Annual Groundwater Monitoring Report

Public Service Company of Oklahoma

Northeastern Power Station

Bottom Ash Pond CCR Unit

Permit No. 3566010-SI

7300 E HWY 88

Oologah, Oklahoma

January 31, 2026

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PUBLIC SERVICE COMPANY OF OKLAHOMA℠

An AEP Company

BOUNDLESS ENERGY℠

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Abbreviations:
ASD – Alternate Source Demonstration
BAP – Bottom Ash Pond
CCR – Coal Combustion Residual
GWPS – Groundwater protection standards
NPS – Northeastern Power Station
SSI – Statistically Significant Increase
SSL – Statistically Significant Level
TDS – Total Dissolved Solids

I. Overview

This *Annual Groundwater Monitoring Report* (Report) has been prepared to report the status of activities for the preceding year for an existing Coal Combustion Residual (CCR) unit at Public Service Company of Oklahoma's (PSO's), a wholly owned subsidiary of American Electric Power Company (AEP), Northeastern Power Station (NPS). The Oklahoma Department of Environmental Quality (ODEQ) CCR rules require that the Annual Groundwater Monitoring Report be posted to the operating record for the preceding year no later than January 31, 2026.
In general, the following activities were completed:

- At the start of the current annual reporting period, the bottom ash pond (BAP) was operating under the Assessment monitoring program.
- At the end of the current annual reporting period, the BAP was operating under the Assessment monitoring program.
- The BAP initiated an assessment monitoring program on April 13, 2018.
- A statistical process in accordance with OAC 252:517 to evaluate groundwater data was updated, certified, and posted to AEP's CCR website titled: *Statistical Analysis Plan (*Geosyntec, Nov 2021). The statistical process was guided by USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* ("Unified Guidance," USEPA, 2009). This report was approved by ODEQ January 20, 2022.
- Semi-annual groundwater samples were collected from SP-1, SP-2, SP-4, SP-5R, SP-10 and SP-11 and analyzed for Appendix A and Appendix B constituents, as specified in OAC 255:517-9-6 Assessment Monitoring program and AEP's *Groundwater Sampling and Analysis Plan* (2021).
- Data and statistical analysis not available for the previous reporting period indicated that during the 2nd semi-annual 2024 sampling event (October 2024):
    - Potential SSIs were identified for:
        - Boron at SP-10
        - Chloride at SP-10
        - Fluoride at SP-10
        - Sulfate SP-1 and SP-11
        - TDS at SP-10
    - Potential SSLs were identified for:
        - Barium at SP-10
        - Fluoride at SP-10

        - Lithium at SP-10
- During the 1st semi-annual 2025 sampling event (June 2025):
    - Potential SSIs were identified for:
        - Boron at SP-10
        - Chloride at SP-10
        - Fluoride at SP-10
        - Sulfate at SP-1 and SP-11
        - TDS at SP-10
    - Potential SSLs were identified for:
        - Barium at SP-10
        - Fluoride at SP-10
        - Lithium at SP-10
- Statistical evaluation of the 2nd semi-annual 2025 groundwater sampling event in October 2025 is underway.
- ASDs for the 2nd semi-annual 2024 potential lithium, barium, and fluoride SSLs were certified May 28, 2025, and approved by ODEQ June 9, 2025.
- ASDs for the 1st semi-annual 2025 potential lithium, barium, and fluoride SSLs have been submitted to ODEQ for review on January 9, 2026.

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 BAP CCR management unit, all groundwater monitoring wells and monitoring well identification numbers.
- All monitoring data collected, including the rate and direction of groundwater flow, plus a summary showing the number of samples collected per monitoring well, the dates the samples were collected and whether the sample was collected as part of detection monitoring or assessment monitoring programs is included in Appendix 1.
- Statistical comparison of monitoring data to determine if there have been SSI(s) or SSL(s) (Attached as Appendix 2, where applicable).
- A discussion of whether any alternate source demonstrations (ASDs) were performed, and the conclusions (Attached as Appendix 3, where applicable).
- A summary of any transition between monitoring programs or an alternate monitoring frequency, for example the date and circumstances for transitioning from detection

monitoring to assessment monitoring, in addition to identifying the constituents detected at a statistically significant increase over background concentrations (Appendix 4).

- Identification of any monitoring wells that were installed, or decommissioned during the preceding year, along with a statement as to why that happened (Attached as Appendix 5, where applicable); and
- Other information required to be included in the annual report such as field sheets and analytical reports, if applicable.

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

II. Groundwater Monitoring Well Locations and Identification Numbers

The figure that follows depicts the PE-certified groundwater monitoring network, the monitoring well locations and their corresponding identification numbers.

Bottom Ash Pond Monitoring Wells	
Background	Down Gradient
SP-4	SP-1
SP-5R	SP-2
	SP-10
	SP-11



III. Monitoring Wells Installed or Decommissioned

There were no groundwater monitoring wells installed or decommissioned during this reporting period. The network design, as summarized in the *Groundwater Monitoring Network Design Report* (September 2017) and as posted at the CCR website for NPS's Bottom Ash Pond (BAP), did not change. That network 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 applicable groundwater quality data obtained under OAC 252:517-9-4 through 252:517-9-6 relevant to this reporting period. Static water elevation data from each monitoring event also are shown in Appendix 1, along with the groundwater velocity calculations groundwater flow directions and potentiometric maps developed after each sampling event.

The site-wide groundwater flow velocity varies from the velocity computed in residence time calculations because assumptions used in these calculations vary based on the scale of the application of groundwater flow. The site-wide groundwater flow velocity is determined as a representative average over the entire CCR unit, which is a large area (multiple acres) consisting of different rock formations. The residence time calculation is a localized estimate used to establish the residence time of groundwater within a single well (<100 sq ft). The site-wide groundwater flow velocity utilizes the maximum and minimum hydraulic gradient based on groundwater elevation differences between two widely spaced site monitoring wells. For a localized hydraulic gradient, the residence time calculations use the elevation difference between the target monitoring well and the nearest groundwater elevation contour line. Additionally, the hydraulic conductivity and effective porosity used in the site-wide groundwater flow velocity are represented by average parameters based on field tests conducted at the BAP CCR unit. The residence time calculation uses an estimated hydraulic conductivity and effective porosity from a reference work representative of the formation in contact with the well.

A summary of the varying methods is shown below:

	Site-Wide Flow Calculation	Residence Time Calculation
Purpose	Determine representative average groundwater flow velocity across the entire BAP CCR unit (multiple acres)	Determine residence time of groundwater within a 2-inch diameter groundwater monitoring well (<100 square feet)
Hydraulic Gradient	Greatest groundwater elevation difference between two wells monitoring the Unit, and smallest	Elevation difference between target groundwater monitoring well, and

	groundwater elevation difference between two wells monitoring the Unit	nearest groundwater elevation contour line
Hydraulic Conductivity	Average hydraulic conductivity determined from slug tests conducted at the Unit	Estimated hydraulic conductivity from referenced work representative of the formation in contact with the individual well
Effective Porosity	Average effective porosity determined from field tests	Estimated effective porosity from referenced work representative of the formation in contact with the well

ODEQ agreed via email dated August 22, 2022, that the 252:517-9-6(b) sampling event is not needed if all Appendix A and B parameters are collected during each semi-annual sampling event (email attached in Appendix 6). Therefore, PSO no longer conducts the 252:517-9-6(b) sampling event and all Appendix A and B parameters are collected at each monitoring well for this CCR Unit during each semi-annual sampling event.

The semi-annual groundwater sampling events for Appendix A and Appendix B constituents were conducted June 18, 2025, and October 27, 2025. When the data becomes available, it is placed into NPS's Operating Record, satisfying the requirement of 252:517-9-6(d).

Appendix 6 contains the available Field sheets and laboratory reports for this reporting period.

V. Groundwater Quality Data Statistical Analysis

Semi-annual groundwater samples were collected at SP-1, SP-2, SP-4, SP-5R, SP-10 and SP-11 and analyzed for Appendix A and Appendix B constituents, as specified in OAC 255:517-9-6 Assessment Monitoring program and AEP's *Groundwater Sampling and Analysis Plan* (2021), approved by ODEQ January 20, 2022.

Appendix 2 contains the available statistical analysis reports for this reporting period.

Data and statistical analysis not available for the previous reporting period was certified February 27, 2025, and indicated that during the 2nd semi-annual 2024 sampling event (October 22, 2024):

- Potential SSIs were identified for:
  - Boron at SP-10
  - Chloride at SP-10
  - Fluoride at SP-10
  - Sulfate SP-1 and SP-11

- TDS at SP-10

- Potential SSLs were identified for:
  - Barium at SP-10
  - Fluoride at SP-10
  - Lithium at SP-10

Results from the 1st semi-annual 2024 sampling event (June 18, 2025), certified October 14, 2025, indicated:

- Potential SSIs were identified for:
  - Boron at SP-10
  - Chloride at SP-10
  - Fluoride at SP-10
  - Sulfate at SP-1 and SP-11
  - TDS at SP-10
- Potential SSLs were identified for:
  - Barium at SP-10
  - Fluoride at SP-10
  - Lithium at SP-10

Statistical evaluation of the 2nd semi-annual 2025 groundwater sampling event in October 2025 is underway.

VI. Alternate Source Demonstrations Completed

An alternate source demonstration (ASD) investigation relative to past SSIs was completed in April 2018. That demonstration concluded that alternate sources could not be identified. Additionally, an ASD investigation was not undertaken for the current SSI(s).

ASDs for the 2nd semi-annual 2025 potential Lithium, Barium, and Fluoride SSLs were certified May 28, 2024, and approved by ODEQ June 9, 2025.

ASDs for the 1st semi-annual 2025 potential Lithium, Barium, and Fluoride SSLs have been submitted to ODEQ for review on January 9, 2026.

Because successful ASDs for the potential SSL(s) were identified, but no alternate sources for the SSI(s) were identified, the BAP remained in Assessment Monitoring.

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

No transition was made during the reporting period and the CCR Unit remained in detection monitoring.

VIII. Other Information Required

A statistical process in accordance with OAC 252:517 to evaluate groundwater data was updated, certified, and posted to AEP's CCR website in 2022 titled: *Statistical Analysis Plan (*Geosyntec Nov 2021). The statistical process was guided by USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* ("Unified Guidance," USEPA, 2009). This report was approved by ODEQ on January 20, 2022.

IX. Description of Any Problems Encountered and Actions Taken

No significant problems were encountered. The low flow sampling effort continued, and the schedule was met to support the annual groundwater report preparation covering this reporting period's groundwater monitoring activities.

X. A Projection of Key Activities for the Upcoming Year

Key activities for the next reporting period include:

- As required by OAC 252:517-9-6, conduct assessment monitoring of the groundwater for the BAP CCR unit on a semi-annual basis;
- Evaluation of the assessment monitoring results from a statistical analysis viewpoint, looking for SSLs above GWPS;
- Complete ASDs for potential SSLs and submit to ODEQ for approval;
- Preparation of the next annual groundwater report.

APPENDIX 1

Potentiometric Maps and Tables follow, showing the groundwater monitoring data collected, the rate and direction of groundwater flow, and a summary showing the number of samples collected per monitoring well. The dates that the samples were collected also is shown.



Legend

- Groundwater Monitoring Well
- Approximate Groundwater Flow Direction
- Groundwater Elevation Contour
- Groundwater Elevation Contour (Inferred)
- Bottom Ash Pond
- Landfill
- Slurry Wall

Notes

1. Monitoring well coordinates and water level data (collected on June 18, 2025) provided by AEP.
2. Groundwater elevation units are feet above mean sea level (ft amsl).
3. Only wells screened in the upper portion of the Oolagah Limestone were used for contouring.
4. Satellite imagery provided by ESRI (updated on December 2023).

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Potentiometric Contours - Uppermost Aquifer
June 2025

AEP Northeastern Power Plant - Bottom Ash Pond
Oologah, Oklahoma

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Figure **1**

A:\Projects\AEP\Groundwater Statistical Evaluation - CHA8423\Groundwater Mapping\GIS Files\MXD\Northeastern\2025\AEP-Northeastern_BAP_2025-06_Jun.mxd. okiemute.commander. 9/16/2025. Project/Phase/Task.



Legend

- Groundwater Monitoring Well
- Approximate Groundwater Flow Direction
- Groundwater Elevation Contour
- Bottom Ash Pond
- Landfill
- Slurry Wall

Notes

1. Monitoring well coordinates and water level data (collected on October 27 and 28, 2025) provided by AEP.
2. Groundwater elevation units are feet above mean sea level (ft amsl).
3. Only wells screened in the upper portion of the Oolagah Limestone were used for contouring.
4. Satellite imagery provided by ESRI (updated on December 2023).

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Potentiometric Contours - Uppermost Aquifer October 2025

AEP Northeastern Power Plant - Bottom Ash Pond
Oologah, Oklahoma

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Figure 1

A:\Projects\AEP\Groundwater Statistical Evaluation - CHA8423\Groundwater Mapping\GIS Files\MXD\Northeastern\2025\AEP-Northeastern_BAP_2025-10_Oct.mxd. okiemute.commander. 1/23/2026. Project/Phase/Task.

Table 1: Residence Time Calculation Summary
Northeastern Bottom Ash Pond

Geosyntec Consultants, Inc.

			2025-06		2025-10	
CCR Management Unit	Monitoring Well	Well Diameter (inches)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
Bottom Ash Pond	SP-1 [2]	2.0	3.4	18.0	3.7	16.3
	SP-2 [2]	2.0	4.2	14.6	5.7	10.6
	SP-4 [2]	2.0	5.0	12.2	2.4	25.5
	SP-5R [1]	2.0	3.5	17.3	1.2	49.0
	SP-10 [1]	2.0	1.0	61.3	5.4	11.2
	SP-11 [1]	2.0	4.5	13.6	5.5	11.1

Notes:
[1] - Background Well
[2] - Downgradient Well

Table 1. Groundwater Data Summary: SP-1
Northeastern - BAP
Appendix A Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
1/25/2017	Background	0.298	111	60	< 1 U1	7.5	66	514
3/13/2017	Background	0.186	117	548	4	--	30	480
4/24/2017	Background	0.202	108	83	1.02	7.6	60	496
5/18/2017	Background	0.284	131	104	1.3	--	60	574
6/15/2017	Background	0.242	115	50	0.6437 J1	9.3	48	478
6/27/2017	Background	0.232	113	19	0.582 J1	11.1	48	424
7/12/2017	Background	0.287	122	70	0.6283 J1	9.8	56	504
8/04/2017	Background	0.299	125	20	0.542 J1	8.7	52	394
8/17/2017	Background	--	--	--	--	7.9	--	--
8/30/2017	Background	0.25	120	34	0.581 J1	7.7	59	456
9/13/2017	Background	0.369	119	62	0.4042 J1	8.2	54	536
9/20/2017	Background	0.331	129	22	< 0.083 U1	7.3	62	440
10/11/2017	Detection	0.35	152	136	1.4051	7.4	58	676
1/22/2018	Detection	--	119	--	--	6.9	--	--
5/30/2018	Assessment	--	--	--	1.2525	7.3	--	--
7/30/2018	Assessment	0.397	130	46	0.9863 J1	7.0	63	1060
2/04/2019	Assessment	0.354	150	--	--	--	--	--
2/27/2019	Assessment	0.200	122	42.7	0.80	7.3	87.1	532
6/20/2019	Assessment	0.198	126	25.2	0.77	7.1	61.4	452
8/26/2019	Assessment	0.124	120	9	0.525 J1	9.0	48	438
3/25/2020	Assessment	0.184	96.7	40.8	0.96	8.5	62.9	500
6/30/2020	Assessment	0.180	99.4	29.6	0.81	9.0	49.3	435
7/28/2020	Assessment	--	--	--	--	8.4	--	--
10/20/2020	Assessment	0.146	103	12.9	0.81	8.5	51.1	427
3/03/2021	Assessment	0.169	105	--	0.85	7.4	--	--
4/12/2021	Assessment	0.186	104	37.2	0.88	7.6	50.0	438
12/28/2021	Assessment	0.127	91.2	34.2	0.93	7.1	40.0	410
6/14/2022	Assessment	0.176	102	21.2	0.78	7.3	65.2	430 L1
11/08/2022	Assessment	0.147	102 M1	16.3	0.85	7.3	54.1	400
6/20/2023	Assessment	0.158	100	84.3	0.82	7.2	65.0	460
10/10/2023	Assessment	0.159	102	45.1	0.96	7.4	84.8	470
4/16/2024	Assessment	0.201	113	47.7	0.89	7.8	97.3	460
10/22/2024	Assessment	0.185	123	48.1	0.96	7.5	85.2	510
6/18/2025	Assessment	0.240	113	49.3	0.98	7.5	83.9	500 S7
10/27/2025	Assessment	0.20 J1	107	47.2	1.09	7.9	83.1	490

Table 1. Groundwater Data Summary: SP-1
Northeastern - BAP
Appendix B 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
1/25/2017	Background	< 5 U1	< 5 U1	211	< 1 U1	< 1 U1	< 1 U1	< 5 U1	3.48	< 1 U1	< 5 U1	0.006	< 0.025 U1	11	< 5 U1	< 2 U1
3/13/2017	Background	< 5 U1	< 5 U1	146	< 1 U1	< 1 U1	< 1 U1	< 5 U1	3.014	4	< 5 U1	0.007	< 0.025 U1	16	< 5 U1	< 2 U1
4/24/2017	Background	2.75 J1	1.91 J1	195	0.1 J1	< 0.07 U1	0.84 J1	2.42 J1	4.71	1.02	0.94 J1	0.00789	< 0.005 U1	19.92	4.85 J1	< 0.86 U1
5/18/2017	Background	6.85	5.48	243	0.26 J1	0.22 J1	2.55	2.55 J1	4.12	1.3	1.63 J1	0.00853	0.023 J1	16.77	6.51	< 0.86 U1
6/15/2017	Background	1.14 J1	< 1.05 U1	183	0.04 J1	< 0.07 U1	< 0.23 U1	0.77 J1	2.096	0.6437 J1	< 0.68 U1	0.00407	0.009 J1	7.02	2.54 J1	< 0.86 U1
6/27/2017	Background	< 0.93 U1	< 1.05 U1	187	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.77 J1	14.29	0.582 J1	< 0.68 U1	0.00334	< 0.005 U1	6.42	2.77 J1	< 0.86 U1
7/12/2017	Background	1.25 J1	< 1.05 U1	217	0.09 J1	< 0.07 U1	0.62 J1	1.34 J1	4.01	0.6283 J1	1.24 J1	0.00395	< 0.005 U1	8.14	5.21	0.89 J1
8/04/2017	Background	< 0.93 U1	2.11 J1	298	0.1 J1	< 0.07 U1	0.78 J1	1.33 J1	3.41	0.542 J1	0.94 J1	0.00577	0.009 J1	19.96	11.96	< 0.86 U1
8/30/2017	Background	2.09 J1	1.34 J1	218	0.14 J1	< 0.07 U1	0.55 J1	1.75 J1	4.15	0.581 J1	< 0.68 U1	0.00468	< 0.005 U1	12.08	3.51 J1	< 0.86 U1
9/13/2017	Background	< 0.93 U1	< 1.05 U1	210	0.09 J1	0.08 J1	0.31 J1	1.07 J1	2.584	0.4042 J1	< 0.68 U1	0.00548	< 0.005 U1	14.65	4.13 J1	< 0.86 U1
9/20/2017	Background	< 0.93 U1	< 1.05 U1	168	0.05 J1	0.11 J1	< 0.23 U1	1.15 J1	4.53	< 0.083 U1	< 0.68 U1	0.00318	< 0.005 U1	5.32	< 0.99 U1	< 0.86 U1
5/30/2018	Assessment	< 0.93 U1	< 1.05 U1	190	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.53 J1	3.64	1.2525	< 0.68 U1	0.00785	< 0.005 U1	16.39	4.23 J1	2
7/30/2018	Assessment	0.69	0.93	174	0.06 J1	0.08 J1	1.83	0.676	3.056	0.9863 J1	0.354	0.00615	< 0.005 U1	17.1	5.8	0.09 J1
2/27/2019	Assessment	0.6 J1	0.7 J1	168	< 0.2 U1	< 0.1 U1	2.72	< 0.2 U1	3.056	0.80	0.2 J1	0.00641	< 0.005 U1	10 J1	2.8	< 1 U1
6/20/2019	Assessment	0.93	1.44	242	0.2 J1	0.1 J1	0.7 J1	5.54	2.745	0.77	0.650	0.03 J1	0.01 J1	12.1	9.9	< 0.5 U1
8/26/2019	Assessment	0.43	0.73	160	0.08 J1	0.09	1.49	0.481	2.75	0.525 J1	0.835	0.00285	< 0.005 U1	5.86	3.4	0.1 J1
3/25/2020	Assessment	0.62	0.72	158	0.07 J1	0.08	0.499	0.362	6.67	0.96	0.351	0.00600	< 0.002 U1	15.8	6.6	< 0.1 U1
6/30/2020	Assessment	0.58	0.69	159	0.07 J1	0.07	0.969	0.431	2.531	0.81	0.886	0.00534	< 0.002 U1	13.6	8.3	< 0.1 U1
10/20/2020	Assessment	0.46	0.57	143	0.05 J1	0.08	0.215	0.727	2.82	0.81	0.254	0.00336	< 0.002 U1	11.5	3.8	< 0.1 U1
3/03/2021	Assessment	0.51	0.53	144	0.05 J1	0.08	0.426	0.307	4.27	0.85	0.259	0.00443	< 0.002 U1	14.3	4.5	< 0.1 U1
4/12/2021	Assessment	0.46	0.54	158	0.04 J1	0.05	0.359	0.202	3.47	0.88	0.2 J1	0.00549	< 0.002 U1	13.7	3.9	0.05 J1
12/28/2021	Assessment	0.51	0.51	155	0.040 J1	0.051	0.70	0.246	4.12	0.93	0.24	0.00474	< 0.002 U1	15.2	6.45	0.05 J1
6/14/2022	Assessment	0.72	0.84	161	0.061	0.066	0.60	1.14	3.98	0.78	0.22	0.00473	< 0.002 U1	21.2	9.63	0.07 J1
11/08/2022	Assessment	0.80	0.69	157	0.054	0.055	1.30	0.684	5.68	0.85	0.15 J1	0.00558	< 0.002 U1	28.8	15.4	0.07 J1
6/20/2023	Assessment	0.491	0.45	145	0.091	0.047	0.41	0.174	6.92	0.82	0.24	0.00726	< 0.002 U1	17.2	7.58	0.07 J1
10/10/2023	Assessment	0.745	0.65	138	0.053	0.041	0.47	0.717	3.06	0.96	0.17 J1	0.00819	< 0.002 U1	26.0	11.8	0.11 J1
4/16/2024	Assessment	0.433	0.40	134	0.050	0.053	0.63	0.164	1.95	0.89	0.33	0.00615	< 0.002 U1	14.9	5.43	0.06 J1
10/22/2024	Assessment	0.368	0.62	142	0.120	0.076	1.23	0.536	4.93	0.96	1.18	0.00658	0.003 J1	11.0	5.39	0.08 J1
6/18/2025	Assessment	0.754	0.75	146	0.081	0.058	0.76	1.45	2.45	0.98	0.67	0.00801	< 0.002 U1	21.3	6.28	0.13 J1
10/27/2025	Assessment	0.3 J1	0.5	117	< 0.1 U1	0.04 J1	0.6 J1	0.38	4.40	1.09	0.3 J1	0.0051	0.038	11.0	3.1	0.1 J1

