Groundwater Monitoring Report

Kentucky Power Company

Mitchell Plant

Bottom Ash Pond

Moundsville, WV

January 2022

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KENTUCKY POWER℠

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BOUNDLESS ENERGY℠

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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 the Bottom Ash Pond at Kentucky 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 31st.

In general, the following activities were completed in 2021:

- The CCR unit was in Assessment monitoring at the beginning and end of 2021;
- Groundwater samples were collected on October 20, 2020, October 21, 2020, and January 7, 2021 in accordance with 40 CFR 257.95(d)(1), and analyzed for all Appendix III constituents and those Appendix IV constituents that were detected during the previous sampling in accordance with 40 CFR 257.95(b) in May 2020. (Chloride and sulfate samples were inadvertently omitted during the October 20, 2020 sampling and were collected on January 7, 2021.) Groundwater samples were collected on March 16 and 17, 2021 and analyzed in accordance with 40 CFR 257.95(b) for all Appendix IV constituents. Groundwater samples were collected on May 11 and 12, 2021 in accordance with 40 CFR 257.95(d)(1), and analyzed for all Appendix III constituents and those Appendix IV constituents that were detected during the previous sampling in accordance with 40 CFR 257.95(b) in March 2021. Groundwater samples were collected on October 19 and 20, 2021 in accordance with 40 CFR 257.95(d)(1), and analyzed for all Appendix III constituents and those Appendix IV constituents that were detected during the previous sampling in accordance with 40 CFR 257.95(b) in March 2021. All sampling was performed in accordance with 40 CFR 257.95 *et seq.*, and AEP's *Groundwater Sampling and Analysis Plan (2016)*;
- Groundwater 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 2020 and in March and May 2021 was completed in February and September 2021, respectively;
- Because no statistically significant levels (SSLs) above the groundwater protection standard were detected, assessment monitoring continued;
- No alternative source demonstrations (ASDs) relative to the Appendix IV SSLs above the groundwater protection standard were conducted.

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

- A map, aerial photograph or a drawing showing the CCR management unit(s), all groundwater monitoring wells and monitoring well identification numbers;
- All of the monitoring data collected, including the rate and direction of groundwater flow, plus a summary showing the number of samples collected per monitoring well, the dates the samples were collected, and whether the sample was collected as part of detection monitoring or assessment monitoring programs (Attached as Appendix 1);
- Statistical comparison of monitoring data to determine if there have been statistically significant levels above the groundwater protection standards (Attached as Appendix 2, where applicable);
- A discussion of whether any alternate source demonstrations were performed, and the conclusions (Attached as Appendix 3, where applicable);
- A summary of any transition between monitoring programs, for example the date and circumstances for transitioning from detection monitoring to assessment monitoring (Notices attached as Appendix 4, where applicable);
- Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a statement regarding the rationale for the installation/decommission (Attached as Appendix 5, where applicable); and
- Other information required to be included in the annual report such as an alternate monitoring frequency, or assessment of corrective measures, if applicable.

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

II. Groundwater Monitoring Well Locations and Identification Numbers

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 2021. The network design, as summarized in the *Groundwater Monitoring Network Design Report* (2016) and as posted at the CCR web site for 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. Static water elevation data from each monitoring event also are shown in Appendix 1, along with the groundwater velocities, groundwater flow direction, and potentiometric maps developed after each sampling event.

V. Groundwater Quality Data Statistical Analysis

Statistical analysis of the assessment monitoring samples collected in October 2020 was completed on February 15, 2021. Statistical analysis of the assessment monitoring samples collected in March and May 2021 was completed on September 1, 2021. Statistical analyses of samples collected during the October 2021 sampling event will be completed in 2022. No SSLs above the groundwater protection standards were identified during either the February 2021 or the September 2021 analysis. The results of these statistical analyses are documented in the corresponding statistical analysis summary reports, which are provided in Appendix 2.

VI. Alternative Source Demonstrations

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

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

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

The Mitchell bottom ash pond monitoring program would return to detection monitoring if all Appendix III and IV constituents are below background values for two consecutive monitoring events. If one or more Appendix IV constituents exceed the corresponding groundwater protection standard due to a release from the bottom ash pond, and are not demonstrated to be caused by a source other than the CCR unit or resulting from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality by means of an ASD, an assessment of corrective measures will be undertaken as required by 40 CFR 257.96.

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

VIII. Other Information Required

The Mitchell bottom ash pond has progressed from detection monitoring to its current status in assessment monitoring. All required information has been included in this annual groundwater monitoring report.

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

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

X. A Projection of Key Activities for the Upcoming Year

Key activities for 2022 include the following:

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

APPENDIX 1 - Groundwater Data Tables and Figures

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

Table 1 - Groundwater Data Summary: MW-1504
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
6/13/2016	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

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

Table 1 - Groundwater Data Summary: 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

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

Table 1 - Groundwater Data Summary: MW-1505
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
6/14/2016	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

Notes:
mg/L: milligrams per liter
SU: standard unit
<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.
In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
- -: Not analyzed
J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.
M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.
P3: The precision on the matrix spike duplicate (MSD) was above acceptance limits.
S7: Sample did not achieve constant weight.

Table 1 - Groundwater Data Summary: MW-1505
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	0.06	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

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

Table 1 - Groundwater Data Summary: MW-1506
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
6/14/2016	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

Notes:
mg/L: milligrams per liter
SU: standard unit
<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.
In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
- -: Not analyzed
J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.
S7: Sample did not achieve constant weight.

Table 1 - Groundwater Data Summary: MW-1506
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	0.07	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

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

Table 1 - 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

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

Table 1 - Groundwater Data Summary: 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	0.6	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

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

Table 1 - 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

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

Table 1 - Groundwater Data Summary: 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

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

Table 1 - Groundwater Data Summary: MW-1509
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
6/14/2016	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

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

Table 1 - Groundwater Data Summary: MW-1509
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	0.55	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

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

Table 1 - 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

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

Table 1 - Groundwater Data Summary: 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

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

Table 1: Residence Time Calculation Summary
Mitchell Bottom Ash Ponds

Geosyntec Consultants, Inc.

			2021-03		2021-05		2021-10	
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	19.9	3.1	34.1	1.8	6.8	8.9
	MW-1505 [2]	2.0	12.2	5.0	23.1	2.6	11.8	5.1
	MW-1506 [2]	2.0	9.0	6.8	23.9	2.6	15.1	4.0
	MW-1507 [2]	2.0	14.6	4.2	28.1	2.2	13.8	4.4
	MW-1508 [3]	2.0	29.7	2.1	34.5	1.8	12.9	4.7
	MW-1509 [2]	2.0	19.2	3.2	14.0	4.4	12.1	5.0
	MW-1510 [1]	2.0	14.8	4.1	15.2	4.0	10.5	5.8

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 Flow Direction
- Groundwater Elevation Contour

Notes

- Monitoring well coordinates and water level data (collected on March 16, 2021) provided by AEP.
- Approximate Ohio River elevation was 603.16 feet at Mitchell Power Plant on March 16, 2021. Data Source: USGS Ohio River gauge at Hannibal Lock and Dam (Lower), OH.
- Site features based on information available in the Groundwater Monitoring Network Evaluation (CEC, 2016) provided by AEP.
- Groundwater and river elevation units are feet above mean sea level (NAVD 88).

250 125 0 250 Feet

Potentiometric Surface Map - Uppermost Aquifer March 2021

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

Geosyntec consultants

Columbus, Ohio | 2021/06/29

Figure **2**

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Legend

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

Notes

- Monitoring well coordinates and water level data (collected on May 11, 2021) provided by AEP.
- Approximate Ohio River elevation was 602.23 feet at Mitchell Power Plant on May 11, 2021. Data Source: USGS Ohio River gauge at Hannibal Lock and Dan (Upper), OH.
- Site features based on information available in the Groundwater Monitoring Network Evaluation (CEC, 2016) provided by AEP.
- Groundwater and river elevation units are feet above mean sea level (NAVD 88).

250 125 0 250 Feet

Potentiometric Surface Map - Uppermost Aquifer May 2021

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

Geosyntec consultants

Columbus, Ohio | 2021/08/18

Figure 3

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Legend

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

Notes

- Monitoring well coordinates and water level data (collected on October 19, 2021) provided by AEP.
- Approximate Ohio River elevation was 602.33 feet at Mitchell Power Plant on October 19, 2021. Data Source: USGS Ohio River gauge at Hannibal Lock and Dan (Upper), OH.
- Site features based on information available in the Groundwater Monitoring Network Evaluation (CEC, 2016) provided by AEP.
- Groundwater and river elevation units are feet above mean sea level (NAVD 88).

250 125 0 250 Feet

Potentiometric Surface Map - Uppermost Aquifer October 2021

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

Geosyntec consultants

Columbus, Ohio | 2022/01/11

Figure 4

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APPENDIX 2 - Statistical Analyses

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

STATISTICAL ANALYSIS SUMMARY
BOTTOM ASH POND
Mitchell Plant
Moundsville, West Virginia

Submitted to

AMERICAN ELECTRIC POWER℠

1 Riverside Plaza
Columbus, Ohio 43215-2372

Submitted by

Geosyntec consultants

engineers | scientists | innovators

941 Chatham Lane
Suite 103
Columbus, Ohio 43221

February 15, 2021

CHA8500

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LIST OF TABLES

LIST OF ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

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

SECTION 1

EXECUTIVE SUMMARY

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257.90-257.98, "CCR rule"), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Mitchell Power Plant located in Moundsville, West Virginia.

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 2020, an annual sampling event for Appendix IV parameters required by 257.95(b) was completed in March, and semi-annual sampling events for Appendix III and the detected Appendix IV parameters required by 257.95(d)(1) were completed in May and October 2020. Statistical analysis of the March and May events was completed previously, and this report summarizes the results of the October 2020 semi-annual assessment monitoring event.

Prior to conducting the statistical analyses, the groundwater data underwent several validation tests, including those for completeness, sample tracking accuracy, transcription errors, and consistent use of measurement units. No data quality issues were identified which would impact the usability of the data.

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

SECTION 2

BOTTOM ASH POND EVALUATION

2.1 Data Validation & QA/QC

During the assessment monitoring program, 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) (October 2020). Samples from the October 2020 sample event were analyzed for all Appendix IV parameters and most Appendix III parameters. An additional sampling event was completed in January 2021 at select wells due to an error in sampling, with samples analyzed for previously omitted chloride and sulfate parameters. A summary of data collected during these assessment monitoring events may be found in Table 1.

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

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.9.6.27b statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues were noted which would impact data usability.

2.2 Statistical Analysis

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

The data obtained in October 2020 and January 2021 were screened for potential outliers; however, no outliers were identified (Attachment B).

2.2.1 Establishment of GWPSs

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

monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for arsenic, barium, chromium, cobalt, combined radium, lead, molybdenum, and selenium. Non-parametric tolerance limits were calculated for antimony, cadmium, fluoride, lithium, and thallium due to apparent non-normal distributions. Non-parametric tolerance limits were calculated for beryllium, and mercury because greater than 50% of the data was composed of non-detect results. Tolerance limits and the final GWPSs are summarized in Table 2.

2.2.2 Evaluation of Potential Appendix IV SSLs

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

No SSLs were identified at the Mitchell BAP.

2.2.3 Evaluation of Potential Appendix III SSIs

Because no SSLs were identified, a review of the Appendix III results was also completed to assess whether concentrations of Appendix III parameters at the compliance wells exceeded background concentrations. Prediction limits were calculated for the Appendix III parameters to represent background values. As described in the February 2020 *Statistical Analysis Summary* report (Geosyntec, 2020b), 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 for the interwell tests were recalculated using data collected during the 2020 assessment monitoring events. New data were tested for outliers prior to being added to the background dataset. The updated prediction limits were calculated using a one-of-two retesting procedure, as during detection monitoring. This resulted in updated prediction limits similar to the values of the prediction limits calculated during detection monitoring. Therefore, the revised interwell prediction limits were used to evaluate potential SSIs for boron, calcium, chloride, pH, and TDS.

For the intrawell tests, insufficient data was available to compare against the existing background dataset, the prediction limits were not updated for the intrawell tests at this time. The intrawell prediction limits calculated in February 2020 were used to evaluate potential SSIs for fluoride and sulfate.

The Appendix III results were analyzed to assess whether concentrations of Appendix III parameters at the compliance wells exceeded background concentrations. Data collected during the October 2020 and January 2021 assessment monitoring event from each compliance well were compared to the prediction limits to assess whether the results are above background values. The

results from these events and the prediction limits are summarized in Table 3. The following exceedances of the upper prediction limits (UPLs) were noted:

- Boron concentrations exceeded the interwell UPL of 1.36 mg/L at MW-1505 (6.78 mg/L), MW-1506 (4.59 mg/L), MW-1507 (7.12 mg/L), MW-1509 (7.97 mg/L), and MW-1510 (8.38 mg/L).

- Calcium concentrations exceeded the interwell UPL of 246 mg/L at MW-1504 (255 mg/L), and MW-1506 (265 mg/L).

- Chloride concentrations exceeded the interwell UPL of 238 mg/L at MW-1505 (240 mg/L), MW-1506 (259 mg/L), MW-1507 (242 mg/L), and MW-1509 (291 mg/L).

- Sulfate concentrations exceeded the intrawell UPL of 408 mg/L at MW-1505 (502 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (404 mg/L), and the intrawell UPL of 373 mg/L at MW-1507 (420 mg/L).

- TDS concentrations exceeded the interwell UPL of 1200 mg/L at MW-1504 (1,230 mg/L), MW-1505 (1,420 mg/L), MW-1506 (1,490 mg/L), MW-1507 (1,300 mg/L), MW-1509 (1,360 mg/L), and MW-1510 (1,280 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the October 2020 or January 2021 sample was above the UPL or 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 semi-annual assessment monitoring event was conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that impacted data usability. A review of outliers identified no potential outliers in the October 2020 and January 2021 data. GWPSs were re-established for the Appendix IV parameters. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval exceeded the GWPSs. No SSLs were identified.

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

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

SECTION 3

REFERENCES

Geosyntec Consultants (Geosyntec). 2020a. Statistical Analysis Plan – Mitchell Plant. October.

Geosyntec. 2020b. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. February.

TABLES

Table 1 - Groundwater Data 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	
		10/20/2020	1/7/2021	10/20/2020	1/7/2021	10/20/2020	1/7/2021	10/21/2020	10/20/2020	1/7/2021	10/21/2020	10/20/2020	1/7/2021
Antimony	µg/L	0.1 U	-	0.03 J	-	0.02 J	-	0.03 J	0.1 U	-	0.03 J	0.02 J	-
Arsenic	µg/L	0.28	-	0.35	-	0.30	-	0.41	0.29	-	0.35	0.27	-
Barium	µg/L	41.0	-	43.0	-	47.7	-	48.3	31.4	-	45.9	32.6	-
Beryllium	µg/L	0.1 U	-	0.1 U	-	0.1 U	-	0.1 U	0.1 U	-	0.1 U	0.1 U	-
Boron	mg/L	0.082	-	6.78	-	4.59	-	7.12	0.962	-	7.97	8.38	-
Cadmium	µg/L	0.03 J	-	0.02 J	-	0.02 J	-	0.04 J	0.02 J	-	0.05 U	0.05 U	-
Calcium	mg/L	255	-	242	-	265	-	229	201	-	237	197	-
Chloride	mg/L	-	101	-	240	-	259	242	-	161	291	-	229
Chromium	µg/L	0.204	-	0.603	-	0.407	-	0.857	0.336	-	0.698	0.688	-
Cobalt	µg/L	0.04 J	-	0.151	-	0.119	-	0.347	0.114	-	0.115	0.091	-
Combined Radium	pCi/L	0.093	-	0.1742	-	0.5997	-	0.0979	0.01901	-	1.6015	0.3002	-
Fluoride	mg/L	0.14	-	0.03 J	-	0.04 J	-	0.07	0.08	-	0.14	0.11	-
Lead	µg/L	0.2 U	-	0.09 J	-	0.1 J	-	0.201	0.05 J	-	0.09 J	0.06 J	-
Lithium	mg/L	0.00430	-	0.00501	-	0.00774	-	0.00799	0.00416	-	0.00809	0.00675	-
Mercury	µg/L	0.005 U	-	0.005 U	-	0.005 U	-	0.005 U	0.005 U	-	0.005 U	0.005 U	-
Molybdenum	µg/L	2 U	-	0.5 J	-	2.05	-	0.7 J	2 U	-	2 U	2 U	-
Selenium	µg/L	7.5	-	0.06 J	-	0.2 U	-	0.05 J	0.2 J	-	0.3	0.3	-
Sulfate	mg/L	-	292	-	502	-	404	420	-	286	463	-	441
Thallium	µg/L	0.5 U	-	0.5 U	-	0.5 U	-	0.5 U	0.5 U	-	0.5 U	0.5 U	-
Total Dissolved Solids	mg/L	1,230	-	1,420	-	1,490	-	1,300	982	-	1,360	1,280	-
pH	SU	7.3	-	7.3	-	7.4	-	7.4	7.1	-	7.3	7.4	-

Notes:
mg/L: milligrams per liter
µg/L: micrograms per liter
SU: standard unit
pCi/L: picocuries per liter
U: Parameter was not present in concentrations above method detection limit and is reported as the reporting limit.
J: Estimated value. Parameter was detected in concentrations below the reporting limit
- : Not sampled

Table 2: Groundwater Protection Standards
Mitchell Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Background Limit	GWPS
Antimony, Total (mg/L)	0.006		0.00010	0.006
Arsenic, Total (mg/L)	0.01		0.00180	0.01
Barium, Total (mg/L)	2		0.055	2
Beryllium, Total (mg/L)	0.004		0.0001	0.004
Cadmium, Total (mg/L)	0.005		0.00009	0.005
Chromium, Total (mg/L)	0.1		0.0022	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0030	0.006
Combined Radium, Total (pCi/L)	5		1.99	5
Fluoride, Total (mg/L)	4		0.25	4
Lead, Total (mg/L)	0.015		0.0027	0.015
Lithium, Total (mg/L)	n/a	0.04	0.03000	0.04
Mercury, Total (mg/L)	0.002		0.000008	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.0017	0.1
Selenium, Total (mg/L)	0.05		0.007	0.05
Thallium, Total (mg/L)	0.002		0.0005	0.002

Notes:
MCL = Maximum Contaminant Level
RSL = Regional Screening Level
GWPS = Groundwater Protection Standard
Calculated UTL (Upper Tolerance Limit) represents site-specific background values.
The higher of the calculated UTL or MCL/Rule-Specified Level is used as the GWPS.

Table 3 - Appendix III Data Summary
Mitchell Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Analyte	Unit	Description	MW-1504*	MW-1505*	MW-1506*	MW-1507	MW-1509	MW-1510*
			10/20/2020	10/20/2020	10/20/2020	10/21/2020	10/21/2020	10/20/2020
Boron	mg/L	Interwell Background Value (UPL)	1.36					
		Analytical Result	0.082	**6.78**	**4.59**	**7.12**	**7.97**	**8.38**
Calcium	mg/L	Interwell Background Value (UPL)	246					
		Analytical Result	**255**	242	**265**	229	237	197
Chloride	mg/L	Interwell Background Value (UPL)	238					
		Analytical Result	101	**240**	**259**	**242**	**291**	229
Fluoride	mg/L	Intrawell Background Value (UPL)	0.275	0.0600	0.200	0.200	0.171	0.200
		Analytical Result	0.14	0.03	0.04	0.07	0.14	0.11
pH	SU	Interwell Background Value (UPL)	8.2					
		Interwell Background Value (LPL)	6.9					
		Analytical Result	7.3	7.3	7.4	7.4	7.3	7.4
Sulfate	mg/L	Intrawell Background Value (UPL)	462	408	369	373	489	497
		Analytical Result	292	**502**	**404**	**420**	463	441
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,200					
		Analytical Result	**1,230**	**1,420**	**1,490**	**1,300**	**1,360**	**1,280**

Notes:
UPL: Upper prediction limit
LPL: Lower prediction limit
Bold values exceed the background value.
Background values are shaded gray.
* At these locations, chloride and sulfate data were collected on January 7, 2021.

ATTACHMENT A

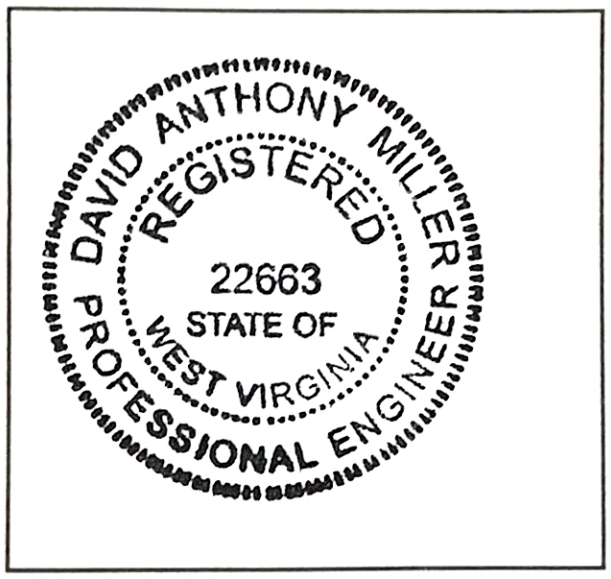
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

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

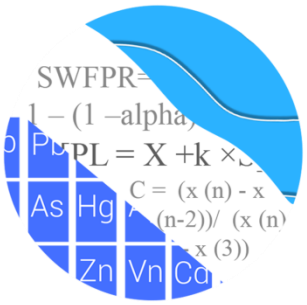


22663	WEST VIRGINIA	02.15.21
License Number	Licensing State	Date

ATTACHMENT B

Statistical Analysis Output

GROUNDWATER STATS CONSULTING



February 11, 2021

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

RE: Mitchell Bottom Ash Pond (BAP)
Assessment Monitoring & Background Update – Fall 2020

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 groundwater data for the October 2020 and January 2021 sampling events for American Electric Power Company's Mitchell Bottom Ash Pond. Note that the January 2021 event was a resample event for some Appendix III parameters and not all well/constituent pairs were sampled at that time. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015) as well as with the USEPA Unified Guidance (2009).

Sampling 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 Kristina Rayner, Groundwater Statistician and Founder of Groundwater Stats Consulting.

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 graphs and box plots for these 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). For all constituents, a substitution of the most recent reporting limit is used for nondetect data. While the reporting limits may vary from well to well, a single reporting limit substitution is used across all wells for a given parameter in the time series plots since the wells are plotted as a group.

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

Semi-Annual Sampling
1-of-2 resample plan
Constituents, c=7
Downgradient wells, w=5

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 nondetects, a nonparametric test is utilized. While the annual false positive rate associated with parametric limits is fixed at 10% as recommended by the EPA Unified Guidance (2009), the false positive rate associated with nonparametric limits is not fixed and depends upon the available background sample size, number of future comparisons, and verification resample plan. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009), data are analyzed using either parametric or non-parametric prediction limits as appropriate. Nondetects are handled as follows:

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

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits is necessary to accommodate these types of changes. In the intrawell case, data for all wells and constituents may be re-evaluated when a minimum of 4 new data points are available to determine whether earlier concentrations are representative of present-day groundwater

quality. In the interwell case, prediction limits are updated with upgradient well data following each sampling event after careful screening for any new outliers. In some cases, deselecting the earlier portion of data may be necessary prior to construction of limits so that resulting statistical limits are conservative (i.e. lower) from a regulatory perspective and capable of rapidly detecting changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Summary of Background Screening Conducted in December 2017

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.

Background Update – Appendix III Parameters – December 2019

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

For constituents requiring intrawell prediction limits (fluoride and sulfate), the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through June 2017 to the new compliance samples at each well through June 2019 to evaluate whether the groups are statistically similar at the 99% confidence level, in which case background data may be updated with compliance data. Although statistically significant differences were found among well/constituent pairs using intrawell statistical methods, all background data were updated with compliance data. A complete list of the Mann-Whitney test results and associated statistical explanations were included with the December 2019 Background Update report. Intrawell prediction limits were updated for

each well and constituent using the updated background data through June 2019. A summary table and complete graphical results were included with the report.

For parameters tested using interwell analyses (boron, calcium, chloride, pH, and TDS), the Sen's Slope/Mann-Kendall trend test was used on upgradient wells to determine whether concentrations are statistically increasing, decreasing or stable. While increasing and decreasing trends were identified, no adjustments were required. The interwell prediction limits, combined with a 1-of-2 resample plan, were updated using all available data from upgradient wells for the same time period. Results were included with the December 2019 Background Update report.

Appendix III Background Update – Conducted in February 2021

As mentioned above, the intrawell and interwell statistical limits during this analysis were constructed with a replacement of the most recent reporting limit and a substitution of one-half of the most recent reporting limit only when non-detects in background are less than 15%.

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

As mentioned above, in the intrawell case, data for all wells and constituents will be re-evaluated when a minimum of 4 new data points are available. Sulfate currently lacks sufficient data to update background, and therefore, intrawell prediction limits for fluoride and sulfate will beupdated with compliance data during the next sampling event. Intrawell prediction limits currently use all historical data through June 2019, and a summary table of the limits follows this report (Figure D).

For boron, calcium, chloride, pH, and TDS, 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). A statistically significant increasing trend was identified for pH in well MW-1504 and a statistically significant decreasing trend was noted for chloride in well MW-1508. The magnitude of these trends is fairly small relative to the range of concentrations in the pooled upgradient data. All reported data through January 2021 from upgradient wells

were used to construct interwell prediction limits, combined with a 1-of-2 resample plan, for boron, calcium, chloride, pH, and TDS (Figure F). As more data are collected, all upgradient well data will be re-evaluated for possible deselection of earlier measurements if they no longer represent present-day groundwater quality conditions.

Evaluation of Appendix IV Parameters – October 2020

Data were last screened for outliers by Tukey's outlier test during the December 2019 background update, and a summary of those findings was submitted with that report. During this analysis, data were screened for any new outliers using the time series graphs. No additional values were flagged. The previously flagged molybdenum values in downgradient wells MW-1505 and MW-1510 were unflagged since the reported measurements were only slightly higher than the reporting limit, were well below the Maximum Contaminant Level, and there was no obvious sampling or analytical anomaly. When values are identified as outliers, they are flagged in the database with "o" and are deselected prior to construction of statistical limits. A list of all flagged outliers follows this letter (Figure C). Additionally, flagged data are displayed in a lighter font and as a disconnected symbol on the time series reports, as well as in a lighter font on the accompanying data pages.

Interwell upper tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data through October 2020 with for the Appendix IV constituents discussed above (Figure G). 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 arsenic, barium, chromium, cobalt, combined radium 226 + 228, lead, molybdenum, and selenium. When data contained greater than 50% nondetects 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. 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 H).

Confidence intervals were then constructed using all available data through October 2020 on downgradient wells for each of the Appendix IV parameters using the highest limit of either the MCL, CCR-Rule specified, or background as discussed above (Figure I). 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.

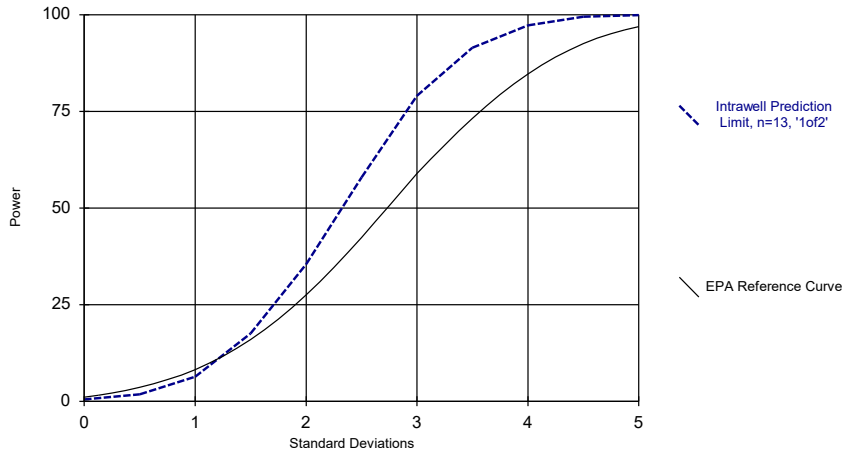
Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for the Mitchell Bottom Ash Pond. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

Andrew T. Collins
Project Manager

Kristina L. Rayner
Groundwater Statistician

Intrawell Power Curve



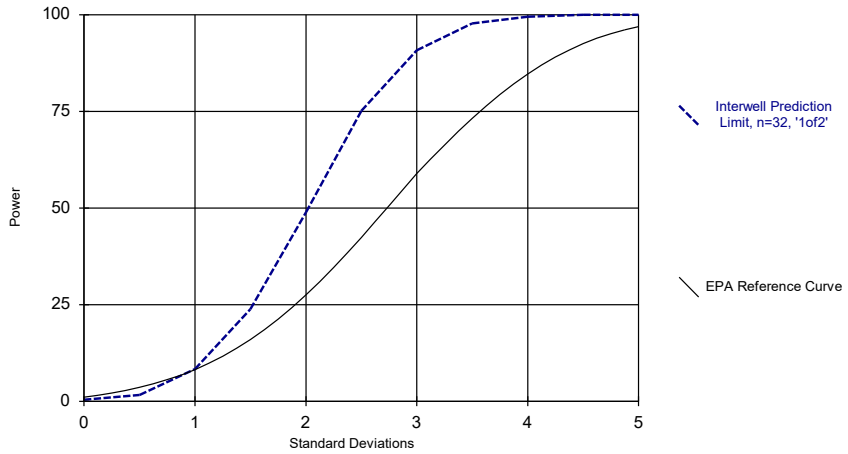
Kappa = 2.279, based on 5 compliance wells and 7 constituents, evaluated semi-annually (this report reflects annual total).

Analysis Run 2/11/2021 9:35 AM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Interwell Power Curve



Kappa = 1.928, based on 5 compliance wells and 7 constituents, evaluated semi-annually (this report reflects annual total).