Table 1. Groundwater Data Summary: SP-2
Northeastern - BAP
Appendix A Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
1/25/2017	Background	0.274	108	607	3	6.4	21	1786
3/13/2017	Background	0.251	82.6	37	1	--	70	1340
4/24/2017	Background	0.152	62	527	2.82	6.5	27	1242
5/18/2017	Background	0.336	117	1240	3	--	15	2214
6/15/2017	Background	0.303	108	888	2.96	8.3	61	1912
6/27/2017	Background	0.292	98.5	883	2.8408	7.4	58	1872
7/12/2017	Background	0.339	111	863	3.581	7.9	58	1846
8/04/2017	Background	0.28	147	1064	2.788	7.2	57	2132
8/17/2017	Background	--	--	--	--	7.6	--	--
8/30/2017	Background	0.275	86.8	1001	4.0998	7.5	47	2192
9/13/2017	Background	0.311	91.8	930	3.196	7.0	43	1956
9/20/2017	Background	0.3	129	856	1.726	6.9	37	1778
10/11/2017	Detection	0.307	91.9	970	3.5881	7.3	41	2076
1/22/2018	Detection	--	--	975	--	7.0	--	1910
5/30/2018	Assessment	--	--	--	3.4972	7.5	--	--
7/30/2018	Assessment	0.276	117	268	2.6556	7.5	30	1006
2/27/2019	Assessment	0.116	94.0	351	2.68	7.6	26.1	932
6/20/2019	Assessment	0.109	58.2	357	2.69	6.8	28.5	1044
8/26/2019	Assessment	0.173	211	1072	2.685	8.5	14	2246
3/25/2020	Assessment	0.114	60.4	418	2.73	8.8	22.0	1120
6/30/2020	Assessment	0.163	83.9	420	2.64	8.8	26.3	977
7/28/2020	Assessment	--	--	--	--	8.4	--	--
10/20/2020	Assessment	0.151	75.3	850	2.98	8.7	19.1	1790
3/03/2021	Assessment	0.140	72.0	--	3.00	7.5	--	--
4/12/2021	Assessment	0.255	91.5	1130	3.19	7.6	12.4	2000
12/28/2021	Assessment	0.111	104	341	2.73	7.3	20.8	920
6/14/2022	Assessment	0.228	115	844	3.08	7.4	22.3	1720 L1
11/08/2022	Assessment	0.108	103	695	2.7	7.3	18.1	1480
6/20/2023	Assessment	0.105	87.2	--	--	7.3	--	--
6/29/2023	Assessment	--	--	604	3.02	--	18.1	1780
10/10/2023	Assessment	0.210	151	699	2.79	7.6	20.2	1470
4/16/2024	Assessment	0.210	172	450	2.74	7.6	19.0	990
10/22/2024	Assessment	0.108	135	365	2.68	7.3	16.5	950 S7
6/18/2025	Assessment	0.129	99.7	956	3.11	7.6	10.5	1870
10/27/2025	Assessment	0.14 J1	121	883	3.23	7.7	11.3	1820

Table 1. Groundwater Data Summary: SP-2
Northeastern - BAP
Appendix B Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
1/25/2017	Background	< 5 U1	11	1460	< 1 U1	< 1 U1	3	< 5 U1	6.89	3	< 5 U1	0.098	< 0.025 U1	19	< 5 U1	< 2 U1
3/13/2017	Background	< 5 U1	5	1130	< 1 U1	< 1 U1	1	< 5 U1	9.96	1	< 5 U1	0.073	< 0.025 U1	23	< 5 U1	< 2 U1
4/24/2017	Background	2.09 J1	2.08 J1	760	0.04 J1	< 0.07 U1	0.24 J1	0.87 J1	8.98	2.82	< 0.68 U1	0.05305	< 0.005 U1	24.67	2.04 J1	< 0.86 U1
5/18/2017	Background	8.71	9.02	3130	0.26 J1	0.18 J1	2.87	2.77 J1	26.48	3	2.02 J1	0.111	0.006 J1	11.63	6.16	< 0.86 U1
6/15/2017	Background	11.34	5.5	1710	0.18 J1	< 0.07 U1	2.04	2.51 J1	22.16	2.96	< 0.68 U1	0.103	0.005 J1	29.57	37.83	< 0.86 U1
6/27/2017	Background	5.15	1.4 J1	1560	0.06 J1	< 0.07 U1	1.29	1.82 J1	--	2.8408	< 0.68 U1	0.09272	< 0.005 U1	29.62	22.41	< 0.86 U1
7/12/2017	Background	4.74 J1	2.51 J1	1540	0.07 J1	< 0.07 U1	0.59 J1	1.23 J1	--	3.581	1.41 J1	0.0961	< 0.005 U1	33.32	23.23	< 0.86 U1
8/04/2017	Background	3.51 J1	2.54 J1	1010	0.09 J1	0.07 J1	1.07	1.08 J1	16.34	2.788	< 0.68 U1	0.09164	0.014 J1	39.4	23.36	< 0.86 U1
8/30/2017	Background	2.95 J1	1.25 J1	1120	0.12 J1	< 0.07 U1	< 0.23 U1	0.8 J1	14.48	4.0998	< 0.68 U1	0.0931	< 0.005 U1	33.86	11.86	< 0.86 U1
9/13/2017	Background	2.67 J1	1.83 J1	992	0.11 J1	< 0.07 U1	< 0.23 U1	0.87 J1	14.89	3.196	< 0.68 U1	0.09207	0.006 J1	37.61	9.87	< 0.86 U1
9/20/2017	Background	2.64 J1	3.05 J1	1150	0.2 J1	0.09 J1	3.46	2.55 J1	--	1.726	0.91 J1	0.09111	< 0.005 U1	39.39	9.87	< 0.86 U1
5/30/2018	Assessment	1.3 J1	< 1.05 U1	869	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.55 J1	7.85	3.4972	< 0.68 U1	0.04039	< 0.005 U1	26.46	2.16 J1	< 0.86 U1
7/30/2018	Assessment	1.21	1.42	656	0.05 J1	0.08 J1	< 40 U1	0.400	9.61	2.6556	0.245	0.0346	< 0.005 U1	26.1	2.9	0.06 J1
2/27/2019	Assessment	1.39	1.29	841	< 0.2 U1	< 0.1 U1	4.30	< 0.2 U1	5.76	2.68	0.3 J1	0.0329	< 0.005 U1	25.8	3.7	< 1 U1
6/20/2019	Assessment	1.34	1.43	868	0.1 J1	0.09 J1	0.9 J1	0.434	7.94	2.69	0.4 J1	0.062	< 0.005 U1	25.0	2.9	< 0.5 U1
8/26/2019	Assessment	1.22	1.53	1220	0.07 J1	0.05	0.701	0.568	8.72	2.685	0.334	0.0582	< 0.005 U1	22.3	3.7	0.1 J1
3/25/2020	Assessment	1.14	1.68	1060	0.07 J1	0.13	0.806	0.361	9.73	2.73	0.694	0.0352	< 0.002 U1	20.3	2.4	< 0.1 U1
6/30/2020	Assessment	1.26	1.28	1140	0.109	0.05	0.573	0.733	7.84	2.64	0.263	0.0585	< 0.002 U1	19.7	6.2	< 0.1 U1
10/20/2020	Assessment	1.22	1.08	1110	0.07 J1	0.04 J1	0.398	0.433	12.96	2.98	0.1 J1	0.0517	< 0.002 U1	20.1	4.4	< 0.1 U1
3/03/2021	Assessment	1.09	1.07	1050	0.09 J1	0.06	0.700	0.323	11.81	3.00	0.253	0.0523	< 0.002 U1	17.1	3.5	< 0.1 U1
4/12/2021	Assessment	0.84	1.53	1790	0.112	0.04 J1	0.559	1.10	7.87	3.19	0.211	0.0862	< 0.002 U1	14.6	1.1	0.05 J1
12/28/2021	Assessment	0.97	1.08	1210	0.055	0.044	0.52	0.312	12.05	2.73	0.16 J1	0.0327	< 0.002 U1	13.8	2.08	< 0.04 U1
6/14/2022	Assessment	1.51	1.11	1070	0.1 J1	0.063	1.05	0.791	10.83	3.08	0.17 J1	0.084	< 0.002 U1	26.5	9.56	0.07 J1
11/08/2022	Assessment	1.17	1.21	872	0.048 J1	0.328	2.12	0.186	6.75	2.7	0.33	0.0308	< 0.002 U1	22.1	2.36	< 0.04 U1
6/20/2023	Assessment	0.957	1.11	989	0.077	0.076	0.51	0.326	12.46	--	0.17 J1	0.0326	< 0.002 U1	14.8	2.28	0.03 J1
6/29/2023	Assessment	--	--	--	--	--	--	--	--	3.02	--	--	--	--	--	--
10/10/2023	Assessment	1.06	0.82	1270	0.086	0.047	0.62	0.322	8.06	2.79	0.15 J1	0.0809	< 0.002 U1	15.9	3.63	0.05 J1
4/16/2024	Assessment	0.318	1.40	1690	0.131	0.034	0.41	1.71	3.83	2.74	0.12 J1	0.0784	< 0.002 U1	11.5	0.37 J1	0.05 J1
10/22/2024	Assessment	0.963	1.33	698	0.121	0.072	1.02	0.383	9.30	2.68	0.53	0.0294	< 0.002 U1	15.8	2.07	0.03 J1
6/18/2025	Assessment	0.855	1.36	1090	0.075	0.050	0.66	0.676	6.89	3.11	0.23	0.0416	< 0.002 U1	13.0	1.78	0.03 J1
10/27/2025	Assessment	0.8	1.5	1120	0.1 J1	0.05 J1	0.8 J1	0.71	5.67	3.23	0.6 J1	0.0474	< 0.002 U1	11.0	2.7	0.1 J1

Table 1. Groundwater Data Summary: SP-4
Northeastern - BAP
Appendix A Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
1/25/2017	Background	0.406	57.7	401	3	7.7	37	1122
3/15/2017	Background	0.399	67	52	4	--	38	1128
4/25/2017	Background	0.442	58.8	459	3.2	7.0	41	1128
5/18/2017	Background	0.411	296	232	2.1	--	50	846
6/15/2017	Background	0.395	118	475	3.34	8.3	36	1164
6/27/2017	Background	0.388	110	471	3.2489	8.1	37	1388
7/12/2017	Background	0.42	648	489	3.863	8.1	36	1128
8/04/2017	Background	0.412	1920	469	3.078	7.7	50	1150
8/17/2017	Background	0.493	793	460	3.049	7.8	75	1132
8/30/2017	Background	0.392	612	576	4.086	7.6	74	1400
9/13/2017	Background	0.387	810	450	3.199	7.7	88	1236
9/20/2017	Background	0.477	630	440	1.747	7.2	90	1208
10/11/2017	Detection	0.425	206	431	3.7702	7.4	78	1200
5/30/2018	Assessment	--	--	--	4.169	7.4	--	--
7/30/2018	Assessment	0.399	164	521	< 0.083 U1	7.6	70	1180
2/27/2019	Assessment	0.370	85.6	470	3.26	7.4	61.5	1122
6/20/2019	Assessment	0.325	56.4	450	3.24	7.1	58.0	1128
8/26/2019	Assessment	0.365	182	458	2.99	8.8	61	1170
3/25/2020	Assessment	0.340	59.6	476	3.29	9.1	68.6	1130
6/30/2020	Assessment	0.338	80.5	531	3.16	9.0	70.2	1160
10/21/2020	Assessment	0.333	63.9	441	3.24	8.9	70.4	1150
3/03/2021	Assessment	0.347	58.7	--	3.50	7.8	--	--
4/12/2021	Assessment	0.393	70.8	495	3.49	7.7	68.1	1160
12/28/2021	Assessment	0.342	88.7	458	3.24	7.4	79.6	1100
6/14/2022	Assessment	0.367	70.2	452	3.25	7.8	80.4	1160 L1
11/08/2022	Assessment	0.354	97.6	447	3.23	7.4	81.9	1150
6/20/2023	Assessment	0.323	82.1	468	3.29	7.5	83.0	1170
10/10/2023	Assessment	0.339	90.9	450	3.19	7.6	81.4	1160
4/16/2024	Assessment	0.337	108 M1	450	3.22	7.6	81.0	1270
10/22/2024	Assessment	0.346	98	448	3.22	7.9	79.4	1120
6/18/2025	Assessment	0.356	87.3	439	2.9	7.5	79	1190
10/28/2025	Assessment	0.38	105	432	3.43	8.0	92.9	1120

Table 1. Groundwater Data Summary: SP-4
Northeastern - BAP
Appendix B Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
1/25/2017	Background	< 5 U1	< 5 U1	398	< 1 U1	< 1 U1	< 1 U1	< 5 U1	4.00	3	< 5 U1	0.072	< 0.025 U1	< 5 U1	< 5 U1	< 2 U1
3/15/2017	Background	< 5 U1	< 5 U1	477	< 1 U1	< 1 U1	< 1 U1	< 5 U1	3.57	4	< 5 U1	0.073	< 0.025 U1	< 5 U1	< 5 U1	< 2 U1
4/25/2017	Background	1.36 J1	1.72 J1	578	0.03 J1	0.1 J1	0.64 J1	1.01 J1	2.566	3.2	< 0.68 U1	0.06973	< 0.005 U1	1.5 J1	< 0.99 U1	1.21 J1
5/18/2017	Background	2.04 J1	5.5	762	0.56 J1	0.57 J1	10.73	5.49	6.37	2.1	3.65 J1	0.07998	0.015 J1	1.02 J1	< 0.99 U1	< 0.86 U1
6/15/2017	Background	1.74 J1	4.59 J1	633	0.34 J1	< 0.07 U1	4.04	4.63 J1	4.18	3.34	1.39 J1	0.07422	< 0.005 U1	0.65 J1	1.67 J1	< 0.86 U1
6/27/2017	Background	< 0.93 U1	2.01 J1	576	0.24 J1	< 0.07 U1	2.98	5.29	9.64	3.2489	0.96 J1	0.07041	< 0.005 U1	0.46 J1	< 0.99 U1	< 0.86 U1
7/12/2017	Background	2.66 J1	10.65	1340	1.28	1.37	22.48	10.64	5.79	3.863	8.47	0.09243	0.01 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
8/04/2017	Background	3.87 J1	44.98	4590	4.97	6.55	84.15	40.69	4.04	3.078	36.63	0.136	0.058	5.03	4.99 J1	< 0.86 U1
8/17/2017	Background	< 0.93 U1	19.31	2310	2.12	2.05	41.82	17.86	6.71	3.049	10.7	0.111	0.03	4.23 J1	1.04 J1	< 0.86 U1
8/30/2017	Background	2.45 J1	9.13	1490	1.26	1.66	25.81	12.06	8.09	4.086	7.11	0.0962	0.021 J1	4.61 J1	1.86 J1	< 0.86 U1
9/13/2017	Background	< 0.93 U1	16.34	1910	1.71	2.47	30.83	17.71	5.92	3.199	8.92	0.104	0.029	6.21	1.65 J1	< 0.86 U1
9/20/2017	Background	2.3 J1	13.95	1930	1.77	1.9	34.55	16.32	--	1.747	9.6	0.101	0.014 J1	7.02	< 0.99 U1	< 0.86 U1
5/30/2018	Assessment	5.14	< 1.05 U1	268	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.49 J1	3.186	4.169	< 0.68 U1	0.06851	< 0.005 U1	3.7 J1	< 0.99 U1	1.62 J1
7/30/2018	Assessment	0.37	1.14	303	0.078	0.07	0.562	0.497	4.85	< 0.083 U1	0.356	0.0627	0.006 J1	3.63	0.7	0.05 J1
2/27/2019	Assessment	0.3 J1	1 J1	276	< 0.2 U1	< 0.1 U1	5.71	< 0.2 U1	3.144	3.26	< 0.2 U1	0.0602	< 0.005 U1	< 4 U1	0.6 J1	< 1 U1
6/20/2019	Assessment	0.3 J1	0.83	337	< 0.1 U1	0.07 J1	1.06	0.388	3.751	3.24	1.07	0.068	0.007 J1	2 J1	0.4 J1	< 0.5 U1
8/26/2019	Assessment	0.25	1.64	359	0.101	0.05	1.01	1.07	3.24	2.99	0.596	0.0554	< 0.005 U1	2 J1	0.6	< 0.1 U1
3/25/2020	Assessment	0.28	0.83	327	0.04 J1	0.04 J1	0.332	0.166	4.28	3.29	0.2 J1	0.0535	< 0.002 U1	4.07	0.7	< 0.1 U1
6/30/2020	Assessment	0.32	1.52	334	0.118	0.04 J1	1.09	1.28	4.16	3.16	0.527	0.0564	< 0.002 U1	3.57	0.7	< 0.1 U1
10/21/2020	Assessment	0.29	1.03	322	0.06 J1	0.07	0.523	0.508	3.42	3.24	0.359	0.0559	< 0.002 U1	3.24	0.7	< 0.1 U1
3/03/2021	Assessment	0.27	0.99	367	0.04 J1	0.06	0.449	0.207	5.49	3.50	1.17	0.0594	< 0.002 U1	3.60	0.6	< 0.1 U1
4/12/2021	Assessment	0.22	1.41	435	0.09 J1	0.04 J1	1.03	0.921	4.09	3.49	0.392	0.0613	< 0.002 U1	2.94	0.4 J1	< 0.04 U1
12/28/2021	Assessment	0.26	0.76	304	0.033 J1	0.035	0.47	0.240	4.48	3.24	0.14 J1	0.0529	< 0.002 U1	3.0	0.48 J1	< 0.04 U1
6/14/2022	Assessment	0.21	0.80	246	0.04 J1	0.024	0.56	0.159	3.56	3.25	0.10 J1	0.0571	< 0.002 U1	3.7	0.38 J1	< 0.04 U1
11/08/2022	Assessment	0.23	0.92	214	0.053	0.059	1.19	0.345	6.29	3.23	0.38	0.0579	< 0.002 U1	3.5	0.39 J1	< 0.04 U1
6/20/2023	Assessment	0.192	1.26	204	0.074	0.044	0.61	0.470	7.96	3.29	0.21	0.0507	< 0.002 U1	2.8	0.41 J1	0.02 J1
10/10/2023	Assessment	0.249	0.84	232	0.036 J1	0.057	0.59	0.218	3.23	3.19	0.38	0.0554	< 0.002 U1	3.3	0.30 J1	0.02 J1
4/16/2024	Assessment	0.169	0.70	190	0.033 J1	0.019 J1	0.27 J1	0.123	3.49	3.22	0.10 J1	0.0527	< 0.002 H2, Q5, Q1, U1	3.2	0.38 J1	< 0.02 U1
10/22/2024	Assessment	0.147	0.70	190	0.038 J1	0.021	0.45	0.146	3.67	3.22	0.09 J1	0.054	< 0.002 U1	2.5	0.28 J1	0.03 J1
6/18/2025	Assessment	0.166	0.80	210	0.057	0.026	0.56	0.369	3.29	2.9	0.17 J1	0.0544	< 0.002 U1	2.4	0.30 J1	0.02 J1
10/28/2025	Assessment	0.3 J1	1.6	205	0.2 J1	0.06 J1	1.1 J1	0.75	3.13	3.43	0.7 J1	0.0585	< 0.002 U1	2.9	0.9 J1	0.1 J1

Table 1. Groundwater Data Summary: SP-5R
Northeastern - BAP
Appendix A Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
1/25/2017	Background	0.233	52.4	500	3	8.0	10	1354
3/15/2017	Background	0.236	61.7	62	4	--	10	1420
4/25/2017	Background	0.245	53.8	674	3.06	7.5	9	1436
5/18/2017	Background	0.319	79.1	1834	4	--	8	3008
6/15/2017	Background	0.231	57.1	607	3	8.3	7	1368
6/27/2017	Background	0.224	53	636	2.835	8.2	8	1156
7/12/2017	Background	0.261	53.8	640	3.156	8.2	7	1388
8/04/2017	Background	0.256	61.3	638	2.889	7.9	8	1372
8/17/2017	Background	0.293	52	661	3.258	8.2	6	1378
8/30/2017	Background	0.252	57.3	652	3.5698	7.7	7	1424
9/13/2017	Background	0.232	55.6	644	2.797	8.4	6	1452
9/20/2017	Background	0.257	53.7	729	1.535	7.4	6	1312
10/11/2017	Detection	0.61	71	630	3.7844	7.5	5	1368
5/30/2018	Assessment	--	--	--	4.1115	7.6	--	--
7/30/2018	Assessment	0.246	131	793	4.3905	8.0	4	1480
2/27/2019	Assessment	0.233	72.8	739	3.08	7.7	1.6	1530
6/20/2019	Assessment	0.202	48.5	675	3.06	7.3	0.9 J1	1428
8/26/2019	Assessment	0.220	128	697	2.789	8.8	3	1450
3/25/2020	Assessment	0.214	49.2	790	3.13	8.8	0.8 J1	1580
6/30/2020	Assessment	0.211	64.9	840	2.99	9.0	5.1	1560
10/21/2020	Assessment	0.188	50.4	584	3.03	8.8	5.0	1320
3/03/2021	Assessment	0.188	52.4	--	3.18	7.6	--	--
4/12/2021	Assessment	0.215	54.6	725	3.20	7.9	7.0	1420
12/27/2021	Assessment	0.190	71.7	660	3.09	7.4	6.1	1370
6/14/2022	Assessment	0.209	52.5	675	3.09	7.7	4.7	1410 L1
11/07/2022	Assessment	0.256	90.2	1010	3.28	7.4	2.8	1940
6/20/2023	Assessment	0.191	94.5	782	3.09	7.5	3.8	1580
10/10/2023	Assessment	0.228	107	964	3.21	7.3	2.6	1830
4/16/2024	Assessment	0.189	90.5	690	3.04	7.5	4.4	1430
10/22/2024	Assessment	0.201	82	721	3.06	7.8	2.3	1430
6/18/2025	Assessment	0.226	73.8	797	3.31	7.7	2.8	1590
10/28/2025	Assessment	0.23 J1	85.6	739	3.36	8.1	2.0	1460

Table 1. Groundwater Data Summary: SP-5R
Northeastern - BAP
Appendix B 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
1/25/2017	Background	< 5 U1	12	1650	< 1 U1	< 1 U1	< 1 U1	< 5 U1	10.09	3	< 5 U1	0.114	< 0.025 U1	< 5 U1	< 5 U1	< 2 U1
3/15/2017	Background	< 5 U1	13	1590	< 1 U1	< 1 U1	1	< 5 U1	9.65	4	< 5 U1	0.112	< 0.025 U1	< 5 U1	< 5 U1	< 2 U1
4/25/2017	Background	< 0.93 U1	17.03	1610	0.03 J1	< 0.07 U1	0.33 J1	0.88 J1	10.27	3.06	< 0.68 U1	0.112	0.016 J1	1.16 J1	< 0.99 U1	< 0.86 U1
5/18/2017	Background	< 0.93 U1	29.42	2270	0.23 J1	< 0.07 U1	3.41	2.32 J1	15.30	4	2.36 J1	0.163	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
6/15/2017	Background	2.02 J1	13.7	2050	0.11 J1	< 0.07 U1	1.42	1.44 J1	10.27	3	< 0.68 U1	0.109	0.016 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
6/27/2017	Background	< 0.93 U1	12.65	1790	0.02 J1	< 0.07 U1	0.3 J1	1.01 J1	15.84	2.835	0.76 J1	0.1	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
7/12/2017	Background	< 0.93 U1	17.24	1880	0.06 J1	< 0.07 U1	0.5 J1	1.1 J1	12.21	3.156	0.9 J1	0.111	< 0.005 U1	< 0.29 U1	1.14 J1	< 0.86 U1
8/04/2017	Background	< 0.93 U1	21.6	1800	0.09 J1	< 0.07 U1	1.69	1.32 J1	11.60	2.889	1.44 J1	0.119	0.015 J1	1.27 J1	< 0.99 U1	< 0.86 U1
8/17/2017	Background	1.63 J1	19.11	1890	0.04 J1	< 0.07 U1	< 0.23 U1	1 J1	10.95	3.258	< 0.68 U1	0.106	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
8/30/2017	Background	< 0.93 U1	19.47	1930	0.11 J1	< 0.07 U1	1.16	1.2 J1	12.47	3.5698	< 0.68 U1	0.112	0.009 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
9/13/2017	Background	< 0.93 U1	20.36	1930	0.1 J1	0.16 J1	0.62 J1	1 J1	10.62	2.797	< 0.68 U1	0.11	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
9/20/2017	Background	< 0.93 U1	20.77	1880	0.05 J1	< 0.07 U1	< 0.23 U1	0.97 J1	10.50	1.535	1.06 J1	0.111	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
5/30/2018	Assessment	1.21 J1	28.86	1760	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.88 J1	9.15	4.1115	< 0.68 U1	0.102	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
7/30/2018	Assessment	0.05 J1	47.3	2140	0.052	0.02 J1	0.082	0.482	11.28	4.3905	0.415	0.0946	< 0.005 U1	1.17	0.1	0.02 J1
2/27/2019	Assessment	< 0.2 U1	25.7	2130	< 0.2 U1	< 0.1 U1	2 J1	0.3 J1	6.702	3.08	0.7 J1	0.102	< 0.005 U1	< 4 U1	< 0.3 U1	< 1 U1
6/20/2019	Assessment	< 0.1 U1	59.9	2410	< 0.1 U1	< 0.05 U1	0.8 J1	0.598	12.977	3.06	0.701	0.111	0.008 J1	< 2 U1	< 0.2 U1	< 0.5 U1
8/26/2019	Assessment	0.06 J1	49.3	2340	0.06 J1	0.02 J1	0.335	0.485	11.56	2.789	0.545	0.0928	< 0.005 U1	1 J1	0.1 J1	< 0.1 U1
3/25/2020	Assessment	0.05 J1	26.2	2600	0.04 J1	0.02 J1	0.346	0.296	12.09	3.13	0.371	0.0911	< 0.002 U1	1 J1	0.1 J1	< 0.1 U1
6/30/2020	Assessment	0.13	27.0	2520	0.151	0.04 J1	1.51	0.774	14.34	2.99	1.65	0.0913	< 0.002 U1	1 J1	0.5	< 0.1 U1
10/21/2020	Assessment	0.10	10.9	2070	0.05 J1	< 0.01 U1	0.320	0.378	6.502	3.03	0.373	0.0792	< 0.002 U1	0.8 J1	0.2 J1	< 0.1 U1
3/03/2021	Assessment	0.16	6.56	1840	0.05 J1	0.27	0.496	0.391	13.31	3.18	0.793	0.0856	< 0.002 U1	0.7 J1	0.1 J1	< 0.1 U1
4/12/2021	Assessment	0.09 J1	7.12	2180	0.05 J1	0.01 J1	0.415	0.378	14.10	3.20	0.325	0.0894	< 0.002 U1	1 J1	0.1 J1	< 0.04 U1
12/27/2021	Assessment	0.09 J1	10.0	1840	0.031 J1	0.029	0.26	0.257	13.16	3.09	0.18 J1	0.0766	< 0.002 U1	0.9	< 0.09 U1	< 0.04 U1
6/14/2022	Assessment	0.19	20.3	2010	0.07 J1	0.200	0.47	0.699	11.26	3.09	0.66	0.0896	< 0.002 U1	0.9	0.1 J1	< 0.04 U1
11/07/2022	Assessment	0.16	14.2	2070	0.066	0.108	0.75	0.511	9.37	3.28	4.34	0.120	< 0.002 U1	0.8	0.11 J1	< 0.04 U1
6/20/2023	Assessment	0.230	9.09	2120	0.276	0.074	2.73	1.18	16.19	3.09	2.11	0.0822	< 0.002 U1	0.8	0.91	0.05 J1
10/10/2023	Assessment	0.195	15.8	2770	0.201	0.076	2.64	1.03	24.78	3.21	2.52	0.123	< 0.002 U1	0.7	0.94	0.04 J1
4/16/2024	Assessment	0.131	6.69	1970	0.061	0.038	0.45	0.321	8.39	3.04	0.66	0.0856	< 0.002 U1	0.7	0.13 J1	< 0.02 U1
10/22/2024	Assessment	0.117	16.1	2080	0.108	0.038	0.77	0.841	12.38	3.06	1.05	0.086	< 0.002 U1	0.7	0.20 J1	< 0.02 U1
6/18/2025	Assessment	0.102	14.7	2240	0.059	0.022	0.57	1.56	12.27	3.31	0.91	0.0922	< 0.002 U1	0.7	0.05 J1	< 0.02 U1
10/28/2025	Assessment	0.1 J1	20.7	2200	< 0.1 U1	< 0.02 U1	1.0 J1	0.61	11.39	3.36	1.7	0.0962	< 0.002 U1	0.7 J1	0.2 J1	< 0.1 U1

Table 1. Groundwater Data Summary: SP-10
Northeastern - BAP
Appendix A Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
7/12/2017	Background	0.965	53	1844	6.502	6.7	294	3416
8/04/2017	Background	1.08	83.1	1616	< 0.083 U1	7.6	761	5142
8/17/2017	Background	1.09	91.4	1700	< 0.083 U1	7.8	915	5678
8/30/2017	Background	1.09	81.8	1932	10.2663	7.6	834	5264
9/13/2017	Background	1.1	76.9	1592	7.028	8.3	738	5168
9/20/2017	Background	1.08	64.6	1946	< 0.083 U1	7.1	544	4424
9/27/2017	Background	1.07	65.7	1784	5	7.8	419	4516
10/04/2017	Background	1.1	52.3	1553	5.11	7.4	286	3660
10/11/2017	Detection	1.03	58.4	1934	7.3938	7.0	188	4060
1/22/2018	Detection	1.08	--	1630	5.71	7.0	63.1	3236
5/30/2018	Assessment	--	--	--	7.333	7.8	--	--
7/30/2018	Assessment	1.17	227	2283	8.9991	7.6	75	3632
2/04/2019	Assessment	1.17	144	--	--	--	--	--
2/27/2019	Assessment	1.16	92.6	1740	5.59	7.8	6.9	3504
6/20/2019	Assessment	0.916	50.3	1780	6.40	7.8	30.3	3512
8/26/2019	Assessment	1.03	216	1939	4.874	8.9	29	3446
3/25/2020	Assessment	1.04	44.2	2000	6.45	8.2	12.6	3560
6/30/2020	Assessment	0.944	52.1	2010	6.29	8.9	25.5	3550
7/28/2020	Assessment	0.914	--	1960	6.63	8.3	--	3440
10/20/2020	Assessment	0.955	39.9	1830	6.55	9.1	9.6	3540
3/03/2021	Assessment	0.853	40.4	--	7.12	7.7	--	--
4/12/2021	Assessment	1.03	43.8	2000	6.84	8.1	15.4	3540
12/27/2021	Assessment	0.868	76.6	1890	6.7	7.6	10.4	3440
6/14/2022	Assessment	1.04	56.1	1810	6.3	7.7	16.3	3600 L1
11/08/2022	Assessment	0.967	109	1820	6.8	7.4	16.7	3330
6/20/2023	Assessment	0.916	83.0	1960	6.3	7.5	19.7	3500
10/10/2023	Assessment	0.879	93.0	1820	6.3	7.7	19.2	3460
4/16/2024	Assessment	0.892	110	1950	6.4	7.7	18.2	3510
10/22/2024	Assessment	1.06	125	1920	6.7	7.9	15.9	3490
6/18/2025	Assessment	0.965	82.5	1750	6.8	7.8	14.3	3480
10/27/2025	Assessment	1.01	137	1860	7.1	7.9	19.0	3440

Table 1. Groundwater Data Summary: SP-10
Northeastern - BAP
Appendix B 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
7/12/2017	Background	4.62 J1	< 1.05 U1	1900	< 0.02 U1	< 0.07 U1	110	5.96	17.23	6.502	< 0.68 U1	0.278	0.006 J1	934	5.67	< 0.86 U1
8/04/2017	Background	2.51 J1	2.43 J1	330	0.03 J1	< 0.07 U1	2.44	4.74 J1	1.153	< 0.083 U1	< 0.68 U1	0.284	0.029	129	8.82	< 0.86 U1
8/17/2017	Background	< 0.93 U1	< 1.05 U1	282	< 0.02 U1	< 0.07 U1	< 0.23 U1	< 0.14 U1	0.995	< 0.083 U1	< 0.68 U1	0.317	0.027	45.43	< 0.99 U1	< 0.86 U1
8/30/2017	Background	< 0.93 U1	5.66	279	0.06 J1	< 0.07 U1	1.09	4.27 J1	0.763	10.2663	< 0.68 U1	0.306	0.019 J1	30.35	2.56 J1	< 0.86 U1
9/13/2017	Background	< 0.93 U1	9.42	266	0.07 J1	< 0.07 U1	0.46 J1	2.41 J1	0.774	7.028	< 0.68 U1	0.315	0.013 J1	16.28	3.11 J1	< 0.86 U1
9/20/2017	Background	1.16 J1	13.92	399	0.03 J1	< 0.07 U1	0.72 J1	2.19 J1	1.062	< 0.083 U1	< 0.68 U1	0.292	0.016 J1	13.58	2.38 J1	< 0.86 U1
9/27/2017	Background	1.57 J1	15.31	928	0.04 J1	< 0.07 U1	2.07	3.71 J1	1.723	5	< 0.68 U1	0.329	0.013 J1	35.93	3.84 J1	< 0.86 U1
10/04/2017	Background	1.27 J1	4.3 J1	664	0.03 J1	< 0.07 U1	0.36 J1	4.02 J1	3.226	5.11	0.87 J1	0.279	0.015 J1	29.19	< 0.99 U1	< 0.86 U1
5/30/2018	Assessment	< 0.93 U1	8.9	2550	< 0.02 U1	< 0.07 U1	< 0.23 U1	0.83 J1	6.06	7.333	< 0.68 U1	0.245	< 0.005 U1	2.94 J1	2.26 J1	< 0.86 U1
7/30/2018	Assessment	0.34	7.61	2330	0.043	0.02 J1	0.06 J1	2.16	7.89	8.9991	0.102	0.242	0.006 J1	18.5	0.09 J1	0.04 J1
2/27/2019	Assessment	2 J1	3.48	5810	< 0.4 U1	< 0.2 U1	1 J1	< 0.4 U1	15.35	5.59	< 0.4 U1	0.275	< 0.005 U1	< 8 U1	< 0.6 U1	< 2 U1
6/20/2019	Assessment	0.65	3.66	3880	< 0.1 U1	< 0.05 U1	8.76	0.743	26.4	6.40	0.3 J1	0.290	0.01 J1	9 J1	< 0.2 U1	< 0.5 U1
8/26/2019	Assessment	0.61	3.00	3060	0.08 J1	0.03 J1	1.61	1.06	8.11	4.874	0.449	0.241	< 0.005 U1	8.22	0.4	< 0.1 U1
3/25/2020	Assessment	0.17	0.61	6670	< 0.02 U1	0.03 J1	0.383	0.522	26.79	6.45	0.08 J1	0.214	< 0.002 U1	7.39	0.1 J1	< 0.1 U1
6/30/2020	Assessment	0.21	1.40	3960	0.03 J1	0.01 J1	0.204	0.724	8.33	6.29	0.07 J1	0.226	< 0.002 U1	4.81	0.08 J1	< 0.1 U1
7/28/2020	Assessment	--	--	--	--	--	--	--	--	6.63	--	--	--	--	--	--
10/20/2020	Assessment	0.08 J1	0.42	6800	0.03 J1	0.01 J1	0.2 J1	0.103	13.9507	6.55	0.1 J1	0.209	< 0.002 U1	0.6 J1	0.09 J1	< 0.1 U1
3/03/2021	Assessment	0.08 J1	0.36	5530	0.02 J1	0.03 J1	0.409	0.199	18.84	7.12	0.230	0.218	< 0.002 U1	1 J1	0.08 J1	< 0.1 U1
4/12/2021	Assessment	0.12	1.14	6360	0.03 J1	0.01 J1	0.277	0.218	20.36	6.84	0.1 J1	0.221	< 0.002 U1	5.01	< 0.09 U1	< 0.04 U1
12/27/2021	Assessment	0.08 J1	0.34	6980	0.019 J1	0.021	0.19 J1	0.044	17.31	6.7	0.05 J1	0.198	< 0.002 U1	0.4 J1	< 0.09 U1	< 0.04 U1
6/14/2022	Assessment	0.03 J1	0.19	7590	< 0.4 U1	0.033	0.57	0.216	20.11	6.3	0.19 J1	0.289	< 0.002 U1	0.5	< 0.09 U1	< 0.04 U1
11/08/2022	Assessment	0.05 J1	0.61	5050	0.036 J1	0.017 J1	0.47	0.061	19.09	6.8	0.06 J1	0.242	< 0.002 U1	0.3 J1	< 0.09 U1	< 0.04 U1
6/20/2023	Assessment	0.083 J1	0.29	5180	0.027 J1	0.009 J1	0.45	0.146	18.07	6.3	0.09 J1	0.206	< 0.002 U1	0.7	< 0.04 U1	< 0.02 U1
10/10/2023	Assessment	0.062 J1	0.65	6010	0.035 J1	0.007 J1	0.36	0.039	21.79	6.3	0.08 J1	0.235	< 0.002 U1	0.2 J1	0.06 J1	< 0.02 U1
4/16/2024	Assessment	0.076 J1	0.14	5940	0.020 J1	0.009 J1	0.26 J1	0.101	22.35	6.4	0.12 J1	0.247	< 0.002 U1	0.9	0.05 J1	< 0.02 U1
10/22/2024	Assessment	0.034 J1	0.12	6270	0.121	0.014 J1	0.46	0.079	20.13	6.7	0.12 J1	0.228	< 0.002 U1	0.3 J1	0.06 J1	< 0.02 U1
6/18/2025	Assessment	0.034 J1	0.16	6090	0.035 J1	0.005 J1	0.33	0.035	21.22	6.8	< 0.05 U1	0.184	< 0.002 U1	0.3 J1	< 0.04 U1	< 0.02 U1
10/27/2025	Assessment	< 0.2 U1	< 0.3 U1	6620	< 0.2 U1	< 0.04 U1	< 0.7 U1	< 0.1 U1	19.70	7.1	0.6 J1	0.225	< 0.002 U1	< 0.5 U1	< 0.4 U1	< 0.2 U1

Table 1. Groundwater Data Summary: SP-11
Northeastern - BAP
Appendix A Constituents

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	S.U.	mg/L	mg/L
7/12/2017	Background	0.839	742	568	2.386	7.4	798	2880
8/04/2017	Background	0.543	272	567	3.355	7.9	870	3076
8/17/2017	Background	0.453	171	789	4.52	6.9	741	3308
8/30/2017	Background	0.428	161	683	4.1325	7.6	541	2732
9/13/2017	Background	0.447	190	628	3.359	7.2	515	2420
9/20/2017	Background	0.469	1220	690	2.016	7.2	329	2336
9/27/2017	Background	0.447	1170	759	3.00	7.2	332	2428
10/04/2017	Background	0.531	1110	744	2.90	7.5	305	2288
10/11/2017	Detection	0.446	479	824	4.4661	7.0	223	2322
1/22/2018	Detection	--	--	470	2.96	6.9	222	1544
5/30/2018	Assessment	--	--	--	3.574	7.5	--	--
7/30/2018	Assessment	0.280	124	234	3.7832	7.7	79	996
2/27/2019	Assessment	0.375	49.6	241	3.44	7.7	95.1	1168
6/20/2019	Assessment	0.550	65.6	137	1.67	6.8	203	1000
8/26/2019	Assessment	0.304	139	129	2.225	8.9	122	970
3/25/2020	Assessment	0.428	40.5	187	2.66	9.0	108	1060
6/30/2020	Assessment	0.545	57.3	140	1.77	8.9	188	927
7/28/2020	Assessment	0.301	--	--	--	8.6	158	--
10/20/2020	Assessment	0.220	43.8	98.1	3.05	9.2	35.6	764
3/03/2021	Assessment	0.371	39.0	--	2.88	7.7	--	--
4/12/2021	Assessment	0.562	79.6	130	1.66	7.8	232	918
12/27/2021	Assessment	0.459	77.6	78.9	1.76	7.5	193	840
6/14/2022	Assessment	0.627	113	60.0	1.10	7.3	402	1020 L1
11/08/2022	Assessment	0.510	113	97.3	1.3	7.2	356	1060
6/20/2023	Assessment	0.543	86.7	99.3	1.43	7.2	358	1070
10/10/2023	Assessment	0.354	79.1	79.4	2.28	7.2	184	880
4/16/2024	Assessment	0.454	86.8	103	1.73	7.6	236	910
10/22/2024	Assessment	0.419	104	80.6	1.88	7.4	204	870
6/18/2025	Assessment	0.549	78.5	106	1.7	7.6	231	960
10/27/2025	Assessment	0.25	71.6	73.5	2.87	7.9	53.6	660

Table 1. Groundwater Data Summary: SP-11
Northeastern - BAP
Appendix B Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L
7/12/2017	Background	9.43	3.99 J1	194	0.22 J1	1.4	18.52	9.76	--	2.386	5.16	0.04698	0.009 J1	61.27	5.95	< 0.86 U1
8/04/2017	Background	4.7 J1	1.82 J1	98.74	0.07 J1	0.44 J1	5.25	6.52	25.367	3.355	2.01 J1	0.0877	0.023 J1	66.41	6.26	< 0.86 U1
8/17/2017	Background	< 0.93 U1	< 1.05 U1	83.42	< 0.02 U1	< 0.07 U1	< 0.23 U1	< 0.14 U1	0.947	4.52	< 0.68 U1	0.08931	0.007 J1	51.5	< 0.99 U1	< 0.86 U1
8/30/2017	Background	4.29 J1	1.2 J1	93.07	0.07 J1	0.34 J1	2.76	3.85 J1	0.438	4.1325	1.23 J1	0.08933	0.008 J1	44.33	2.49 J1	< 0.86 U1
9/13/2017	Background	2.4 J1	3.66 J1	108	0.08 J1	0.09 J1	2.57	3.21 J1	2.685	3.359	< 0.68 U1	0.105	0.009 J1	36.16	1.55 J1	< 0.86 U1
9/20/2017	Background	7.73	12.14	240	0.39 J1	2.7	31.3	14.62	4.20	2.016	8.16	0.13	0.027	46.9	5.46	< 0.86 U1
9/27/2017	Background	6.89	7.5	269	0.39 J1	3.01	32.71	14.37	--	3.00	8.58	0.129	0.048	48.61	7.47	< 0.86 U1
10/04/2017	Background	4.44 J1	8.47	347	0.35 J1	2.49	29.49	11.99	2.817	2.90	7.05	0.146	0.047	42.14	3.27 J1	< 0.86 U1
5/30/2018	Assessment	< 0.93 U1	5.3	160	< 0.02 U1	< 0.07 U1	0.34 J1	1.61 J1	1.334	3.574	< 0.68 U1	0.04956	< 0.005 U1	3.27 J1	1.43 J1	< 0.86 U1
7/30/2018	Assessment	0.35	4.22	539	0.029	0.04	0.379	5.12	0.95	3.7832	0.404	0.0370	0.005 J1	8.85	0.7	0.03 J1
2/27/2019	Assessment	< 0.2 U1	8.83	529	< 0.2 U1	< 0.1 U1	0.7 J1	0.720	1.81	3.44	0.2 J1	0.0580	< 0.005 U1	6 J1	< 0.3 U1	< 1 U1
6/20/2019	Assessment	0.3 J1	4.18	169	< 0.1 U1	0.06 J1	6.71	0.948	0.81	1.67	0.719	0.047	0.01 J1	< 2 U1	0.3 J1	< 0.5 U1
8/26/2019	Assessment	0.37	6.30	492	0.04 J1	0.13	1.47	2.73	1.623	2.225	0.764	0.0337	< 0.005 U1	5.70	0.8	< 0.1 U1
3/25/2020	Assessment	0.15	2.88	415	0.02 J1	0.05 J1	0.705	0.702	1.73	2.66	0.409	0.0402	0.003 J1	3.01	0.3	< 0.1 U1
6/30/2020	Assessment	0.14	2.79	187	< 0.02 U1	0.01 J1	0.201	0.620	3.845	1.77	0.1 J1	0.0278	0.008	2.15	0.2 J1	< 0.1 U1
10/20/2020	Assessment	0.48	1.49	630	0.03 J1	0.15	2.20	1.16	0.661	3.05	0.719	0.0298	0.004 J1	2 J1	0.5	< 0.1 U1
3/03/2021	Assessment	0.06 J1	1.33	330	< 0.02 U1	0.01 J1	0.243	0.939	0.901	2.88	0.1 J1	0.0396	< 0.002 U1	2 J1	0.2 J1	< 0.1 U1
4/12/2021	Assessment	0.19	2.14	212	0.02 J1	0.02 J1	0.944	1.52	1.354	1.66	0.224	0.0248	< 0.002 U1	2 J1	0.2 J1	< 0.04 U1
12/27/2021	Assessment	0.28	1.11	270	0.013 J1	0.021	0.28	0.259	2.06	1.76	0.14 J1	0.0187	< 0.002 U1	1.8	0.20 J1	< 0.04 U1
6/14/2022	Assessment	0.43	2.73	139	< 0.04 U1	0.027	0.59	2.36	1.17	1.10	0.23	0.0140	< 0.002 U1	2.9	0.19 J1	< 0.04 U1
11/08/2022	Assessment	0.12	2.29	146	0.027 J1	0.009 J1	0.46	1.76	3.32	1.3	0.11 J1	0.0157	< 0.002 U1	1.7	0.15 J1	< 0.04 U1
6/20/2023	Assessment	0.038 J1	1.51	102	0.025 J1	< 0.004 U1	0.34	0.717	1.21	1.43	0.08 J1	0.0179	< 0.002 U1	0.8	0.10 J1	< 0.02 U1
10/10/2023	Assessment	0.075 J1	3.61	455	0.027 J1	0.031	0.90	0.635	2.91	2.28	0.45	0.0222	< 0.002 U1	0.9	0.23 J1	< 0.02 U1
4/16/2024	Assessment	0.090 J1	2.58	191	0.031 J1	0.027	0.46	0.466	6.48	1.73	0.28	0.0182	< 0.002 U1	0.9	0.12 J1	< 0.02 U1
10/22/2024	Assessment	0.054 J1	2.32	285	0.032 J1	0.017 J1	0.45	0.257	1.36	1.88	0.22	0.020	< 0.002 U1	0.5	0.15 J1	< 0.02 U1
6/18/2025	Assessment	0.092 J1	2.28	243	0.028 J1	0.007 J1	0.43	0.369	1.36	1.7	0.16 J1	0.0172	< 0.002 U1	1.2	0.11 J1	< 0.02 U1
10/27/2025	Assessment	0.2 J1	2.4	807	< 0.1 U1	0.05 J1	1.4 J1	0.83	1.17	2.87	1.3	0.0268	< 0.02 U1	1.0 J1	0.3 J1	< 0.1 U1

Notes:
1. Combined radium values were calculated from the sum of the reported radium-226 and radium-228 results.
Radium data quality flags were not included. Reported negative radium-226 or radium-228 results were replaced with zero.
--: Not analyzed
<: Non-detect value. Analytes which were not detected are shown as less than the method detection limit (MDL) followed by a 'U1' flag.
In analytical data prior to 5/18/2021, U1 flags were reported as U in the analytical report.
H2: Sample analysis performed past holding time.
J1: Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
In analytical data prior to 5/18/2021, J1 flags were reported as J in the analytical report.
L1: The associated laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) recovery was outside acceptance limits.
M1: The associated matrix spike (MS) or matrix spike duplicate (MSD) recovery was outside acceptance limits.
mg/L: milligrams per liter
Q1: Sample received in inappropriate sample container.
Q5: Sample was received with improper chemical preservation.
S7: Sample did not achieve constant weight.
SU: standard unit
µg/L: micrograms per liter

APPENDIX 2

Where applicable, shown in this appendix are the results from statistical analyses, and a description of the statistical analysis method chosen.

Geosyntec consultants

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STATISTICAL ANALYSIS SUMMARY 2024 2ND SEMIANNUAL EVENT BOTTOM ASH POND

Northeastern Power Station

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Attachment B: Statistical Analysis Output

ACRONYMS AND ABBREVIATIONS

ASD	alternative source demonstration
BAP	bottom ash pond
CCR	coal combustion residuals
GWPS	groundwater protection standard
LCL	lower confidence limit
LPL	lower prediction limit
mg/L	milligrams per liter
NPS	Northeastern Power Station
OAC	Oklahoma Administrative Code
ODEQ	Oklahoma Department of Environmental Quality
PQL	practical quantitation limit
QA/QC	quality assurance and quality control
SSI	statistically significant increase
SSL	statistically significant level
TDS	total dissolved solids
UPL	upper prediction limit

1. INTRODUCTION

In accordance with Oklahoma Department of Environmental Quality (ODEQ) requirements regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Oklahoma Administrative Code [OAC] 252:517), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Northeastern Power Station (NPS) in Oologah, Oklahoma. Recent groundwater monitoring results were used to identify concentrations of Appendix B constituents that are above site-specific groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, chloride, fluoride, total dissolved solids (TDS), and sulfate at the BAP. In addition, pH values below the lower prediction limit (LPL) resulted in SSIs below background as well. GWPSs were set in accordance with OAC 252:517-9-6(h) and a statistical evaluation of the assessment monitoring was conducted.

During 2024, a sampling event for both Appendix A parameters and Appendix B parameters, as required by OAC 252:517-9-6(d), was completed in April. During the April 2024 assessment monitoring event, statistically significant levels (SSLs) were observed for barium, fluoride, and lithium (Geosyntec 2024a). An alternative source demonstration (ASD) was successfully completed (Geosyntec 2024b). Therefore, the unit remained in assessment monitoring. One assessment monitoring event was conducted at the BAP in October 2024 in accordance with OAC 252:517-9-6(d). The results of the October 2024 assessment event are documented in this report.