Analysis Run 2/11/2021 9:35 AM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Test - Upgradient Wells - Significant Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/8/2021, 1:51 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
pH, field (SU)	**MW_1504,MW_1508**	**Yes**	**8.01,8.18**	**n/a w/combined bg**	**NP**	**NaN**	**34**	**7.21**	**0.2734**	**ln(x)**	**ShapiroWilk**

Tukey's Outlier Test - Upgradient Wells - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/8/2021, 1:51 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Boron, total (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	0.4623	0.4182	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	218.7	14.12	normal	ShapiroWilk
Chloride, total (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	146.1	58.62	ln(x)	ShapiroWilk
pH, field (SU)	**MW_1504,MW_1508**	**Yes**	**8.01,8.18**	**n/a w/combined bg**	**NP**	**NaN**	**34**	**7.21**	**0.2734**	**ln(x)**	**ShapiroWilk**
Total Dissolved Solids [TDS] (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	1007	101	sqrt(x)	ShapiroWilk

Intrawell Prediction Limits - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 11:12 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	0.2746	n/a	n/a	1 future	n/a	13	0.2046	0.03072	0	None	No	0.001504	Param Intra 1 of 2
Fluoride, total (mg/L)	MW_1505	0.06	n/a	n/a	1 future	n/a	13	n/a	n/a	84.62	n/a	n/a	0.009692	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	MW_1506	0.2	n/a	n/a	1 future	n/a	13	n/a	n/a	61.54	n/a	n/a	0.009692	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	MW_1507	0.2	n/a	n/a	1 future	n/a	13	n/a	n/a	7.692	n/a	n/a	0.009692	NP Intra (normality) 1 of 2
Fluoride, total (mg/L)	MW_1508	0.1	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
Fluoride, total (mg/L)	MW_1509	0.1712	n/a	n/a	1 future	n/a	13	0.00216	0.001254	0	None	x^3	0.001504	Param Intra 1 of 2
Fluoride, total (mg/L)	MW_1510	0.2	n/a	n/a	1 future	n/a	13	n/a	n/a	23.08	n/a	n/a	0.009692	NP Intra (normality) 1 of 2
Sulfate, total (mg/L)	MW_1504	461.7	n/a	n/a	1 future	n/a	13	353.7	47.41	0	None	No	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	325.4	n/a	n/a	1 future	n/a	13	301.8	10.37	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW_1509	488.8	n/a	n/a	1 future	n/a	13	423.2	28.79	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW_1510	496.8	n/a	n/a	1 future	n/a	13	368.1	56.47	0	None	No	0.001504	Param Intra 1 of 2

Trend Tests - Upgradient Wells - Significant Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 9:52 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Chloride, total (mg/L)	**MW_1508 (bg)**	**-19.19**	**-94**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
pH, field (SU)	**MW_1504 (bg)**	**0.1121**	**72**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**

Trend Tests - Upgradient Wells - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 9:52 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron, total (mg/L)	MW_1504 (bg)	-0.009448	-33	-58	No	16	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW_1508 (bg)	-0.03907	-16	-58	No	16	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW_1504 (bg)	0	-1	-58	No	16	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW_1508 (bg)	-4.641	-33	-58	No	16	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW_1504 (bg)	-2.442	-29	-58	No	16	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	**MW_1508 (bg)**	**-19.19**	**-94**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
pH, field (SU)	**MW_1504 (bg)**	**0.1121**	**72**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
pH, field (SU)	MW_1508 (bg)	0.05339	58	63	No	17	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW_1504 (bg)	-12.81	-10	-58	No	16	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW_1508 (bg)	-33.72	-50	-58	No	16	0	n/a	n/a	0.01	NP

Interwell Prediction Limits - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 9:56 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	1.36	n/a	n/a	5 future	n/a	32	n/a	n/a	0	n/a	n/a	0.001748	NP Inter (normality) 1 of 2
Calcium, total (mg/L)	n/a	245.9	n/a	n/a	5 future	n/a	32	218.7	14.12	0	None	No	0.001504	Param Inter 1 of 2
Chloride, total (mg/L)	n/a	238	n/a	n/a	5 future	n/a	32	n/a	n/a	0	n/a	n/a	0.001748	NP Inter (normality) 1 of 2
pH, field (SU)	n/a	8.18	6.86	n/a	5 future	n/a	34	n/a	n/a	0	n/a	n/a	0.00311	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	n/a	1202	n/a	n/a	5 future	n/a	32	1007	101	0	None	No	0.001504	Param Inter 1 of 2

Upper Tolerance Limit Summary Table

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/27/2021, 2:48 PM

Constituent	Upper Lim.	Lower Lim.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	0.0001	n/a	n/a	32	n/a	n/a	31.25	n/a	n/a	0.1937	NP Inter(normality)
Arsenic, total (mg/L)	0.001838	n/a	n/a	32	-7.584	0.5847	0	None	ln(x)	0.05	Inter
Barium, total (mg/L)	0.05467	n/a	n/a	32	0.04109	0.006178	0	None	No	0.05	Inter
Beryllium, total (mg/L)	0.0001	n/a	n/a	32	n/a	n/a	56.25	n/a	n/a	0.1937	NP Inter(NDs)
Cadmium, total (mg/L)	0.00009	n/a	n/a	32	n/a	n/a	3.125	n/a	n/a	0.1937	NP Inter(normality)
Chromium, total (mg/L)	0.002203	n/a	n/a	32	0.02523	0.009876	0	None	sqrt(x)	0.05	Inter
Cobalt, total (mg/L)	0.002881	n/a	n/a	32	0.02347	0.01374	0	None	sqrt(x)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	1.986	n/a	n/a	31	0.7208	0.3116	0	None	sqrt(x)	0.05	Inter
Fluoride, total (mg/L)	0.25	n/a	n/a	34	n/a	n/a	0	n/a	n/a	0.1748	NP Inter(normality)
Lead, total (mg/L)	0.002734	n/a	n/a	32	0.06472	0.03417	15.63	Kaplan-Meier	x^(1/3)	0.05	Inter
Lithium, total (mg/L)	0.03	n/a	n/a	32	n/a	n/a	18.75	n/a	n/a	0.1937	NP Inter(normality)
Mercury, total (mg/L)	0.000008	n/a	n/a	32	n/a	n/a	78.13	n/a	n/a	0.1937	NP Inter(NDs)
Molybdenum, total (mg/L)	0.00172	n/a	n/a	32	-7.37	0.4572	28.13	Kaplan-Meier	ln(x)	0.05	Inter
Selenium, total (mg/L)	0.006508	n/a	n/a	32	-8.166	1.424	12.5	None	ln(x)	0.05	Inter
Thallium, total (mg/L)	0.0005	n/a	n/a	32	n/a	n/a	40.63	n/a	n/a	0.1937	NP Inter(normality)

Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/11/2021, 9:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	MW_1505	0.00006	0.00003	0.006	No	16	0.000045	0.00002129	12.5	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1506	0.00006	0.00002	0.006	No	16	0.00004812	0.00003799	6.25	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1507	0.00008585	0.00004415	0.006	No	16	0.000065	0.00003204	6.25	None	No	0.01	Param.
Antimony, total (mg/L)	MW_1509	0.00005	0.00002	0.006	No	16	0.00003375	0.00001628	6.25	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1510	0.00003	0.00002	0.006	No	16	0.00002687	0.00001014	12.5	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW_1505	0.0014	0.00029	0.01	No	16	0.0008625	0.0009215	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW_1506	0.000961	0.000454	0.01	No	16	0.0007075	0.0003896	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW_1507	0.002142	0.0006027	0.01	No	16	0.001578	0.001412	0	None	x^(1/3)	0.01	Param.
Arsenic, total (mg/L)	MW_1509	0.0005002	0.000346	0.01	No	16	0.0004231	0.0001185	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW_1510	0.0005401	0.0003399	0.01	No	16	0.00044	0.0001539	0	None	No	0.01	Param.
Barium, total (mg/L)	MW_1505	0.0577	0.0455	2	No	16	0.05098	0.009533	0	None	No	0.01	NP (normality)
Barium, total (mg/L)	MW_1506	0.06119	0.05241	2	No	16	0.05691	0.006943	0	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	MW_1507	0.07955	0.05701	2	No	16	0.06885	0.01805	0	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	MW_1509	0.05972	0.0499	2	No	16	0.05481	0.007549	0	None	No	0.01	Param.
Barium, total (mg/L)	MW_1510	0.04495	0.03881	2	No	16	0.04188	0.004724	0	None	No	0.01	Param.
Beryllium, total (mg/L)	MW_1505	0.0001	0.00001	0.004	No	16	0.000073	0.00004452	50	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW_1506	0.0001	0.00002	0.004	No	16	0.00005162	0.00004001	37.5	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW_1507	0.0001124	0.00004062	0.004	No	16	0.00009594	0.00004997	37.5	Kaplan-Meier	No	0.01	Param.
Beryllium, total (mg/L)	MW_1509	0.0001	0.00001	0.004	No	16	0.00007706	0.00004105	75	Kaplan-Meier	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW_1510	0.0001	0.00001	0.004	No	16	0.00006281	0.00004373	56.25	Kaplan-Meier	No	0.01	NP (NDs)
Cadmium, total (mg/L)	MW_1505	0.00005	0.00002	0.005	No	16	0.00002875	0.000007188	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1506	0.00003	0.00001	0.005	No	16	0.00002188	0.000009106	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1507	0.00006	0.00003	0.005	No	16	0.00004313	0.00001537	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1509	0.000025	0.00001	0.005	No	16	0.00001769	0.000006993	18.75	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1510	0.000025	0.000006	0.005	No	16	0.00001394	0.000009	37.5	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW_1505	0.00401	0.0007403	0.1	No	15	0.003452	0.003953	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW_1506	0.002597	0.0009367	0.1	No	16	0.001892	0.001382	0	None	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	MW_1507	0.01104	0.002564	0.1	No	16	0.007699	0.006939	0	None	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	MW_1509	0.001522	0.0006694	0.1	No	16	0.001262	0.001071	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW_1510	0.00234	0.000655	0.1	No	15	0.001754	0.001829	0	None	No	0.01	NP (normality)
Cobalt, total (mg/L)	MW_1505	0.0008015	0.0001872	0.006	No	16	0.0005991	0.000709	0	None	x^(1/3)	0.01	Param.
Cobalt, total (mg/L)	MW_1506	0.0007525	0.0003024	0.006	No	16	0.0005274	0.0003459	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW_1507	0.002231	0.0005432	0.006	No	16	0.001561	0.001455	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	MW_1509	0.0003322	0.0001523	0.006	No	16	0.0002423	0.0001382	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW_1510	0.0002475	0.000133	0.006	No	16	0.0001903	0.00008804	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1505	0.9641	0.5077	5	No	16	0.7359	0.3508	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1506	1.136	0.3837	5	No	16	0.7597	0.5779	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1507	1.44	0.6062	5	No	15	1.023	0.615	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1509	1.421	0.5973	5	No	16	1.009	0.6331	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1510	0.9586	0.4126	5	No	15	0.6856	0.4029	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW_1505	0.06	0.03	4	No	17	0.04824	0.01667	64.71	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	MW_1506	0.07	0.04	4	No	17	0.05294	0.01263	47.06	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1507	0.07	0.06	4	No	17	0.06294	0.008489	5.882	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1509	0.15	0.1	4	No	17	0.1259	0.02399	0	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1510	0.1	0.06	4	No	17	0.07588	0.02399	17.65	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW_1505	0.0005445	0.00009917	0.015	No	16	0.0005955	0.0009777	18.75	Kaplan-Meier	ln(x)	0.01	Param.
Lead, total (mg/L)	MW_1506	0.0005653	0.0002095	0.015	No	16	0.0004137	0.0003091	0	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW_1507	0.001983	0.0003701	0.015	No	16	0.001461	0.001554	6.25	None	x^(1/3)	0.01	Param.
Lead, total (mg/L)	MW_1509	0.0001212	0.00003359	0.015	No	16	0.00008563	0.00007586	0	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW_1510	0.0001686	0.00007544	0.015	No	16	0.0001366	0.00009346	0	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	MW_1505	0.01058	0.006074	0.04	No	16	0.008518	0.003725	6.25	None	sqrt(x)	0.01	Param.
Lithium, total (mg/L)	MW_1506	0.01431	0.009011	0.04	No	16	0.01166	0.00407	6.25	None	No	0.01	Param.
Lithium, total (mg/L)	MW_1507	0.01642	0.009915	0.04	No	16	0.01316	0.004996	6.25	None	No	0.01	Param.
Lithium, total (mg/L)	MW_1509	0.01588	0.009051	0.04	No	16	0.01246	0.005245	6.25	None	No	0.01	Param.
Lithium, total (mg/L)	MW_1510	0.01363	0.007989	0.04	No	16	0.01081	0.004335	0	None	No	0.01	Param.

Confidence Intervals - All Results (No Significant)

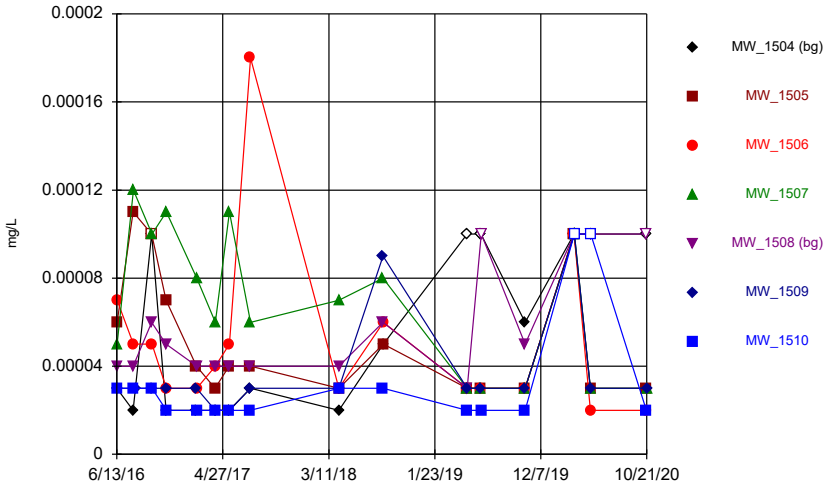
Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/11/2021, 9:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Mercury, total (mg/L)	MW_1505	0.000006	0.000002	0.002	No	16	0.000005187	0.000002344	75	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1506	0.000005	0.000002	0.002	No	16	0.000004062	0.00000134	62.5	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1507	0.000007621	0.000002359	0.002	No	16	0.000007187	0.000005902	25	Kaplan-Meier	x^(1/3)	0.01	Param.
Mercury, total (mg/L)	MW_1509	0.000005	0.000002	0.002	No	16	0.000004625	0.000001025	87.5	Kaplan-Meier	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1510	0.000005	0.000002	0.002	No	16	0.000004812	7.5e-7	93.75	Kaplan-Meier	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	MW_1505	0.001744	0.0007375	0.1	No	16	0.001703	0.001648	18.75	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1506	0.00132	0.000632	0.1	No	16	0.001014	0.0005692	0	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1507	0.00383	0.0008711	0.1	No	16	0.002669	0.003118	6.25	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1509	0.0008631	0.0004855	0.1	No	16	0.001116	0.0006744	31.25	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1510	0.002	0.00033	0.1	No	16	0.001244	0.0009293	37.5	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW_1505	0.000618	0.0002295	0.05	No	16	0.0004238	0.0002986	0	None	No	0.01	Param.
Selenium, total (mg/L)	MW_1506	0.0001	0.00007	0.05	No	16	0.00009812	0.00004446	25	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW_1507	0.0003187	0.00008989	0.05	No	16	0.000235	0.0002095	0	None	x^(1/3)	0.01	Param.
Selenium, total (mg/L)	MW_1509	0.0003	0.0001	0.05	No	16	0.0001788	0.00007822	0	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW_1510	0.0002	0.00008	0.05	No	16	0.0001594	0.00006577	0	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1505	0.0005	0.000067	0.002	No	16	0.0002603	0.0002141	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1506	0.0005	0.00005	0.002	No	16	0.0002225	0.0002221	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1507	0.0005	0.000051	0.002	No	16	0.0002276	0.0002183	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1509	0.0005	0.00003	0.002	No	16	0.0002111	0.0002313	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1510	0.0005	0.00001	0.002	No	16	0.0002323	0.0002441	43.75	None	No	0.01	NP (normality)

FIGURE A.

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

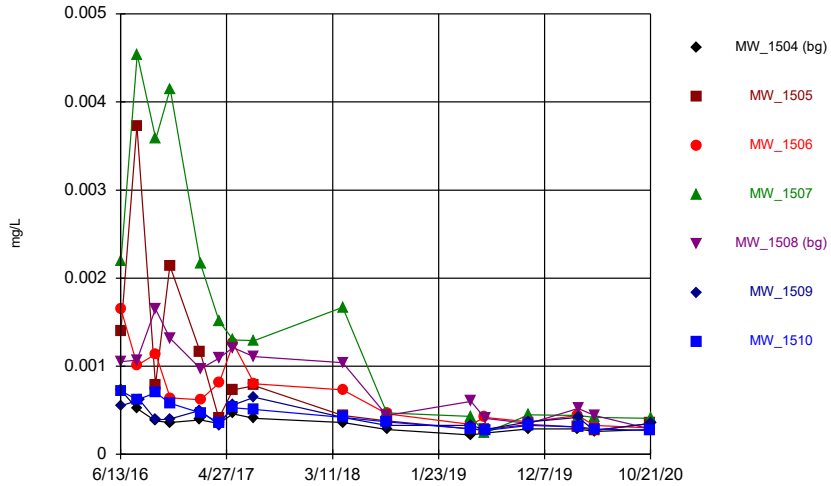
Time Series



Constituent: Antimony, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

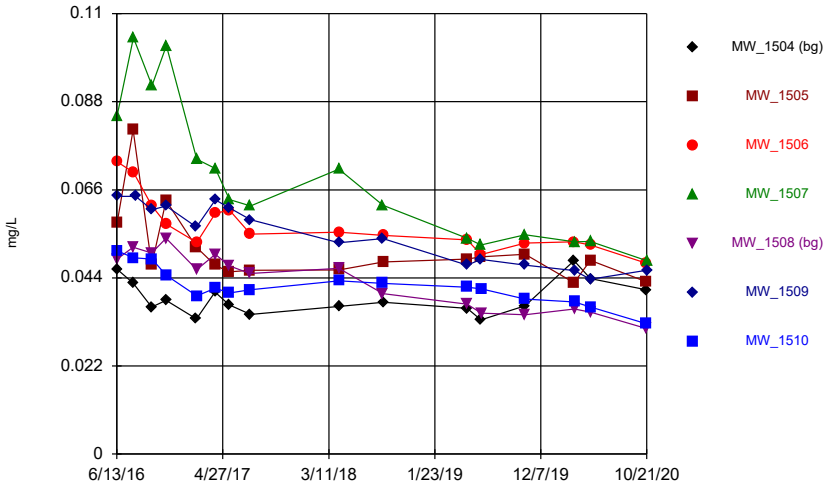
Time Series



Constituent: Arsenic, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

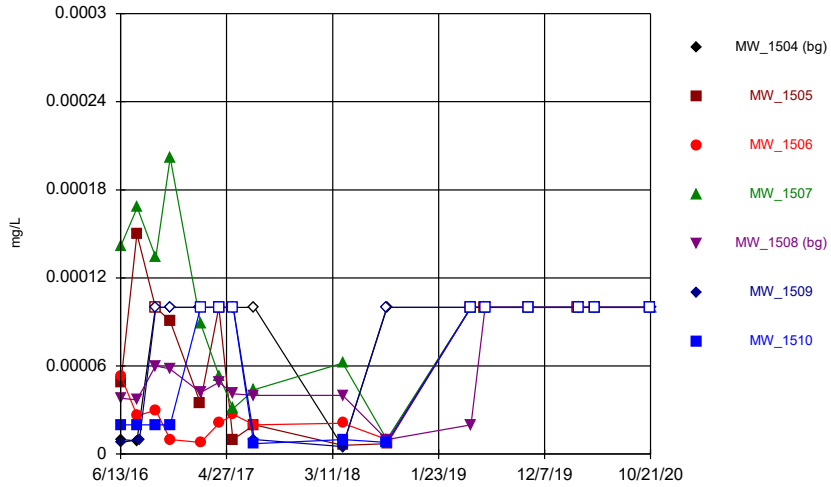
Time Series



Constituent: Barium, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

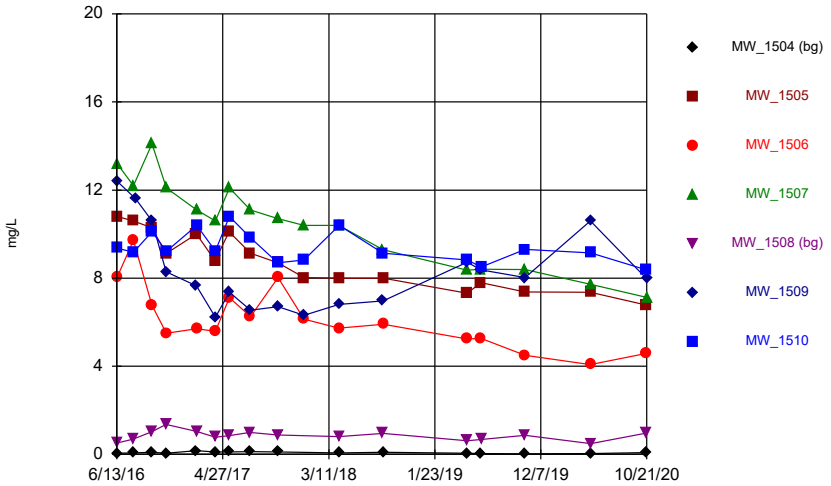
Time Series



Constituent: Beryllium, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Time Series



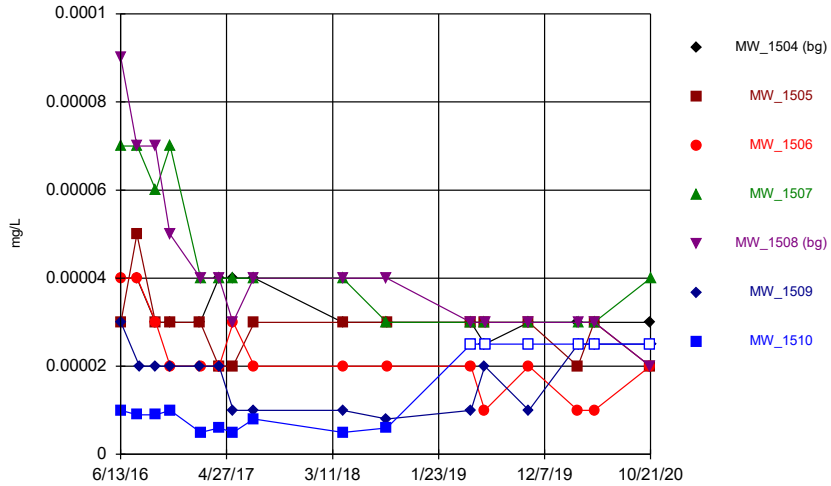
Constituent: Boron, total Analysis Run 2/8/2021 1:53 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

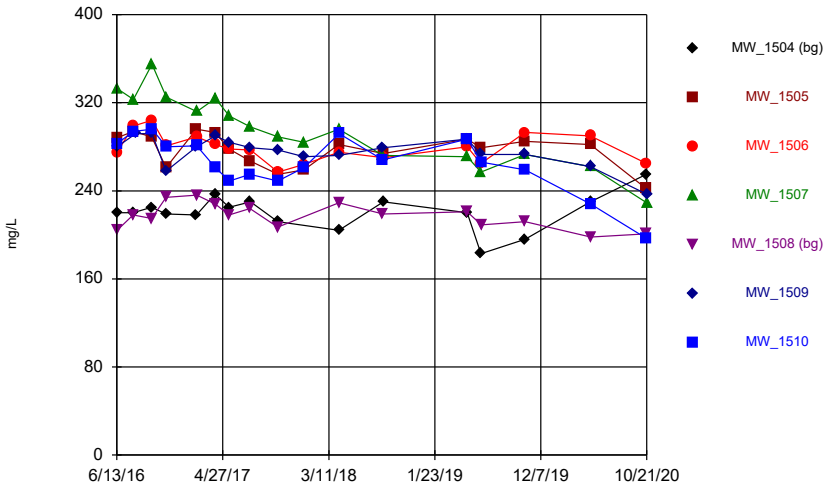


Constituent: Cadmium, total Analysis Run 2/8/2021 1:53 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Time Series

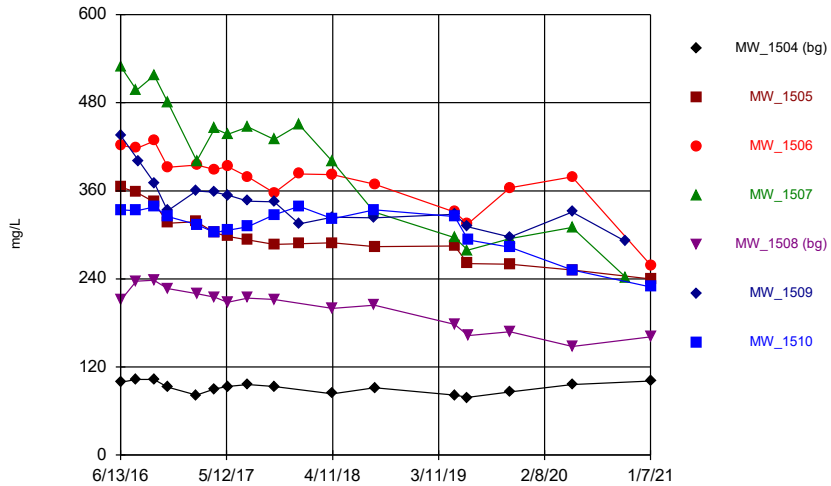


Constituent: Calcium, total Analysis Run 2/8/2021 1:53 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

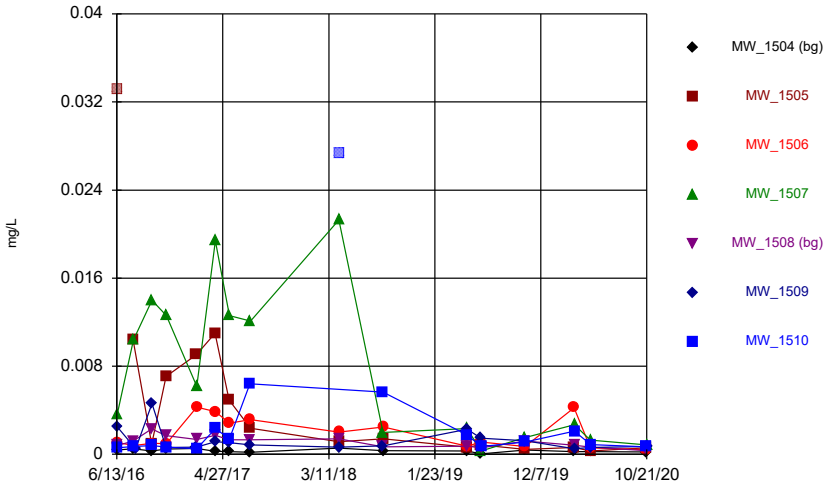
Time Series



Constituent: Chloride, total Analysis Run 2/8/2021 1:53 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

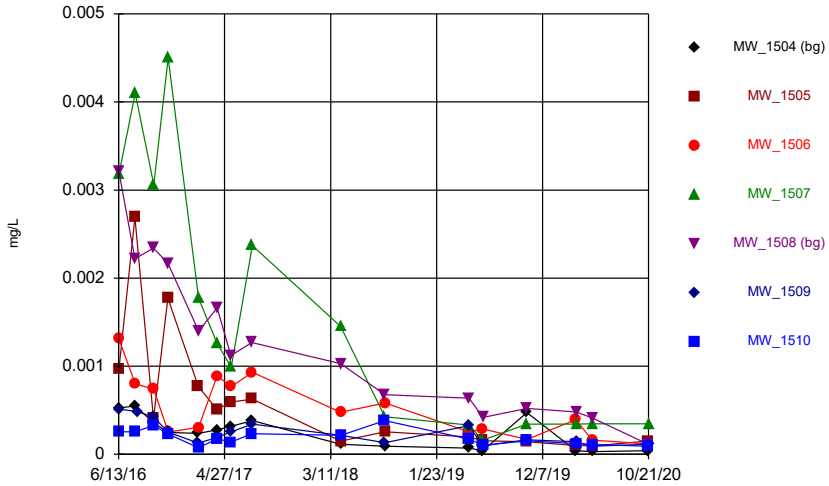
Time Series



Constituent: Chromium, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

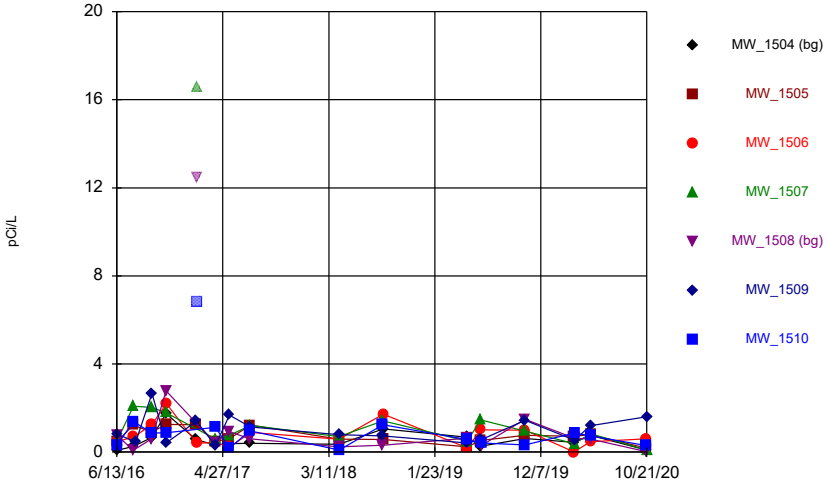
Time Series



Constituent: Cobalt, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

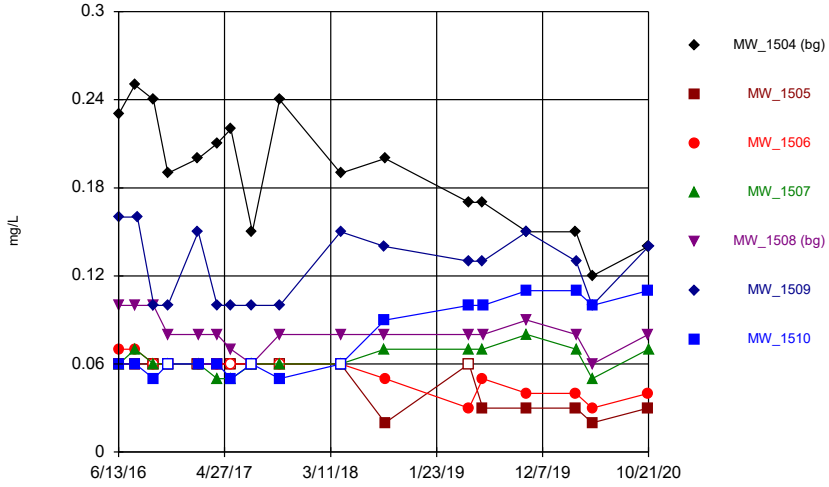
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