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

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. GWPSs were reestablished for the Appendix B parameters. Confidence intervals were calculated for Appendix B parameters at the compliance wells to assess whether SSLs of Appendix B parameters were present above the GWPS. SSLs were identified for barium, fluoride, and lithium. Therefore, either the unit will move to an assessment of corrective measures, or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

During the October 2024 assessment monitoring event, one set of samples was collected for analysis from each background and compliance well to meet the requirements of OAC 252:517-9-6(d)(1). Samples from the October 2024 sampling event were analyzed for all Appendix A and Appendix B parameters. A summary of data collected during this assessment monitoring event are presented in Table 1.

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

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.10.0.24 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

2.2 Statistical Analysis

Statistical analyses for the BAP were conducted in accordance with the November 2021 *Statistical Analysis Plan* (Geosyntec 2021). Time series plots and results for all completed statistical tests are provided in Attachment B. The data obtained in October 2024 were screened for potential outliers. No outliers were identified for this event.

2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix B parameter in accordance with the Statistical Analysis Plan (Geosyntec 2021). The established GWPS was set to whichever was greater of the background concentration and the maximum contaminant level for each Appendix B parameter. To determine background concentrations, an upper tolerance limit was calculated using data that were pooled from the background wells collected during the background monitoring and assessment monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for antimony, cadmium, chromium, combined radium, and lead. Nonparametric tolerance limits were calculated for arsenic, barium, beryllium, cobalt, fluoride, lithium, molybdenum, and selenium due to apparent nonnormal distributions, and for mercury and thallium due to a high nondetect frequency. Upper tolerance limits and the final GWPSs are summarized in Table 2.

2.2.2 Evaluation of Potential Appendix B SSLs

A confidence interval was constructed for each Appendix B parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$). However, nonparametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). Select datasets were truncated if significant serial correlation was observed among the background samples that were collected on

an approximately monthly basis in 2017. The dataset for barium at SP-10 was also truncated as higher concentrations were observed in more recent samples compared to the initial results. A list of the truncated well/constituent pairs used for calculation of the confidence limits is provided in Attachment B.

An SSL was concluded if the lower confidence limit (LCL) exceeded the GWPS (i.e., if the entire confidence interval was above the GWPS). Calculated confidence limits are shown in Attachment B.

The following SSLs were identified at the Northeastern BAP:

- The LCL for barium was above the GWPS of 2.77 milligrams per liter (mg/L) at SP-10 (4.41 mg/L).
- The LCL for fluoride was above the GWPS of 4.39 mg/L at SP-10 (5.71 mg/L).
- The LCL for lithium was above the GWPS of 0.163 mg/L at SP-10 (0.238 mg/L).

ODEQ previously noted in a letter provided to the NPS that "[i]f lithium and fluoride continue to exceed their relative GWPS in the future and conditions have not changed, NPS may refer to the October 29, 2019 ASD approval for lithium and June 4, 2021 approval for fluoride and continue assessment monitoring at the BAP in accordance with OAC 252:517-6(g)(3)(B)" (ODEQ 2021). ODEQ provided a similar letter dated September 20, 2022 documenting ASD approval for a barium SSL at SP-10 which is applicable in the future if conditions do not change (ODEQ 2022). Thus, an ASD will be submitted to ODEQ demonstrating that conditions at the BAP remain unchanged so that the unit will continue assessment monitoring.

2.2.3 Establishment of Appendix A Prediction Limits

Upper prediction limits (UPLs) were previously established for all Appendix A parameters following the background monitoring period. Interwell tests were used to evaluate potential SSIs for boron, chloride, fluoride, pH, sulfate, and TDS, and intrawell tests were used to evaluate potential SSIs for calcium. Interwell and intrawell prediction limits are updated periodically during the assessment monitoring period as sufficient data become available.

Mann-Whitney (Wilcoxon rank-sum) tests were performed to determine whether the newer data are affected by a release from the BAP. Because the interwell Appendix A limits and the Appendix B GWPSs are based on data from background wells which we would not expect to have been impacted by a release, these tests were used for intrawell Appendix A tests for calcium only. Mann-Whitney tests were used to compare the medians of historical data (January 2017 – June 2022) to the new compliance samples (November 2022 – April 2024) for calcium. Results were evaluated to determine if the medians of the two groups were statistically different at the 99% confidence level. Where no statistically significant difference was found, the new compliance data were added to the background dataset. Where a statistically significant difference was found between the medians of the two groups, the data were reviewed to evaluate the cause of the difference and to determine if adding newer data to the background dataset, truncating historical data and using only the newer data, or continuing to use the existing background dataset was most

appropriate. If the differences appeared to have been caused by a release, then the previous background dataset would have continued to be used.

The complete Mann-Whitney and trend test results and a summary of the significant findings can be found in Attachment B. The datasets for all wells were updated to include both the historical and more recent results.

Prediction limits for the interwell tests were recalculated using data collected during the 2024 assessment monitoring events. New background well data were tested for outliers before being added to the background data set. Background well data were also evaluated for statistically significant trends using the Sen's Slope/Mann-Kendall trend test, and the results are included in Attachment B.

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

Interwell UPLs were updated for boron, chloride, fluoride, pH, sulfate, and TDS and interwell LPLs were updated for pH using historical data through October 2024. Intrawell UPLs for calcium were updated using data through April 2024 to represent background values. The prediction limits are summarized in Table 3. The prediction limits were calculated for a one-of-two retesting procedure: If at least one sample in a series of two is not above the UPL (or, in the case of pH, is neither less than the LPL nor greater than the UPL), then it can be concluded that an SSI has not occurred. In practice, where the initial result does not exceed the UPL (or, in the case of pH, is neither less than the LPL nor greater than the UPL), a second sample will not be collected. The retesting procedures allow achieving an acceptably high statistical power to detect changes at downgradient wells for constituents evaluated using intrawell prediction limits.

2.2.4 Evaluation of Potential Appendix A SSIs

While SSLs were identified, a review of the Appendix A results were also completed to assess whether concentrations of Appendix A parameters at the compliance wells were above background concentrations. Data collected during the October 2024 assessment monitoring event from each compliance well were compared to updated interwell and intrawell prediction limits to assess whether the results are above background values (Table 3).

The following concentrations were above the UPLs:

- Boron concentrations were above the interwell UPL of 0.491 mg/L at SP-10 (1.06 mg/L).
- Chloride concentrations were above the interwell UPL of 1,010 mg/L at SP-10 (1,920 mg/L).
- Fluoride concentrations were above the interwell UPL of 4.39 mg/L at SP-10 (6.7 mg/L).
- Sulfate concentrations were above the interwell UPL of 83.0 mg/L at SP-1 (85.2 mg/L) and SP-11 (204 mg/L).
- TDS concentrations were above the interwell UPL of 1,940 mg/L at SP-10 (3,490 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the October 2024 sample was above the UPL or, in the case of pH, below the LPL. Based on these results, concentrations of Appendix A constituents appear to be above background concentrations.

2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, and no QA/QC issues that impacted data usability were identified. A review of outliers identified no potential outliers in the October 2024 data. GWPSs were reestablished for the Appendix B parameters. A confidence interval was constructed at each compliance well for each Appendix B parameter; SSLs were concluded if the entire confidence interval was above the GWPS. SSLs were identified for barium, fluoride, and lithium. Appendix A parameters were compared to calculated prediction limits, with exceedances identified for boron, chloride, fluoride, sulfate, and TDS.

Based on this evaluation, the Northeastern BAP CCR unit will either move to an assessment of corrective measures or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring.

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TABLES

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

Parameter	Unit	SP-1	SP-2	SP-4	SP-5R	SP-10	SP-11
		10/22/2024	10/22/2024	10/22/2024	10/22/2024	10/22/2024	10/22/2024
Antimony	µg/L	0.368	0.963	0.147	0.117	0.034 J1	0.054 J1
Arsenic	µg/L	0.62	1.33	0.70	16.1	0.12	2.32
Barium	µg/L	142	698	190	2,080	6,270	285
Beryllium	µg/L	0.120	0.121	0.038 J1	0.108	0.121	0.032 J1
Boron	mg/L	0.185	0.108	0.346	0.201	1.06	0.419
Cadmium	µg/L	0.076	0.072	0.021	0.038	0.014 J1	0.017 J1
Calcium	mg/L	123	135	98	82	125	104
Chloride	mg/L	48.1	365	448	721	1,920	80.6
Chromium	µg/L	1.23	1.02	0.45	0.77	0.46	0.45
Cobalt	µg/L	0.536	0.383	0.146	0.841	0.079	0.257
Combined Radium	pCi/L	4.93	9.3	3.67	12.38	20.13	1.36
Fluoride	mg/L	0.96	2.68	3.22	3.06	6.7	1.88
Lead	µg/L	1.18	0.53	0.09 J1	1.05	0.12 J1	0.22
Lithium	mg/L	0.00658	0.0294	0.054	0.086	0.228	0.020
Mercury	µg/L	0.003 J1	0.005 U1	0.005 U1	0.005 U1	0.005 U1	0.005 U1
Molybdenum	µg/L	11.0	15.8	2.5	0.7	0.3 J1	0.5
Selenium	µg/L	5.39	2.07	0.28 J1	0.20 J1	0.06 J1	0.15 J1
Sulfate	mg/L	85.2	16.5	79.4	2.3	15.9	204
Thallium	µg/L	0.08 J1	0.03 J1	0.03 J1	0.2 U1	0.2 U1	0.2 U1
Total Dissolved Solids	mg/L	510	950 S7	1,120	1,430	3,490	870
pH	SU	7.5	7.3	7.9	7.8	7.9	7.4

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

Table 2. Appendix B Groundwater Protection Standards *Geosyntec Consultants, Inc.*
Statistical Analysis Summary
Northeastern Plant – Bottom Ash Pond

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600		0.00388	0.00600
Arsenic, Total (mg/L)	0.0100		0.0599	0.0599
Barium, Total (mg/L)	2.00		2.77	2.77
Beryllium, Total (mg/L)	0.00400		0.00212	0.00400
Cadmium, Total (mg/L)	0.00500		0.000168	0.00500
Chromium, Total (mg/L)	0.100		0.00339	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.0179	0.0179
Combined Radium, Total (pCi/L)	5.00		19.1	19.1
Fluoride, Total (mg/L)	4.00		4.39	4.39
Lead, Total (mg/L)	n/a	0.0150	0.00857	0.0150
Lithium, Total (mg/L)	n/a	0.0400	0.163	0.163
Mercury, Total (mg/L)	0.00200		0.0000300	0.00200
Molybdenum, Total (mg/L)	n/a	0.100	0.0100	0.100
Selenium, Total (mg/L)	0.0500		0.00499	0.0500
Thallium, Total (mg/L)	0.00200		0.00162	0.00200

Notes:
1. Calculated UTL (upper tolerance limit) represents site-specific background values.
2. Grey cells indicate the GWPS is based on the calculated UTL, which is higher than the MCL or CCR Rule-specified value.
CCR: coal combustion residuals
GWPS: groundwater protection standard
MCL: maximum contaminant level
mg/L: milligrams per liter
n/a: not applicable
pCi/L: picocuries per liter

Table 3. Appendix A Data Summary
Statistical Analysis Summary
Northeastern – Bottom Ash Pond

Analyte	Unit	Description	SP-1	SP-2	SP-10	SP-11
			10/22/2024	10/22/2024	10/22/2024	10/22/2024
Boron	mg/L	Interwell Background Value (UPL)	0.491			
		Analytical Result	0.185	0.108	**1.06**	0.419
Calcium	mg/L	Intrawell Background Value (UPL)	139	172	177	146
		Analytical Result	123	135	125	104
Chloride	mg/L	Interwell Background Value (UPL)	1,010			
		Analytical Result	48.1	365	**1,920**	80.6
Fluoride	mg/L	Interwell Background Value (UPL)	4.39			
		Analytical Result	0.96	2.68	**6.7**	1.88
pH	SU	Interwell Background Value (UPL)	9.1			
		Interwell Background Value (LPL)	7.0			
		Analytical Result	7.5	7.3	7.9	7.4
Sulfate	mg/L	Interwell Background Value (UPL)	83.0			
		Analytical Result	**85.2**	16.5	15.9	**204**
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,940			
		Analytical Result	510	950	**3,490**	870

Notes:
1. Bold values exceed the background value.
2. Background values are shaded gray.
LPL: lower prediction limit
mg/L: milligrams per liter
SU: standard units
UPL: upper prediction limit

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Northeastern BAP CCR management area and that the requirements of OAC 252:517-9-4(g) have been met.



David Anthony Miller

Printed Name of Licensed Professional Engineer



Signature

26057	Oklahoma	02.27.2025
License Number	Licensing State	Date

ATTACHMENT B
Statistical Analysis Output

GROUNDWATER STATS CONSULTING

February 21, 2025

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

Re: Northeastern BAP (Bottom Ash Pond)
Background Update & Assessment Monitoring Statistics – October 2024

Dear Ms. Kreinberg,

Groundwater Stats Consulting (GSC), formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis and background update of 2024 groundwater data for American Electric Power Inc.'s Northeastern BAP. The analysis complies with the Oklahoma Administrative Code (OAC) as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling began at the site for the OAC program in 2017. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** SP-4 and SP-5R
- **Downgradient wells:** SP-1, SP-2, SP-10, and SP-11

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

The OAC program consists of the following constituents listed below. The terms "constituent" and "parameter" are interchangeable.

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

For all constituents, a substitution of the most recent reporting limit is used for non-detect data. For calculating intrawell prediction limits, the substitution is performed for individual wells and may differ across wells.

Time series plots for Appendix A and B parameters are provided for all wells and are used to evaluate concentrations over time as well as for the purpose of updating statistical limits (Figure A). Additionally, box plots are included for all constituents at upgradient and downgradient wells (Figure B). Values in background which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the graph. A summary of these values follows this letter (Figure C). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells.

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

- Semi-Annual Sampling
- 1-of-2 resample plan
- # Constituents, c=7
- # Downgradient wells, w=4

Summary of Statistical Method – Appendix A Parameters

Based on the original background screening described in the 2017 screening report, the following statistical methods were selected for Appendix A parameters:

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

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

- No statistical analyses are required on wells and analytes containing 100% non-detects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data for parametric limits. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% non-detects.

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

quality. In the interwell case, prediction limits may be 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 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 Appendix A Background Screening and Updates

December 2017 – Initial Background Screening

Interwell prediction limits combined with a 1-of-2 verification strategy were recommended for boron, chloride, fluoride, pH, sulfate and TDS; and intrawell prediction limits combined with a 1-of-2 verification strategy were recommended for calcium. All proposed background data were screened for outliers and trends during the background screening. The findings of those reports were submitted with that analysis. Interwell prediction limits utilize all upgradient well data for construction of statistical limits. During each sample event, upgradient well data may be screened for any newly suspected outliers or obvious trending patterns using time series plots. Intrawell prediction limits utilized the background data set that was originally screened in 2017. As recommended in the EPA Unified Guidance (2009), the background data sets are evaluated for the purpose of updating statistical limits, as described below, using the Mann-Whitney test when at least four additional measurements are available.

2022 & 2023 Updates

Proposed background data, as mentioned above, were originally screened during December 2017. In the Fall 2022 update, an outlier analysis was conducted on calcium, which is evaluated with intrawell prediction limits, using Tukey's outlier test and visual screening on data through June 2022 at all wells. The analysis did not identify any outliers for calcium, and therefore, no values were flagged.

The Mann-Whitney test was applied to compare historical data through August 2020 with new compliance samples through June 2022 at each well for calcium. A statistically significant difference was identified at well SP-1, but this record was updated since most compliance data were within the historical concentration range. Additionally, while no significant difference was detected for calcium at well SP-11, the historical data for this well/constituent pair were truncated to exclude historical elevated concentrations, using stable concentrations to reflect current groundwater quality. All calcium data sets were updated with compliance samples through June 2022.

In the Fall 2023 update, pooled upgradient well data were evaluated using Tukey's outlier test and visual screening on Appendix A constituents that are evaluated with interwell prediction limits (chloride, fluoride, pH, sulfate, and TDS). Any values identified by Tukey's but not flagged appeared representative natural variation. Previously flagged outliers were confirmed by Tukey's test and visual screening, and no changes to values flagged in previous background updates were made.

For boron, chloride, fluoride, pH, sulfate, and TDS, the Sen's Slope/Mann-Kendall trend test was used to assess statistically significant trends at upgradient wells. Significant increasing trends were identified for chloride at well SP-5R, sulfate at well SP-4, and TDS at well SP-5R, while decreasing trends were observed for boron at wells SP-4 and SP-5R. No data records were adjusted, as the resulting statistical limits were representative of upgradient groundwater conditions. Interwell prediction limits were updated using all available data from upgradient wells through October 2023 for boron, chloride, fluoride, pH, sulfate, and TDS. As new data are collected, earlier measurements may be re-evaluated for potential deselection if concentrations no longer reflect upgradient conditions.

Fall 2024 – Current Update

During this analysis, Tukey's outlier test and visual screening were used to assess data at all wells through April 2024 for calcium, which is evaluated with intrawell prediction limits, and pooled upgradient well data through October 2024 for boron, chloride, fluoride, pH, sulfate, and TDS, which are tested using interwell prediction limits (Figure C).

Note that during the Fall 2022 update, the Rank Von Neumann serial correlation test was used to evaluate whether the measurements collected during 2017 represented independent samples, or whether serial correlation was present among the measurements. Significant serial correlation was identified for calcium at upgradient well SP-4 and sulfate at upgradient wells SP-4 and SP-5R; therefore, the records for these well/constituent pairs were truncated to remove earlier measurements for construction of statistical limits using only more recent data that represent independent samples. The truncated observations appear as disconnected points on the time series plots, and the truncated records are listed in the Date Range Table.

<u>Outlier Analysis</u>

For calcium, Tukey's outlier test and visual screening did not identify any outliers; therefore, no values were flagged.

Tukey's outlier test and visual screening on pooled upgradient well data confirmed previously identified values for chloride, fluoride, and TDS, but no additional values were flagged, and no changes were made to previously flagged values. Any values identified by Tukey's but not flagged appeared representative of natural variation upgradient of the facility. As mentioned above, any 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. A summary table of all flagged outliers follows this report (Figure C).

Intrawell – Mann-Whitney Test

For calcium, which is tested using intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through June 2022 to the new compliance samples at each well through April 2024 to evaluate whether the groups are statistically different at the 99% confidence level. If no significant difference is found, background data may be updated with compliance data (Figure D). Any records that were truncated in previous updates used the truncated data, not the full records, in the Mann-Whitney test. Discussions of any truncated records were included in previous background update reports. A statistically significant difference was identified for the following well/constituent pair:

Increase:

- Calcium: SP-5R (upgradient)

Decrease:

None

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

In this analysis, a statistically significant difference was identified for calcium at upgradient well SP-5R. Although a statistically significant increase in medians was identified by the Mann-Whitney test, the concentrations were within the range of historic concentrations, and also represent concentrations upgradient of the facility. Therefore, all data sets for calcium were updated with compliance samples through April 2024.

Intrawell - Prediction Limits

Intrawell prediction limits, combined with a 1-of-2 resample plan, are constructed using historical data through April 2024 for calcium at all wells. A summary table of the limits follows this report (Figure E). A list of well/constituent pairs using a truncated portion of their records follows this report (Date Ranges Table). No comparison of the October 2024 observations to the prediction limits was performed in this analysis.

Interwell – Trend Test Evaluation

For parameters tested using interwell prediction limits (boron, chloride, fluoride, pH, sulfate, and TDS), the Sen's Slope/Mann-Kendall trend test was used to evaluate data at upgradient wells to determine whether concentrations are statistically increasing, decreasing or stable at the 99% confidence level (Figure F). Statistically significant trends were identified for the following upgradient well/constituent pairs:

Increasing:

- Chloride: SP-5R
- Sulfate: SP-4
- TDS: SP-5R

Decreasing:

- Boron: SP-4 and SP-5R

Although statistically significant trends were identified, no records were adjusted since the entire background record and resulting statistical limits are representative of upgradient groundwater quality conditions. All available data from upgradient wells were used to construct interwell prediction limits for boron, chloride, fluoride, pH, sulfate, and TDS. As more data are collected, all upgradient well data will be re-evaluated for possible deselection of earlier measurements if concentrations no longer represent upgradient groundwater quality conditions.

Interwell – Prediction Limits

Interwell prediction limits, combined with a 1-of-2 resample plan, were updated using all available data from upgradient wells through October 2024 for boron, chloride, fluoride, pH, sulfate, and TDS (Figure G). Time series plots were included with the interwell prediction limit graphs to display concentrations at upgradient wells that were used to construct the statistical limits. No comparison of the October 2024 data was performed in this analysis.

Evaluation of Appendix B Parameters – October 2024 Event

Prior to evaluating Appendix B parameters, background data are screened through visual screening and Tukey's outlier test for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits.

As mentioned above, during the Fall 2022 update, the Rank Von Neumann serial correlation test was used to evaluate whether the measurements collected during 2017 represented independent samples, or whether serial correlation was present among the measurements. The following records with statistically significant serial correlation were truncated to remove earlier measurements for construction of statistical limits using only more recent data that represent independent samples:

- Barium: SP-4 (upgradient) and SP-11
- Cadmium: SP-4, SP-5R (both upgradient), SP-1, and SP-10
- Chromium: SP-4 (upgradient)
- Lead: SP-10
- Lithium: SP-4 (upgradient) and SP-11
- Molybdenum: SP-2
- Selenium: SP-5R (upgradient) and SP-2
- Thallium: SP-4, SP-5R (both upgradient), SP-1, SP-2, SP-10, and SP-11

The resulting date ranges are shown in the Date Range Table for these well/constituent pairs along with records truncated as a result of background updates as discussed earlier.

Outlier Analysis

For the current analysis, Tukey's outlier test on pooled upgradient well data identified outliers for fluoride, mercury, and selenium. Several of the values identified by Tukey's test were either very similar to other upgradient observations that were not flagged or were lower than the respective Maximum Contaminant Level (MCL); therefore, those values were not flagged as outliers. Previously flagged outliers were confirmed by Tukey's test or visual screening, and no new outlies were flagged A summary of previously flagged outliers follows this report (Figure C), and a discussion of previously flagged values is presented below

Additionally, downgradient well data through October 2024 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, values that are marginally high relative to the rest of the data are retained unless there is particular justification for excluding them. No new outliers

among downgradient wells were flagged during this analysis. Previously flagged downgradient well values are included in the outlier summary table, and a discussion of those previously flagged values is presented in the following paragraphs.

During previous updates, Tukey's outlier test and visual screening had identified high values at upgradient well SP-4 on 8/4/17, which resulted in flagging the highest values for arsenic, beryllium, cobalt, lead, and mercury as outliers

Among downgradient wells, a high value for combined radium 226 + 228 in well SP-1 was flagged as an outlier along with values at the following well/constituent pairs since they did not adequately represent the populations at their respective wells: chromium in well SP-10; combined radium 226 + 228 in well SP-11; lithium in well SP-1; and molybdenum in well SP-10. More recent concentrations for barium in downgradient well SP-10 were noted to be significantly higher than historical concentrations. Therefore, earlier concentrations were deselected prior to constructing confidence intervals in order to evaluate current groundwater concentrations of barium at this well (USEPA Unified Guidance, 2009, Chapter 7). As mentioned above, a list of well/constituent pairs using a truncated portion of their records follows this report (Date Ranges Table).

Interwell Upper Tolerance Limits

Upper tolerance limits were used to calculate background limits from pooled upgradient well data through October 2024 for Appendix B parameters (Figure H). These limits are updated on an annual basis and will be updated again during the Fall 2025 sample event. Parametric tolerance limits are calculated, with a target of 95% confidence and 95% coverage, when data follow a normal or transformed-normal distribution. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were constructed using the highest background measurement. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

These background limits were compared to the MCLs and CCR Rule-Specified levels as shown in the Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the Confidence Interval comparisons (Figure I).

Confidence Intervals

Confidence intervals were constructed on downgradient wells through October 2024 for each of the Appendix B parameters and then compared to the GWPS, i.e., the highest limit of the MCL, CCR Rule-Specified level, or background limit as discussed above (Figure J). These intervals were constructed as either parametric or nonparametric confidence intervals depending on the data distribution and percentage of non-detects. When data followed a normal or transformed-normal distribution, parametric confidence intervals were used for Appendix B parameters. Nonparametric confidence intervals were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available.

Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. Complete graphical results of the confidence intervals follow this letter. Exceedances were identified for the following well/constituent pairs:

- Barium: SP-10
- Fluoride: SP-10
- Lithium: SP-10

Trend Test Evaluation

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

Increasing:

- Barium: SP-5R (upgradient) and SP-10

Decreasing:

- Barium: SP-4 (upgradient)
- Lithium: SP-4 and SP-5R (both upgradient) and SP-10

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

For Groundwater Stats Consulting,



Abdul Diane
Groundwater Analyst



Andrew T. Collins
Project Manager

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Date Ranges

Date: 1/16/2025 12:14 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Barium (mg/L)
- SP-10 overall:5/30/2018-10/22/2024
- SP-11 overall:5/30/2018-10/22/2024
- SP-4 overall:5/30/2018-10/22/2024

Cadmium (mg/L)
- SP-1 overall:5/30/2018-10/22/2024
- SP-10 overall:5/30/2018-10/22/2024
- SP-4 overall:5/30/2018-10/22/2024
- SP-5R overall:5/30/2018-10/22/2024

Calcium (mg/L)
- SP-11 background:7/30/2018-4/16/2024
- SP-4 overall:5/30/2018-4/16/2024

Chromium (mg/L)
- SP-4 overall:5/30/2018-10/22/2024

Lead (mg/L)
- SP-10 overall:5/30/2018-10/22/2024

Lithium (mg/L)
- SP-11 overall:5/30/2018-10/22/2024
- SP-4 overall:5/30/2018-10/22/2024

Molybdenum (mg/L)
- SP-2 overall:5/30/2018-10/22/2024

Selenium (mg/L)
- SP-2 overall:5/30/2018-10/22/2024
- SP-5R overall:5/30/2018-10/22/2024

Sulfate (mg/L)
- SP-4 overall:5/30/2018-10/22/2024
- SP-5R overall:5/30/2018-10/22/2024

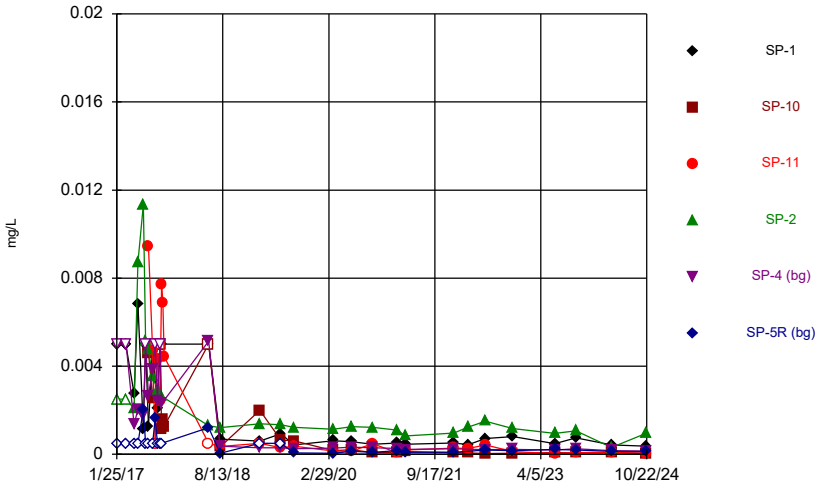
Thallium (mg/L)
- overall:5/30/2018-10/22/2024

FIGURE A

Time Series

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Hollow symbols indicate censored values.

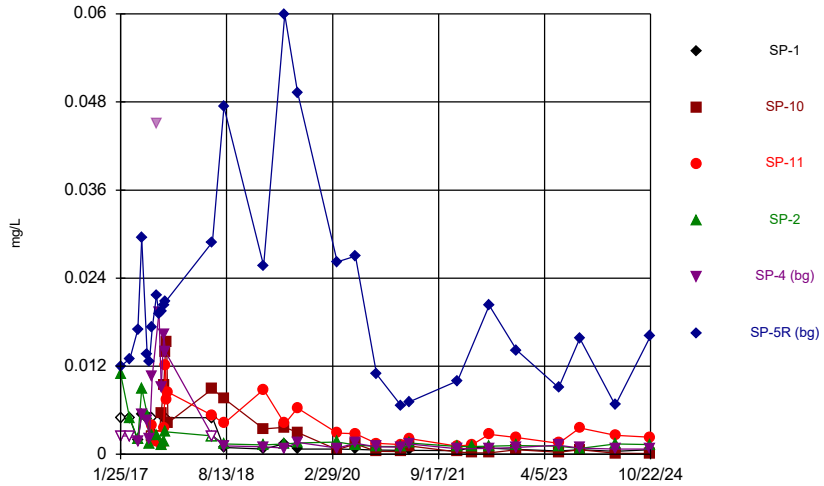
Time Series



Constituent: Antimony Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

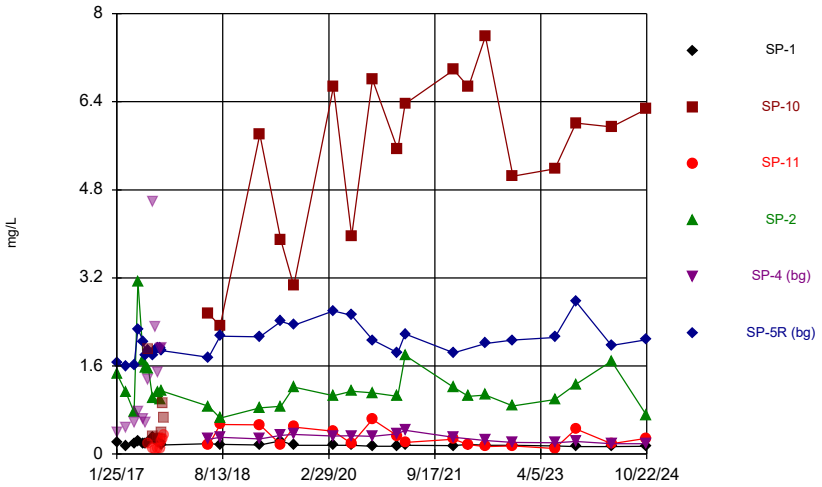
Time Series



Constituent: Arsenic Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

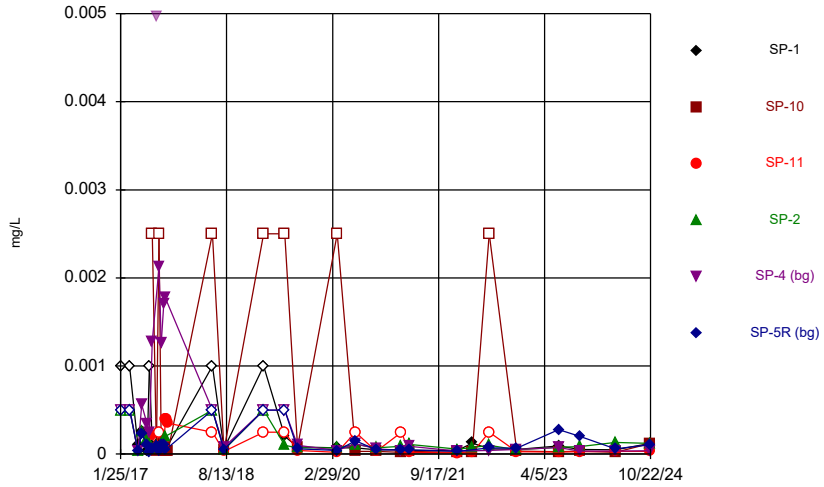
Time Series



Constituent: Barium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

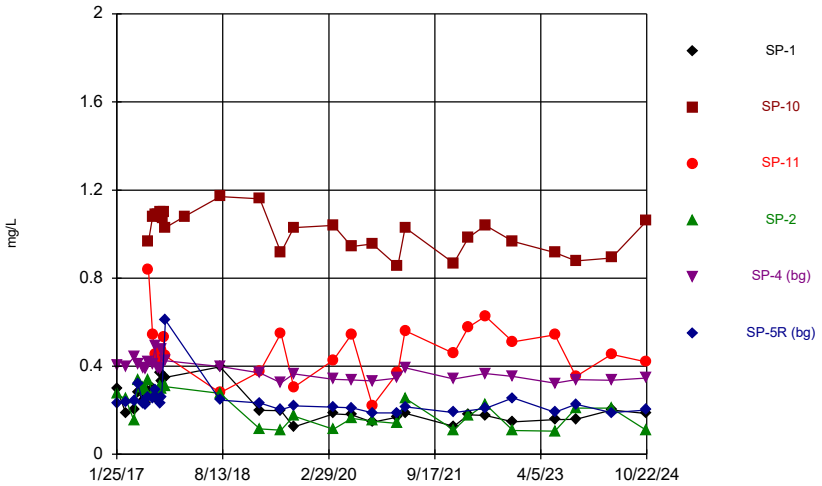
Time Series



Constituent: Beryllium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series



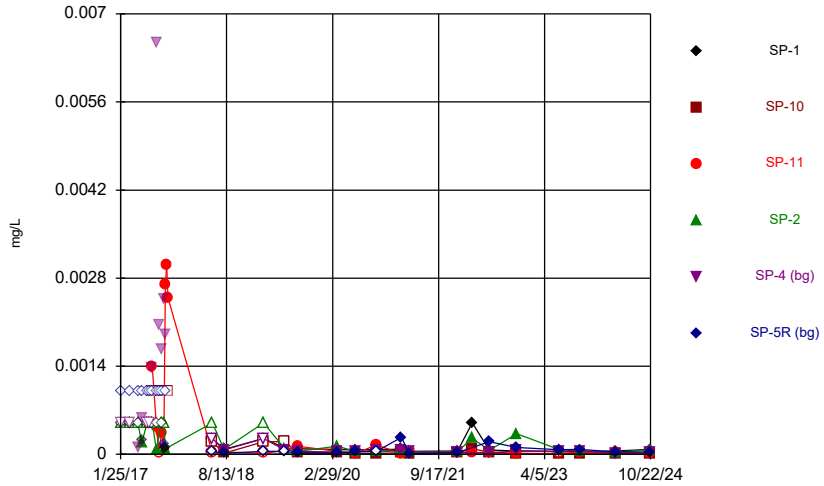
Constituent: Boron Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

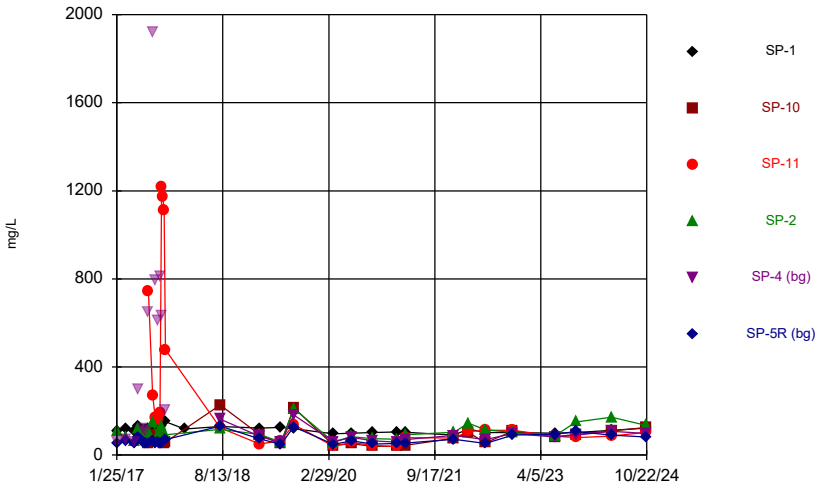


Constituent: Cadmium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Time Series

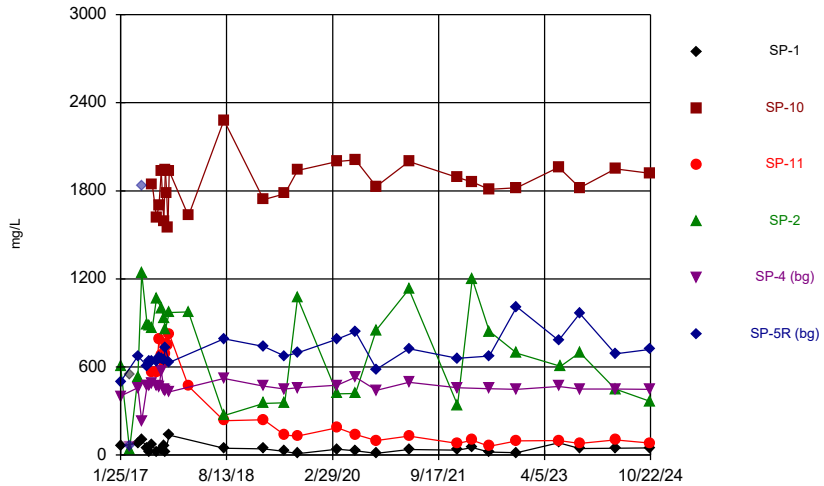


Constituent: Calcium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series

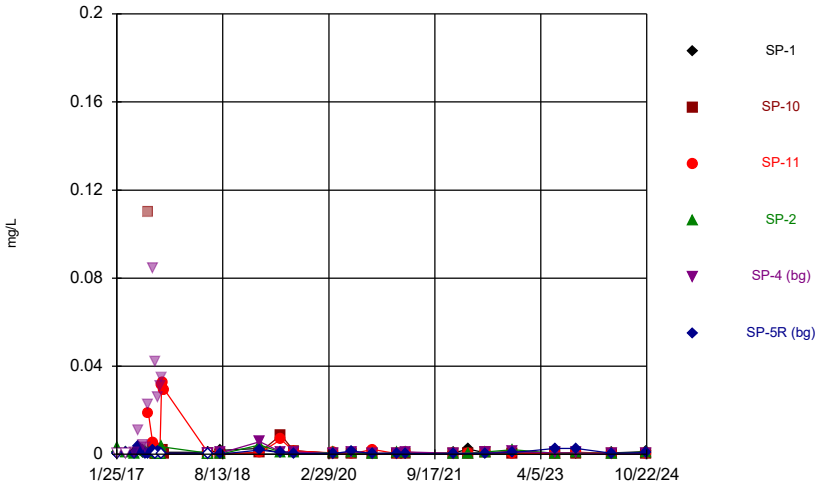


Constituent: Chloride Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Hollow symbols indicate censored values.

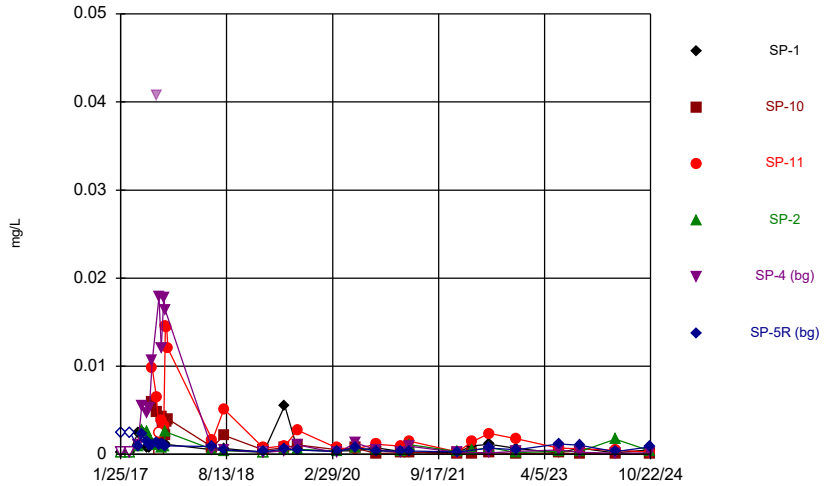
Time Series



Constituent: Chromium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Hollow symbols indicate censored values.

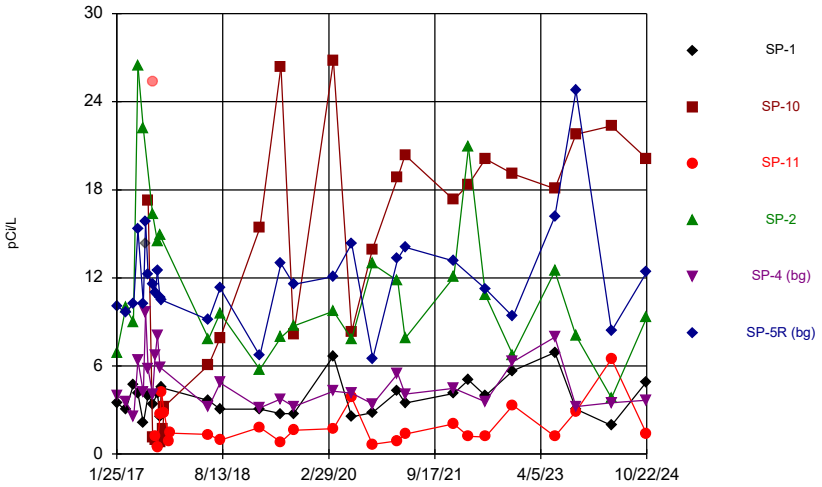
Time Series



Constituent: Cobalt Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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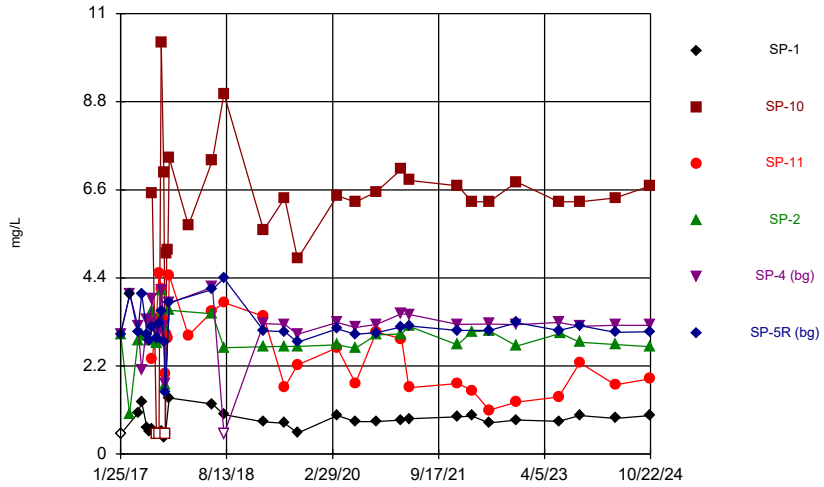
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Hollow symbols indicate censored values.

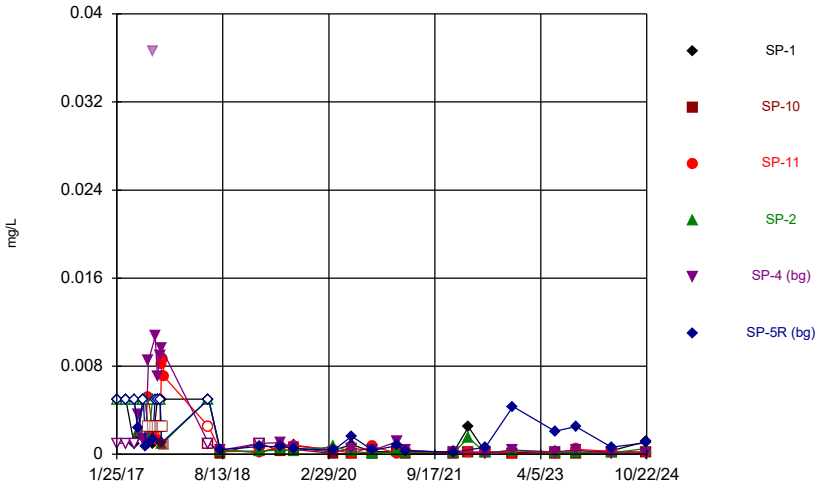
Time Series



Constituent: Fluoride Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

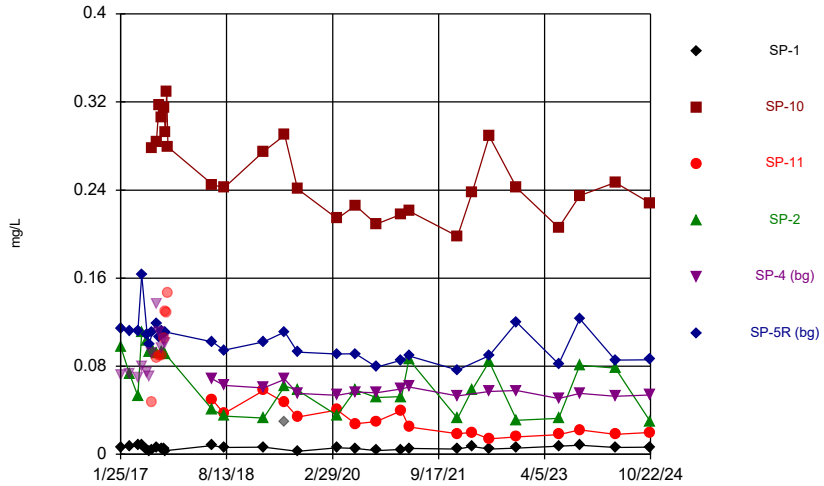
Time Series



Constituent: Lead Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

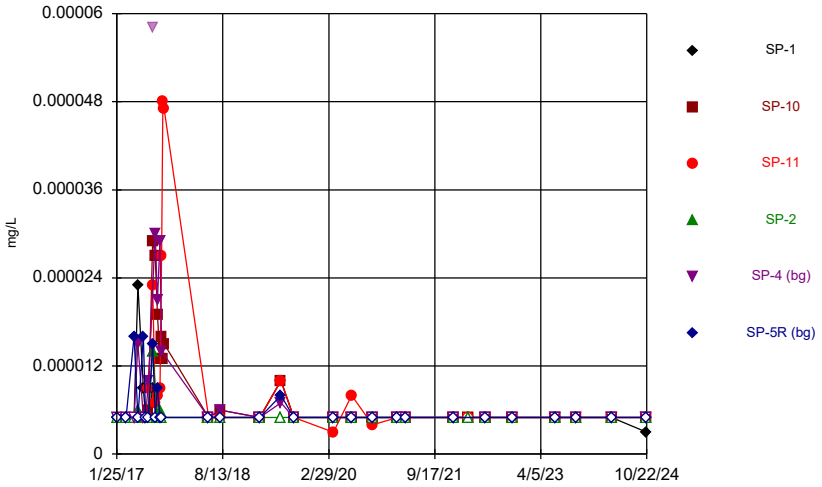
Time Series



Constituent: Lithium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

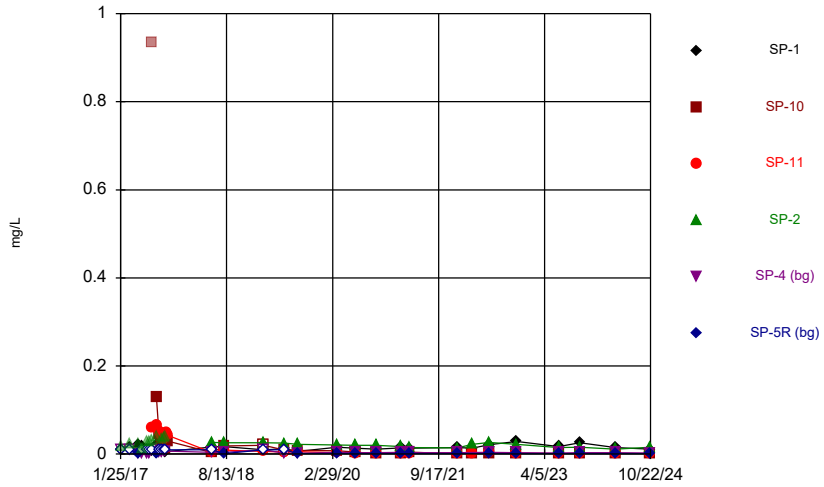
Time Series



Constituent: Mercury Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

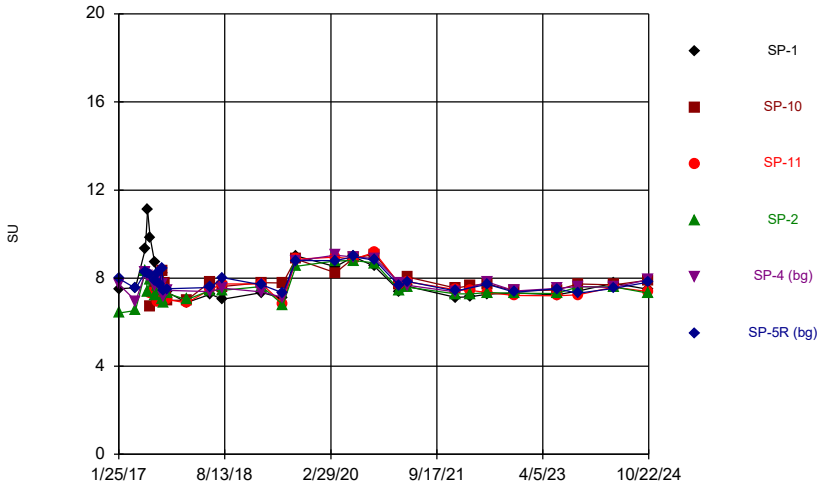
Time Series



Constituent: Molybdenum Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series