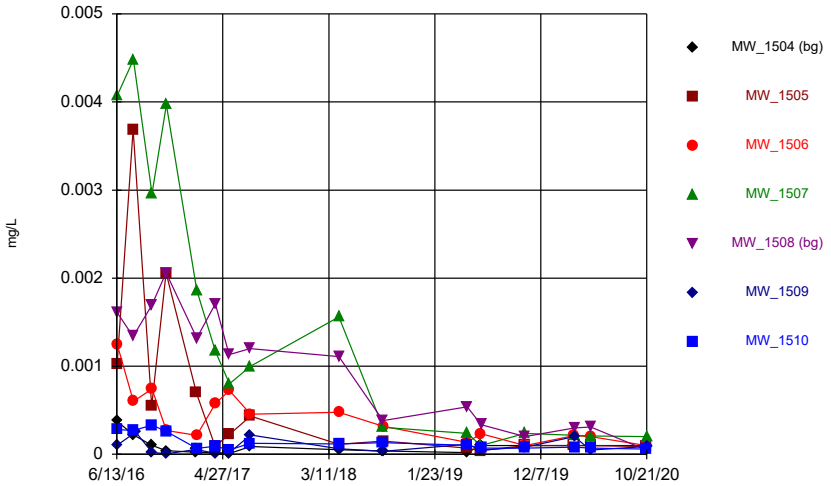
Time Series



Constituent: Fluoride, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

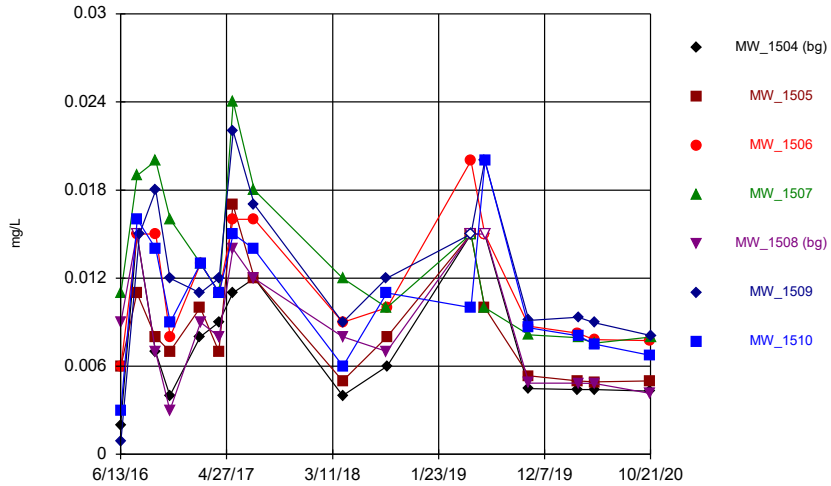
Time Series



Constituent: Lead, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

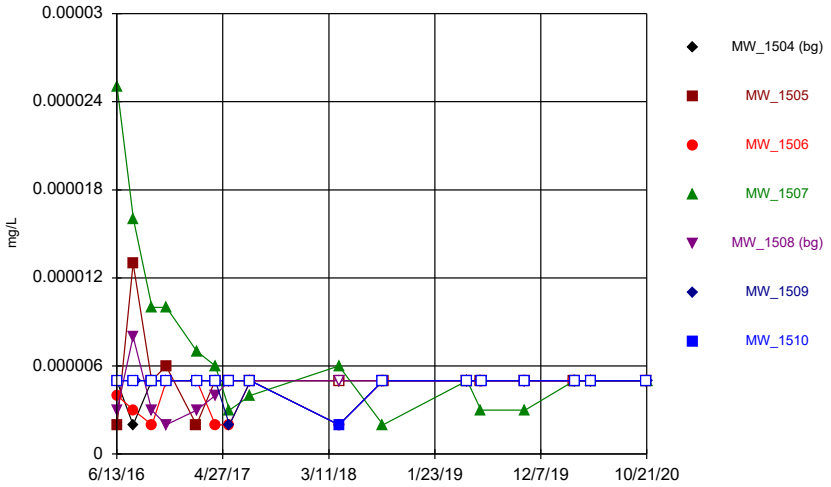
Time Series



Constituent: Lithium, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

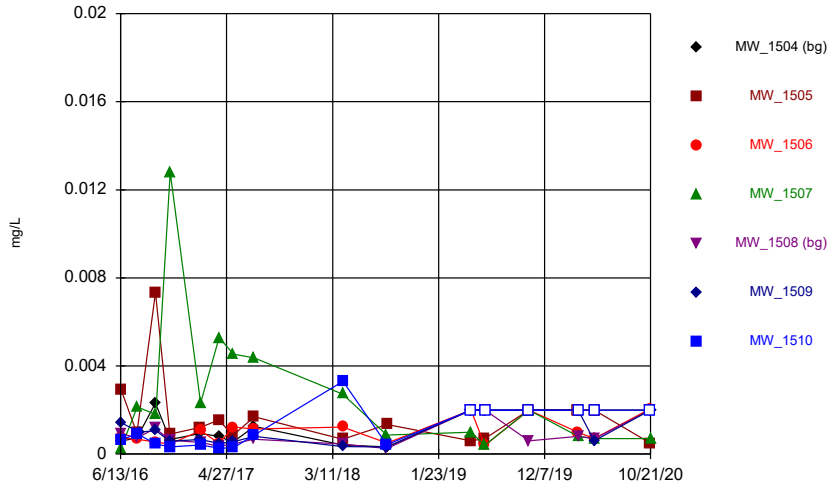
Time Series



Constituent: Mercury, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

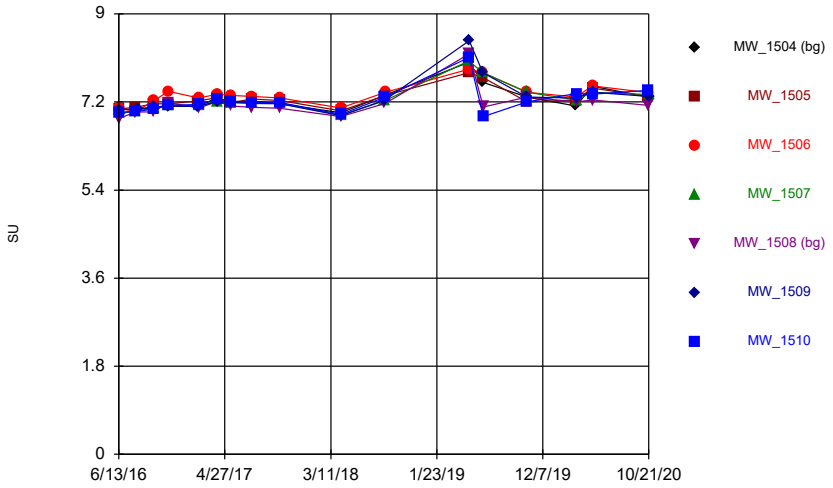
Time Series



Constituent: Molybdenum, total Analysis Run 2/8/2021 1:53 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Time Series



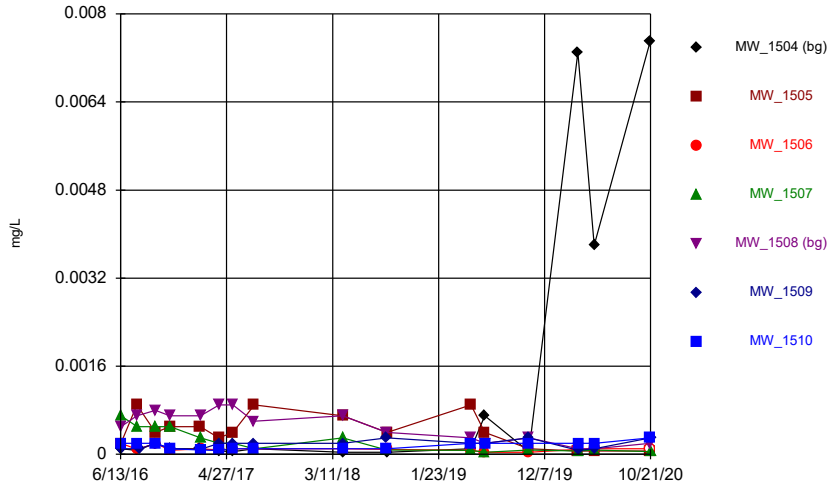
Constituent: pH, field Analysis Run 2/8/2021 1:53 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

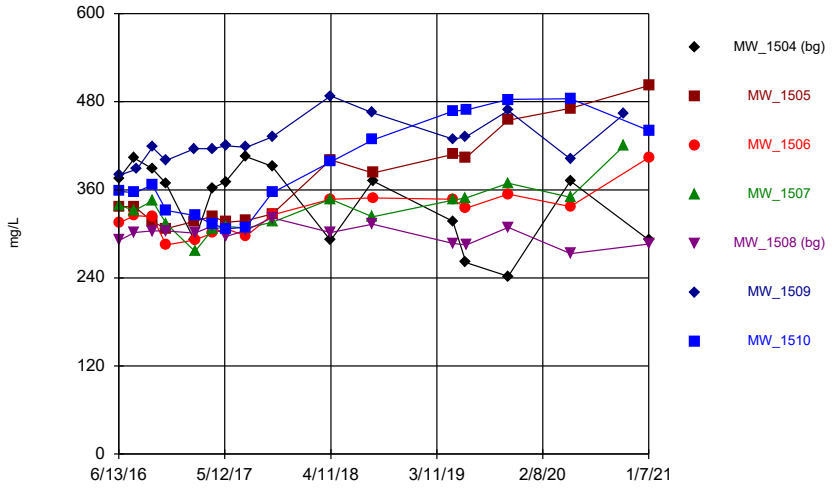


Constituent: Selenium, total Analysis Run 2/8/2021 1:53 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Time Series



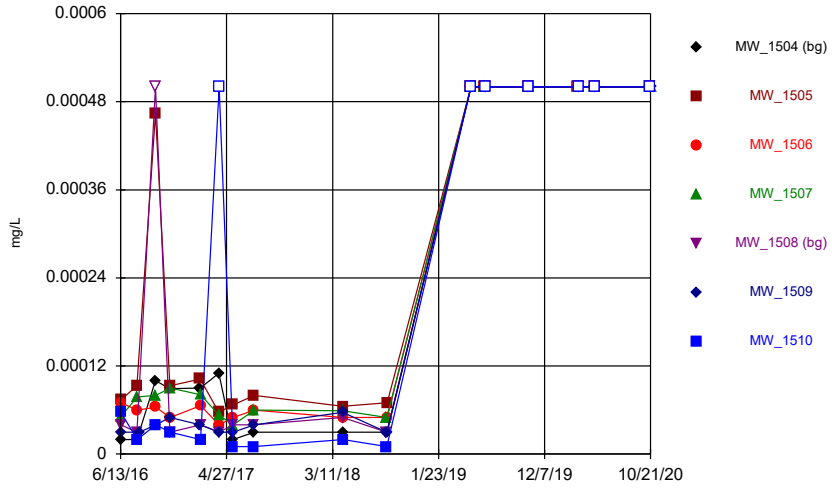
Constituent: Sulfate, total Analysis Run 2/8/2021 1:53 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

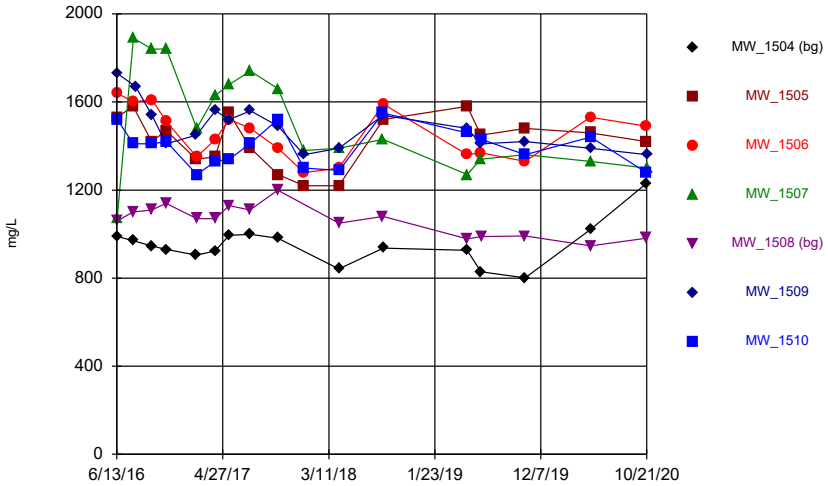
Time Series



Constituent: Thallium, total Analysis Run 2/8/2021 1:54 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Time Series



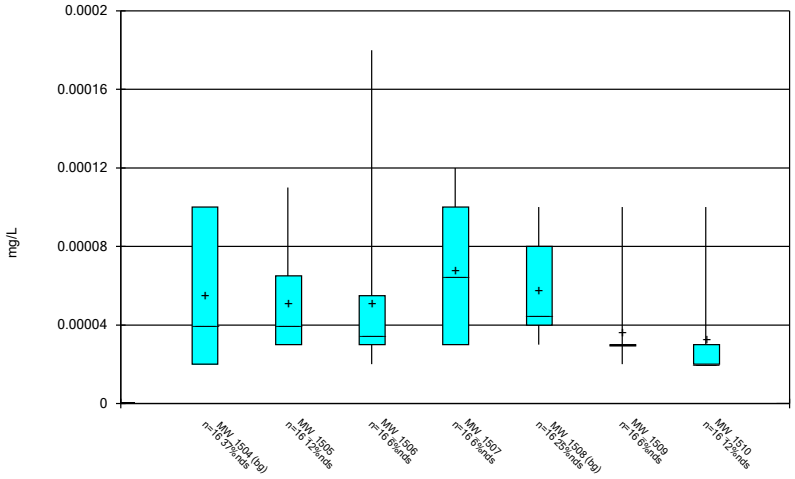
Constituent: Total Dissolved Solids [TDS] Analysis Run 2/8/2021 1:54 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE B.

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Box & Whiskers Plot

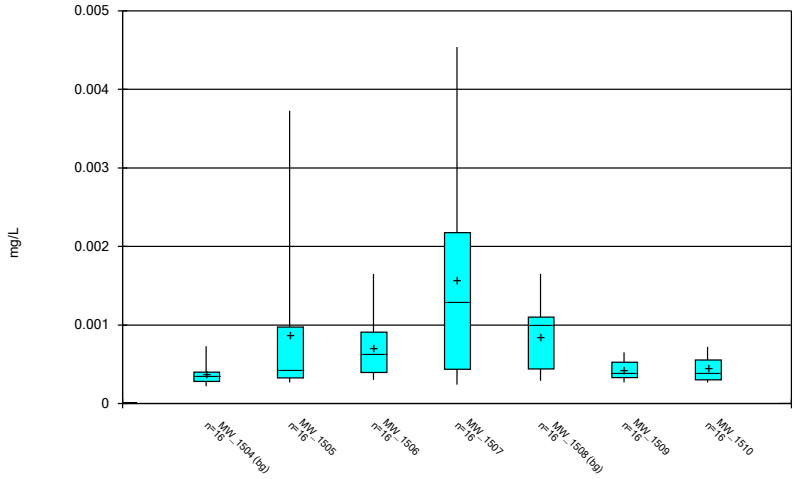


Constituent: Antimony, total Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Box & Whiskers Plot

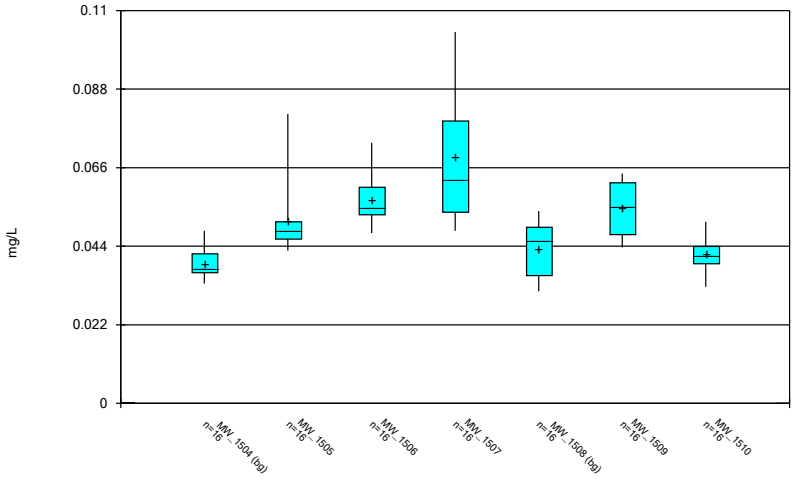


Constituent: Arsenic, total Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Box & Whiskers Plot

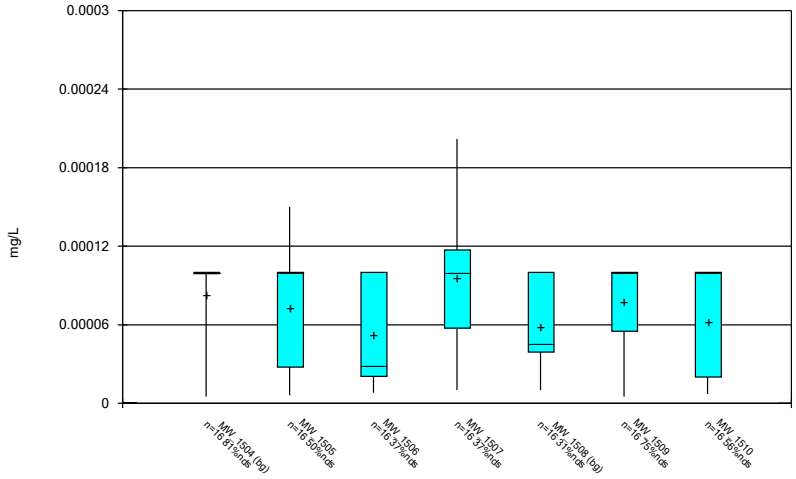


Constituent: Barium, total Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Box & Whiskers Plot

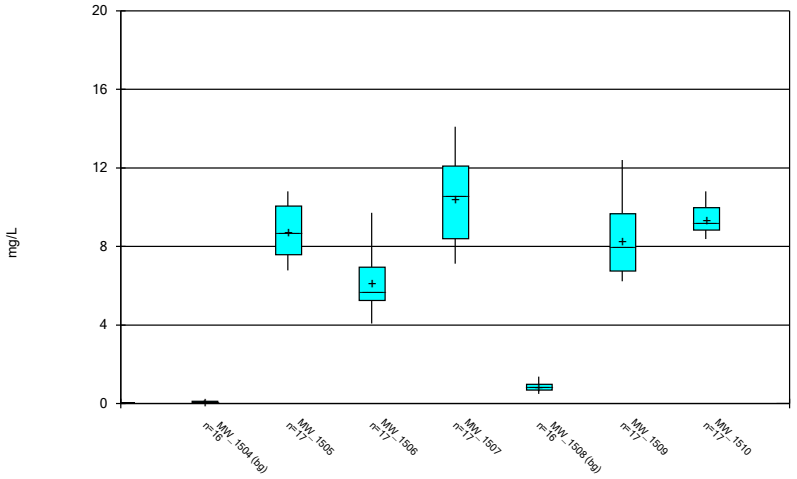


Constituent: Beryllium, total Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

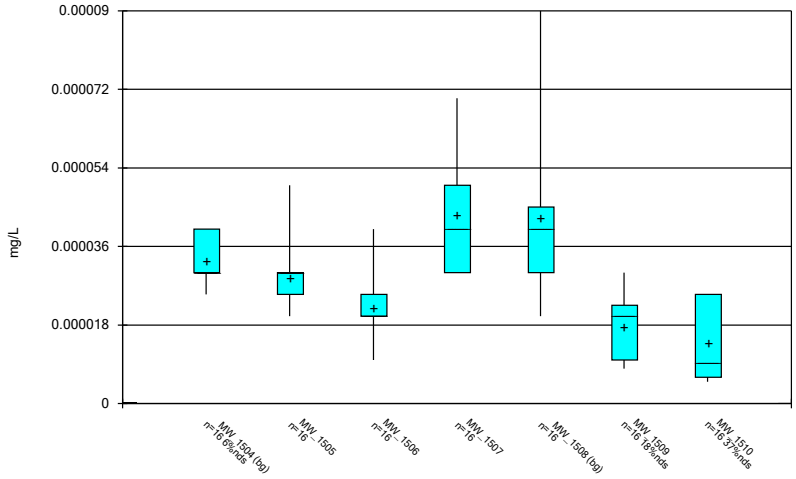
Box & Whiskers Plot



Constituent: Boron, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

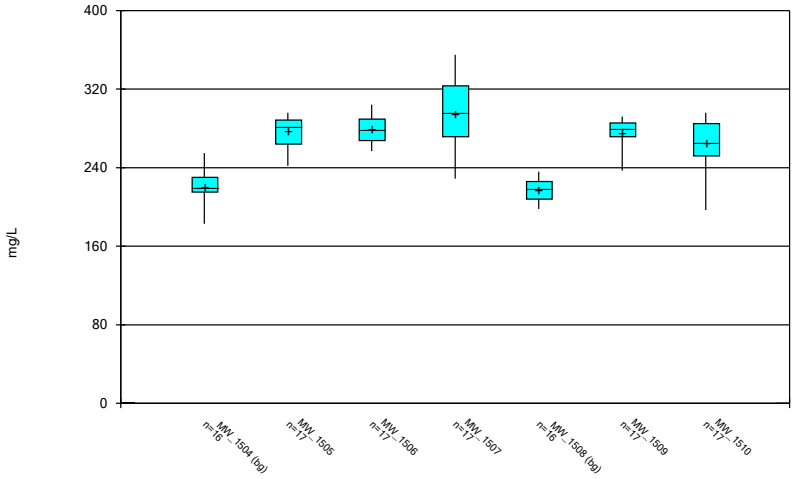
Box & Whiskers Plot



Constituent: Cadmium, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

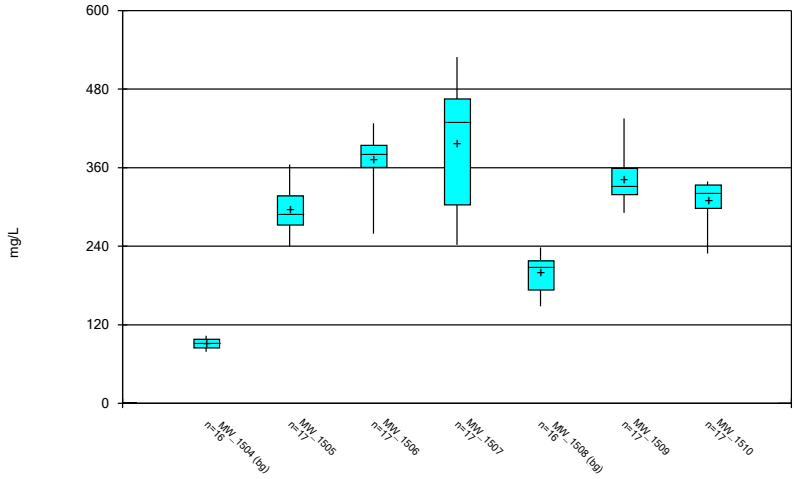
Box & Whiskers Plot



Constituent: Calcium, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

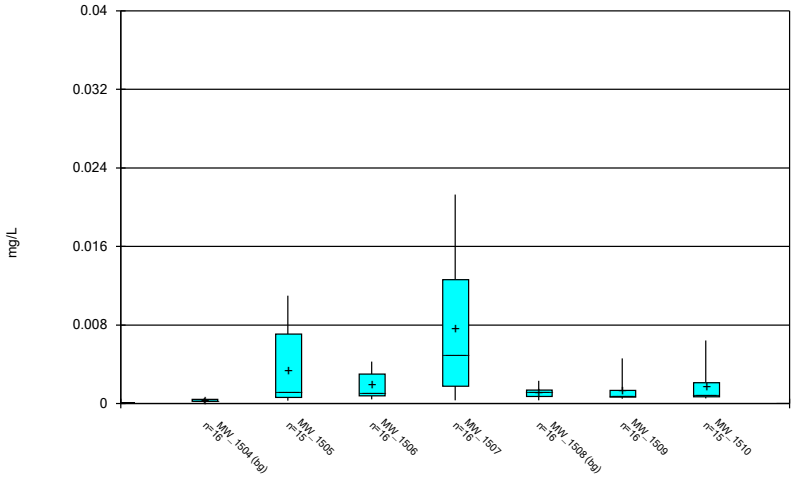
Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Box & Whiskers Plot



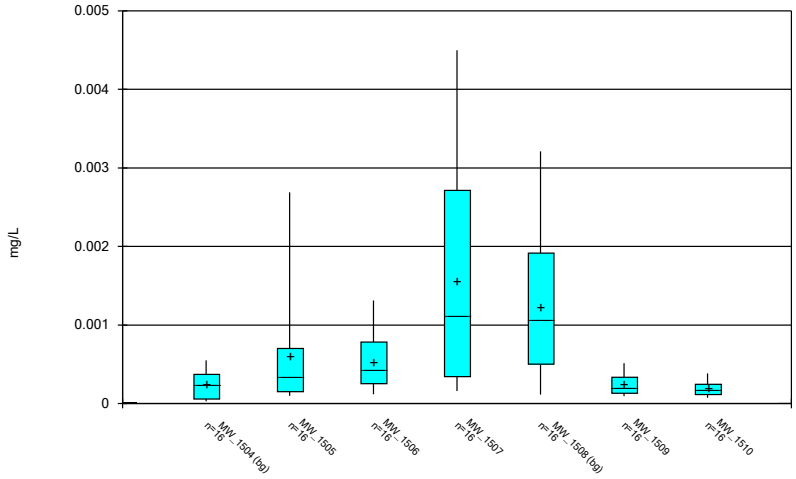
Constituent: Chloride, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



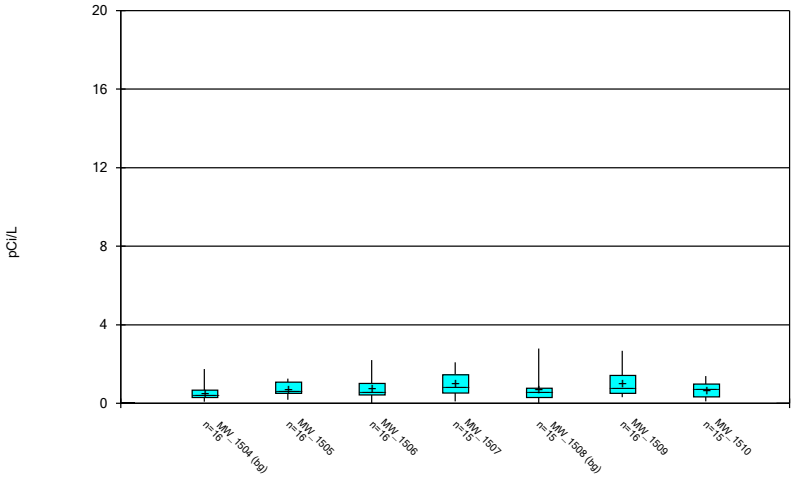
Constituent: Chromium, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



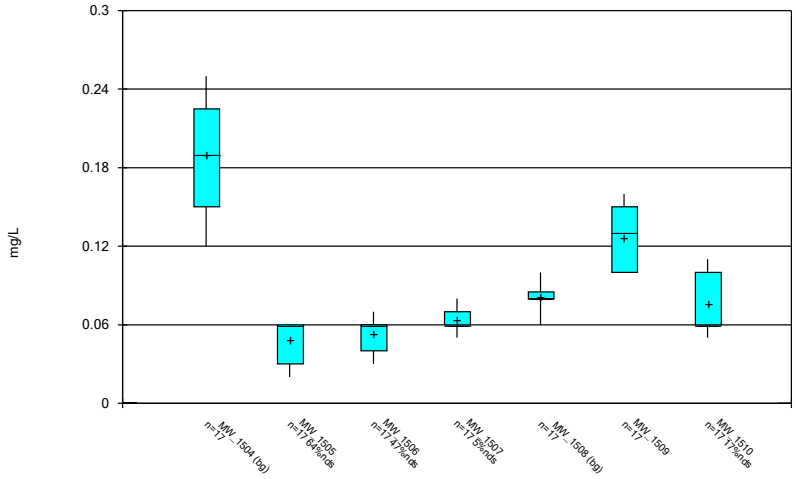
Constituent: Cobalt, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



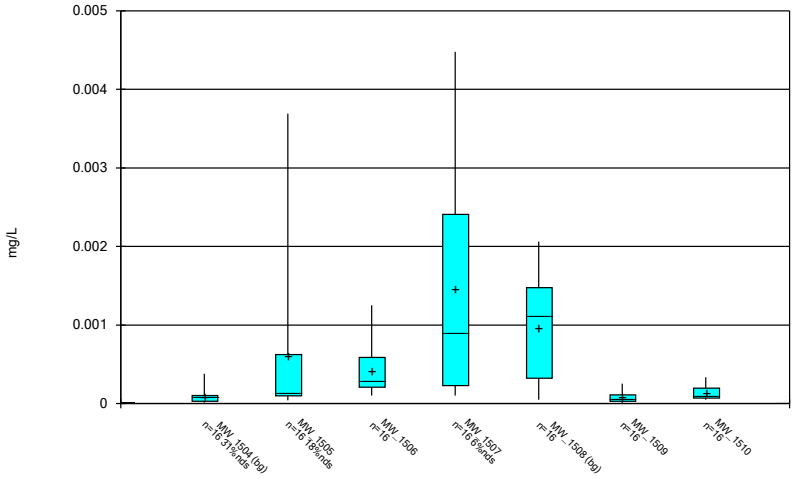
Constituent: Combined Radium 226 + 228 Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



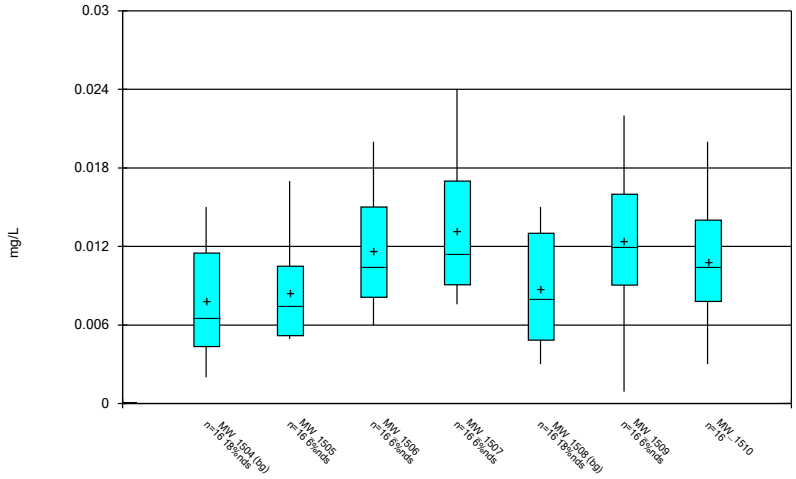
Constituent: Fluoride, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



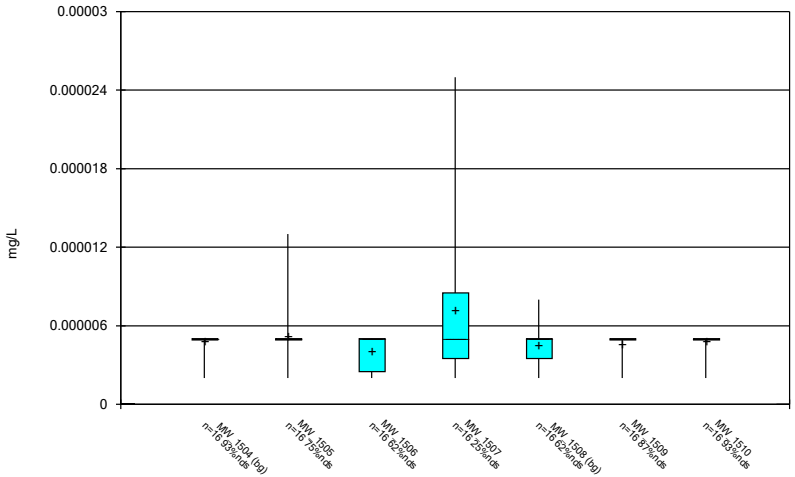
Constituent: Lead, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



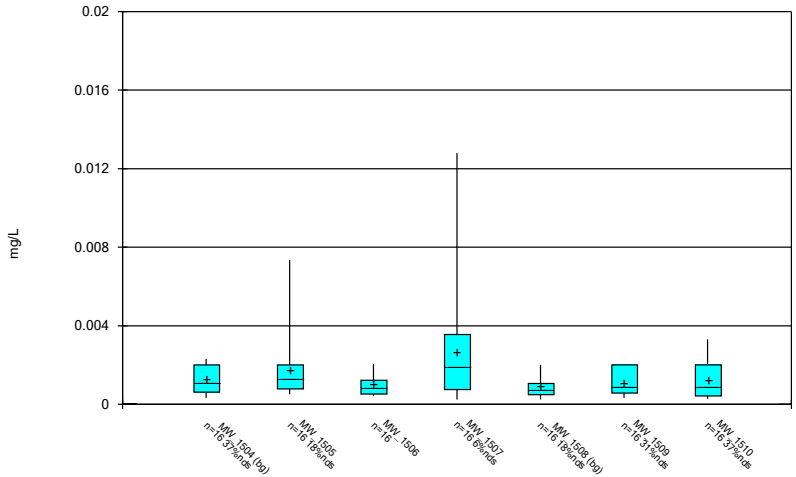
Constituent: Lithium, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