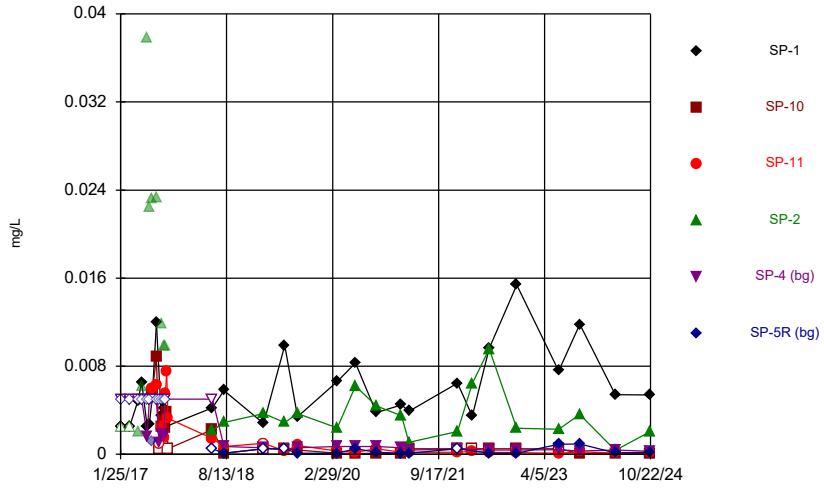
Constituent: pH, field Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

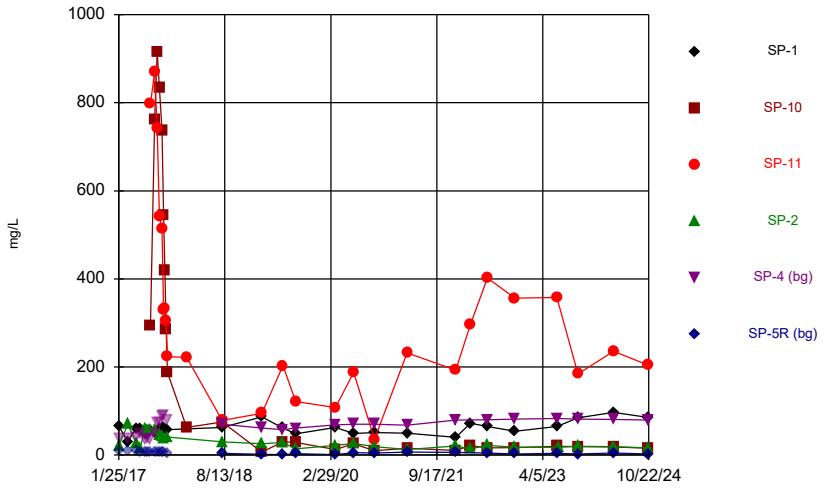


Constituent: Selenium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series



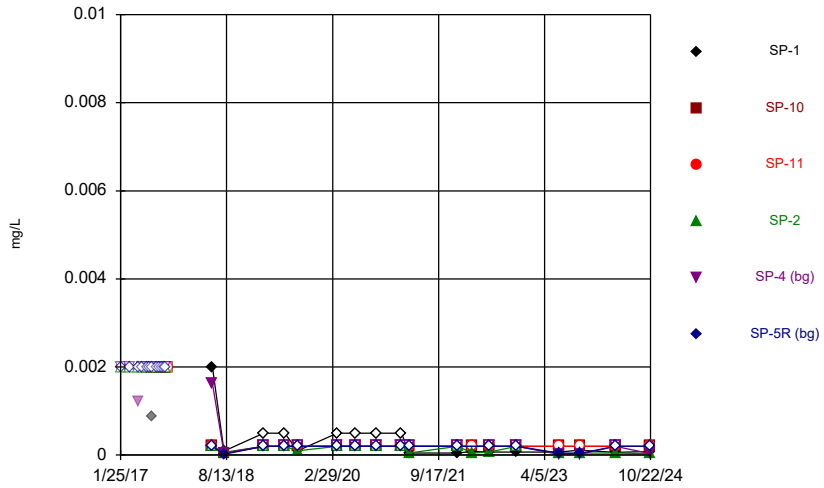
Constituent: Sulfate Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

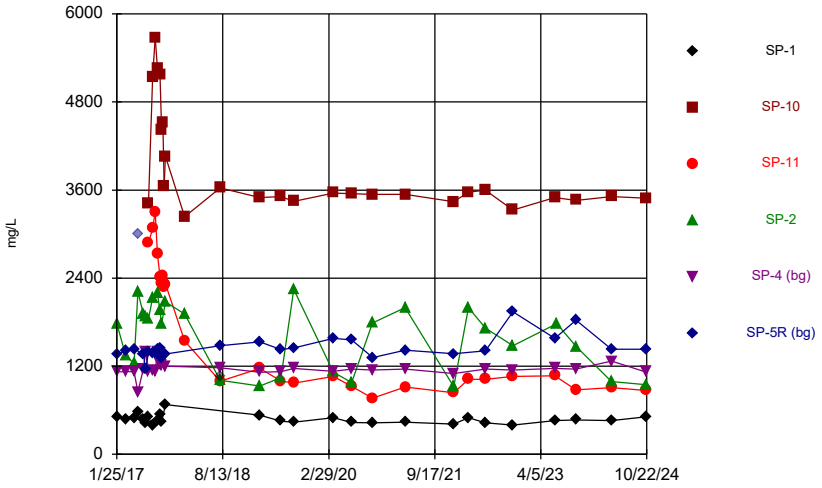


Constituent: Thallium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/14/2025 3:58 PM

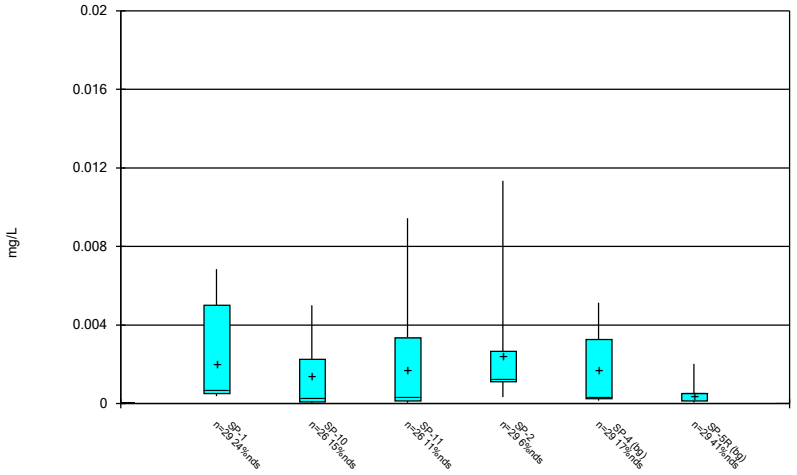
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE B

Box Plots

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

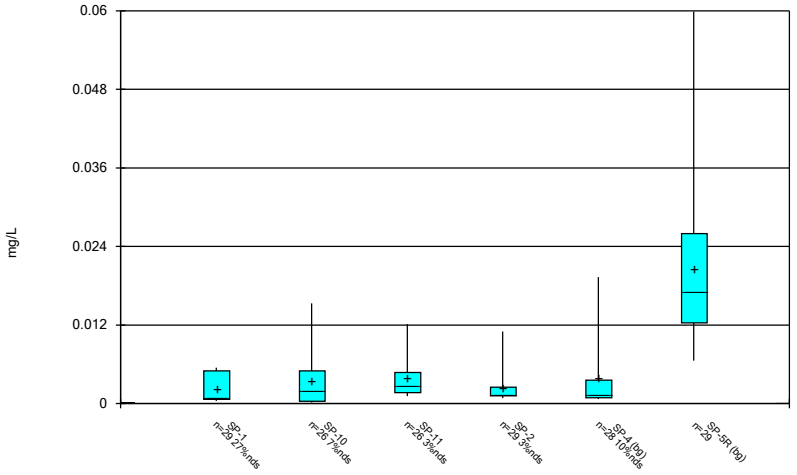
Box & Whiskers Plot



Constituent: Antimony Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

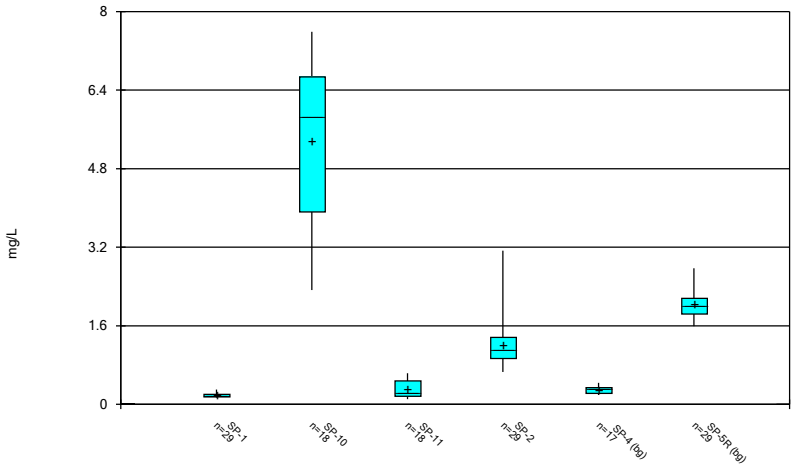
Box & Whiskers Plot



Constituent: Arsenic Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

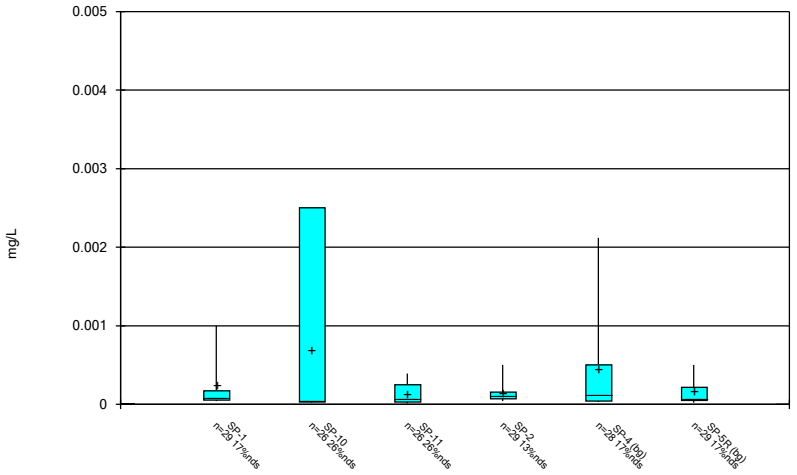
Box & Whiskers Plot



Constituent: Barium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

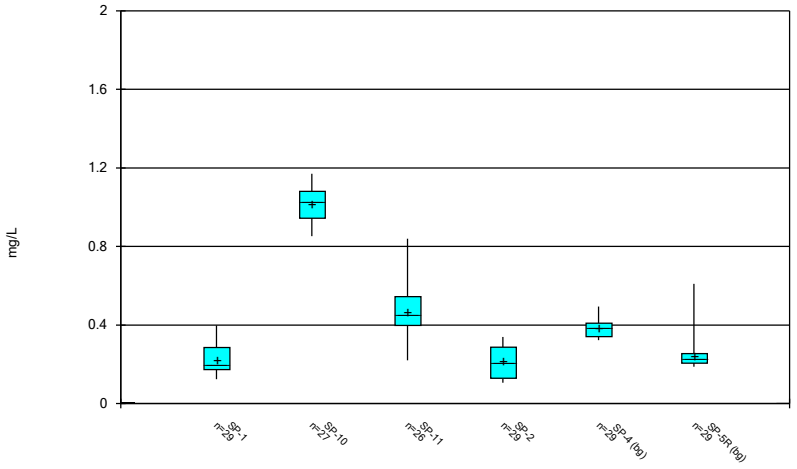
Box & Whiskers Plot



Constituent: Beryllium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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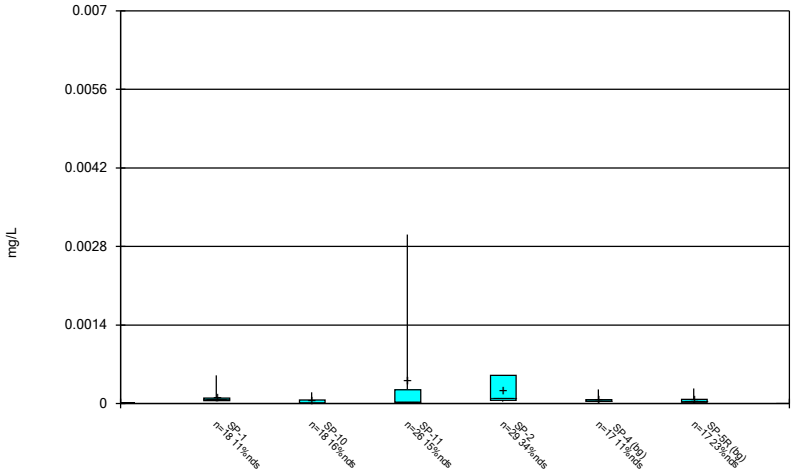
Box & Whiskers Plot



Constituent: Boron Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

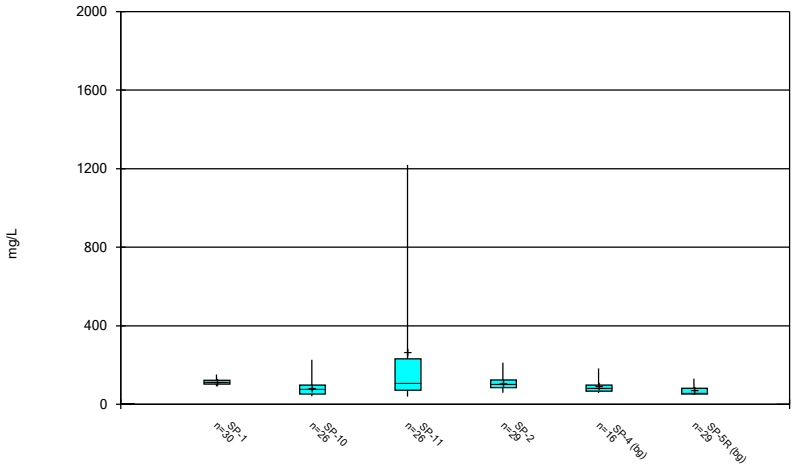
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

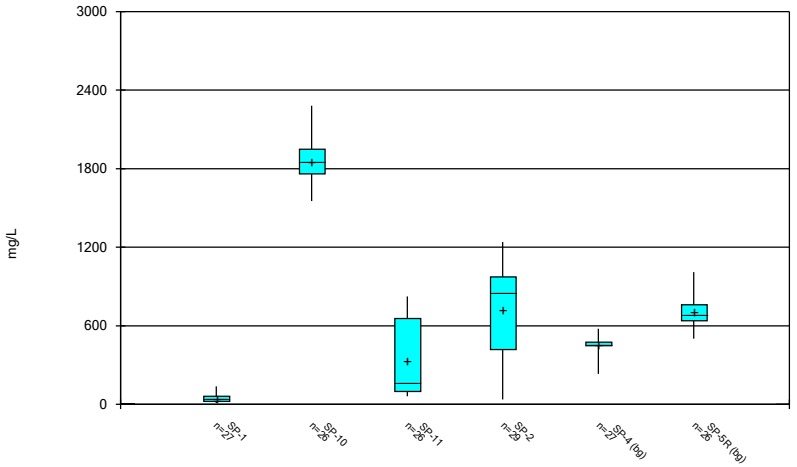
Box & Whiskers Plot



Constituent: Calcium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

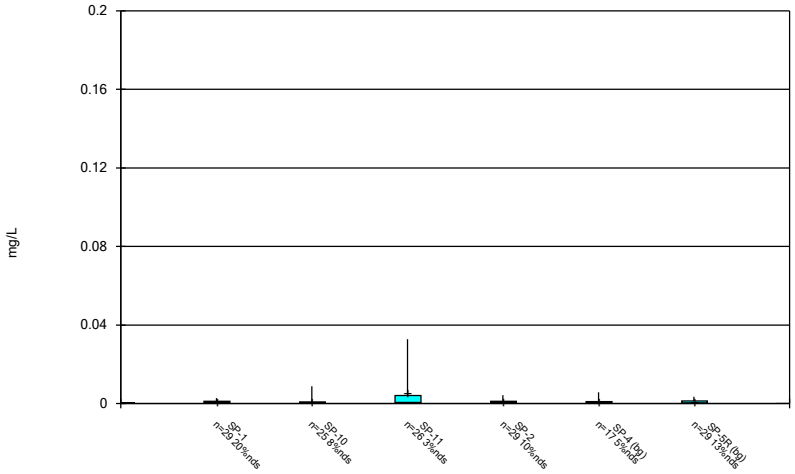
Box & Whiskers Plot



Constituent: Chloride Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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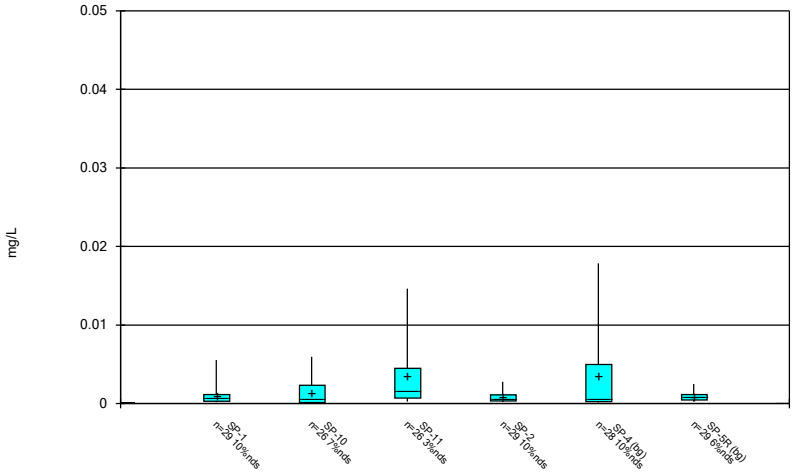
Box & Whiskers Plot



Constituent: Chromium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

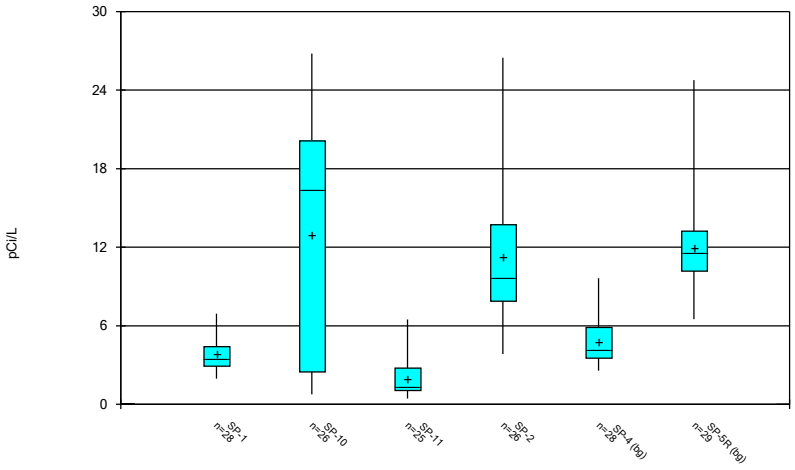
Box & Whiskers Plot



Constituent: Cobalt Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

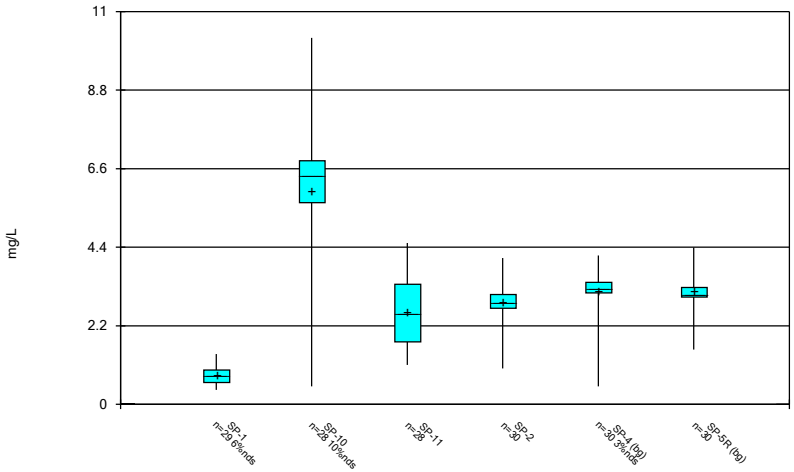
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

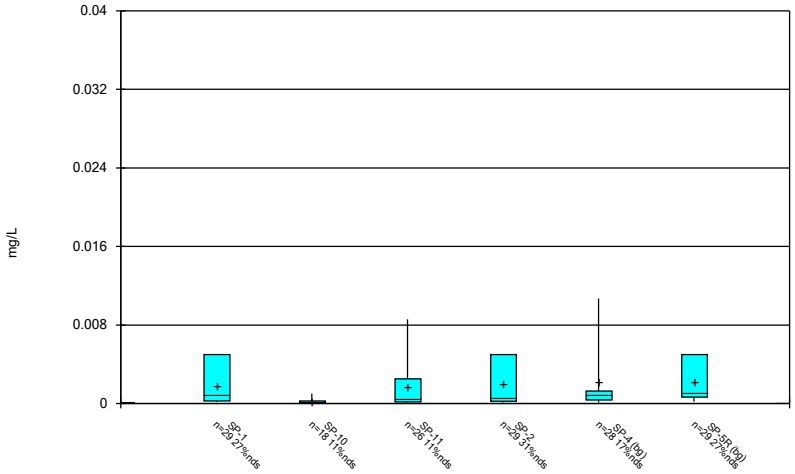
Box & Whiskers Plot



Constituent: Fluoride Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

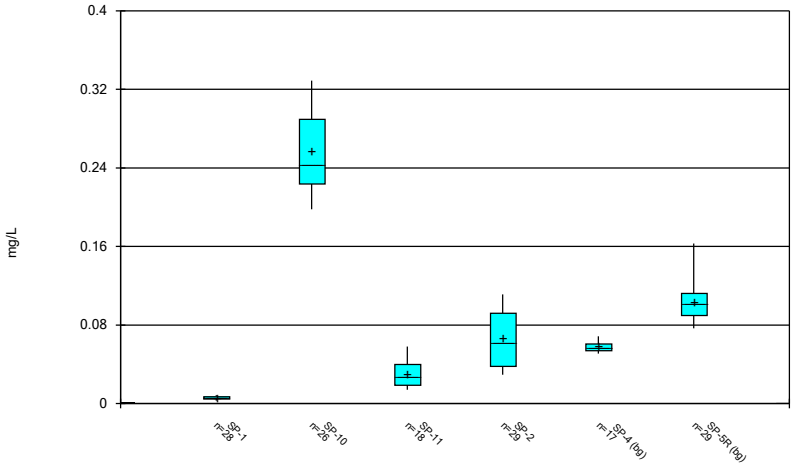
Box & Whiskers Plot



Constituent: Lead Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

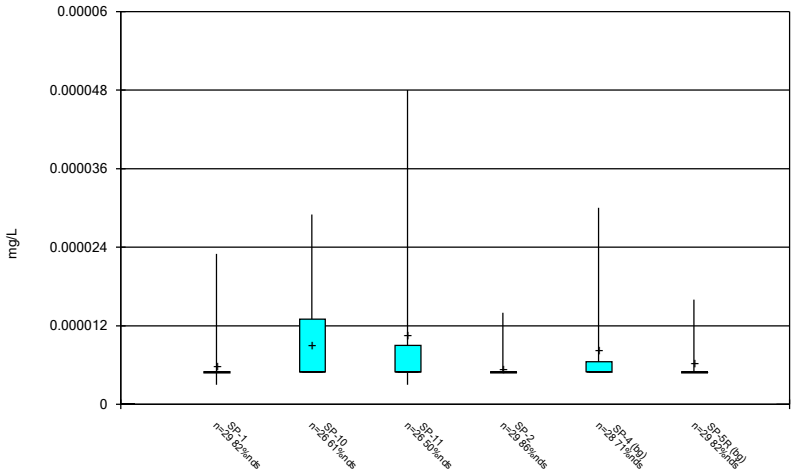
Box & Whiskers Plot



Constituent: Lithium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

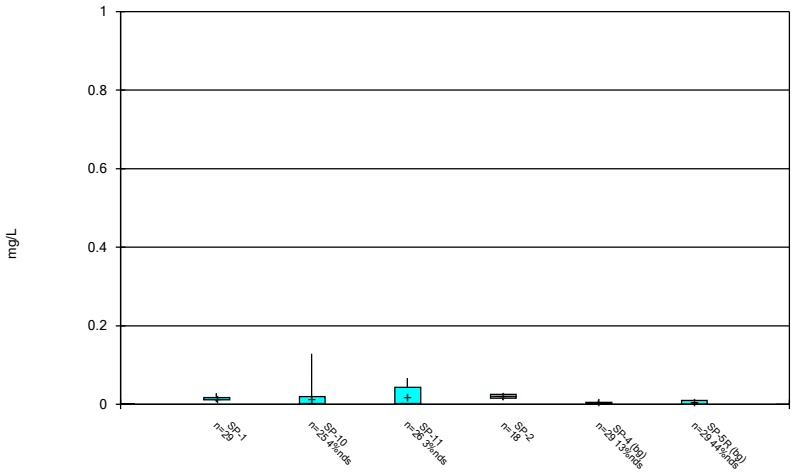
Box & Whiskers Plot



Constituent: Mercury Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

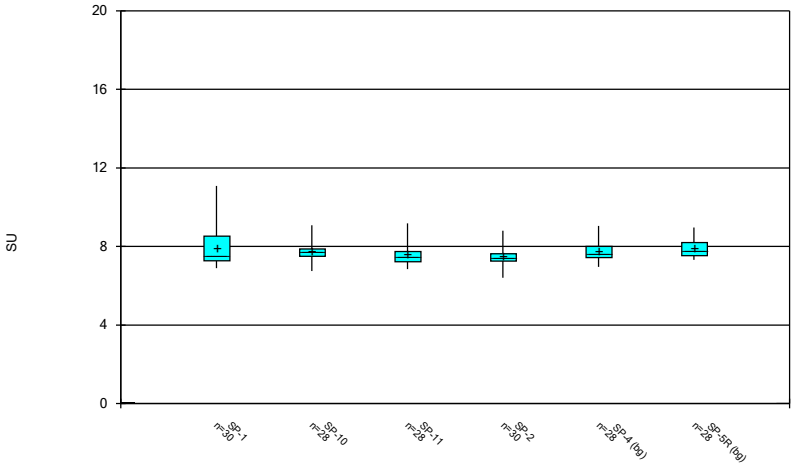
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