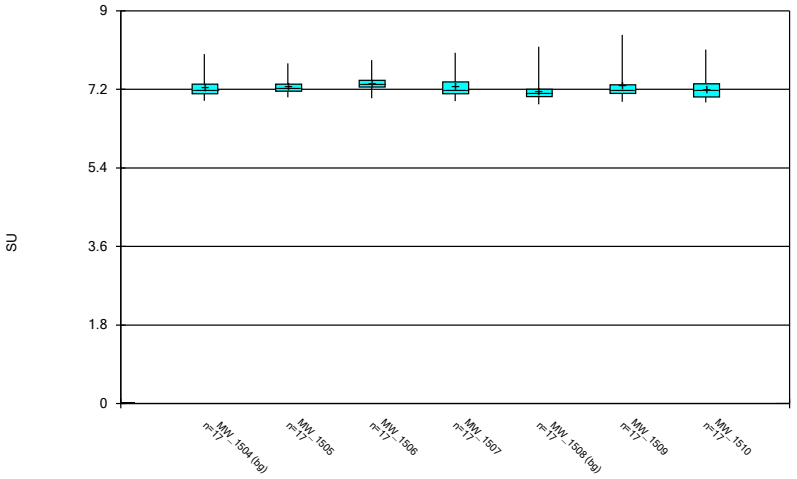
Constituent: Mercury, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Molybdenum, total Analysis Run 2/8/2021 2:29 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

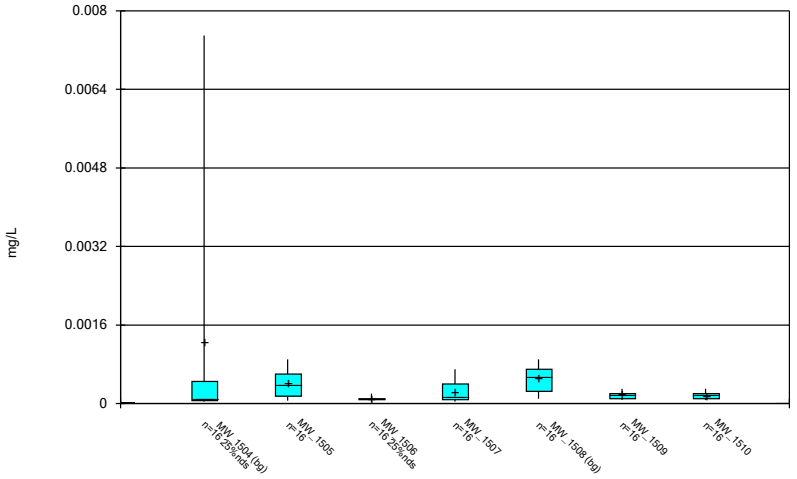
Box & Whiskers Plot



Constituent: pH, field Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

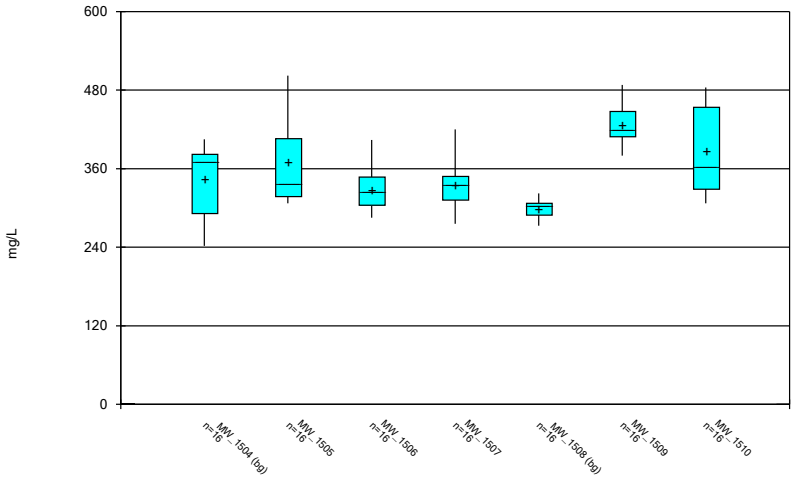
Box & Whiskers Plot



Constituent: Selenium, total Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

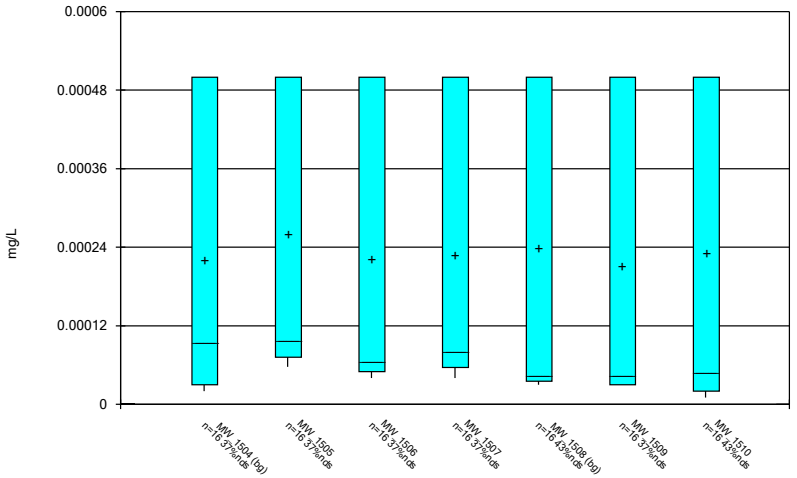
Box & Whiskers Plot



Constituent: Sulfate, total Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

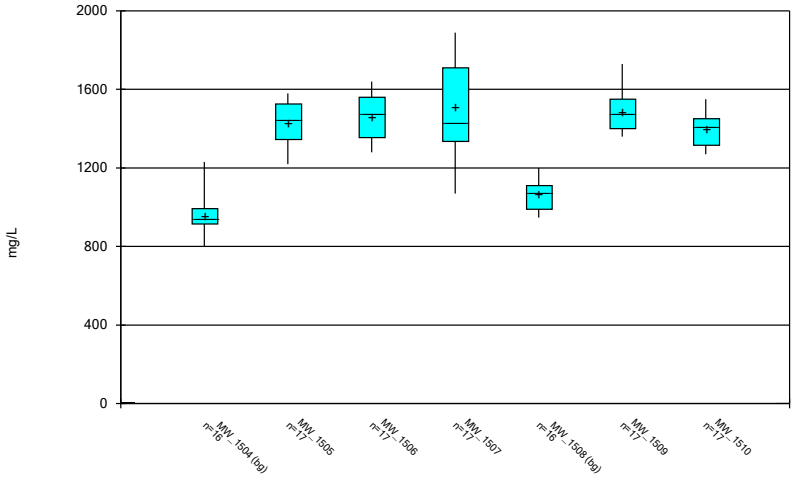
Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 2/8/2021 2:29 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE C.

Outlier Summary

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/8/2021, 1:53 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 2/8/2021, 1:51 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
pH, field (SU)	**MW_1504,MW_1508**	**Yes**	**8.01,8.18**	**n/a w/combined bg**	**NP**	**NaN**	**34**	**7.21**	**0.2734**	**ln(x)**	**ShapiroWilk**

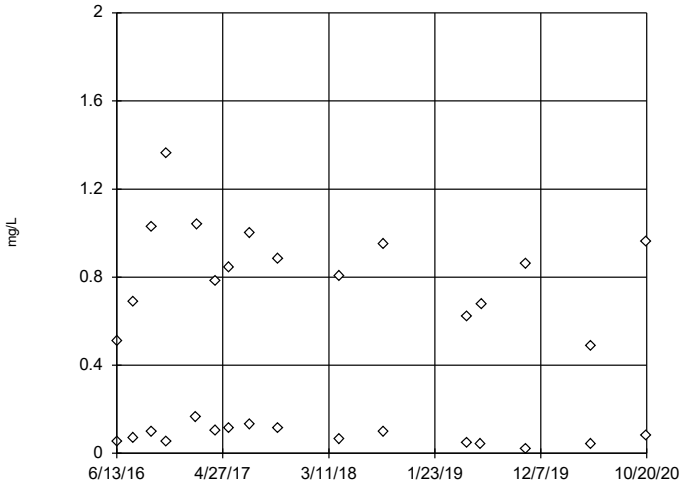
Tukey's Outlier Test - Upgradient Wells - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/8/2021, 1:51 PM

Constituent	Well	Outlier	Value(s)	Date(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Boron, total (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	0.4623	0.4182	ln(x)	ShapiroWilk
Calcium, total (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	218.7	14.12	normal	ShapiroWilk
Chloride, total (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	146.1	58.62	ln(x)	ShapiroWilk
pH, field (SU)	**MW_1504,MW_1508**	**Yes**	**8.01,8.18**	**n/a w/combined bg**	**NP**	**NaN**	**34**	**7.21**	**0.2734**	**ln(x)**	**ShapiroWilk**
Total Dissolved Solids [TDS] (mg/L)	MW_1504,MW_1508	No	n/a	n/a w/combined bg	NP	NaN	32	1007	101	sqrt(x)	ShapiroWilk

Tukey's Outlier Screening, Pooled Background

MW_1504,MW_1508



n = 32

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 = 1217, low cutoff = 0.00005309, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 2/8/2021 1:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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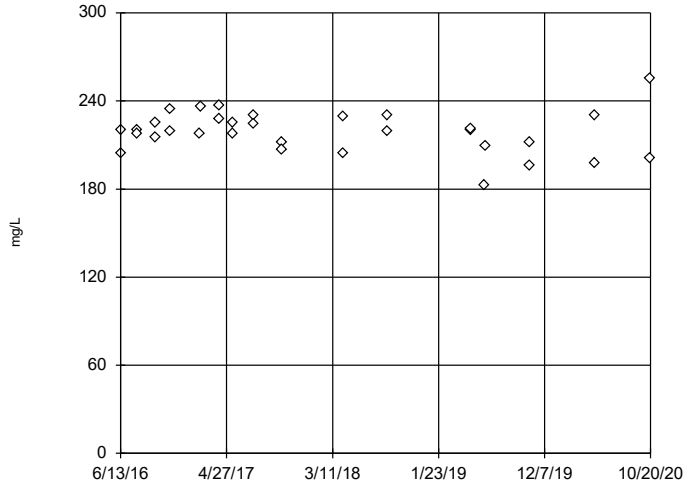
Tukey's Outlier Screening, Pooled Background

MW_1504,MW_1508



n = 32

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

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

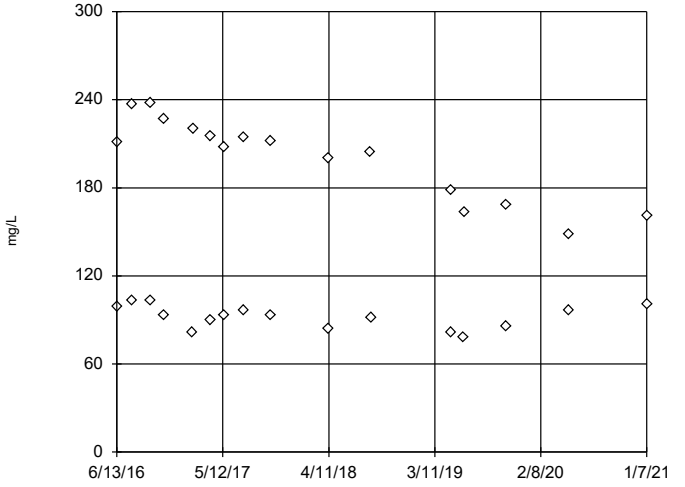
High cutoff = 282.5, low cutoff = 156.5, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 2/8/2021 1:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Tukey's Outlier Screening, Pooled Background

MW_1504,MW_1508



n = 32

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

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

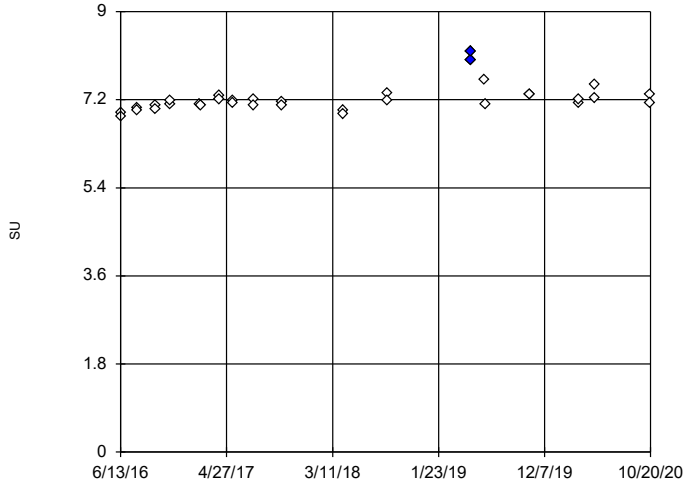
High cutoff = 2387, low cutoff = 8.171, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 2/8/2021 1:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Tukey's Outlier Screening, Pooled Background

MW_1504,MW_1508



n = 34

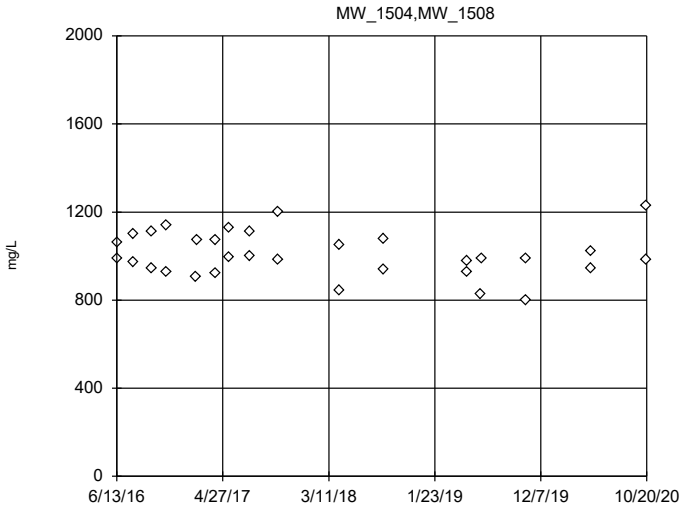
Outliers are drawn as solid.
Tukey's method selected by user.

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

High cutoff = 7.975, low cutoff = 6.467, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 2/8/2021 1:50 PM View: Outlier Tests
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tukey's Outlier Screening, Pooled Background



n = 32

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 = 1530, low cutoff = 592.5, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 2/8/2021 1:50 PM View: Outlier Tests

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE D.

Intrawell Prediction Limits - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 11:12 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	0.2746	n/a	n/a	1 future	n/a	13	0.2046	0.03072	0	None	No	0.001504	Param Intra 1 of 2
Fluoride, total (mg/L)	MW_1505	0.06	n/a	n/a	1 future	n/a	13	n/a	n/a	84.62	n/a	n/a	0.009692	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	MW_1506	0.2	n/a	n/a	1 future	n/a	13	n/a	n/a	61.54	n/a	n/a	0.009692	NP Intra (NDs) 1 of 2
Fluoride, total (mg/L)	MW_1507	0.2	n/a	n/a	1 future	n/a	13	n/a	n/a	7.692	n/a	n/a	0.009692	NP Intra (normality) 1 of 2
Fluoride, total (mg/L)	MW_1508	0.1	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
Fluoride, total (mg/L)	MW_1509	0.1712	n/a	n/a	1 future	n/a	13	0.00216	0.001254	0	None	x^3	0.001504	Param Intra 1 of 2
Fluoride, total (mg/L)	MW_1510	0.2	n/a	n/a	1 future	n/a	13	n/a	n/a	23.08	n/a	n/a	0.009692	NP Intra (normality) 1 of 2
Sulfate, total (mg/L)	MW_1504	461.7	n/a	n/a	1 future	n/a	13	353.7	47.41	0	None	No	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	325.4	n/a	n/a	1 future	n/a	13	301.8	10.37	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW_1509	488.8	n/a	n/a	1 future	n/a	13	423.2	28.79	0	None	No	0.001504	Param Intra 1 of 2
Sulfate, total (mg/L)	MW_1510	496.8	n/a	n/a	1 future	n/a	13	368.1	56.47	0	None	No	0.001504	Param Intra 1 of 2

FIGURE E.

Trend Tests - Upgradient Wells - Significant Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 9:52 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Chloride, total (mg/L)	**MW_1508 (bg)**	**-19.19**	**-94**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
pH, field (SU)	**MW_1504 (bg)**	**0.1121**	**72**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**

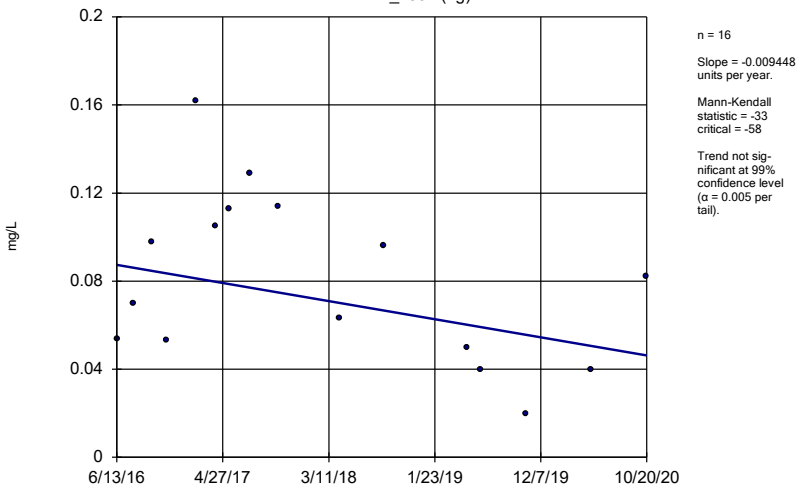
Trend Tests - Upgradient Wells - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 9:52 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron, total (mg/L)	MW_1504 (bg)	-0.009448	-33	-58	No	16	0	n/a	n/a	0.01	NP
Boron, total (mg/L)	MW_1508 (bg)	-0.03907	-16	-58	No	16	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW_1504 (bg)	0	-1	-58	No	16	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	MW_1508 (bg)	-4.641	-33	-58	No	16	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	MW_1504 (bg)	-2.442	-29	-58	No	16	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	**MW_1508 (bg)**	**-19.19**	**-94**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
pH, field (SU)	**MW_1504 (bg)**	**0.1121**	**72**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
pH, field (SU)	MW_1508 (bg)	0.05339	58	63	No	17	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW_1504 (bg)	-12.81	-10	-58	No	16	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	MW_1508 (bg)	-33.72	-50	-58	No	16	0	n/a	n/a	0.01	NP

Sen's Slope Estimator

MW_1504 (bg)



n = 16

Slope = -0.009448 units per year.

Mann-Kendall statistic = -33 critical = -58

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

Constituent: Boron, total Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

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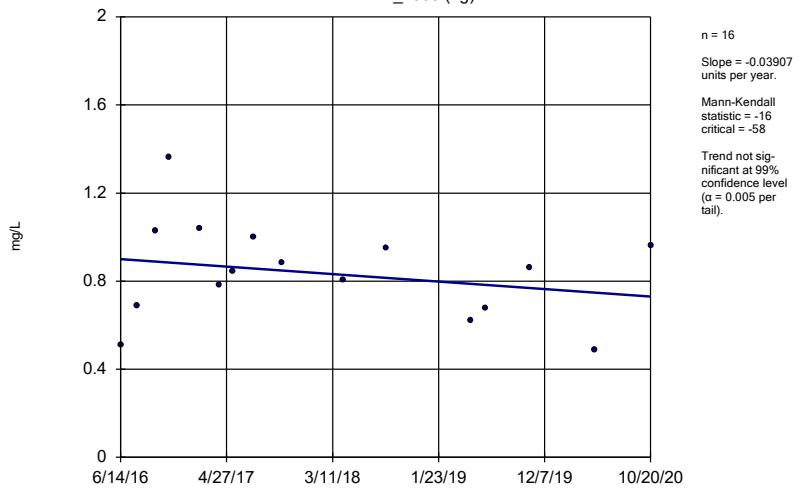
Sen's Slope Estimator

MW_1508 (bg)



n = 16

Slope = -0.03907 units per year.

Mann-Kendall statistic = -16 critical = -58

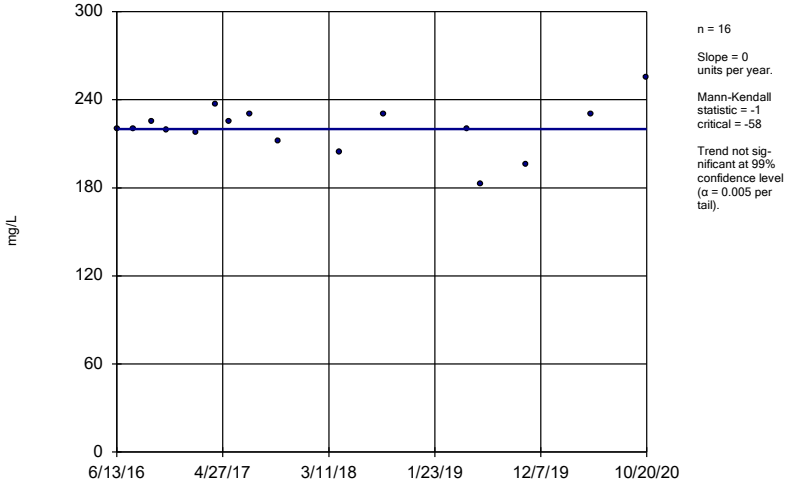
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron, total Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW_1504 (bg)



n = 16

Slope = 0 units per year.

Mann-Kendall statistic = -1 critical = -58

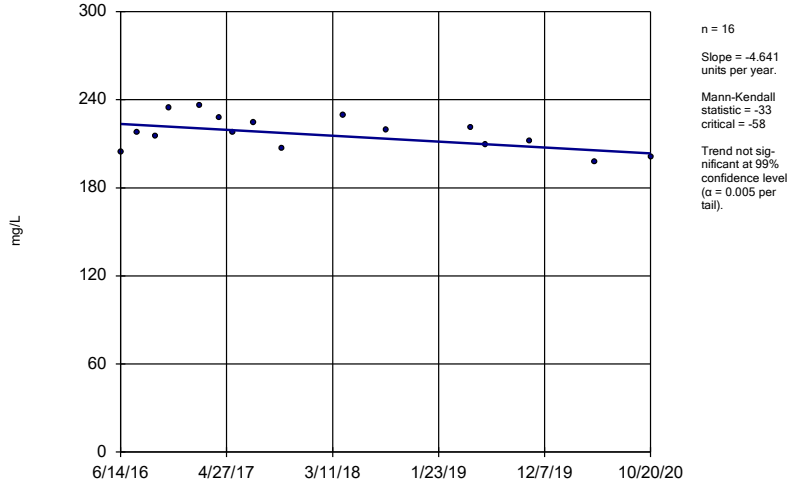
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium, total Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW_1508 (bg)



n = 16

Slope = -4.641 units per year.

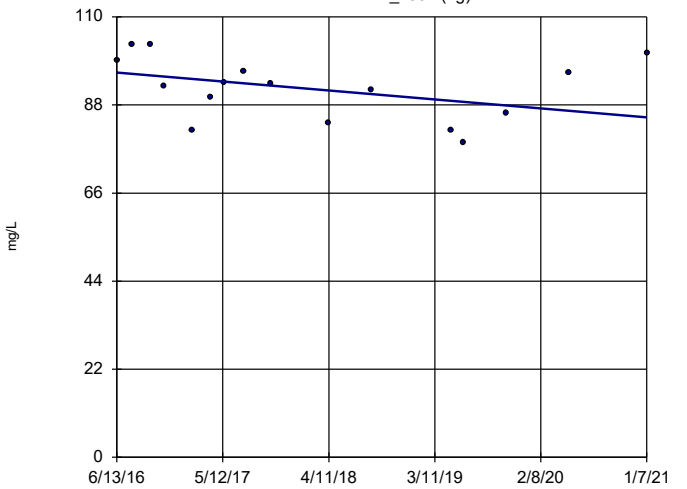
Mann-Kendall statistic = -33 critical = -58

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

Constituent: Calcium, total Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW_1504 (bg)



n = 16

Slope = -2.442 units per year.

Mann-Kendall statistic = -29 critical = -58

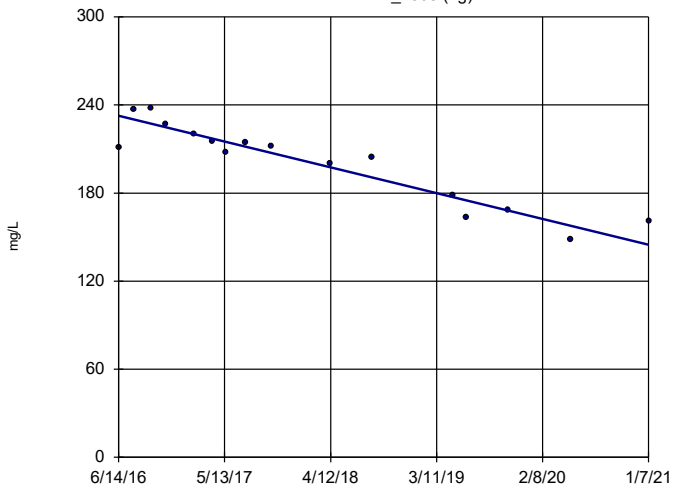
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW_1508 (bg)



n = 16

Slope = -19.19 units per year.

Mann-Kendall statistic = -94 critical = -58

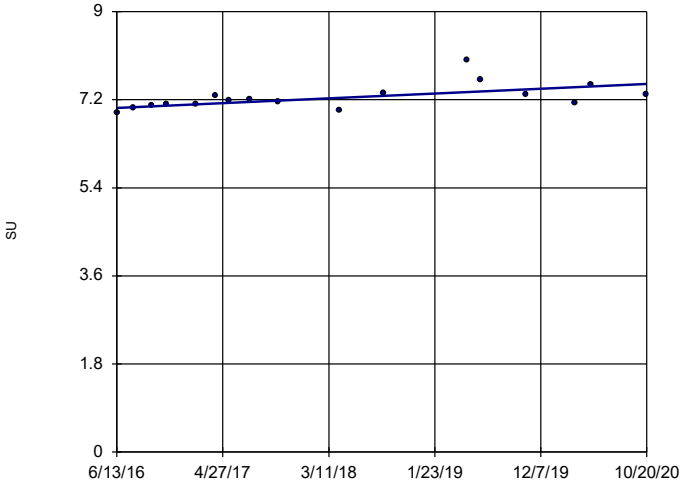
Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride, total Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW_1504 (bg)



n = 17

Slope = 0.1121 units per year.

Mann-Kendall statistic = 72 critical = 63

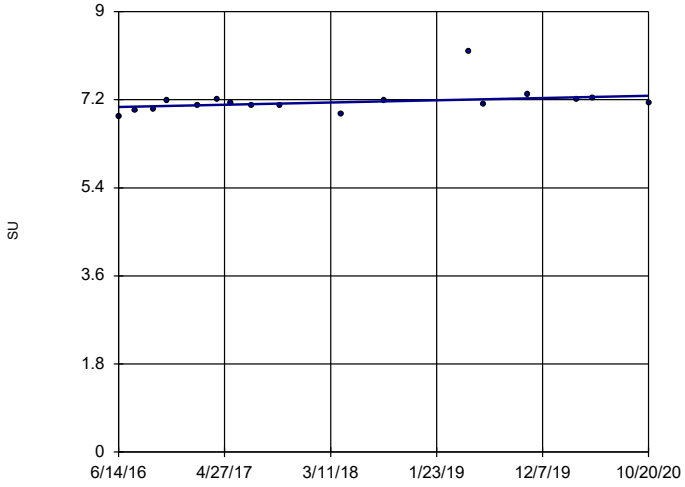
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW_1508 (bg)



n = 17

Slope = 0.05339 units per year.

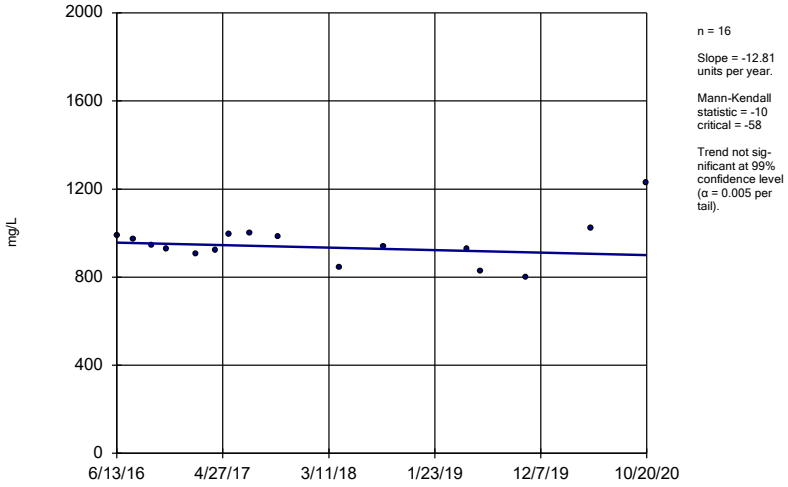
Mann-Kendall statistic = 58 critical = 63

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

Constituent: pH, field Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sen's Slope Estimator

MW_1504 (bg)



n = 16

Slope = -12.81 units per year.

Mann-Kendall statistic = -10
critical = -58

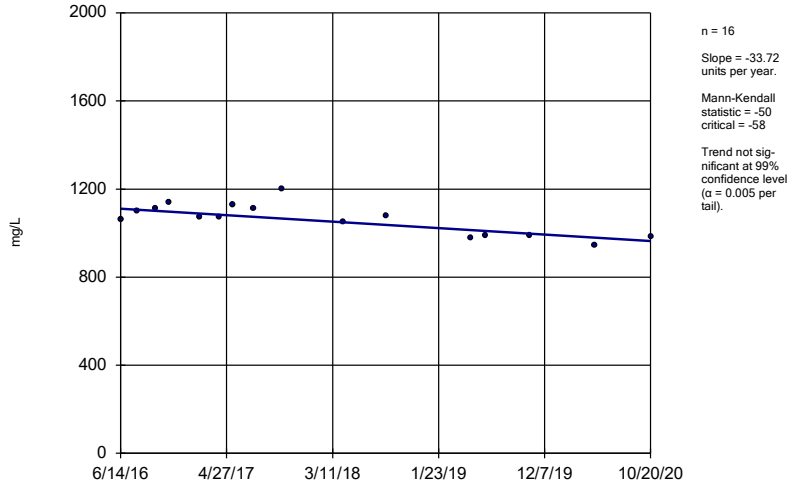
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids [TDS] Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW_1508 (bg)



n = 16

Slope = -33.72 units per year.

Mann-Kendall statistic = -50
critical = -58

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

Constituent: Total Dissolved Solids [TDS] Analysis Run 2/9/2021 9:51 AM View: Appendix III - Interwell Mitchell BAP Client: Geosyntec Data: Mitchell BAP

FIGURE F.

Interwell Prediction Limits - All Results

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/9/2021, 9:56 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	1.36	n/a	n/a	5 future	n/a	32	n/a	n/a	0	n/a	n/a	0.001748	NP Inter (normality) 1 of 2
Calcium, total (mg/L)	n/a	245.9	n/a	n/a	5 future	n/a	32	218.7	14.12	0	None	No	0.001504	Param Inter 1 of 2
Chloride, total (mg/L)	n/a	238	n/a	n/a	5 future	n/a	32	n/a	n/a	0	n/a	n/a	0.001748	NP Inter (normality) 1 of 2
pH, field (SU)	n/a	8.18	6.86	n/a	5 future	n/a	34	n/a	n/a	0	n/a	n/a	0.00311	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	n/a	1202	n/a	n/a	5 future	n/a	32	1007	101	0	None	No	0.001504	Param Inter 1 of 2

FIGURE G.