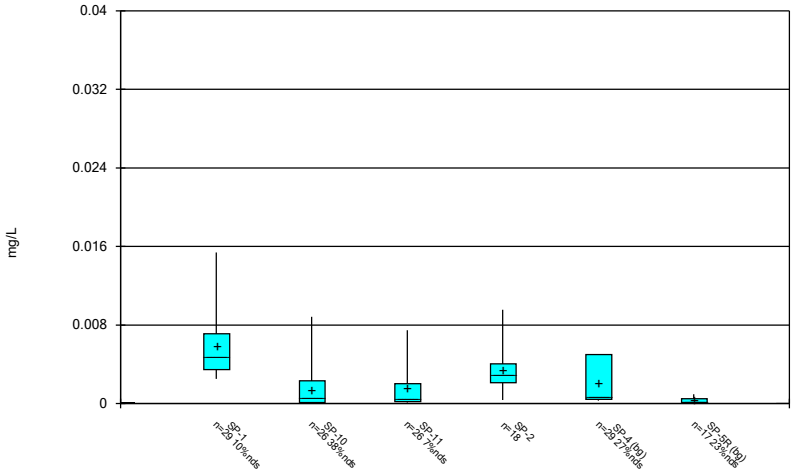
Box & Whiskers Plot



Constituent: pH, field Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

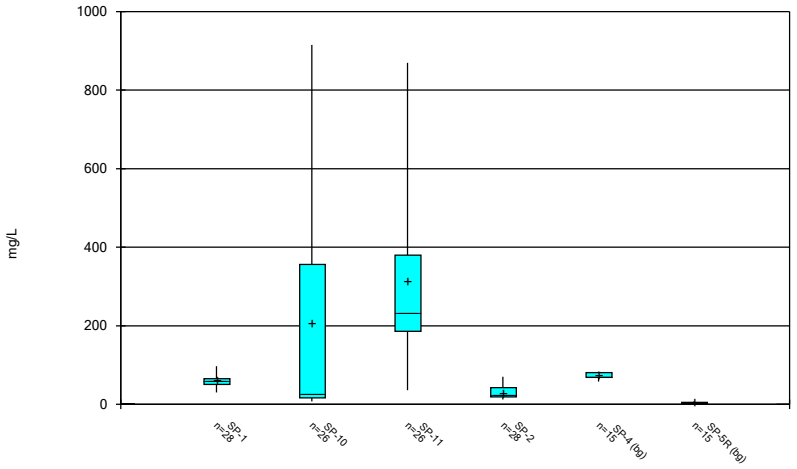
Box & Whiskers Plot



Constituent: Selenium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

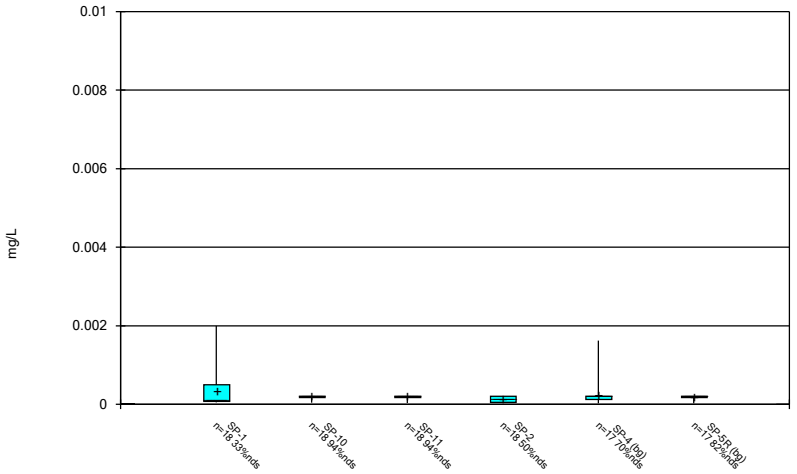
Box & Whiskers Plot



Constituent: Sulfate Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

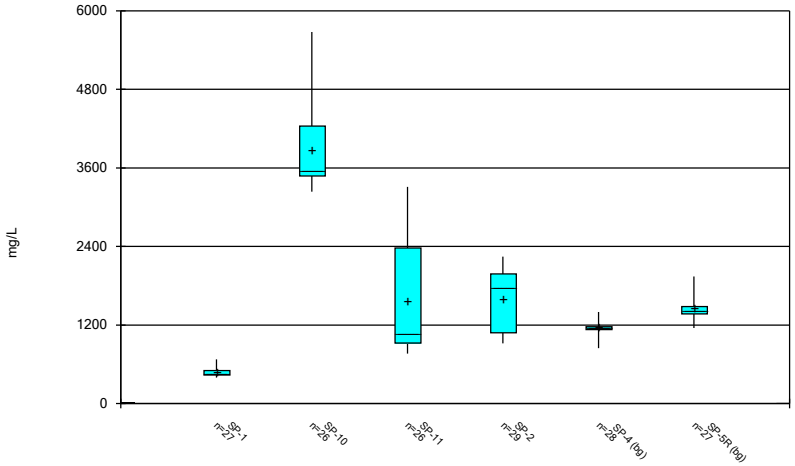
Box & Whiskers Plot



Constituent: Thallium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/14/2025 3:59 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE C

Outlier Summary and Tukey's Outlier Test

Outlier Summary

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:15 PM

	SP-4 Arsenic (mg/L)	SP-4 Beryllium (mg/L)	SP-1 Chloride (mg/L)	SP-4 Chloride (mg/L)	SP-5R Chloride (mg/L)	SP-10 Chromium (mg/L)	SP-4 Cobalt (mg/L)	SP-1 Combined Radium 226 + 228 (pCi/L)	SP-11 Combined Radium 226 + 228 (pCi/L)	SP-1 Fluoride (mg/L)
3/13/2017			548 (o)							4 (o)
3/15/2017				52 (o)	62 (o)					
5/18/2017					1834 (o)					
6/27/2017								14.29 (o)		
7/13/2017						0.11 (o)				
8/4/2017	0.04498 (o)	0.00497 (o)					0.04069 (o)		25.367 (o)	
7/30/2018										
6/20/2019										

	SP-4 Lead (mg/L)	SP-1 Lithium (mg/L)	SP-4 Mercury (mg/L)	SP-10 Molybdenum (mg/L)	SP-1 Total Dissolved Solids [TDS] (mg/L)	SP-5R Total Dissolved Solids [TDS] (mg/L)
3/13/2017						
3/15/2017						
5/18/2017						3008 (o)
6/27/2017						
7/13/2017				0.934 (o)		
8/4/2017	0.03663 (o)		5.8E-05 (o)			
7/30/2018					1060 (o)	
6/20/2019		0.03 (J,o)				

Tukey's Outlier Test - All Wells - All Results (No Significant)

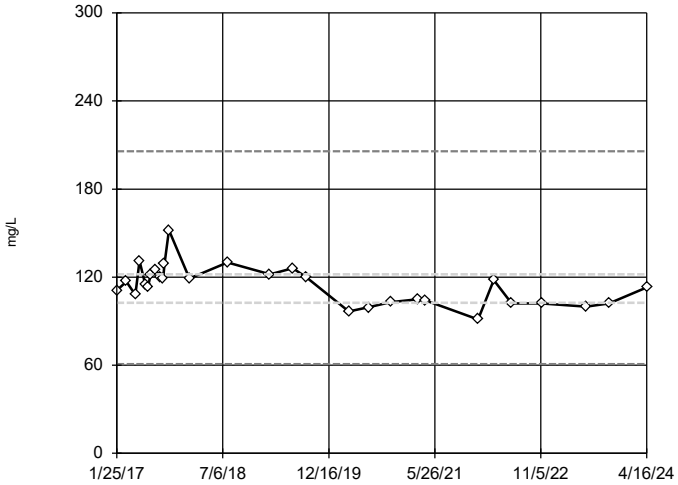
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/16/2025, 11:54 AM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Calcium (mg/L)	SP-1	No	n/a	NP	NaN	29	114.3	13.04	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-10	No	n/a	NP	NaN	25	82.53	47.03	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-11	No	n/a	NP	NaN	25	272.7	370.6	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-2	No	n/a	NP	NaN	28	106.2	34.64	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-4 (bg)	No	n/a	NP	NaN	15	90.6	36.81	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-5R (bg)	No	n/a	NP	NaN	28	68.57	23.15	ln(x)	ShapiroWilk

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Tukey's Outlier Screening

SP-1



n = 29

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 = 205.7, low cutoff = 60.78, based on IQR multiplier of 3.

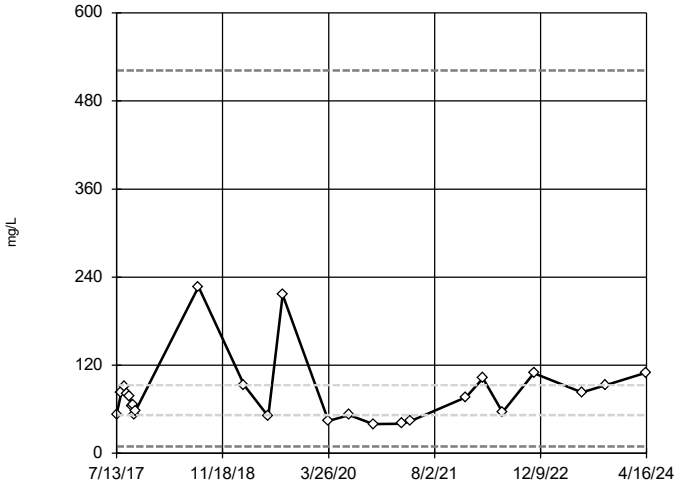
Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-10



n = 25

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

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

High cutoff = 521.4, low cutoff = 9.29, based on IQR multiplier of 3.

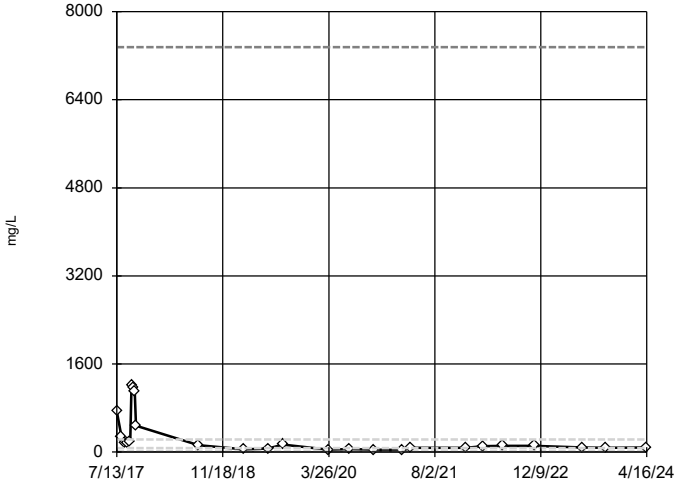
Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-11



n = 25

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

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

High cutoff = 7354, low cutoff = 2.206, based on IQR multiplier of 3.

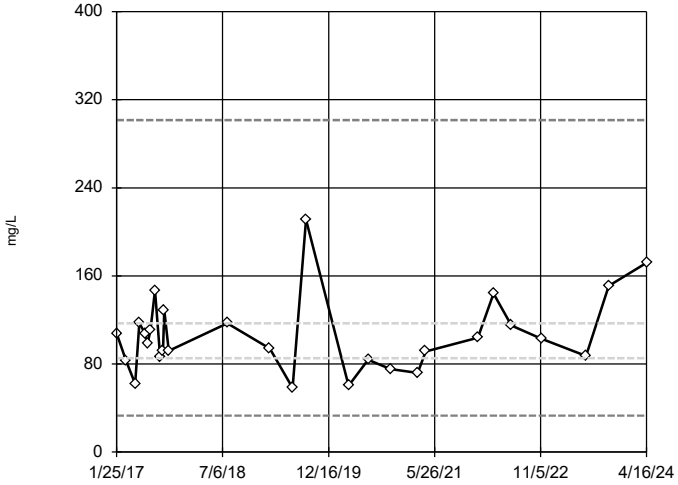
Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-2



n = 28

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 = 301.5, low cutoff = 33.11, based on IQR multiplier of 3.

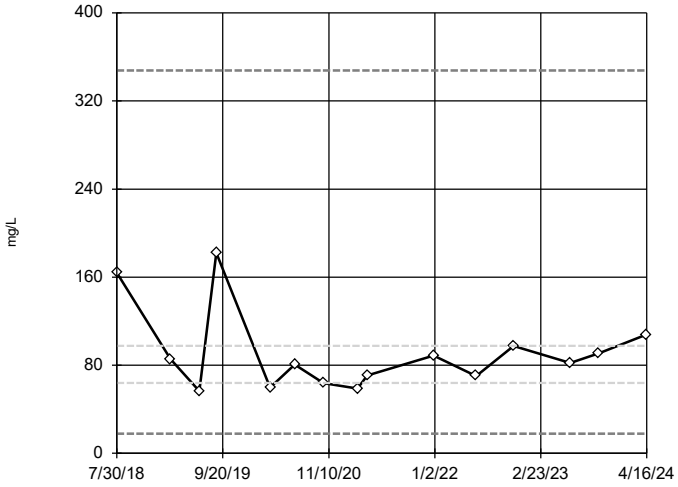
Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-4 (bg)



n = 15

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

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

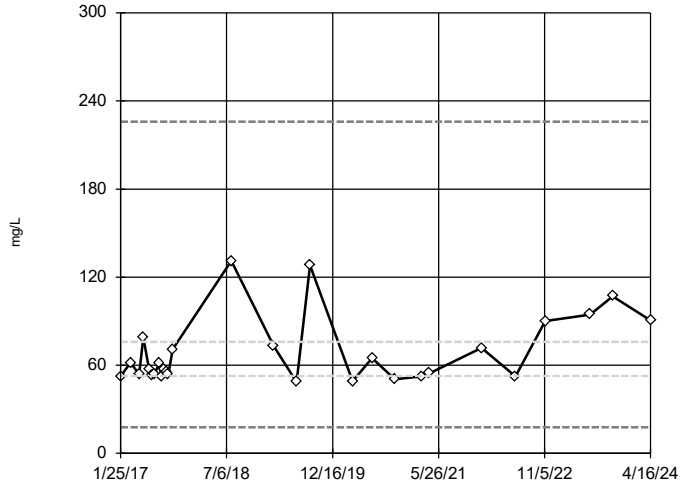
High cutoff = 347.8, low cutoff = 17.93, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-5R (bg)



n = 28

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 = 225.9, low cutoff = 17.72, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Tukey's Outlier Test - Upgradient Wells - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 1:43 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Chloride (mg/L)	**SP-4,SP-5R**	**Yes**	**52,1834**	**NP**	**NaN**	**56**	**583.4**	**245.6**	**sqrt(x)**	**ShapiroFrancia**
Fluoride (mg/L)	**SP-4,SP-5R**	**Yes**	**4,4,2.1,4.086,1.747,4.17,0.5,1.535,4.11,4.39**	**NP**	**NaN**	**60**	**3.181**	**0.6066**	**x^2**	**ShapiroFrancia**
Mercury (mg/L)	**SP-4,SP-5R**	**Yes**	**0.000015,0.000015,0.00001,0.000058,0.00003,0.0000**	**NP**	**NaN**	**58**	**0.000008172**	**0.000008645**	**ln(x)**	**ShapiroFrancia**
Selenium (mg/L)	**SP-4,SP-5R**	**Yes**	**0.00499**	**NP**	**NaN**	**45**	**0.000636**	**0.0007718**	**ln(x)**	**ShapiroWilk**
Total Dissolved Solids [TDS] (mg/L)	**SP-4,SP-5R**	**Yes**	**3008**	**NP**	**NaN**	**56**	**1335**	**296.9**	**ln(x)**	**ShapiroFrancia**

Tukey's Outlier Test - Upgradient Wells - All Results

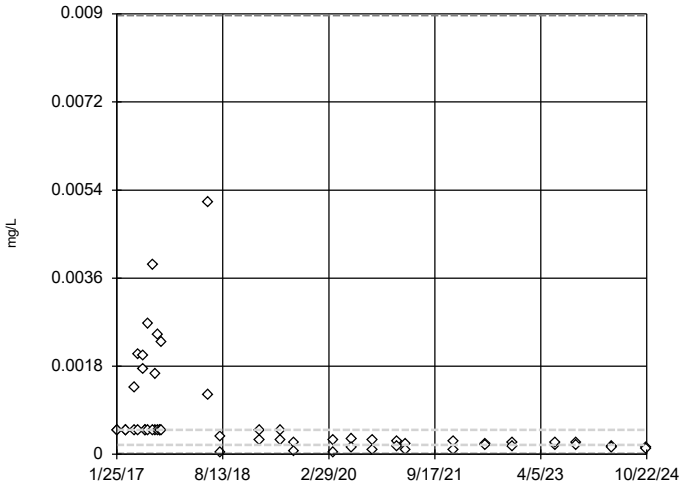
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 1:43 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.0007022	0.0009733	ln(x)	ShapiroFrancia
Arsenic (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.01292	0.01348	x^(1/3)	ShapiroFrancia
Barium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	45	1.419	0.8758	x^3	ShapiroWilk
Beryllium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.0003831	0.0007643	ln(x)	ShapiroFrancia
Boron (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.312	0.09383	ln(x)	ShapiroFrancia
Cadmium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	32	0.00005884	0.00005131	ln(x)	ShapiroWilk
Chloride (mg/L)	**SP-4,SP-5R**	**Yes**	**52,1834**	**NP**	**NaN**	**56**	**583.4**	**245.6**	**sqrt(x)**	**ShapiroFrancia**
Chromium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	45	0.0009502	0.001008	ln(x)	ShapiroWilk
Cobalt (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.002797	0.006582	ln(x)	ShapiroFrancia
Combined Radium 226 + 228 (pCi/L)	SP-4,SP-5R	No	n/a	NP	NaN	57	8.43	4.54	x^(1/3)	ShapiroFrancia
Fluoride (mg/L)	**SP-4,SP-5R**	**Yes**	**4,4,2.1,4.086,1.747,4.17,0.5,1.535,4.11,4.39**	**NP**	**NaN**	**60**	**3.181**	**0.6066**	**x^2**	**ShapiroFrancia**
Lead (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.002249	0.005193	ln(x)	ShapiroFrancia
Lithium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	45	0.08687	0.02598	sqrt(x)	ShapiroWilk
Mercury (mg/L)	**SP-4,SP-5R**	**Yes**	**0.000015,0.000015,0.00001,0.000058,0.00003,0.0000**	**NP**	**NaN**	**58**	**0.000008172**	**0.000008645**	**ln(x)**	**ShapiroFrancia**
Molybdenum (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.004588	0.003783	ln(x)	ShapiroFrancia
pH, field (SU)	SP-4,SP-5R	No	n/a	NP	NaN	56	7.855	0.52	ln(x)	ShapiroFrancia
Selenium (mg/L)	**SP-4,SP-5R**	**Yes**	**0.00499**	**NP**	**NaN**	**45**	**0.000636**	**0.0007718**	**ln(x)**	**ShapiroWilk**
Sulfate (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	28	38.1	35.57	ln(x)	ShapiroWilk
Thallium (mg/L)	SP-4,SP-5R	n/a	n/a	NP	NaN	32	0.0002131	0.0002651	unknown	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	**SP-4,SP-5R**	**Yes**	**3008**	**NP**	**NaN**	**56**	**1335**	**296.9**	**ln(x)**	**ShapiroFrancia**

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

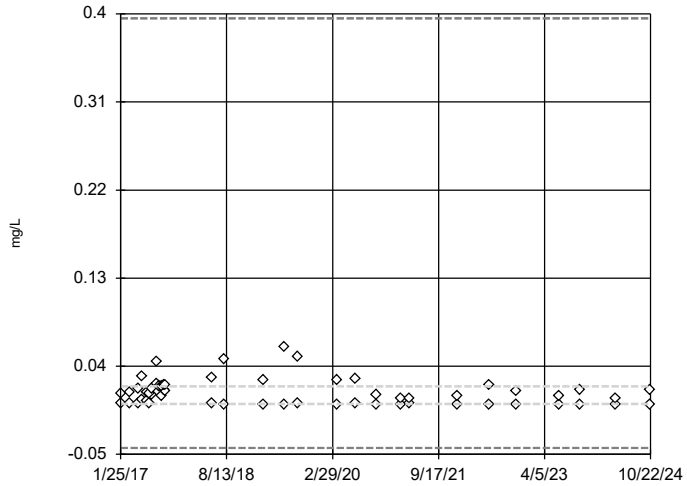
High cutoff = 0.00897, low cutoff = 0.00001065, based on IQR multiplier of 3.

Constituent: Antimony Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

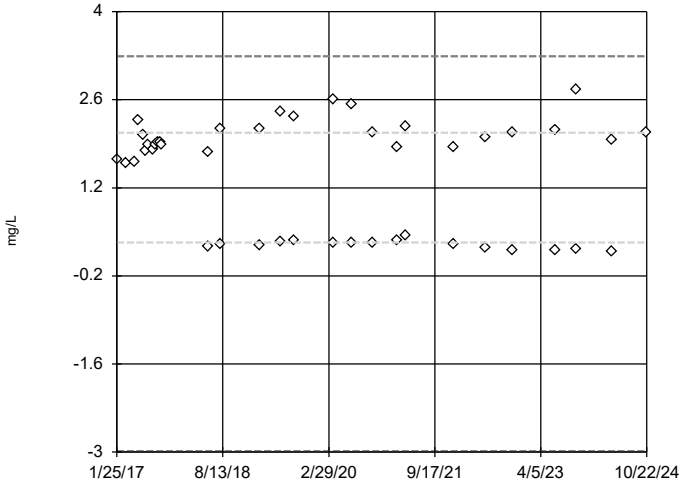
High cutoff = 0.3954, low cutoff = -0.04352, based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

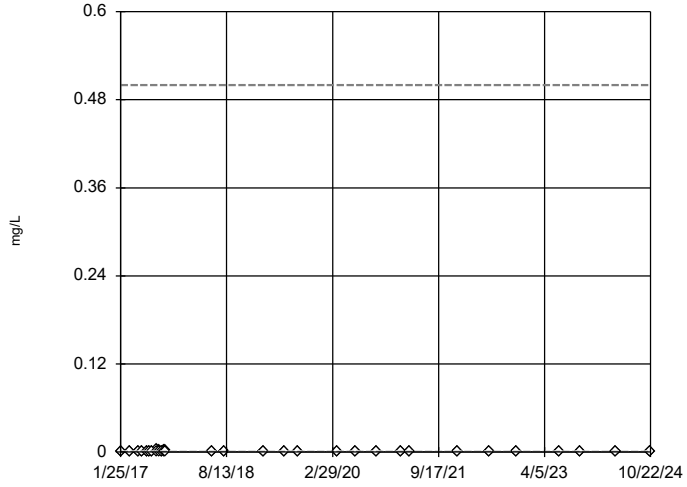
High cutoff = 3.291, low cutoff = -2.987, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

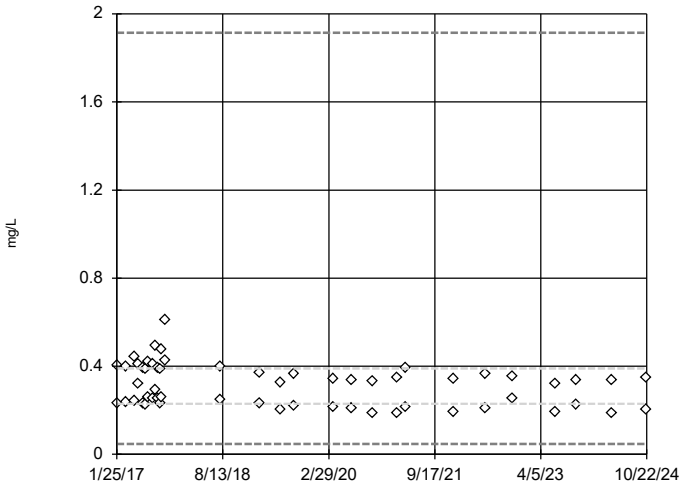
High cutoff = 0.5, low cutoff = 5.0e-8, based on IQR multiplier of 3.