Upper Tolerance Limit Summary Table

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/27/2021, 2:48 PM

Constituent	Upper Lim.	Lower Lim.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	0.0001	n/a	n/a	32	n/a	n/a	31.25	n/a	n/a	0.1937	NP Inter(normality)
Arsenic, total (mg/L)	0.001838	n/a	n/a	32	-7.584	0.5847	0	None	ln(x)	0.05	Inter
Barium, total (mg/L)	0.05467	n/a	n/a	32	0.04109	0.006178	0	None	No	0.05	Inter
Beryllium, total (mg/L)	0.0001	n/a	n/a	32	n/a	n/a	56.25	n/a	n/a	0.1937	NP Inter(NDs)
Cadmium, total (mg/L)	0.00009	n/a	n/a	32	n/a	n/a	3.125	n/a	n/a	0.1937	NP Inter(normality)
Chromium, total (mg/L)	0.002203	n/a	n/a	32	0.02523	0.009876	0	None	sqrt(x)	0.05	Inter
Cobalt, total (mg/L)	0.002881	n/a	n/a	32	0.02347	0.01374	0	None	sqrt(x)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	1.986	n/a	n/a	31	0.7208	0.3116	0	None	sqrt(x)	0.05	Inter
Fluoride, total (mg/L)	0.25	n/a	n/a	34	n/a	n/a	0	n/a	n/a	0.1748	NP Inter(normality)
Lead, total (mg/L)	0.002734	n/a	n/a	32	0.06472	0.03417	15.63	Kaplan-Meier	x^(1/3)	0.05	Inter
Lithium, total (mg/L)	0.03	n/a	n/a	32	n/a	n/a	18.75	n/a	n/a	0.1937	NP Inter(normality)
Mercury, total (mg/L)	0.000008	n/a	n/a	32	n/a	n/a	78.13	n/a	n/a	0.1937	NP Inter(NDs)
Molybdenum, total (mg/L)	0.00172	n/a	n/a	32	-7.37	0.4572	28.13	Kaplan-Meier	ln(x)	0.05	Inter
Selenium, total (mg/L)	0.006508	n/a	n/a	32	-8.166	1.424	12.5	None	ln(x)	0.05	Inter
Thallium, total (mg/L)	0.0005	n/a	n/a	32	n/a	n/a	40.63	n/a	n/a	0.1937	NP Inter(normality)

FIGURE H.

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		0.0018	0.01
Barium, Total (mg/L)	2		0.055	2
Beryllium, Total (mg/L)	0.004		0.0001	0.004
Cadmium, Total (mg/L)	0.005		0.00009	0.005
Chromium, Total (mg/L)	0.1		0.0022	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0029	0.006
Combined Radium, Total (pCi/L)	5		1.99	5
Fluoride, Total (mg/L)	4		0.25	4
Lead, Total (mg/L)	n/a	0.015	0.0027	0.015
Lithium, Total (mg/L)	n/a	0.04	0.03	0.04
Mercury, Total (mg/L)	0.002		0.000008	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.0017	0.1
Selenium, Total (mg/L)	0.05		0.0065	0.05
Thallium, Total (mg/L)	0.002		0.0005	0.002

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residual*

FIGURE I.

Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/11/2021, 9:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	MW_1505	0.00006	0.00003	0.006	No	16	0.000045	0.00002129	12.5	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1506	0.00006	0.00002	0.006	No	16	0.00004812	0.00003799	6.25	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1507	0.00008585	0.00004415	0.006	No	16	0.000065	0.00003204	6.25	None	No	0.01	Param.
Antimony, total (mg/L)	MW_1509	0.00005	0.00002	0.006	No	16	0.00003375	0.00001628	6.25	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1510	0.00003	0.00002	0.006	No	16	0.00002687	0.00001014	12.5	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW_1505	0.0014	0.00029	0.01	No	16	0.0008625	0.0009215	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW_1506	0.000961	0.000454	0.01	No	16	0.0007075	0.0003896	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW_1507	0.002142	0.0006027	0.01	No	16	0.001578	0.001412	0	None	x^(1/3)	0.01	Param.
Arsenic, total (mg/L)	MW_1509	0.0005002	0.000346	0.01	No	16	0.0004231	0.0001185	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW_1510	0.0005401	0.0003399	0.01	No	16	0.00044	0.0001539	0	None	No	0.01	Param.
Barium, total (mg/L)	MW_1505	0.0577	0.0455	2	No	16	0.05098	0.009533	0	None	No	0.01	NP (normality)
Barium, total (mg/L)	MW_1506	0.06119	0.05241	2	No	16	0.05691	0.006943	0	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	MW_1507	0.07955	0.05701	2	No	16	0.06885	0.01805	0	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	MW_1509	0.05972	0.0499	2	No	16	0.05481	0.007549	0	None	No	0.01	Param.
Barium, total (mg/L)	MW_1510	0.04495	0.03881	2	No	16	0.04188	0.004724	0	None	No	0.01	Param.
Beryllium, total (mg/L)	MW_1505	0.0001	0.00001	0.004	No	16	0.000073	0.00004452	50	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW_1506	0.0001	0.00002	0.004	No	16	0.00005162	0.00004001	37.5	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW_1507	0.0001124	0.00004062	0.004	No	16	0.00009594	0.00004997	37.5	Kaplan-Meier	No	0.01	Param.
Beryllium, total (mg/L)	MW_1509	0.0001	0.00001	0.004	No	16	0.00007706	0.00004105	75	Kaplan-Meier	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW_1510	0.0001	0.00001	0.004	No	16	0.00006281	0.00004373	56.25	Kaplan-Meier	No	0.01	NP (NDs)
Cadmium, total (mg/L)	MW_1505	0.00005	0.00002	0.005	No	16	0.00002875	0.000007188	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1506	0.00003	0.00001	0.005	No	16	0.00002188	0.000009106	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1507	0.00006	0.00003	0.005	No	16	0.00004313	0.00001537	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1509	0.000025	0.00001	0.005	No	16	0.00001769	0.000006993	18.75	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1510	0.000025	0.000006	0.005	No	16	0.00001394	0.000009	37.5	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW_1505	0.00401	0.0007403	0.1	No	15	0.003452	0.003953	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW_1506	0.002597	0.0009367	0.1	No	16	0.001892	0.001382	0	None	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	MW_1507	0.01104	0.002564	0.1	No	16	0.007699	0.006939	0	None	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	MW_1509	0.001522	0.0006694	0.1	No	16	0.001262	0.001071	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW_1510	0.00234	0.000655	0.1	No	15	0.001754	0.001829	0	None	No	0.01	NP (normality)
Cobalt, total (mg/L)	MW_1505	0.0008015	0.0001872	0.006	No	16	0.0005991	0.000709	0	None	x^(1/3)	0.01	Param.
Cobalt, total (mg/L)	MW_1506	0.0007525	0.0003024	0.006	No	16	0.0005274	0.0003459	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW_1507	0.002231	0.0005432	0.006	No	16	0.001561	0.001455	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	MW_1509	0.0003322	0.0001523	0.006	No	16	0.0002423	0.0001382	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW_1510	0.0002475	0.000133	0.006	No	16	0.0001903	0.00008804	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1505	0.9641	0.5077	5	No	16	0.7359	0.3508	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1506	1.136	0.3837	5	No	16	0.7597	0.5779	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1507	1.44	0.6062	5	No	15	1.023	0.615	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1509	1.421	0.5973	5	No	16	1.009	0.6331	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1510	0.9586	0.4126	5	No	15	0.6856	0.4029	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW_1505	0.06	0.03	4	No	17	0.04824	0.01667	64.71	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	MW_1506	0.07	0.04	4	No	17	0.05294	0.01263	47.06	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1507	0.07	0.06	4	No	17	0.06294	0.008489	5.882	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1509	0.15	0.1	4	No	17	0.1259	0.02399	0	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1510	0.1	0.06	4	No	17	0.07588	0.02399	17.65	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW_1505	0.0005445	0.00009917	0.015	No	16	0.0005955	0.0009777	18.75	Kaplan-Meier	ln(x)	0.01	Param.
Lead, total (mg/L)	MW_1506	0.0005653	0.0002095	0.015	No	16	0.0004137	0.0003091	0	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW_1507	0.001983	0.0003701	0.015	No	16	0.001461	0.001554	6.25	None	x^(1/3)	0.01	Param.
Lead, total (mg/L)	MW_1509	0.0001212	0.00003359	0.015	No	16	0.00008563	0.00007586	0	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW_1510	0.0001686	0.00007544	0.015	No	16	0.0001366	0.00009346	0	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	MW_1505	0.01058	0.006074	0.04	No	16	0.008518	0.003725	6.25	None	sqrt(x)	0.01	Param.
Lithium, total (mg/L)	MW_1506	0.01431	0.009011	0.04	No	16	0.01166	0.00407	6.25	None	No	0.01	Param.
Lithium, total (mg/L)	MW_1507	0.01642	0.009915	0.04	No	16	0.01316	0.004996	6.25	None	No	0.01	Param.
Lithium, total (mg/L)	MW_1509	0.01588	0.009051	0.04	No	16	0.01246	0.005245	6.25	None	No	0.01	Param.
Lithium, total (mg/L)	MW_1510	0.01363	0.007989	0.04	No	16	0.01081	0.004335	0	None	No	0.01	Param.

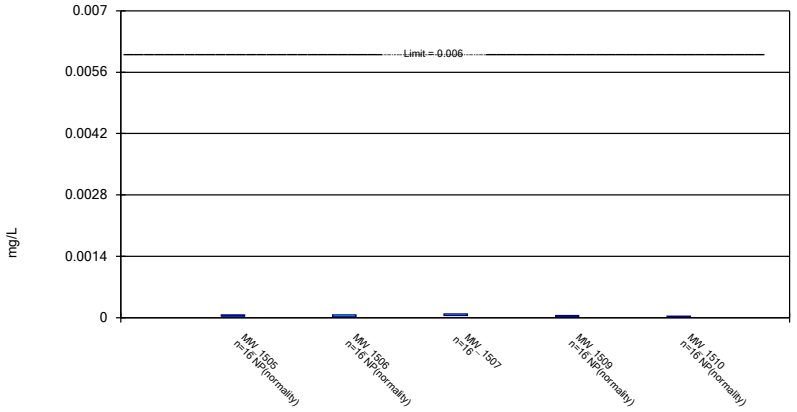
Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 2/11/2021, 9:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Mercury, total (mg/L)	MW_1505	0.000006	0.000002	0.002	No	16	0.000005187	0.000002344	75	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1506	0.000005	0.000002	0.002	No	16	0.000004062	0.00000134	62.5	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1507	0.000007621	0.000002359	0.002	No	16	0.000007187	0.000005902	25	Kaplan-Meier	x^(1/3)	0.01	Param.
Mercury, total (mg/L)	MW_1509	0.000005	0.000002	0.002	No	16	0.000004625	0.000001025	87.5	Kaplan-Meier	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1510	0.000005	0.000002	0.002	No	16	0.000004812	7.5e-7	93.75	Kaplan-Meier	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	MW_1505	0.001744	0.0007375	0.1	No	16	0.001703	0.001648	18.75	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1506	0.00132	0.000632	0.1	No	16	0.001014	0.0005692	0	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1507	0.00383	0.0008711	0.1	No	16	0.002669	0.003118	6.25	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1509	0.0008631	0.0004855	0.1	No	16	0.001116	0.0006744	31.25	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1510	0.002	0.00033	0.1	No	16	0.001244	0.0009293	37.5	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW_1505	0.000618	0.0002295	0.05	No	16	0.0004238	0.0002986	0	None	No	0.01	Param.
Selenium, total (mg/L)	MW_1506	0.0001	0.00007	0.05	No	16	0.00009812	0.00004446	25	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW_1507	0.0003187	0.00008989	0.05	No	16	0.000235	0.0002095	0	None	x^(1/3)	0.01	Param.
Selenium, total (mg/L)	MW_1509	0.0003	0.0001	0.05	No	16	0.0001788	0.00007822	0	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW_1510	0.0002	0.00008	0.05	No	16	0.0001594	0.00006577	0	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1505	0.0005	0.000067	0.002	No	16	0.0002603	0.0002141	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1506	0.0005	0.00005	0.002	No	16	0.0002225	0.0002221	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1507	0.0005	0.000051	0.002	No	16	0.0002276	0.0002183	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1509	0.0005	0.00003	0.002	No	16	0.0002111	0.0002313	37.5	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1510	0.0005	0.00001	0.002	No	16	0.0002323	0.0002441	43.75	None	No	0.01	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

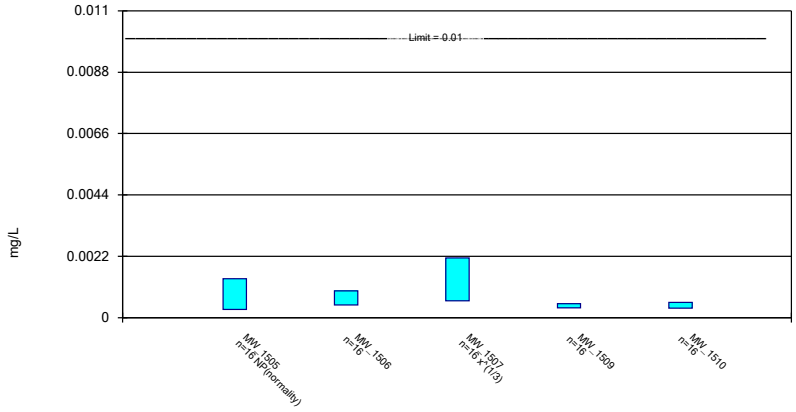
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Antimony, total Analysis Run 1/28/2021 11:09 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

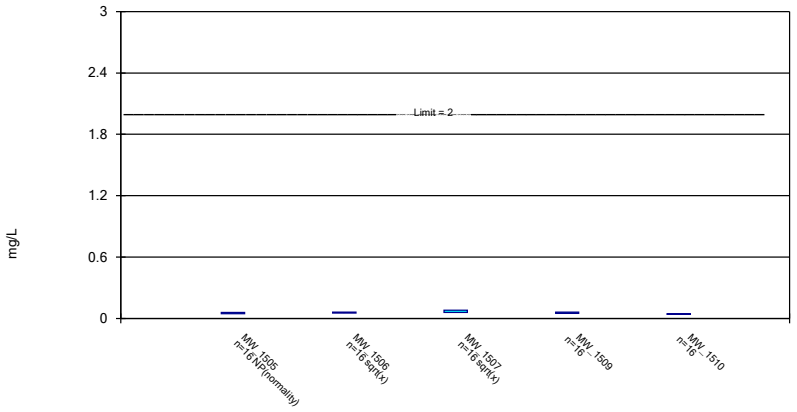
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 1/28/2021 11:09 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

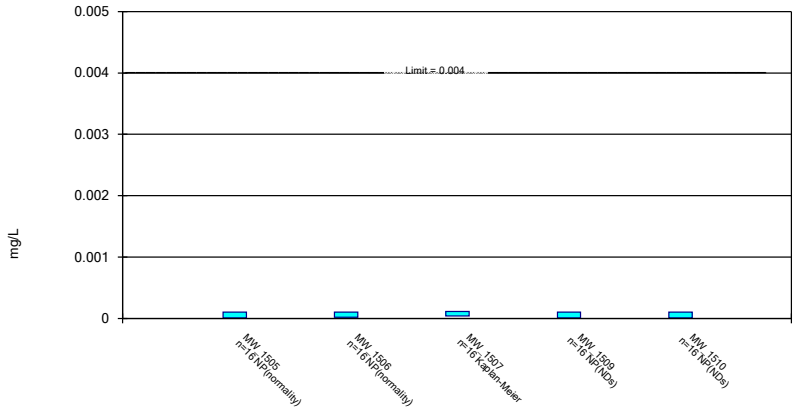
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 1/28/2021 11:09 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

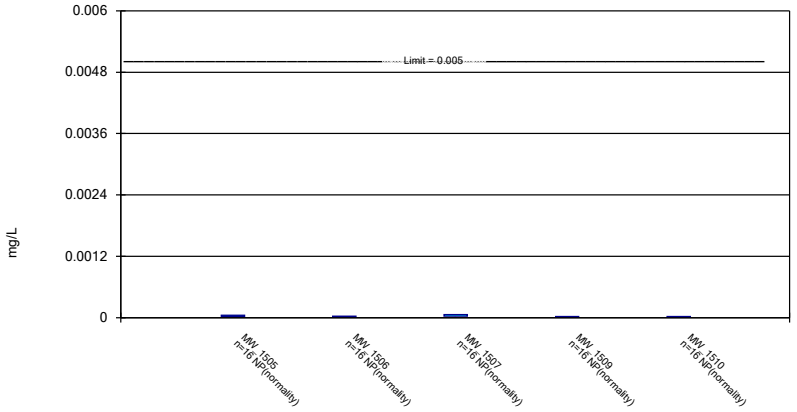
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

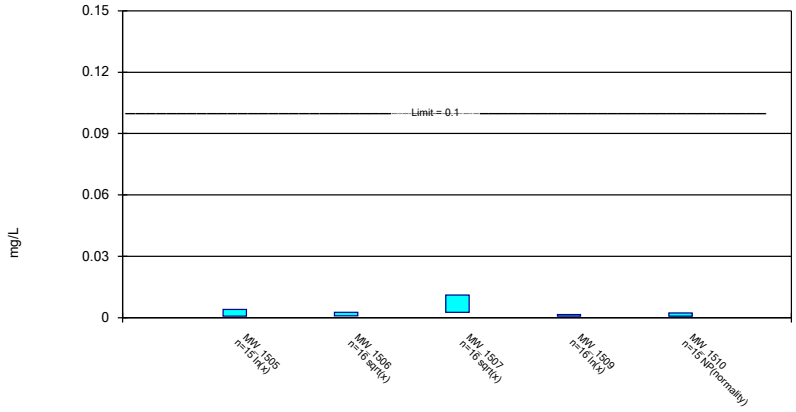
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Cadmium, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

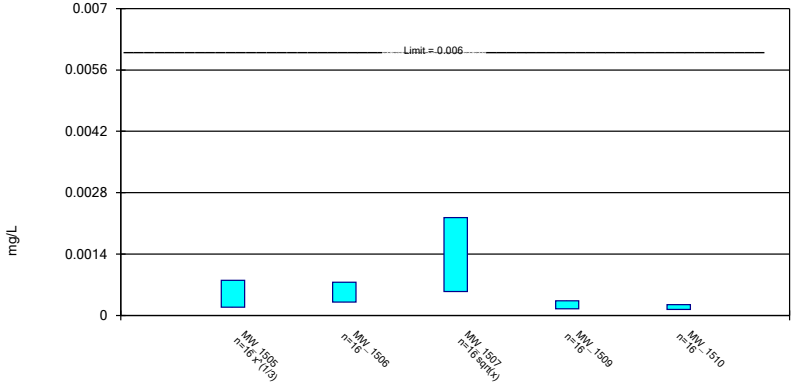
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

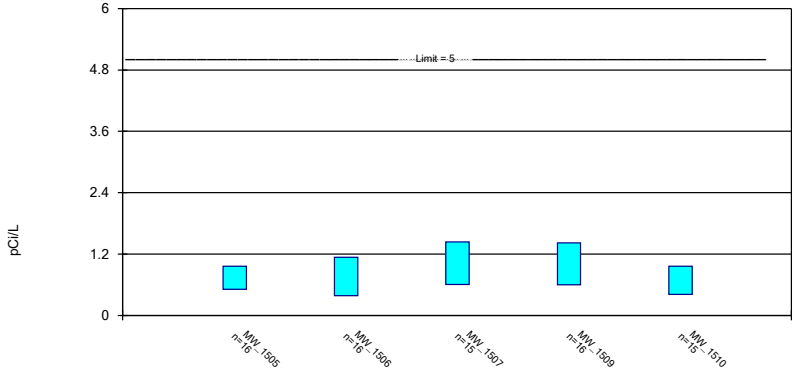
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

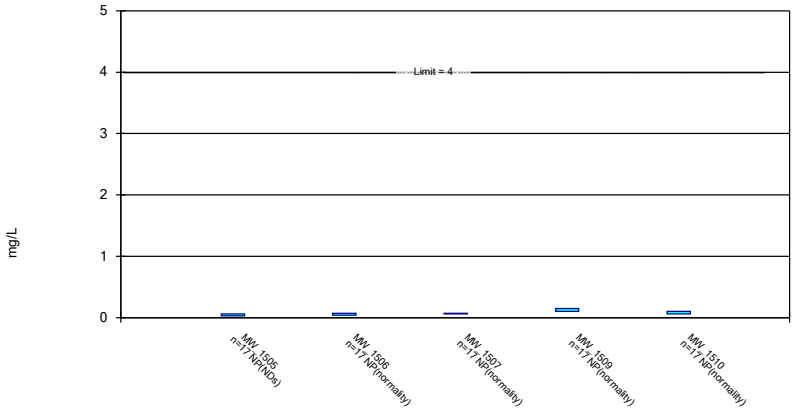
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

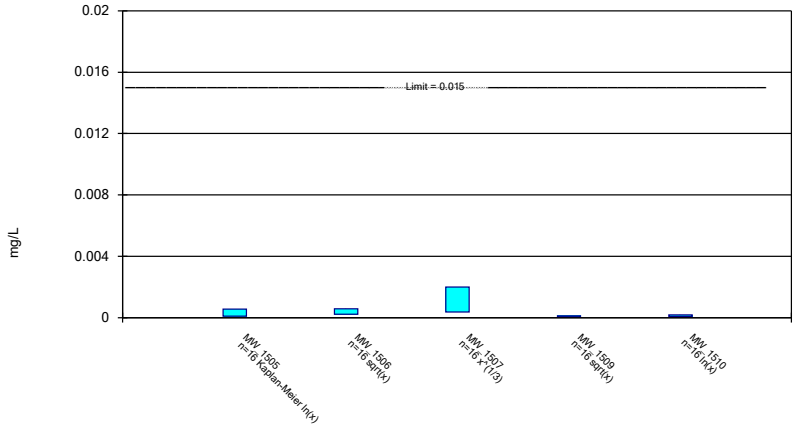
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Fluoride, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

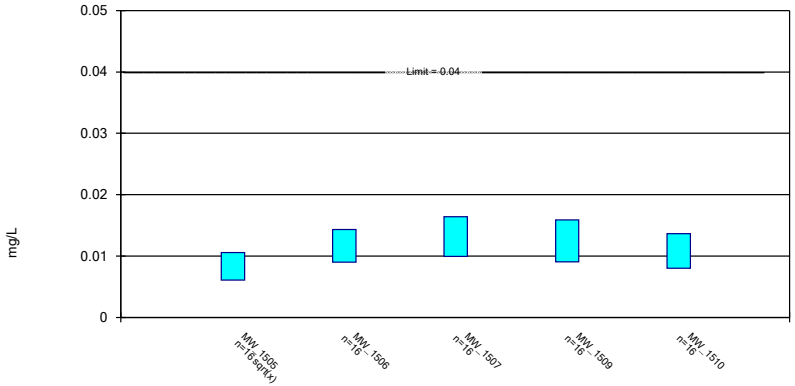
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

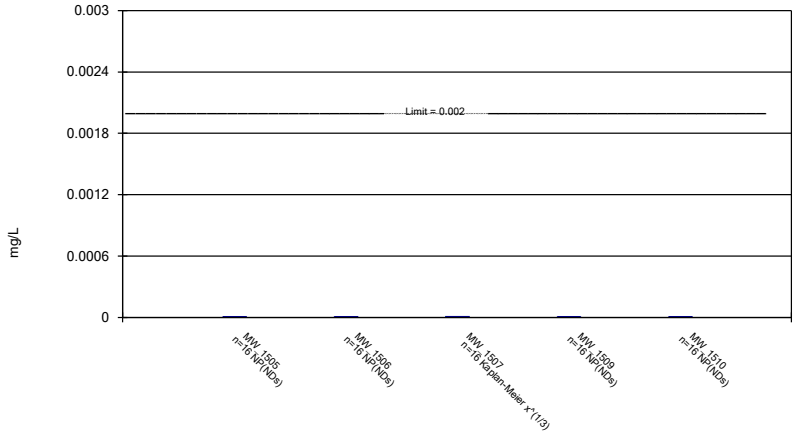
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

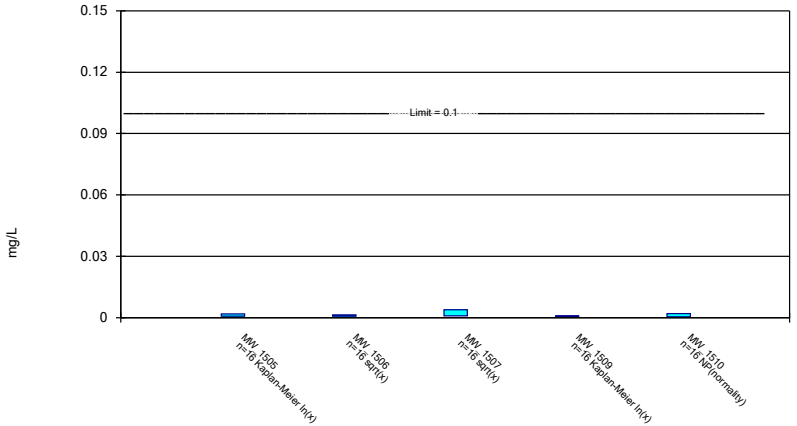
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Mercury, total Analysis Run 1/28/2021 11:10 AM 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.

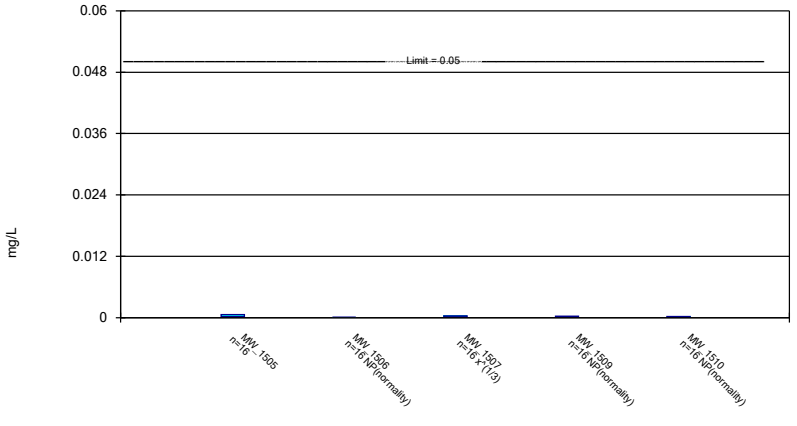


Constituent: Molybdenum, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. 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.

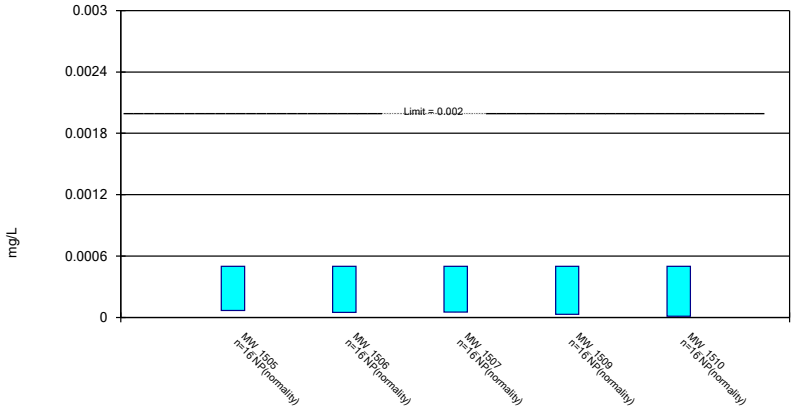


Constituent: Selenium, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

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



Constituent: Thallium, total Analysis Run 1/28/2021 11:10 AM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

STATISTICAL ANALYSIS SUMMARY
BOTTOM ASH POND
Mitchell Plant
Moundsville, West Virginia

Submitted to

AMERICAN ELECTRIC POWER℠

1 Riverside Plaza
Columbus, Ohio 43215-2372

Submitted by

Geosyntec consultants

engineers | scientists | innovators

941 Chatham Lane
Suite 103
Columbus, Ohio 43221

September 1, 2021

CHA8500

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

LIST OF ACRONYMS AND ABBREVIATIONS

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

SECTION 1

EXECUTIVE SUMMARY

In accordance with the United States Environmental Protection Agency's (USEPA's) regulations regarding the disposal of coal combustion residuals (CCR) in landfills and surface impoundments (40 CFR 257.90-257.98, "CCR rule"), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Mitchell Power Plant located in Moundsville, West Virginia.

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 2020, Appendix III detections of boron, calcium, chloride, sulfate, and TDS were observed above background levels and the unit remained in assessment monitoring (Geosyntec, 2021). Two assessment monitoring events were conducted at the BAP in March 2021 and May 2021, in accordance with 40 CFR 257.95. The statistical summary of the results of these assessment sampling events are documented in this report.

Prior to conducting the statistical analyses, the groundwater data underwent several validation tests, including those for completeness, sample tracking accuracy, transcription errors, and consistent use of measurement units. No data quality issues were identified which would impact the usability of the data.

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

SECTION 2

BOTTOM ASH POND EVALUATION

2.1 Data Validation & QA/QC

During the assessment monitoring program, two sets of samples were collected for analysis from each upgradient and downgradient well to meet the requirements of 40 CFR 257.95(b) (March 2021) and 257.95(d)(1) (May 2021). Samples from the May 2021 sample event were analyzed for all Appendix III and Appendix IV parameters, whereas samples from the March 2021 event the were analyzed for Appendix IV parameters only. A summary of data collected during these assessment monitoring events may be found in Table 1.

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

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.9.6.30e statistics software. The export file was checked against the analytical data for transcription errors and completeness. No QA/QC issues were noted which would impact data usability.

2.2 Statistical Analysis

Statistical analyses for the 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 May 2021 were screened for potential outliers; however, no outliers were identified in either set of data (Attachment B).

2.2.1 Evaluation of Potential Appendix IV SSLs

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

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

No SSLs were identified at the Mitchell BAP.

2.2.2 Evaluation of Potential Appendix III SSIs

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

- Boron concentrations exceeded the interwell UPL of 1.36 mg/L at MW-1505 (8.40 mg/L), MW-1506 (5.81 mg/L), MW-1507 (7.12 mg/L), MW-1509 (7.29 mg/L), and MW-1510 (7.52 mg/L).

- Calcium concentrations exceeded the interwell UPL of 246 mg/L at MW-1505 (281 mg/L) and MW-1507 (252 mg/L).

- Chloride concentrations exceeded the interwell UPL of 238 mg/L at MW-1505 (284 mg/L) and MW-1507 (274 mg/L).

- Sulfate concentrations exceeded the intrawell UPL of 408 mg/L at MW-1505 (599 mg/L), the intrawell UPL of 369 mg/L at MW-1506 (477 mg/L) and the intrawell UPL of 373 mg/L at MW-1507 (387 mg/L).

- TDS concentrations exceeded the interwell UPL of 1,200 mg/L at MW-1505 (1,620 mg/L), MW-1506 (1,330 mg/L), MW-1507 (1,300 mg/L), MW-1509 (1,310 mg/L), and MW-1510 (1,220 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the May 2021 sample was above the UPL or 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 semi-annual assessment monitoring event was conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, with no QA/QC issues identified that impacted data usability. A review of outliers identified no potential outliers in the March 2021 and May 2021 data. A confidence interval was constructed at each compliance well

for each Appendix IV parameter; SSLs were concluded if the entire confidence interval exceeded the GWPSs. No SSLs were identified.

The Appendix III results were evaluated to assess whether concentrations of Appendix III parameters exceeded background levels. Boron, calcium, chloride, sulfate, and TDS results exceeded background levels at select downgradient wells. Based on this evaluation, the Mitchell BAP CCR unit will remain in assessment monitoring.

SECTION 3

REFERENCES

Geosyntec Consultants (Geosyntec). 2020. Statistical Analysis Plan – Mitchell Plant. October 2020.

Geosyntec. 2021. Statistical Analysis Summary – Bottom Ash Pond, Mitchell Plant, Moundsville, West Virginia. February 12, 2021.

TABLES

Table 1 - Groundwater Data 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	
		3/16/2021	5/11/2021	3/16/2021	5/11/2021	3/16/2021	5/11/2021	3/16/2021	5/11/2021	3/17/2021	5/12/2021	3/16/2021	5/11/2021	3/17/2021	5/12/2021
Antimony	µg/L	0.1 U	0.1 U	0.03 J	0.03 J	0.03 J	0.03 J	0.03 J	0.03 J	0.1 U	0.1 U	0.03 J	0.03 J	0.02 J	0.02 J
Arsenic	µg/L	0.25	0.25	0.35	0.32	0.33	0.38	0.44	0.42	0.36	0.39	0.30	0.37	0.25	0.34
Barium	µg/L	39.2	39.2	48.6	48.6	49.9	51.9	53.5	54.4	34.0	36.4	43.8	45.0	30.6	33.4
Beryllium	µg/L	0.1 U	0.1 U	0.01 J	0.008 J	0.009 J	0.009 J	0.02 J	0.01 J	0.01 J	0.1 U	0.01 J	0.009 J	0.01 J	0.01 J
Boron	mg/L	--	0.03 J	--	8.40	--	5.81	--	7.12	--	0.454	--	7.29	--	7.52
Cadmium	µg/L	0.02 J	0.02 J	0.03 J	0.03 J	0.02 J	0.02 J	0.02 J	0.03 J	0.04 J	0.04 J	0.009 J	0.01 J	0.004 J	0.005 J
Calcium	mg/L	--	206	--	281	--	245	--	252	--	205	--	239	--	180
Chloride	mg/L	--	101	--	284	--	228	--	274	--	156	--	230	--	226
Chromium	µg/L	0.325	0.314	0.567	0.361	0.680	0.591	1.91	1.71	0.661	0.511	0.552	0.492	1.04	3.16
Cobalt	µg/L	0.03 J	0.03 J	0.211	0.218	0.512	0.357	0.384	0.360	0.242	0.261	0.099	0.143	0.098	0.339
Combined Radium	pCi/L	0.0768	0.439	0.158	0.895	0.612	0.4573	0.5512	0.506	0.3413	1.083	0.33	0.56	0.5272	1.024
Fluoride	mg/L	0.15	0.15	0.04 J	0.04 J	0.06 J	0.06	0.09	0.08	0.09	0.09	0.16	0.15	0.13	0.13
Lead	µg/L	0.2 U	0.2 U	0.1 J	0.1 J	0.1 J	0.2 J	0.232	0.225	0.233	0.217	0.1 J	0.2 J	0.08 J	0.2 J
Lithium	mg/L	0.00459	0.00447	0.00529	0.00527	0.00783	0.00771	0.00710	0.00739	0.00475	0.00458	0.00749	0.00732	0.00720	0.00689
Mercury	µg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Molybdenum	µg/L	0.2 J	1 J	0.3 J	0.6 J	0.7 J	0.7 J	1 J	0.9 J	0.4 J	1 J	0.3 J	0.3 J	0.2 J	0.5 J
Selenium	µg/L	1.9	0.3 J	0.2 J	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.2 J	0.6	0.7	0.3	0.3 J
Sulfate	mg/L	--	300	--	599	--	477	--	387	--	281	--	447	--	405
Thallium	µg/L	0.5 U	0.5 U	0.07 J	0.08 J	0.5 U	0.05 J	0.5 U	0.04 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total Dissolved Solids	mg/L	--	908	--	1,620	--	1,330	--	1,300	--	974	--	1,310	--	1,220
pH	SU	7.7	8.6	7.7	7.7	7.6	7.6	7.7	7.5	7.5	7.6	7.9	7.6	7.6	7.4

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

Table 2 - Appendix IV Groundwater Protection Standards
Mitchell Plant - Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.006		0.00010	0.006
Arsenic, Total (mg/L)	0.01		0.00180	0.01
Barium, Total (mg/L)	2		0.055	2
Beryllium, Total (mg/L)	0.004		0.0001	0.004
Cadmium, Total (mg/L)	0.005		0.00009	0.005
Chromium, Total (mg/L)	0.1		0.0022	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0029	0.006
Combined Radium, Total (pCi/L)	5		1.99	5
Fluoride, Total (mg/L)	4		0.25	4
Lead, Total (mg/L)	0.015		0.0027	0.015
Lithium, Total (mg/L)	n/a	0.04	0.03000	0.04
Mercury, Total (mg/L)	0.002		0.000008	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.0017	0.1
Selenium, Total (mg/L)	0.05		0.007	0.05
Thallium, Total (mg/L)	0.002		0.0005	0.002

Notes:
MCL = Maximum Contaminant Level
CCR = Coal Combustion Residual
GWPS = Groundwater Protection Standard
Calculated UTL (Upper Tolerance Limit) represents site-specific background values.

Table 3 - Appendix III Data Summary
Mitchell Plant - Bottom Ash Pond

Geosyntec Consultants

Analyte	Unit	Description	MW-1505	MW-1506	MW-1507	MW-1509	MW-1510
			5/11/2021	5/11/2021	5/11/2021	5/11/2021	5/12/2021
Boron	mg/L	Interwell Background Value (UPL)	1.36				
		Analytical Result	**8.40**	**5.81**	**7.12**	**7.29**	**7.52**
Calcium	mg/L	Interwell Background Value (UPL)	246				
		Analytical Result	**281**	245	**252**	239	180
Chloride	mg/L	Interwell Background Value (UPL)	238				
		Analytical Result	**284**	228	**274**	230	226
Fluoride	mg/L	Intrawell Background Value (UPL)	0.0600	0.200	0.200	0.171	0.200
		Analytical Result	0.04	0.06	0.08	0.15	0.13
pH	SU	Interwell Background Value (UPL)	8.2				
		Interwell Background Value (LPL)	6.9				
		Analytical Result	7.7	7.6	7.5	7.6	7.4
Sulfate	mg/L	Intrawell Background Value (UPL)	408	369	373	489	497
		Analytical Result	**599**	**477**	**387**	447	405
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,200				
		Analytical Result	**1,620**	**1,330**	**1,300**	**1,310**	**1,220**

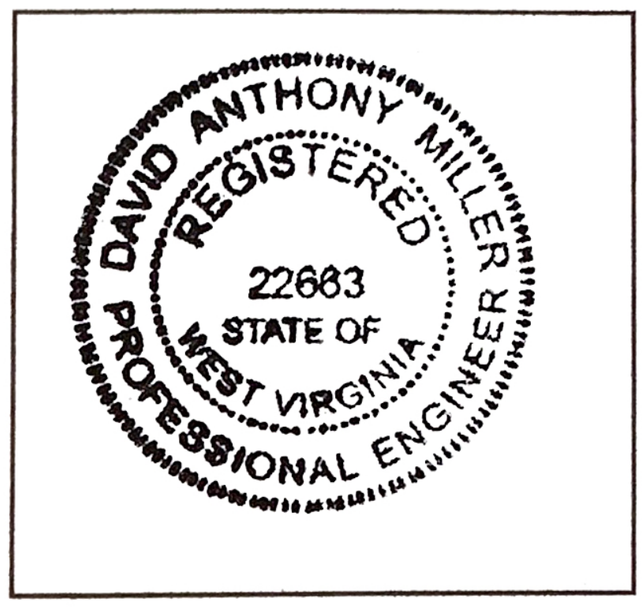
Notes:
UPL: Upper prediction limit
LPL: Lower prediction limit
Bold values exceed the background value.
Background values are shaded gray.

ATTACHMENT A

Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that the selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the 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	09.02.21
License Number	Licensing State	Date

ATTACHMENT B

Statistical Analysis Output

GROUNDWATER STATS CONSULTING

August 18, 2021

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

RE: Mitchell Bottom Ash Pond (BAP)
Assessment Monitoring Summary – May 2021

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the Assessment Monitoring statistical analysis of groundwater data through May 2021 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 Kristina Rayner, Groundwater Statistician and Founder of Groundwater Stats Consulting.

The CCR program consists of the following constituents:

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

Time series 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 prediction limits as appropriate.

- No statistical analyses are required on wells and analytes containing 100% non-detects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects in background, 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. 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

Outlier Screening

Data were last screened for outliers using Tukey's outlier test during the background update performed in February 2021, and a summary of those findings was submitted with that report. The previously flagged molybdenum values in downgradient wells MW-1505 and MW-1510 were unflagged since the reported measurements were only slightly higher than the reporting limit, were well below the Maximum Contaminant Level, and exhibited no obvious sampling or analytical anomaly.

During this analysis, data were screened for any new outliers using the time series graphs. No additional values were flagged. When values are identified as outliers, they are flagged in the database with "o" and are deselected prior to construction of statistical limits. A list of all previously flagged outliers follows this letter (Figure C). Additionally, flagged data are displayed in a lighter font and as a disconnected symbol on the time series reports, as well as in a lighter font on the accompanying data pages.

Evaluation of Appendix IV Parameters – May 2021

Interwell upper tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data through October 2020 for the Appendix IV constituents discussed above (Figure D). 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 arsenic, barium, chromium, cobalt, combined radium 226 + 228, 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. 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 during the 3rd quarter of 2021.

Confidence intervals were then constructed using all available data through May 2021 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 F). 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.

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.

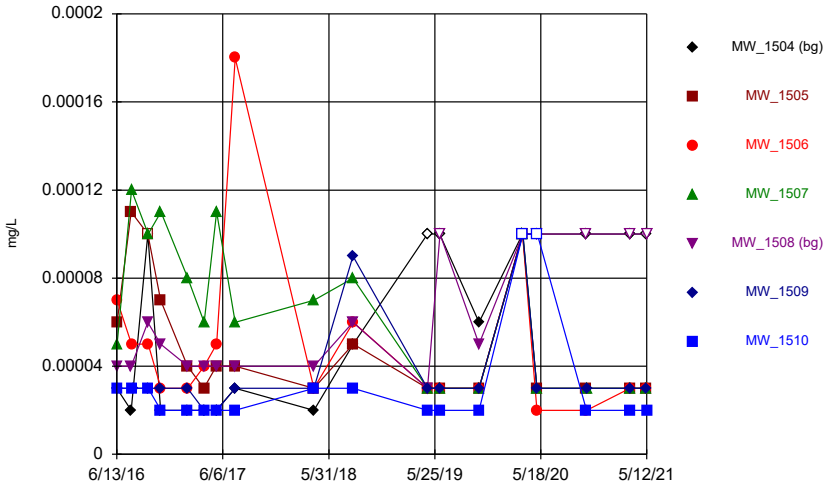
For Groundwater Stats Consulting,

Andrew T. Collins
Project Manager

Kristina L. Rayner
Groundwater Statistician

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Time Series



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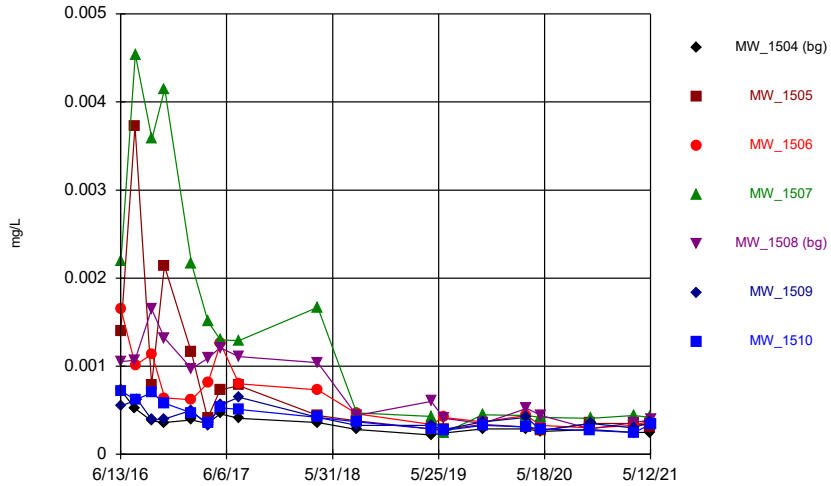
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

Time Series



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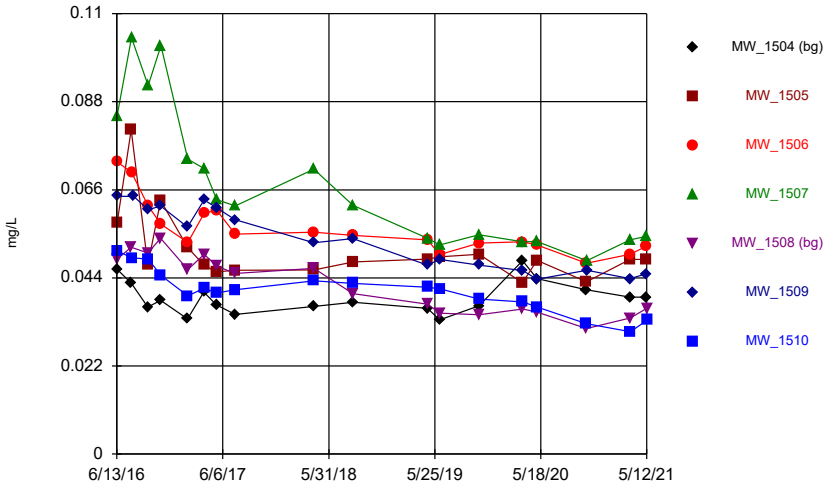
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

Time Series



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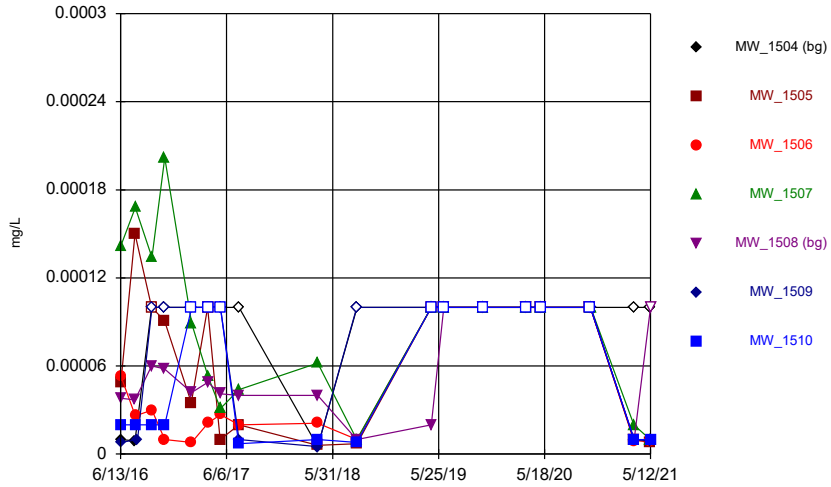
Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Time Series



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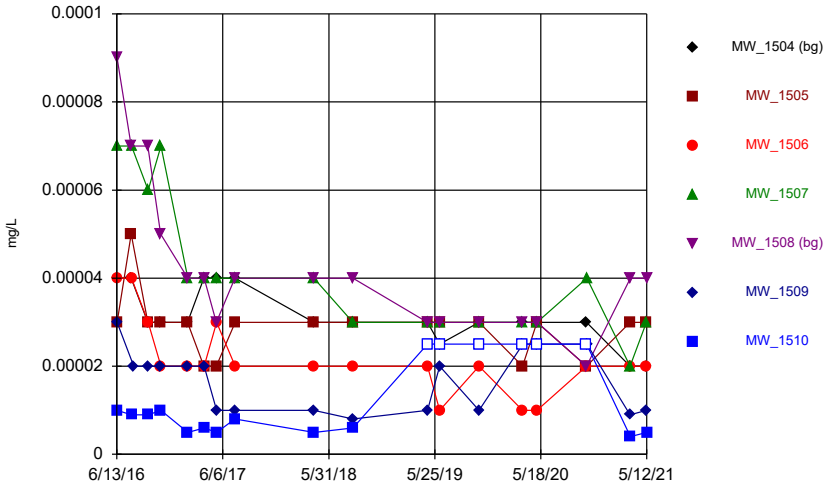
Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

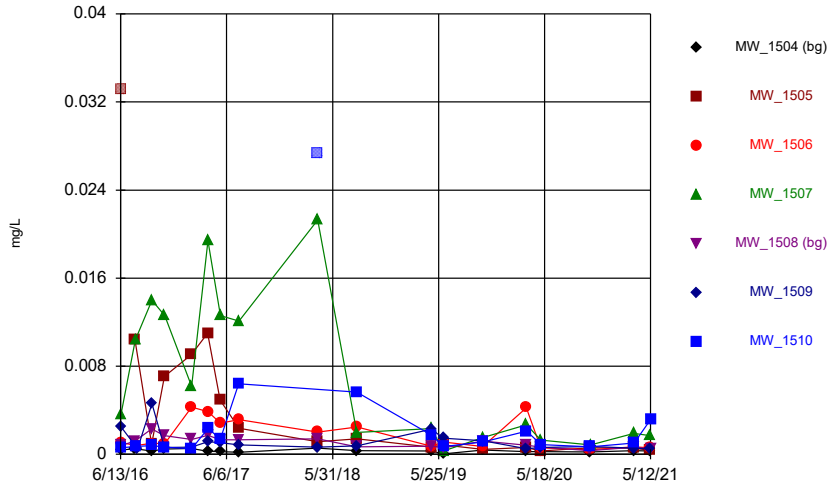
Time Series



Constituent: Cadmium, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

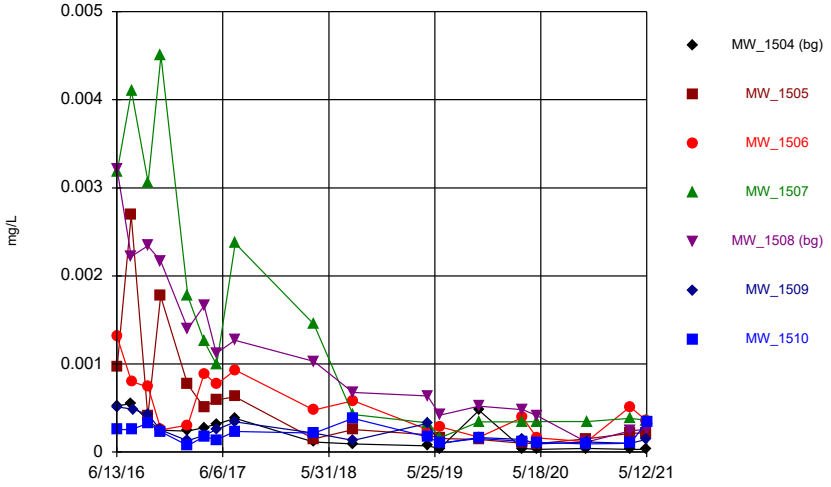
Time Series



Constituent: Chromium, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

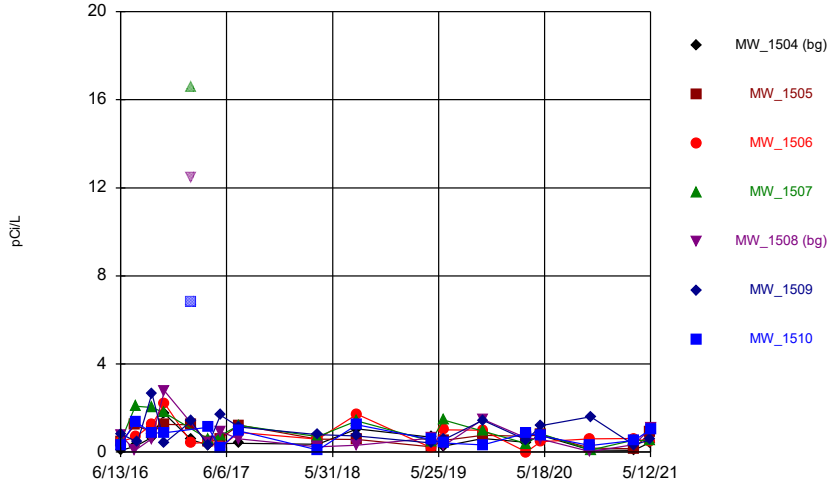
Time Series



Constituent: Cobalt, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

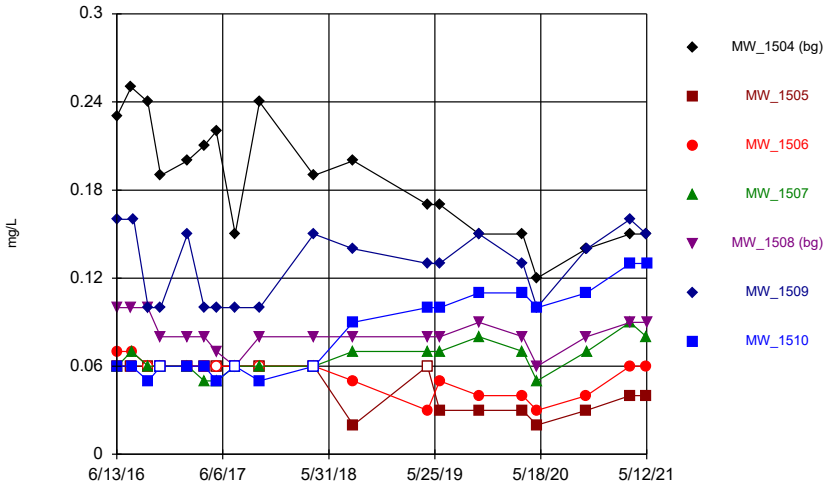
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

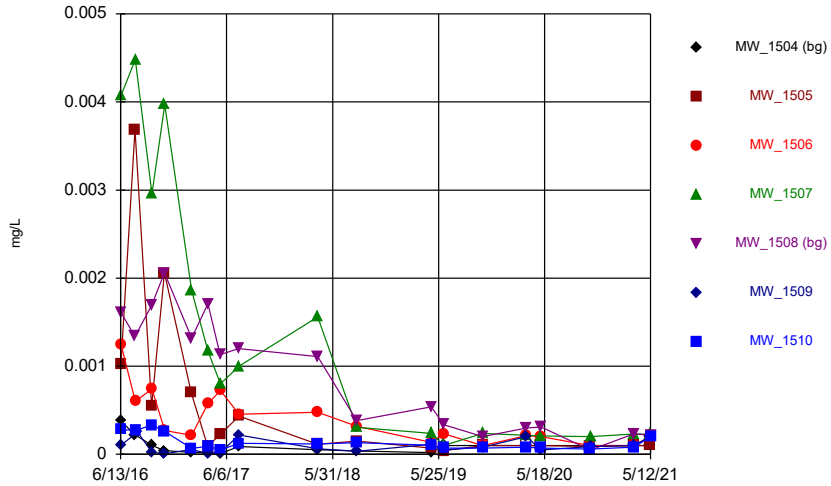
Time Series



Constituent: Fluoride, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

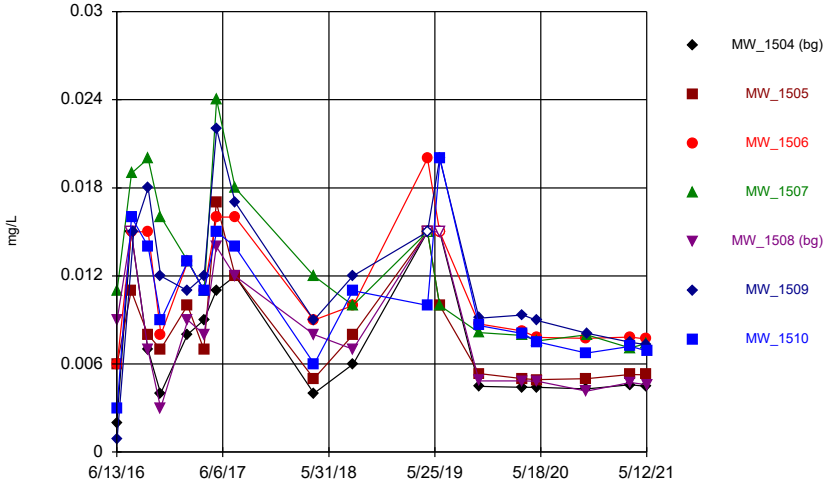
Time Series



Constituent: Lead, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

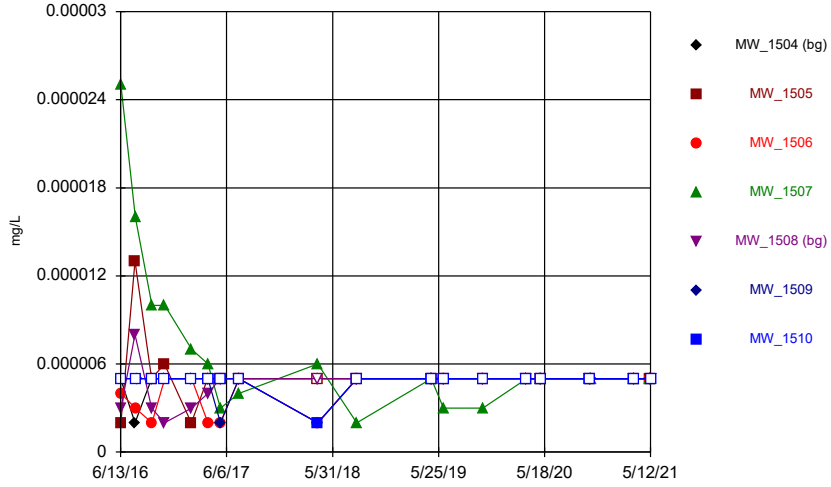
Time Series



Constituent: Lithium, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

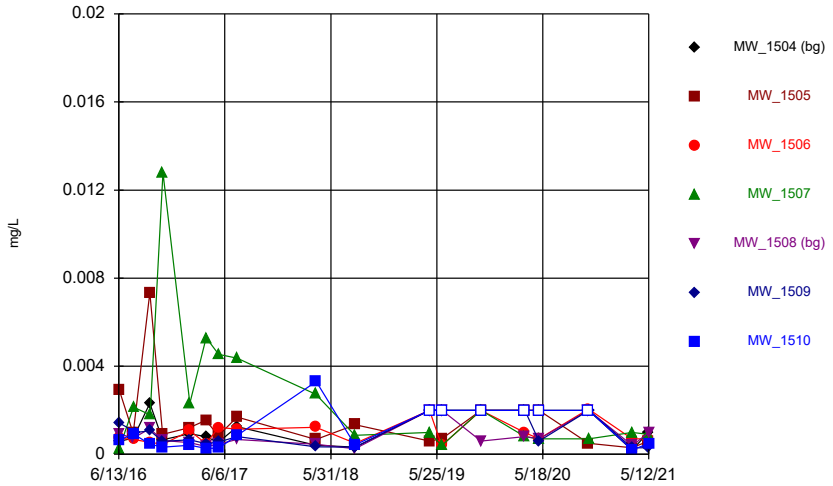
Time Series



Constituent: Mercury, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

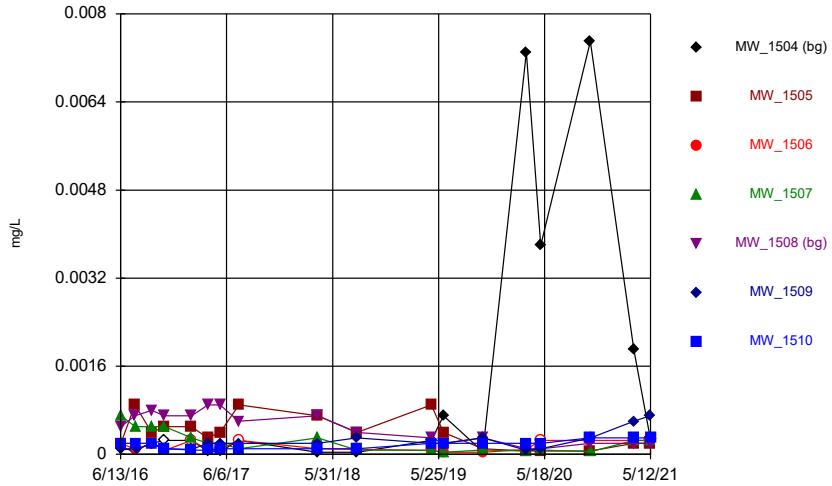
Time Series



Constituent: Molybdenum, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

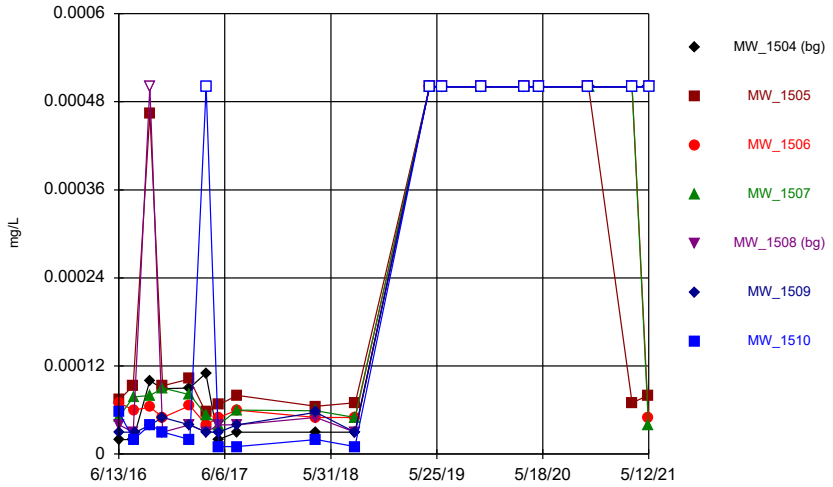
Time Series



Constituent: Selenium, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

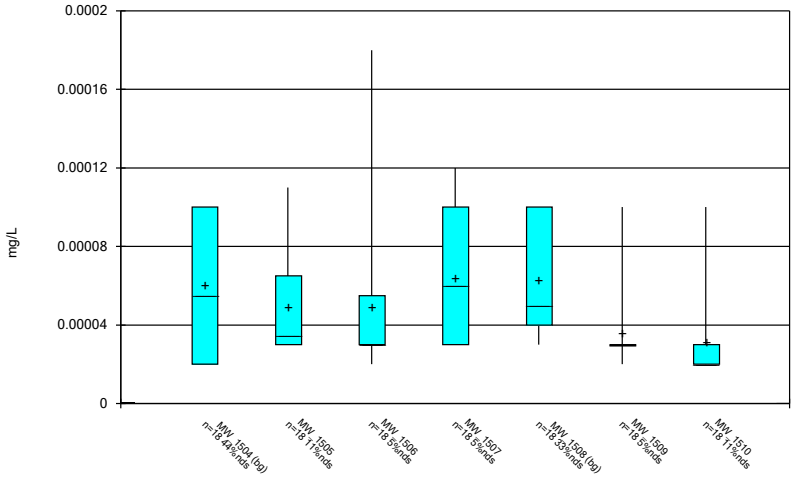
Time Series



Constituent: Thallium, total Analysis Run 8/17/2021 1:25 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

Box & Whiskers Plot

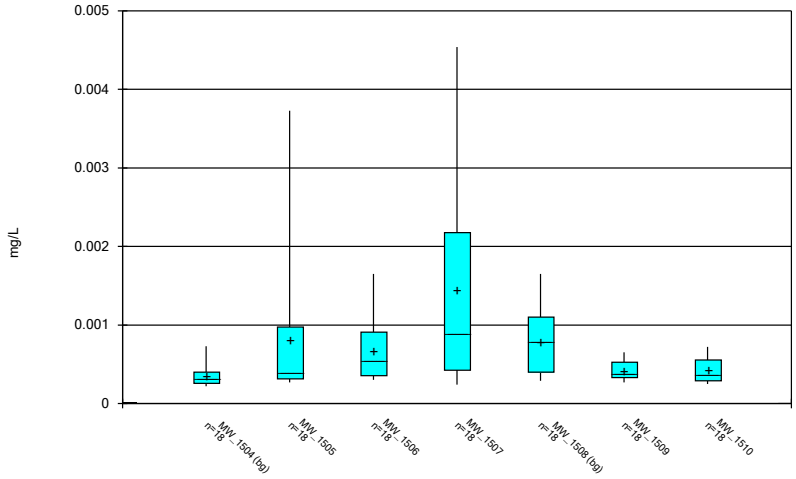


Constituent: Antimony, total Analysis Run 8/17/2021 1:26 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

Box & Whiskers Plot

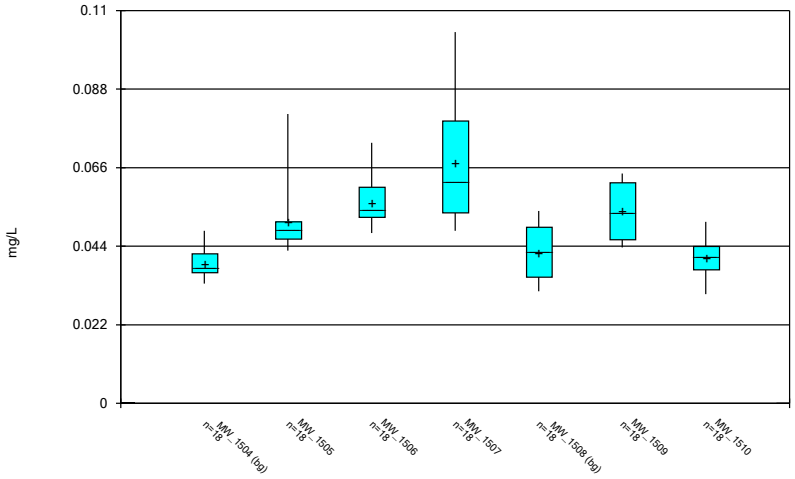


Constituent: Arsenic, total Analysis Run 8/17/2021 1:26 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

Box & Whiskers Plot

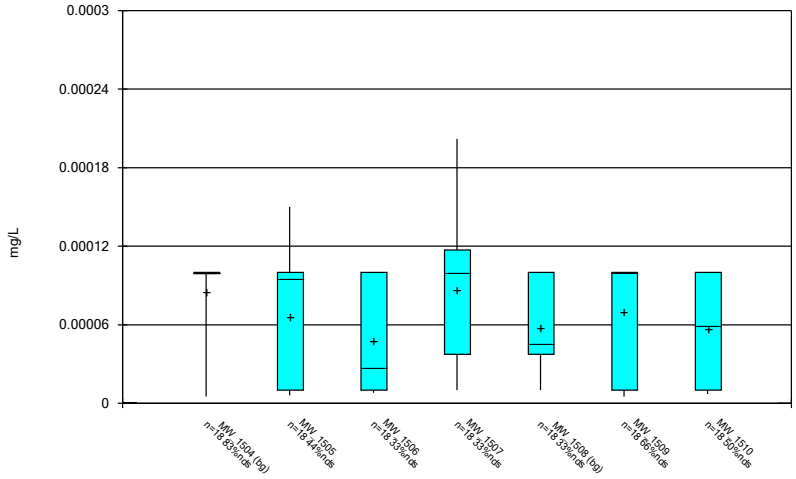


Constituent: Barium, total Analysis Run 8/17/2021 1:26 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

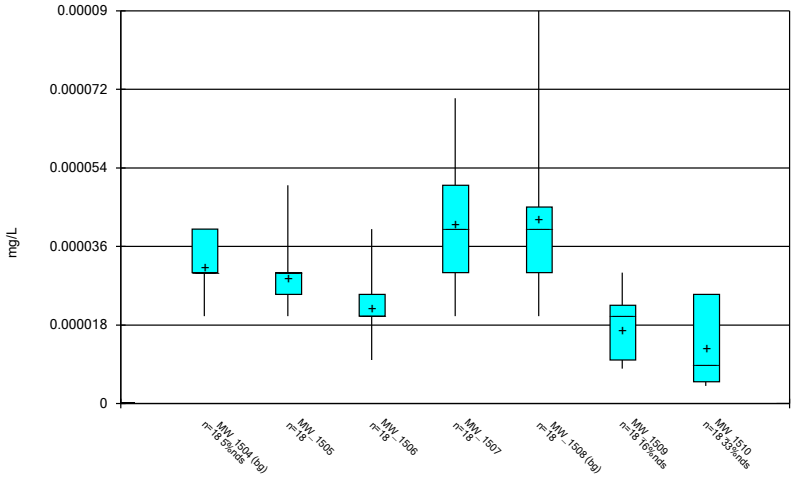
Box & Whiskers Plot



Constituent: Beryllium, total Analysis Run 8/17/2021 1:26 PM

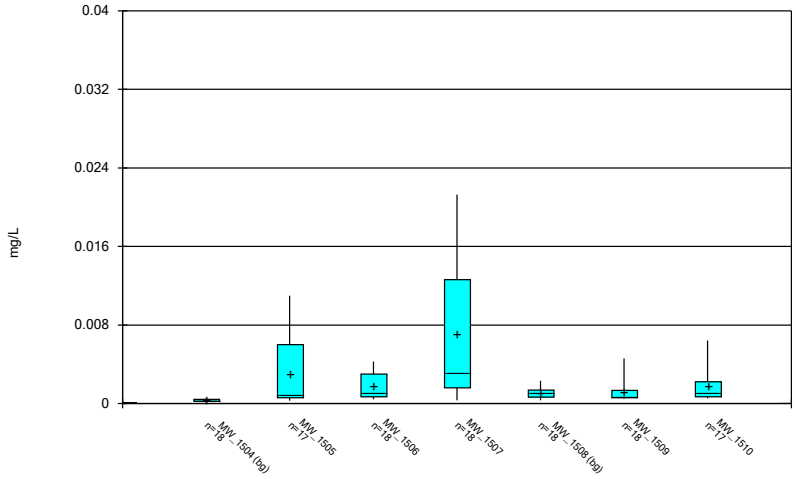
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



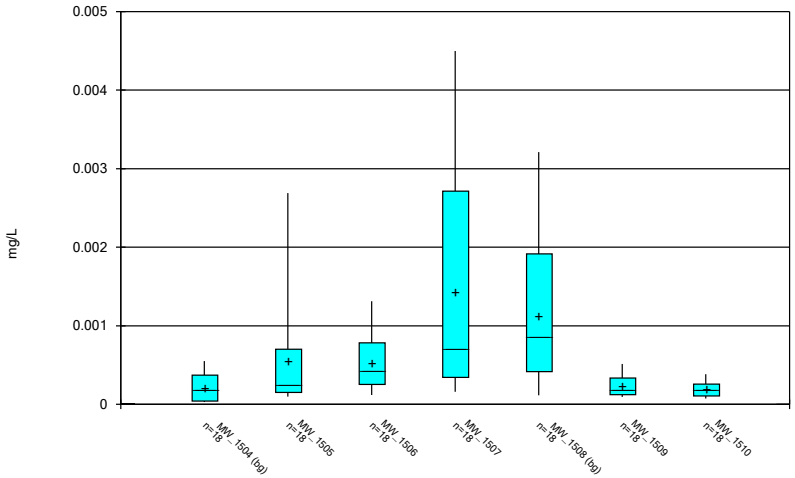
Constituent: Cadmium, total Analysis Run 8/17/2021 1:26 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



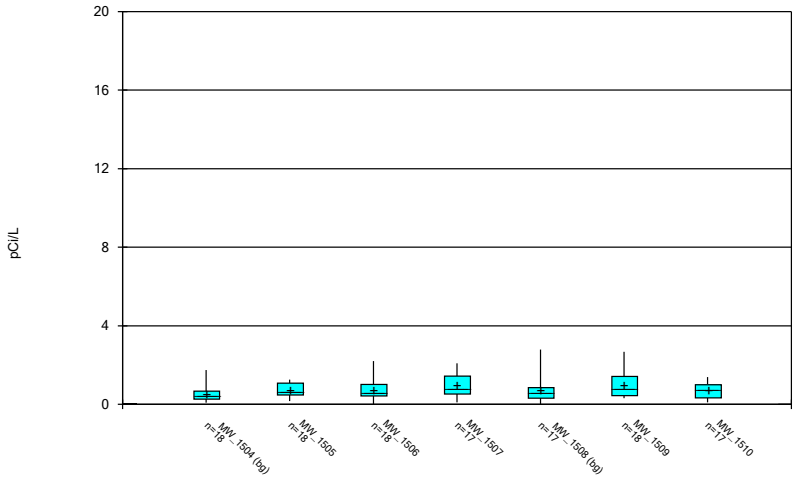
Constituent: Chromium, total Analysis Run 8/17/2021 1:27 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



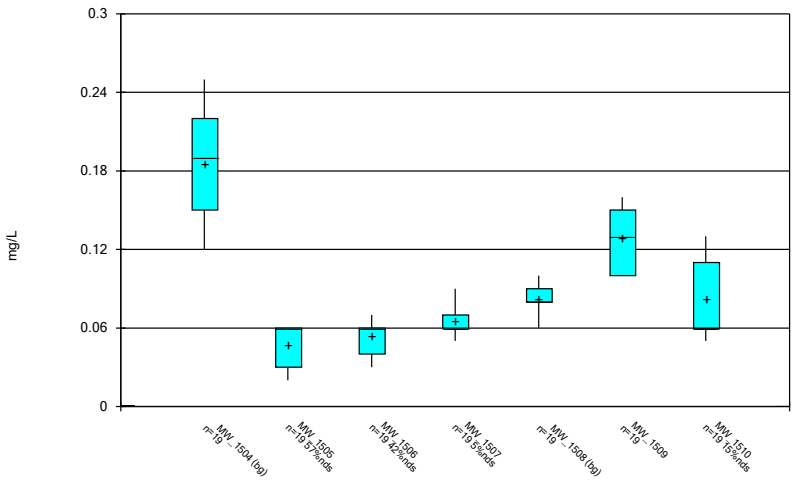
Constituent: Cobalt, total Analysis Run 8/17/2021 1:27 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 8/17/2021 1:27 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

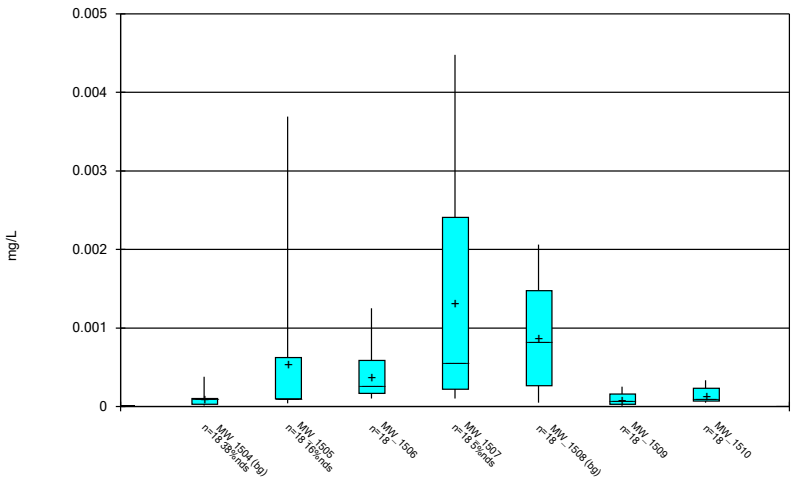
Box & Whiskers Plot



Constituent: Fluoride, total Analysis Run 8/17/2021 1:27 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

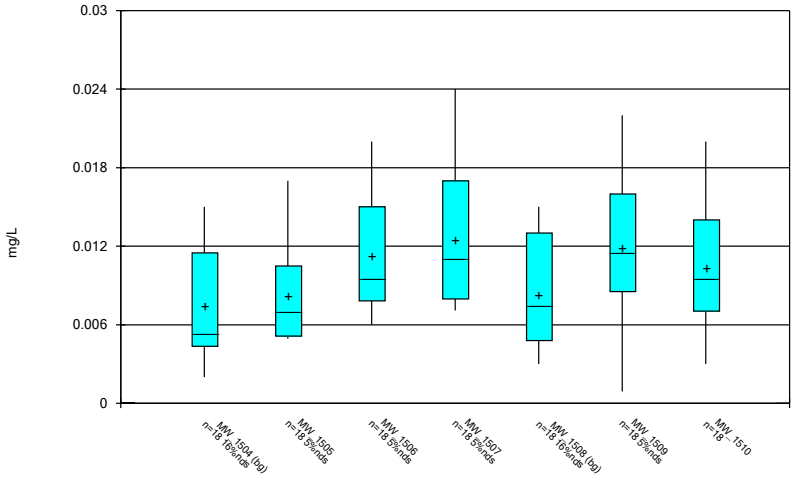
Box & Whiskers Plot



Constituent: Lead, total Analysis Run 8/17/2021 1:27 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

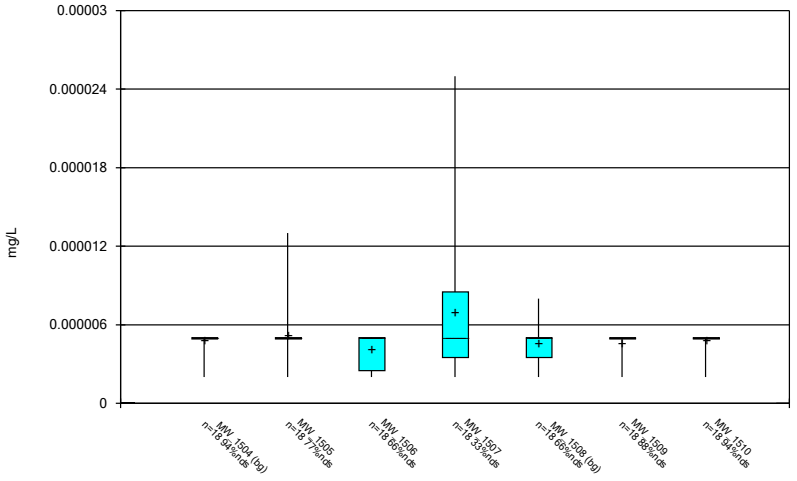
Box & Whiskers Plot



Constituent: Lithium, total Analysis Run 8/17/2021 1:27 PM

Mitchell BAP Client: Geosyntec Data: Mitchell BAP

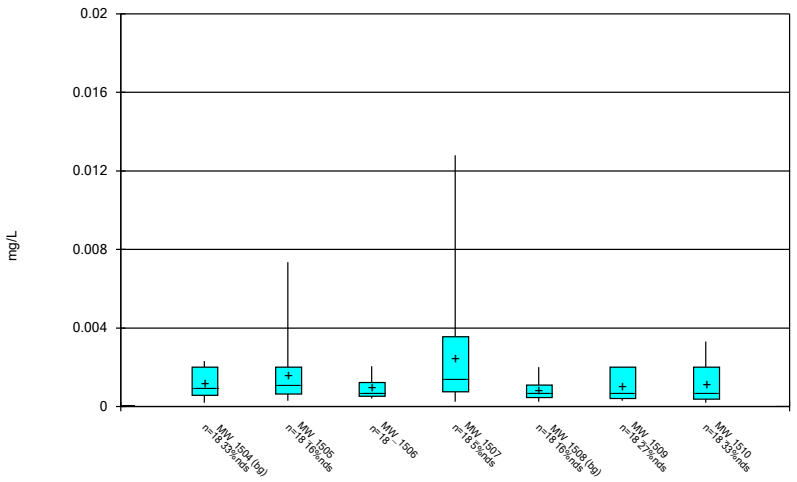
Box & Whiskers Plot



Constituent: Mercury, total Analysis Run 8/17/2021 1:27 PM

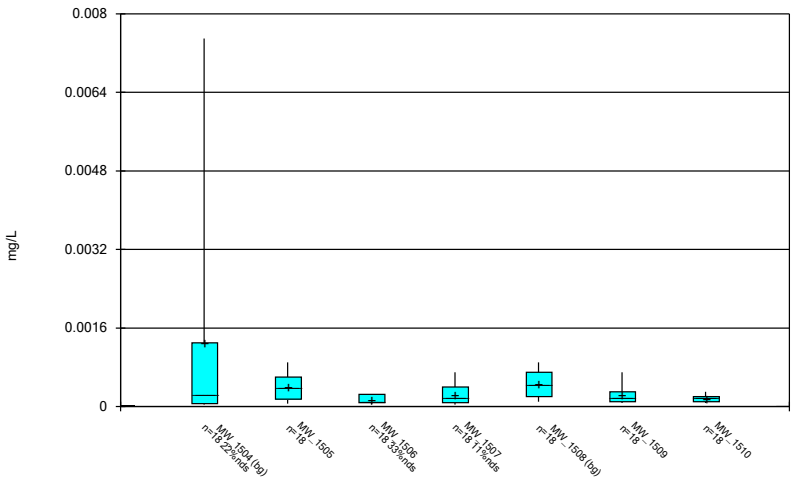
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



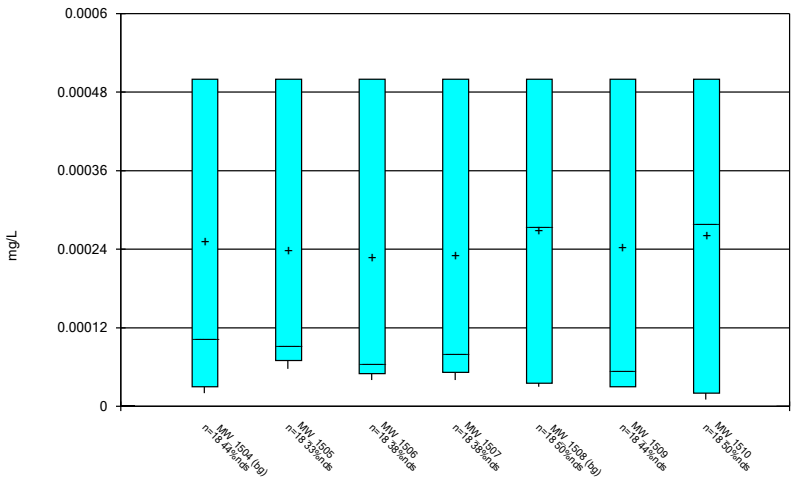
Constituent: Molybdenum, total Analysis Run 8/17/2021 1:27 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Selenium, total Analysis Run 8/17/2021 1:27 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 8/17/2021 1:27 PM
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Outlier Summary

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 8/17/2021, 5:06 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)			

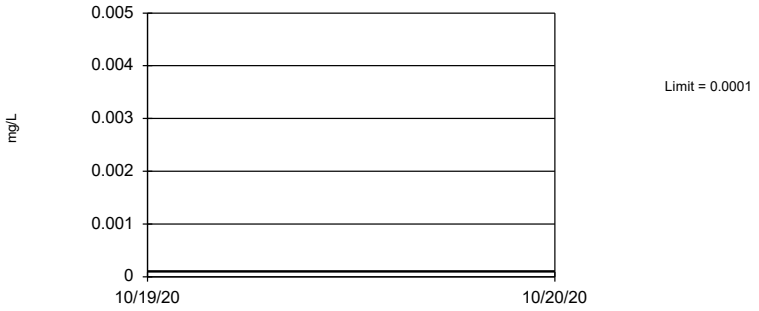
Upper Tolerance Limit Summary Table

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 1/27/2021, 2:48 PM

Constituent	Upper Lim.	Lower Lim.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	0.0001	n/a	n/a	32	n/a	n/a	31.25	n/a	n/a	0.1937	NP Inter(normality)
Arsenic, total (mg/L)	0.001838	n/a	n/a	32	-7.584	0.5847	0	None	ln(x)	0.05	Inter
Barium, total (mg/L)	0.05467	n/a	n/a	32	0.04109	0.006178	0	None	No	0.05	Inter
Beryllium, total (mg/L)	0.0001	n/a	n/a	32	n/a	n/a	56.25	n/a	n/a	0.1937	NP Inter(NDs)
Cadmium, total (mg/L)	0.00009	n/a	n/a	32	n/a	n/a	3.125	n/a	n/a	0.1937	NP Inter(normality)
Chromium, total (mg/L)	0.002203	n/a	n/a	32	0.02523	0.009876	0	None	sqrt(x)	0.05	Inter
Cobalt, total (mg/L)	0.002881	n/a	n/a	32	0.02347	0.01374	0	None	sqrt(x)	0.05	Inter
Combined Radium 226 + 228 (pCi/L)	1.986	n/a	n/a	31	0.7208	0.3116	0	None	sqrt(x)	0.05	Inter
Fluoride, total (mg/L)	0.25	n/a	n/a	34	n/a	n/a	0	n/a	n/a	0.1748	NP Inter(normality)
Lead, total (mg/L)	0.002734	n/a	n/a	32	0.06472	0.03417	15.63	Kaplan-Meier	x^(1/3)	0.05	Inter
Lithium, total (mg/L)	0.03	n/a	n/a	32	n/a	n/a	18.75	n/a	n/a	0.1937	NP Inter(normality)
Mercury, total (mg/L)	0.000008	n/a	n/a	32	n/a	n/a	78.13	n/a	n/a	0.1937	NP Inter(NDs)
Molybdenum, total (mg/L)	0.00172	n/a	n/a	32	-7.37	0.4572	28.13	Kaplan-Meier	ln(x)	0.05	Inter
Selenium, total (mg/L)	0.006508	n/a	n/a	32	-8.166	1.424	12.5	None	ln(x)	0.05	Inter
Thallium, total (mg/L)	0.0005	n/a	n/a	32	n/a	n/a	40.63	n/a	n/a	0.1937	NP Inter(normality)

Tolerance Limit

Interwell Non-parametric



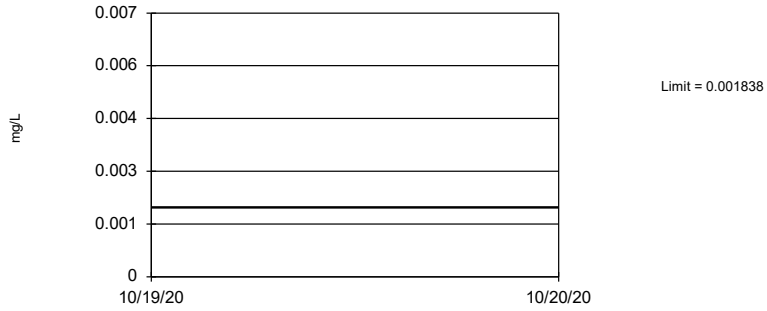
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 32 background values. 31.25% NDs. 86.52% coverage at alpha=0.01; 91.21% coverage at alpha=0.05; 97.85% coverage at alpha=0.5. Report alpha = 0.1937.

Constituent: Antimony, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Tolerance Limit

Interwell Parametric



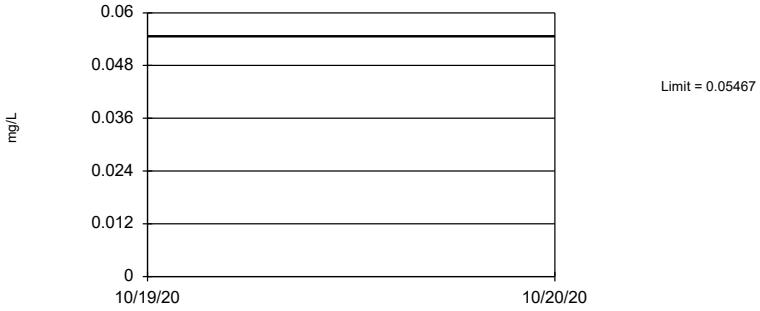
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.584, Std. Dev.=0.5847, n=32. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9044, critical = 0.904. Report alpha = 0.05.

Constituent: Arsenic, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Tolerance Limit

Interwell Parametric



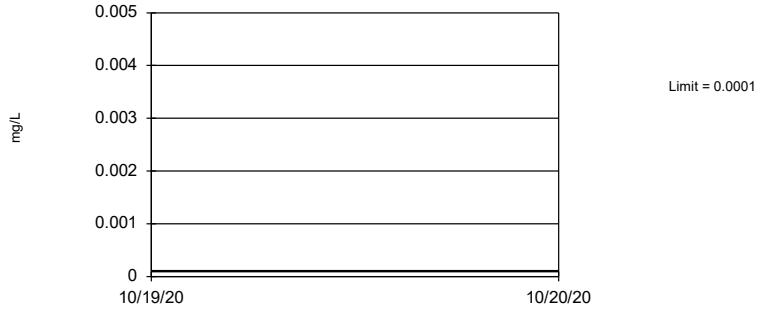
95% coverage. Background Data Summary: Mean=0.04109, Std. Dev.=0.006178, n=32. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.929, critical = 0.904. Report alpha = 0.05.

Constituent: Barium, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Tolerance Limit

Interwell Non-parametric

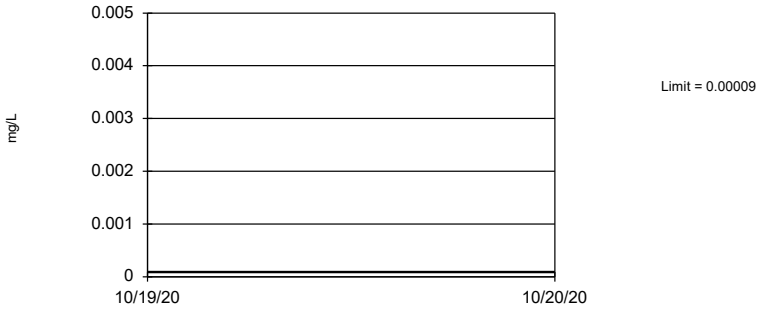


Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 32 background values. 56.25% NDs. 86.52% coverage at alpha=0.01; 91.21% coverage at alpha=0.05; 97.85% coverage at alpha=0.5. Report alpha = 0.1937.

Constituent: Beryllium, total Analysis Run 1/27/2021 2:47 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 Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 32 background values. 3.125% NDs. 86.52% coverage at alpha=0.01; 91.21% coverage at alpha=0.05; 97.85% coverage at alpha=0.5. Report alpha = 0.1937.

Constituent: Cadmium, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

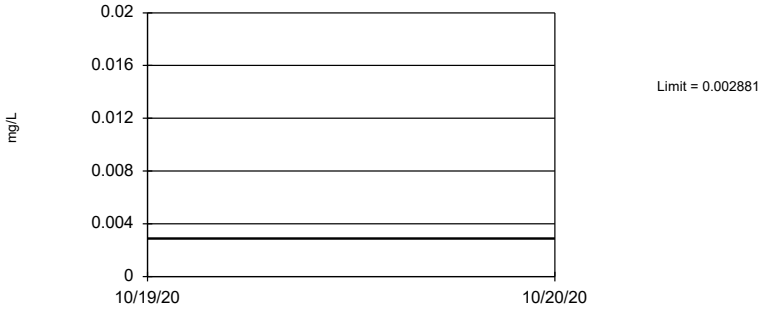
Interwell Parametric

95% coverage. Background Data Summary (based on square root transformation): Mean=0.02523, Std. Dev.=0.009876, n=32. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.953, critical = 0.904. Report alpha = 0.05.

Constituent: Chromium, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

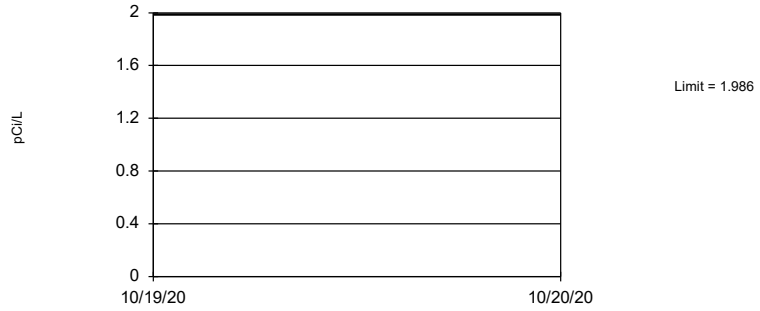


95% coverage. Background Data Summary (based on square root transformation): Mean=0.02347, Std. Dev.=0.01374, n=32. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9249, critical = 0.904. Report alpha = 0.05.

Constituent: Cobalt, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

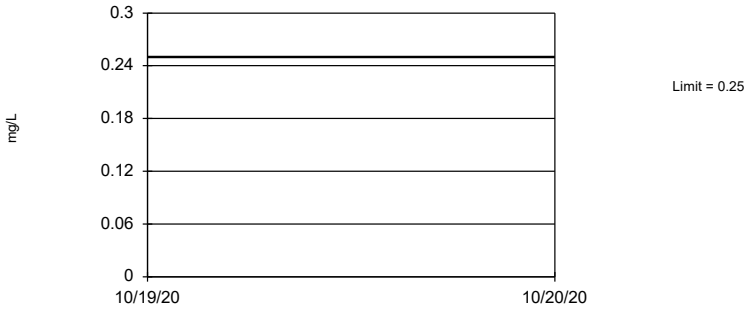


95% coverage. Background Data Summary (based on square root transformation): Mean=0.7208, Std. Dev.=0.3116, n=31. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9401, critical = 0.902. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

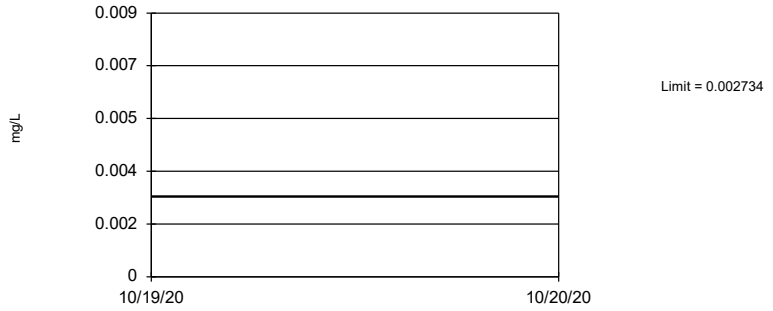


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 34 background values. 87.3% coverage at alpha=0.01; 91.6% coverage at alpha=0.05; 97.85% coverage at alpha=0.5. Report alpha = 0.1748.

Constituent: Fluoride, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric

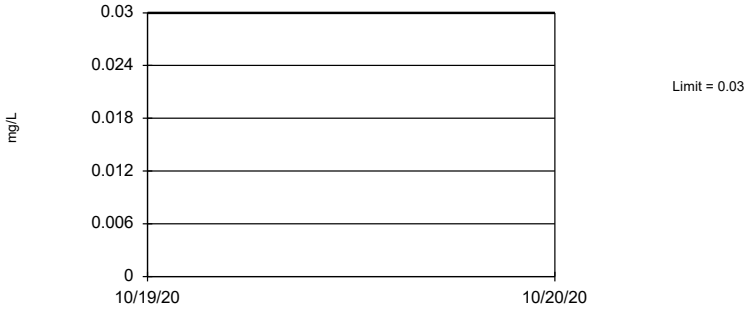


95% coverage. Background Data Summary (based on cube root transformation) (after Kaplan-Meier Adjustment): Mean=0.06472, Std. Dev.=0.03417, n=32, 15.63% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9148, critical = 0.904. Report alpha = 0.05.

Constituent: Lead, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

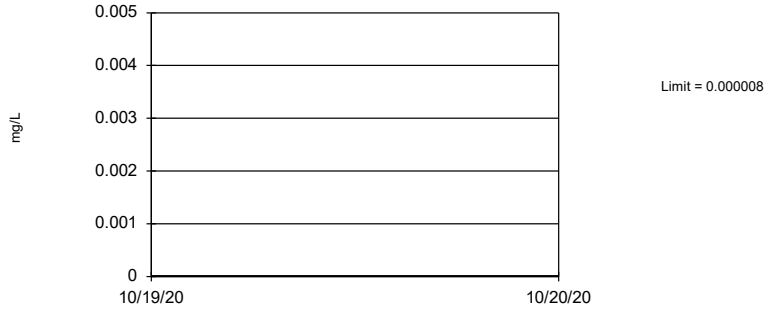


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 32 background values. 18.75% NDs. 86.52% coverage at alpha=0.01; 91.21% coverage at alpha=0.05; 97.85% coverage at alpha=0.5. Report alpha = 0.1937.

Constituent: Lithium, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Non-parametric

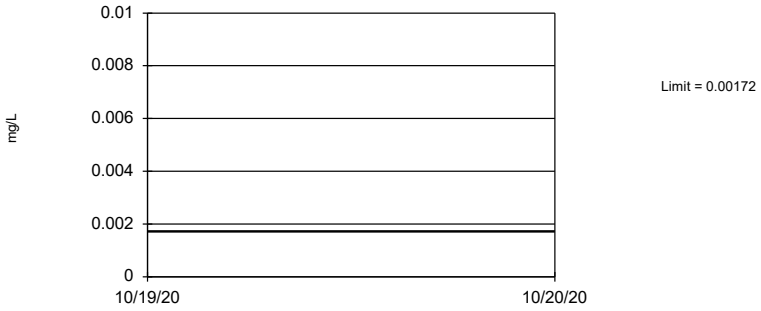


Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 32 background values. 78.13% NDs. 86.52% coverage at alpha=0.01; 91.21% coverage at alpha=0.05; 97.85% coverage at alpha=0.5. Report alpha = 0.1937.

Constituent: Mercury, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Tolerance Limit

Interwell Parametric



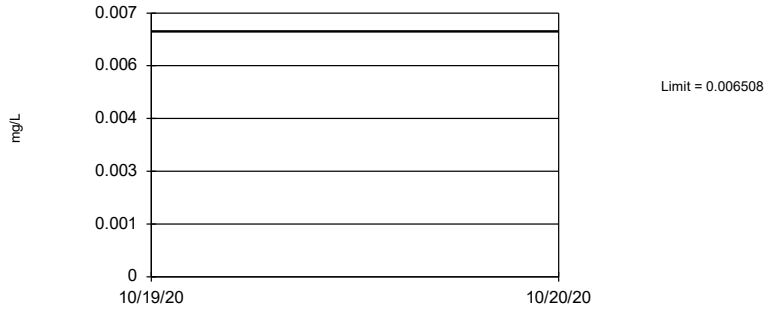
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-7.37, Std. Dev.=0.4572, n=32, 28.13% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9067, critical = 0.904. Report alpha = 0.05.

Constituent: Molybdenum, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Tolerance Limit

Interwell Parametric



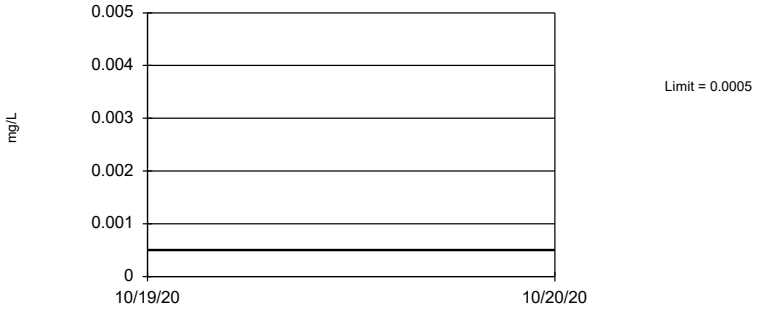
95% coverage. Background Data Summary (based on natural log transformation): Mean=-8.166, Std. Dev.=1.424, n=32, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9175, critical = 0.904. Report alpha = 0.05.

Constituent: Selenium, total Analysis Run 1/27/2021 2:47 PM View: Appendix IV - UTLs
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.27b Groundwater Stats Consulting. UG

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 32 background values. 40.63% NDs. 86.52% coverage at alpha=0.01; 91.21% coverage at alpha=0.05; 97.85% coverage at alpha=0.5. Report alpha = 0.1937.

Constituent: Thallium, total Analysis Run 1/27/2021 2:47 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		0.0018	0.01
Barium, Total (mg/L)	2		0.055	2
Beryllium, Total (mg/L)	0.004		0.0001	0.004
Cadmium, Total (mg/L)	0.005		0.00009	0.005
Chromium, Total (mg/L)	0.1		0.0022	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.0029	0.006
Combined Radium, Total (pCi/L)	5		1.99	5
Fluoride, Total (mg/L)	4		0.25	4
Lead, Total (mg/L)	n/a	0.015	0.0027	0.015
Lithium, Total (mg/L)	n/a	0.04	0.03	0.04
Mercury, Total (mg/L)	0.002		0.000008	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.0017	0.1
Selenium, Total (mg/L)	0.05		0.0065	0.05
Thallium, Total (mg/L)	0.002		0.0005	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 8/17/2021, 2:42 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	18	0.00004333	0.00002058	11.11	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1506	0.00005	0.00003	0.006	No	18	0.00004611	0.00003616	5.556	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1507	0.0001	0.00003	0.006	No	18	0.00006111	0.00003216	5.556	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1509	0.00005	0.00002	0.006	No	18	0.00003333	0.00001534	5.556	None	No	0.01	NP (normality)
Antimony, total (mg/L)	MW_1510	0.00003	0.00002	0.006	No	18	0.00002611	0.000009785	11.11	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW_1505	0.00116	0.00031	0.01	No	18	0.0008039	0.0008822	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW_1506	0.0008495	0.0004319	0.01	No	18	0.0006683	0.0003834	0	None	sqrt(x)	0.01	Param.
Arsenic, total (mg/L)	MW_1507	0.00219	0.00042	0.01	No	18	0.001451	0.001377	0	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	MW_1509	0.0004832	0.0003434	0.01	No	18	0.0004133	0.0001156	0	None	No	0.01	Param.
Arsenic, total (mg/L)	MW_1510	0.0005048	0.000328	0.01	No	18	0.0004239	0.0001528	0	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	MW_1505	0.0517	0.0459	2	No	18	0.05071	0.008988	0	None	No	0.01	NP (normality)
Barium, total (mg/L)	MW_1506	0.05988	0.05214	2	No	18	0.05624	0.006813	0	None	ln(x)	0.01	Param.
Barium, total (mg/L)	MW_1507	0.0845	0.0531	2	No	18	0.06719	0.01763	0	None	No	0.01	NP (normality)
Barium, total (mg/L)	MW_1509	0.062	0.0458	2	No	18	0.05366	0.007853	0	None	No	0.01	NP (normality)
Barium, total (mg/L)	MW_1510	0.0441	0.03746	2	No	18	0.04078	0.005489	0	None	No	0.01	Param.
Beryllium, total (mg/L)	MW_1505	0.0001	0.00001	0.004	No	18	0.00006589	0.00004666	44.44	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW_1506	0.0001	0.00001	0.004	No	18	0.00004689	0.00004004	33.33	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	MW_1507	0.0001013	0.0000325	0.004	No	18	0.00008694	0.00005377	33.33	Kaplan-Meier	No	0.01	Param.
Beryllium, total (mg/L)	MW_1509	0.0001	0.00001	0.004	No	18	0.00006956	0.00004432	66.67	Kaplan-Meier	No	0.01	NP (NDs)
Beryllium, total (mg/L)	MW_1510	0.0001	0.00001	0.004	No	18	0.00005694	0.00004449	50	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1505	0.00005	0.00002	0.005	No	18	0.00002889	0.000006764	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1506	0.00003	0.00001	0.005	No	18	0.00002167	0.000008575	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1507	0.00006	0.00003	0.005	No	18	0.00004111	0.00001568	0	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1509	0.000025	0.00001	0.005	No	18	0.00001678	0.000007084	16.67	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	MW_1510	0.000025	0.000005	0.005	No	18	0.00001289	0.000008989	33.33	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW_1505	0.00707	0.000567	0.1	No	17	0.003101	0.003829	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW_1506	0.002107	0.0008283	0.1	No	18	0.001753	0.00136	0	None	ln(x)	0.01	Param.
Chromium, total (mg/L)	MW_1507	0.009736	0.002418	0.1	No	18	0.007045	0.006791	0	None	sqrt(x)	0.01	Param.
Chromium, total (mg/L)	MW_1509	0.00147	0.000552	0.1	No	18	0.00118	0.001034	0	None	No	0.01	NP (normality)
Chromium, total (mg/L)	MW_1510	0.002104	0.0007935	0.1	No	17	0.001795	0.001756	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW_1505	0.0006081	0.0001865	0.006	No	18	0.0005563	0.0006775	0	None	ln(x)	0.01	Param.
Cobalt, total (mg/L)	MW_1506	0.0007152	0.000319	0.006	No	18	0.0005171	0.0003274	0	None	No	0.01	Param.
Cobalt, total (mg/L)	MW_1507	0.00306	0.000343	0.006	No	18	0.001429	0.00142	0	None	No	0.01	NP (normality)
Cobalt, total (mg/L)	MW_1509	0.0002933	0.0001433	0.006	No	18	0.0002288	0.0001358	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	MW_1510	0.0002496	0.0001372	0.006	No	18	0.0001934	0.0000929	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1505	0.9301	0.4952	5	No	18	0.7126	0.3593	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1506	0.9908	0.3493	5	No	18	0.7347	0.5483	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1507	1.34	0.5899	5	No	17	0.9648	0.5983	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1509	1.231	0.5573	5	No	18	0.9465	0.6233	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW_1510	0.9394	0.453	5	No	17	0.6962	0.3881	0	None	No	0.01	Param.
Fluoride, total (mg/L)	MW_1505	0.06	0.03	4	No	19	0.04737	0.01593	57.89	None	No	0.01	NP (NDs)
Fluoride, total (mg/L)	MW_1506	0.06	0.04	4	No	19	0.05368	0.01212	42.11	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1507	0.07155	0.05898	4	No	19	0.06526	0.01073	5.263	None	No	0.01	Param.
Fluoride, total (mg/L)	MW_1509	0.15	0.1	4	No	19	0.1289	0.02447	0	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	MW_1510	0.11	0.06	4	No	19	0.08158	0.02834	15.79	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW_1505	0.000697	0.000091	0.015	No	18	0.0005404	0.0009322	16.67	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW_1506	0.0005132	0.0001968	0.015	No	18	0.0003844	0.0003031	0	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW_1507	0.00296	0.000217	0.015	No	18	0.001324	0.001514	5.556	None	No	0.01	NP (normality)
Lead, total (mg/L)	MW_1509	0.0001262	0.00004075	0.015	No	18	0.00009278	0.00007619	0	None	sqrt(x)	0.01	Param.
Lead, total (mg/L)	MW_1510	0.0001645	0.00007933	0.015	No	18	0.000137	0.00009018	0	None	ln(x)	0.01	Param.
Lithium, total (mg/L)	MW_1505	0.011	0.00501	0.04	No	18	0.008158	0.003652	5.556	None	No	0.01	NP (normality)
Lithium, total (mg/L)	MW_1506	0.01337	0.008687	0.04	No	18	0.01123	0.004025	5.556	None	sqrt(x)	0.01	Param.
Lithium, total (mg/L)	MW_1507	0.01513	0.009335	0.04	No	18	0.01251	0.005068	5.556	None	sqrt(x)	0.01	Param.
Lithium, total (mg/L)	MW_1509	0.01504	0.00876	0.04	No	18	0.0119	0.005191	5.556	None	No	0.01	Param.
Lithium, total (mg/L)	MW_1510	0.01296	0.007819	0.04	No	18	0.01039	0.004251	0	None	No	0.01	Param.

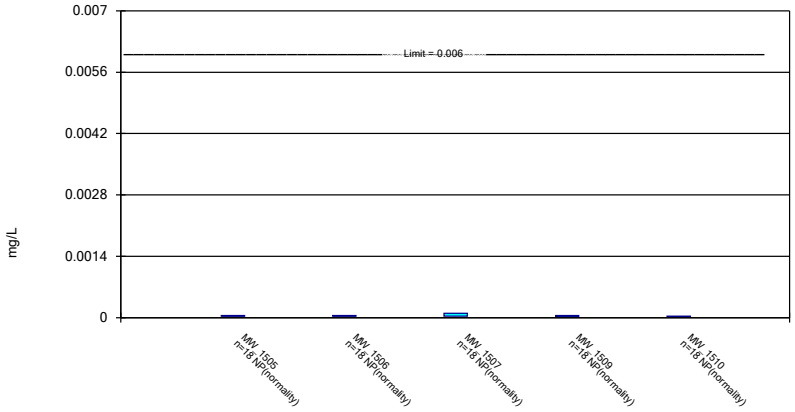
Confidence Intervals - All Results (No Significant)

Mitchell BAP Client: Geosyntec Data: Mitchell BAP Printed 8/17/2021, 2:42 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	0.000006	0.000002	0.002	No	18	0.000005167	0.000002203	77.78	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1506	0.000005	0.000003	0.002	No	18	0.000004167	0.000001295	66.67	None	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1507	0.000006035	0.000002394	0.002	No	18	0.000006944	0.000005589	33.33	Kaplan-Meier	ln(x)	0.01	Param.
Mercury, total (mg/L)	MW_1509	0.000005	0.000002	0.002	No	18	0.000004667	9.7e-7	88.89	Kaplan-Meier	No	0.01	NP (NDs)
Mercury, total (mg/L)	MW_1510	0.000005	0.000002	0.002	No	18	0.000004833	7.1e-7	94.44	Kaplan-Meier	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	MW_1505	0.001523	0.0006142	0.1	No	18	0.001564	0.001601	16.67	Kaplan-Meier	ln(x)	0.01	Param.
Molybdenum, total (mg/L)	MW_1506	0.001218	0.0006358	0.1	No	18	0.0009789	0.0005442	0	None	x^(1/3)	0.01	Param.
Molybdenum, total (mg/L)	MW_1507	0.003178	0.0008773	0.1	No	18	0.002478	0.002981	5.556	None	x^(1/3)	0.01	Param.
Molybdenum, total (mg/L)	MW_1509	0.002	0.00034	0.1	No	18	0.001025	0.0006862	27.78	None	No	0.01	NP (normality)
Molybdenum, total (mg/L)	MW_1510	0.0007167	0.0003293	0.1	No	18	0.001144	0.000921	33.33	Kaplan-Meier	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW_1505	0.0005359	0.0001954	0.05	No	18	0.0003989	0.0002897	0	None	sqrt(x)	0.01	Param.
Selenium, total (mg/L)	MW_1506	0.00025	0.00007	0.05	No	18	0.0001483	0.00008494	33.33	None	No	0.01	NP (normality)
Selenium, total (mg/L)	MW_1507	0.000321	0.0001072	0.05	No	18	0.0002367	0.0001968	11.11	None	sqrt(x)	0.01	Param.
Selenium, total (mg/L)	MW_1509	0.0002771	0.0001284	0.05	No	18	0.0002311	0.00017	0	None	ln(x)	0.01	Param.
Selenium, total (mg/L)	MW_1510	0.0003	0.0001	0.05	No	18	0.000175	0.00007672	0	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1505	0.0005	0.00007	0.002	No	18	0.0002397	0.0002099	33.33	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1506	0.0005	0.00005	0.002	No	18	0.0002283	0.0002231	38.89	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1507	0.0005	0.000051	0.002	No	18	0.0002323	0.0002201	38.89	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1509	0.0005	0.00003	0.002	No	18	0.0002432	0.0002365	44.44	None	No	0.01	NP (normality)
Thallium, total (mg/L)	MW_1510	0.0005	0.00002	0.002	No	18	0.0002621	0.0002451	50	None	No	0.01	NP (normality)

Non-Parametric Confidence Interval

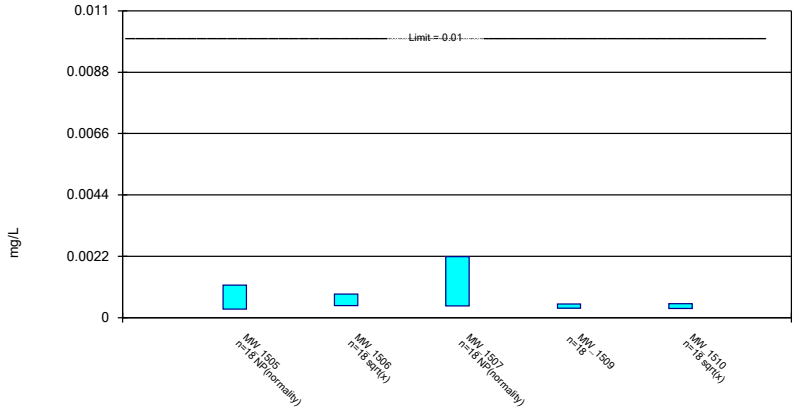
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Antimony, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

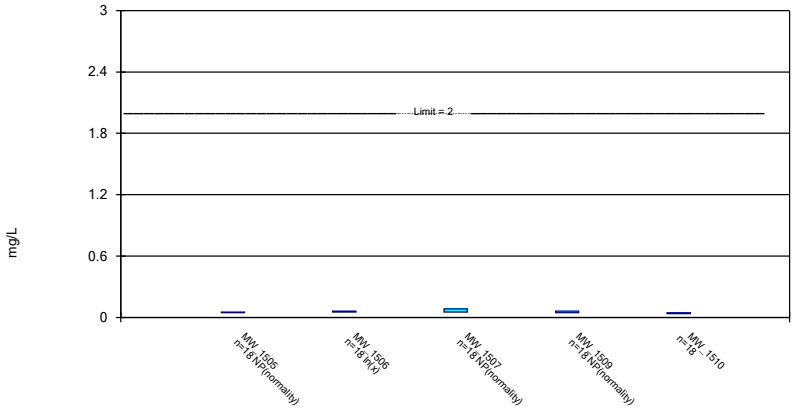
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

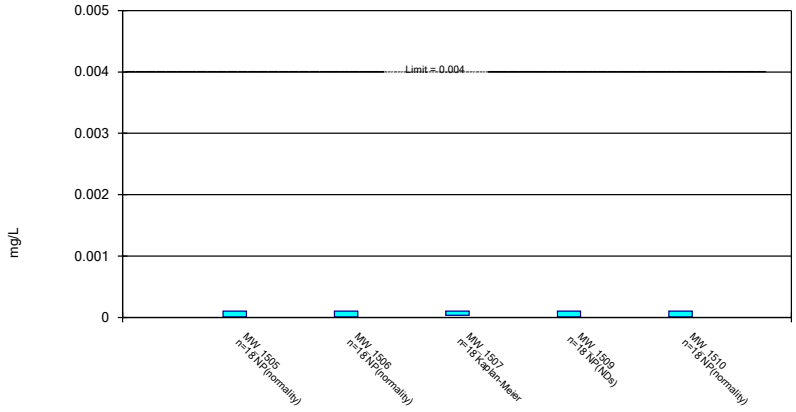
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

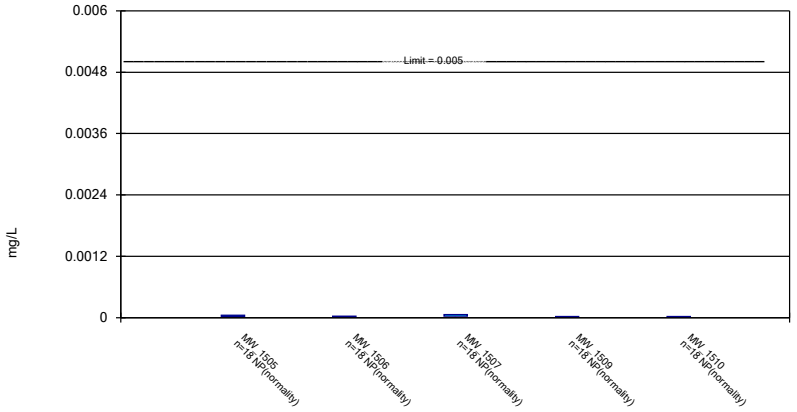
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Non-Parametric Confidence Interval

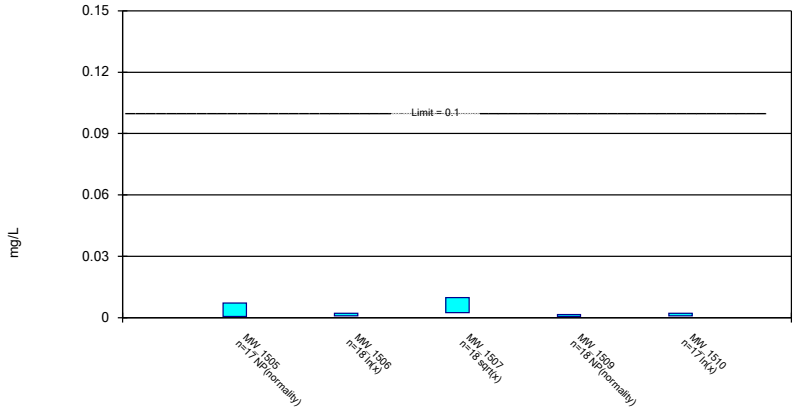
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Cadmium, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

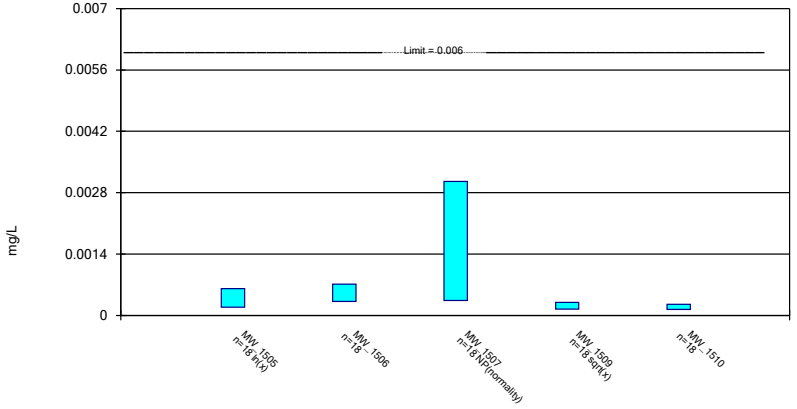
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

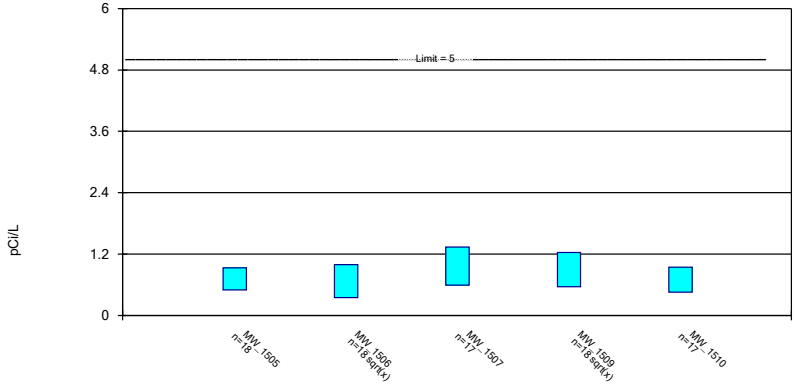
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric Confidence Interval

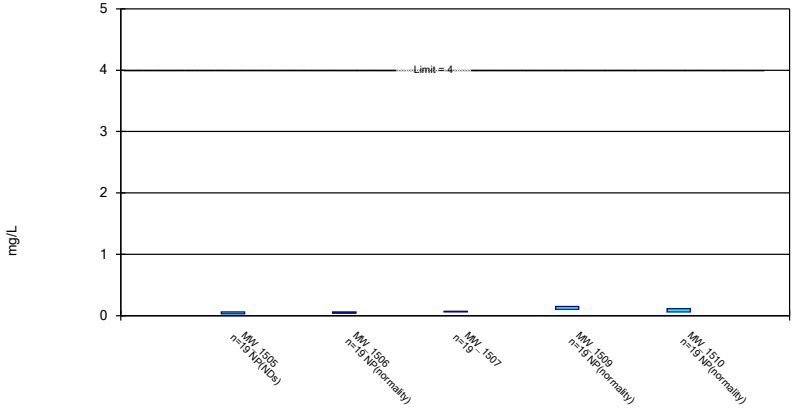
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

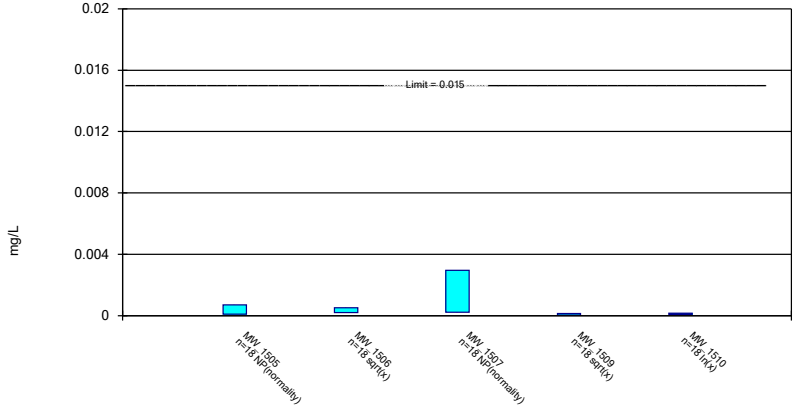
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

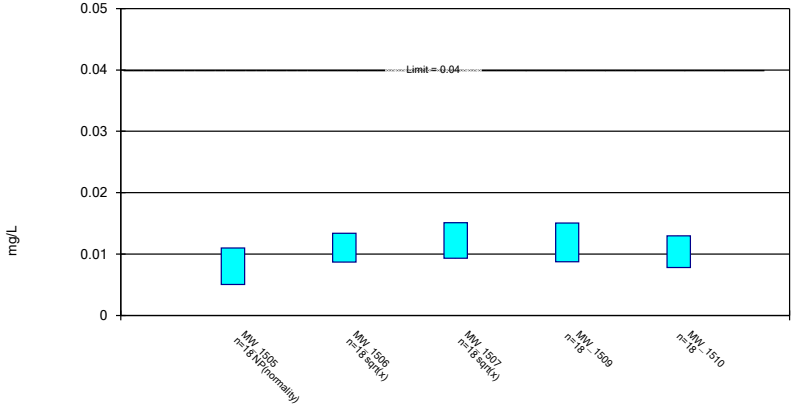
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

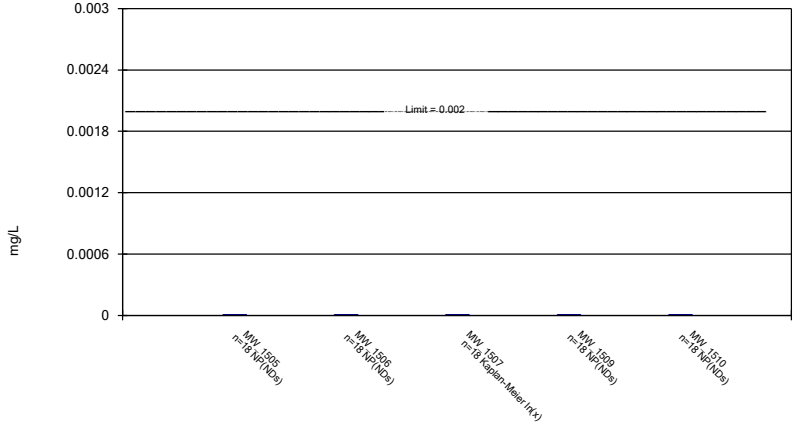
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Parametric and Non-Parametric (NP) Confidence Interval

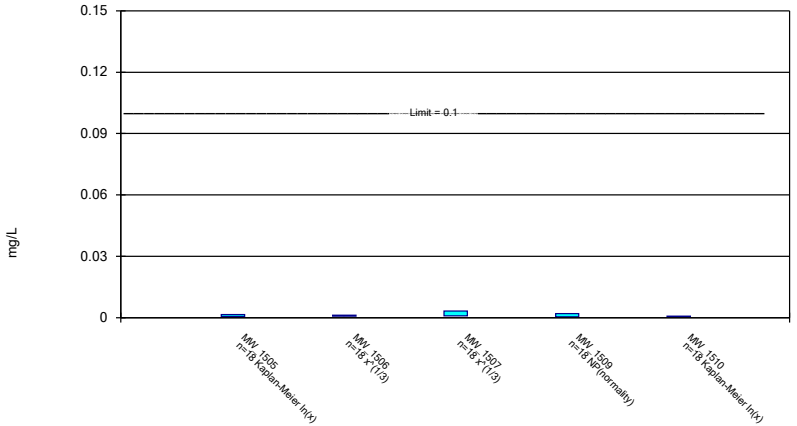
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Mercury, total Analysis Run 8/17/2021 2:40 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.

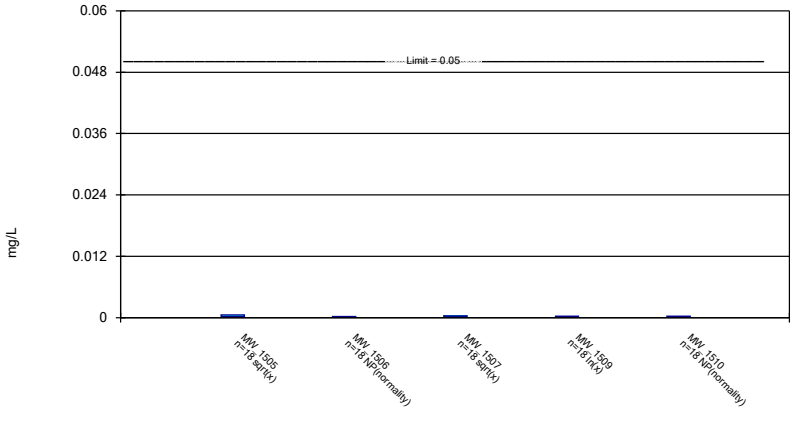


Constituent: Molybdenum, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. 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.

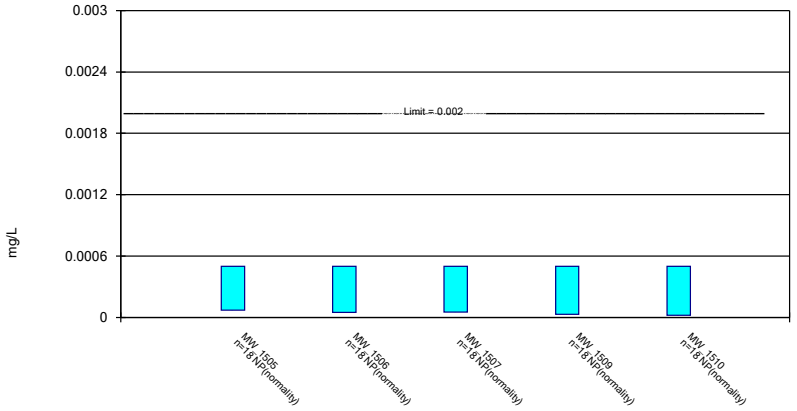


Constituent: Selenium, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

Sanitas™ v.9.6.30e Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

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



Constituent: Thallium, total Analysis Run 8/17/2021 2:40 PM View: Appendix IV
Mitchell BAP Client: Geosyntec Data: Mitchell BAP

APPENDIX 3 – Alternative Source Demonstrations

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

APPENDIX 4 - Notices for Monitoring Program Transitions

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

APPENDIX 5 - Well Installation/Decommissioning Logs

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