Constituent: Beryllium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

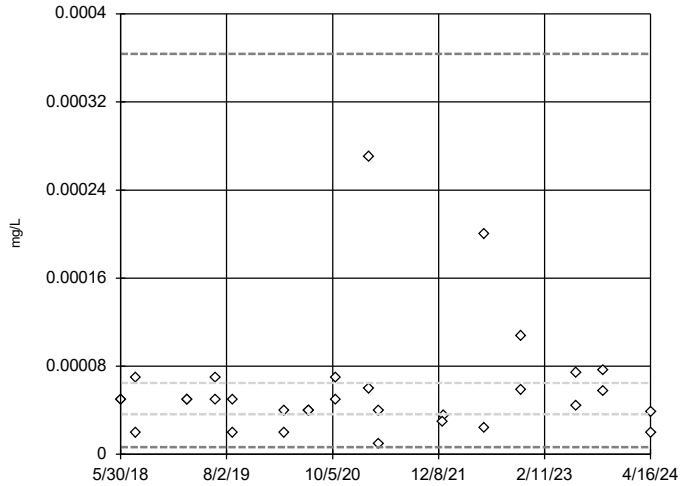
High cutoff = 1.914, low cutoff = 0.04676, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



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).

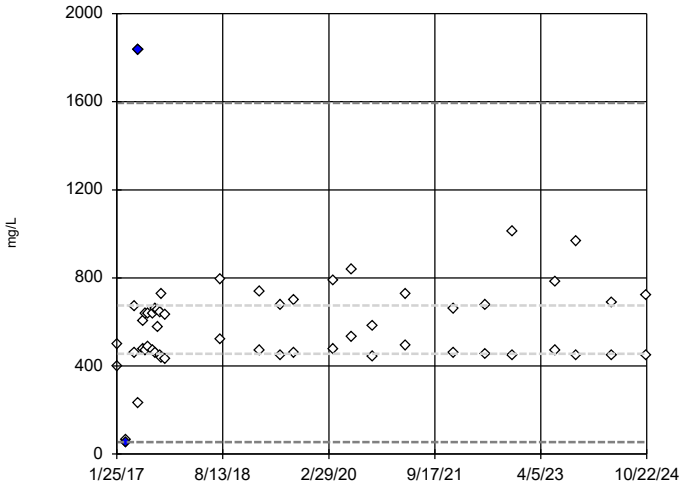
High cutoff = 0.0003637, low cutoff = 0.000006499, based on IQR multiplier of 3.

Constituent: Cadmium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 56

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

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

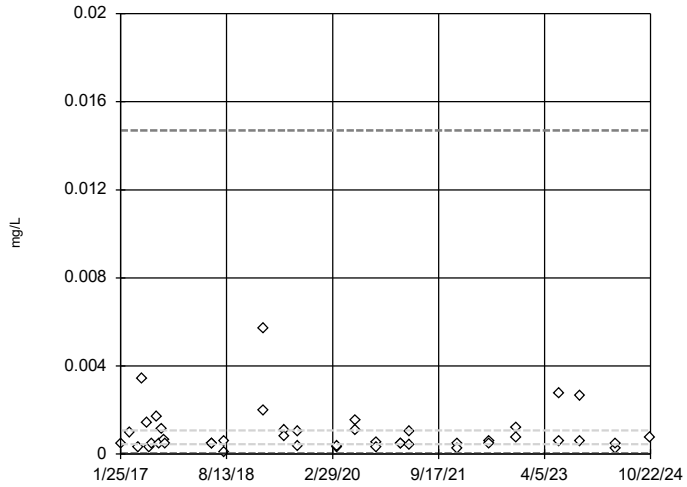
High cutoff = 1595, low cutoff = 54.47, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

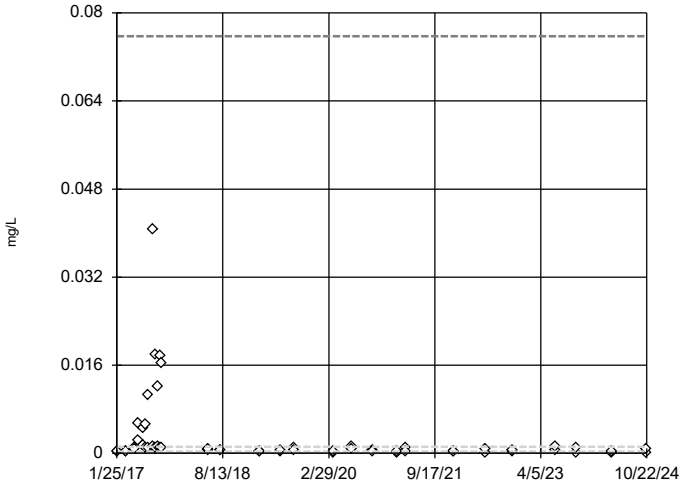
High cutoff = 0.0147, low cutoff = 0.00003287, based on IQR multiplier of 3.

Constituent: Chromium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

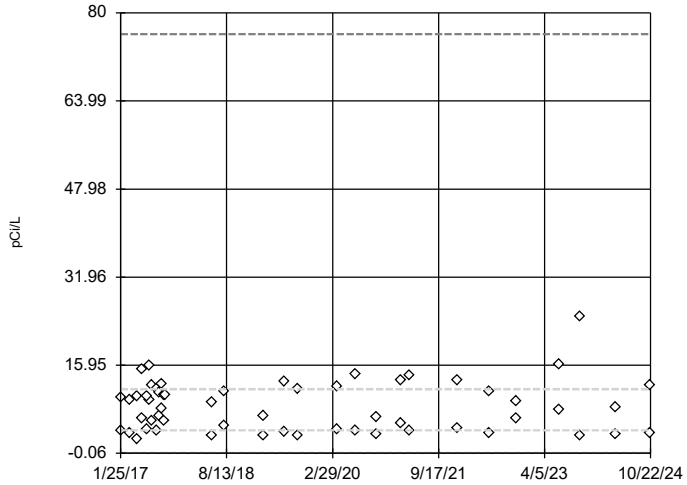
High cutoff = 0.07577, low cutoff = 0.00000468, based on IQR multiplier of 3.

Constituent: Cobalt Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 57

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

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

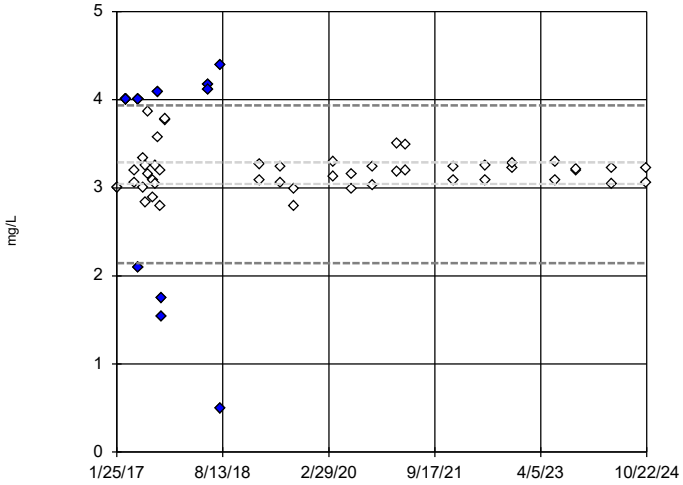
High cutoff = 76.14, low cutoff = -0.05155, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 60

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

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

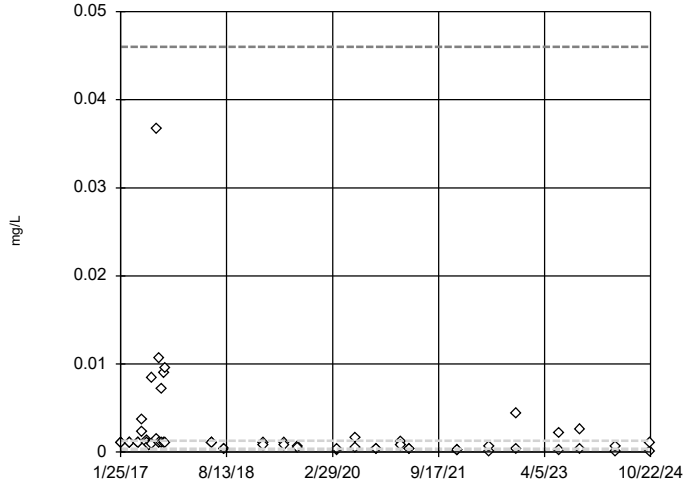
High cutoff = 3.936, low cutoff = 2.146, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

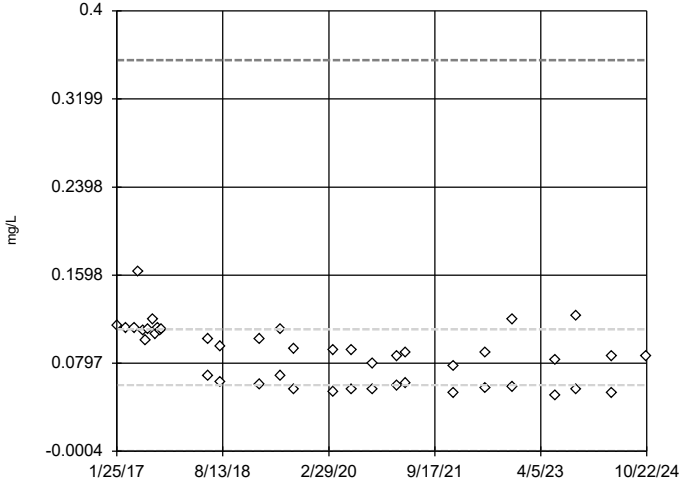
High cutoff = 0.046, low cutoff = 0.0000107, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

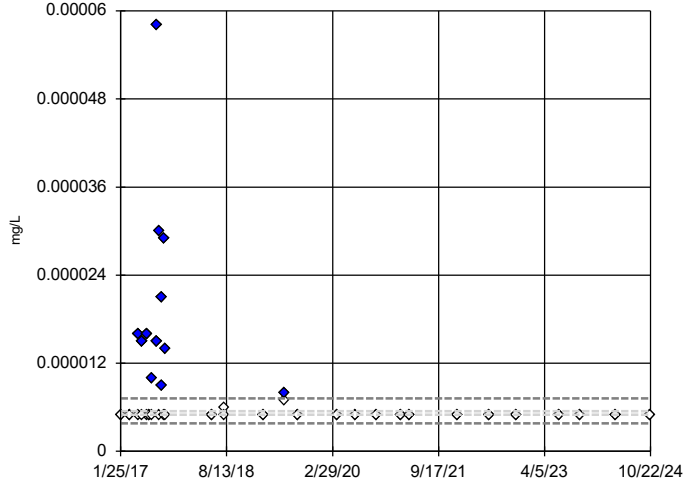
High cutoff = 0.3553, low cutoff = -0.0003643, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

Outliers are drawn as solid.
Tukey's method select-ed by user.

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

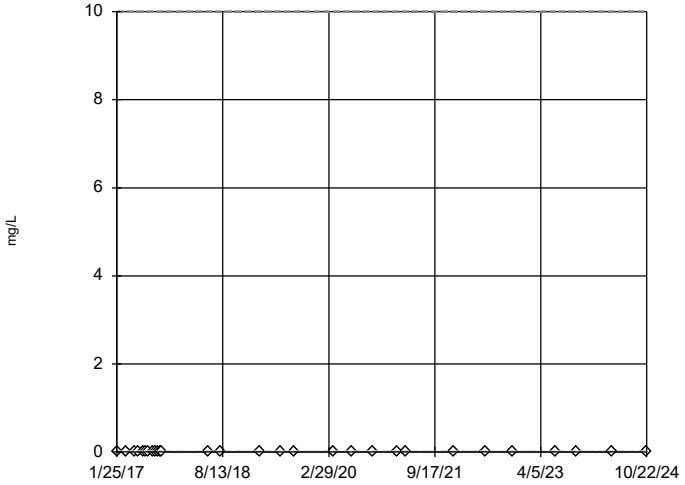
High cutoff = 0.0000072, low cutoff = 0.000003804, based on IQR multiplier of 3.

Constituent: Mercury Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

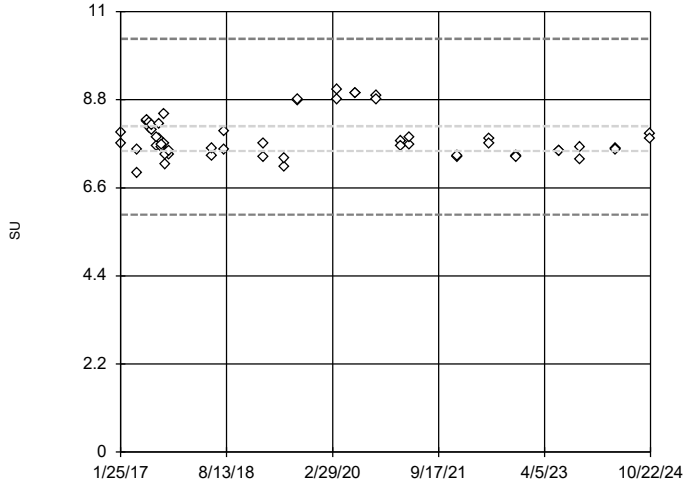
High cutoff = 10, low cutoff = 0.000001, based on IQR multiplier of 3.

Constituent: Molybdenum Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 56

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

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

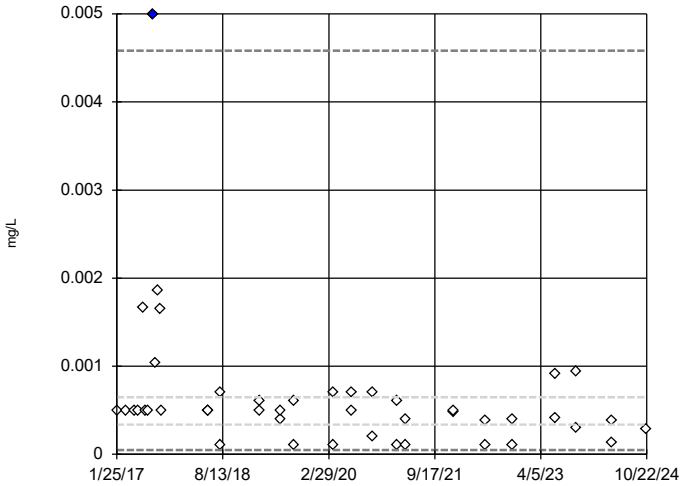
High cutoff = 10.32, low cutoff = 5.929, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

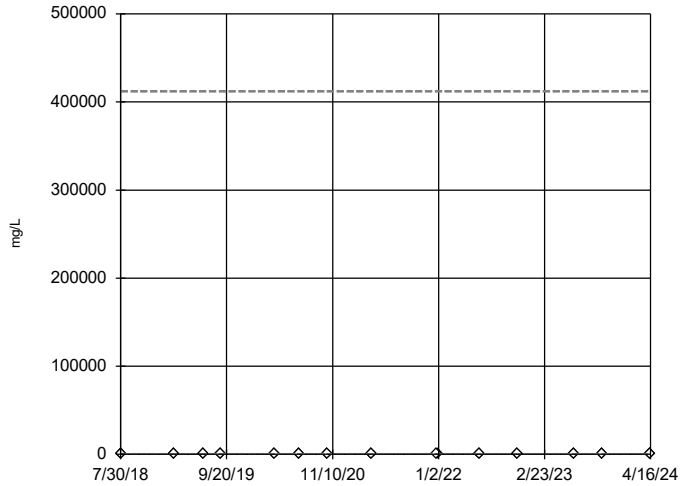
High cutoff = 0.004583, low cutoff = 0.00004775, based on IQR multiplier of 3.

Constituent: Selenium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 28

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

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

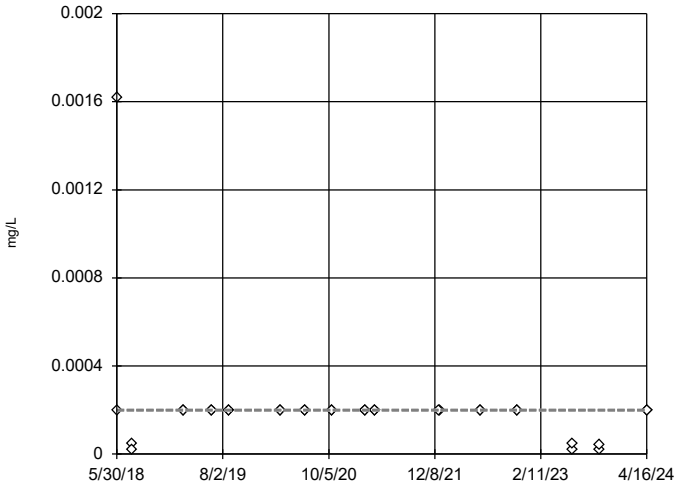
High cutoff = 412149, low cutoff = 0.000665, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



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).

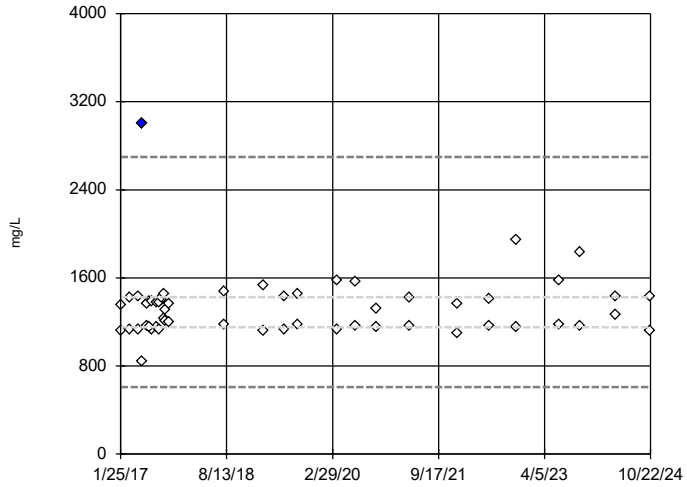
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 56

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

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

High cutoff = 2698, low cutoff = 609.5, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE D

Mann-Whitney

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

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 2/21/2025, 1:57 PM

Constituent	Well	Calc.	0.01	Alpha	Sig.	Method
Calcium (mg/L)	**SP-5R (bg)**	**2.594**	**Yes**	**0.01**	**Yes**	**Mann-W**

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

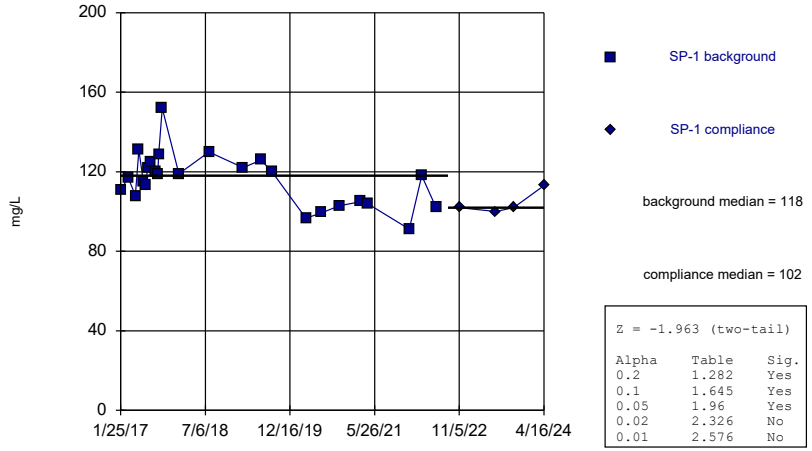
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 2/21/2025, 1:57 PM

Constituent	Well	Calc.	0.01	Alpha	Sig.	Method
Calcium (mg/L)	SP-1	-1.963	No	0.01	No	Mann-W
Calcium (mg/L)	SP-10	2.113	No	0.01	No	Mann-W
Calcium (mg/L)	SP-11	0.9709	No	0.01	No	Mann-W
Calcium (mg/L)	SP-2	1.215	No	0.01	No	Mann-W
Calcium (mg/L)	SP-4 (bg)	1.501	No	0.01	No	Mann-W
Calcium (mg/L)	**SP-5R (bg)**	**2.594**	**Yes**	**0.01**	**Yes**	**Mann-W**

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Mann-Whitney (Wilcoxon Rank Sum)

SP-1



Z = -1.963 (two-tail)

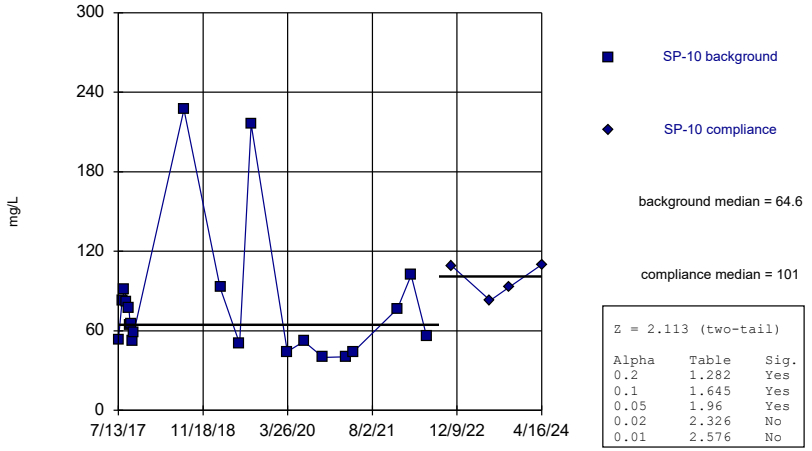
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	Yes
0.05	1.96	Yes
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-10



Z = 2.113 (two-tail)

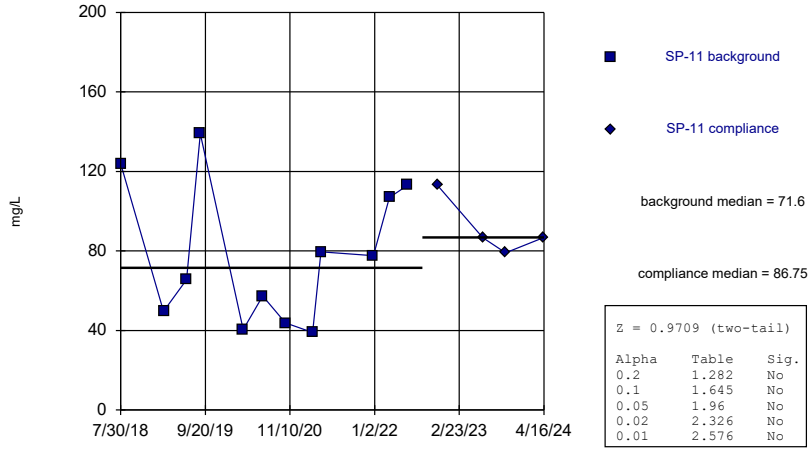
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	Yes
0.05	1.96	Yes
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-11



Z = 0.9709 (two-tail)

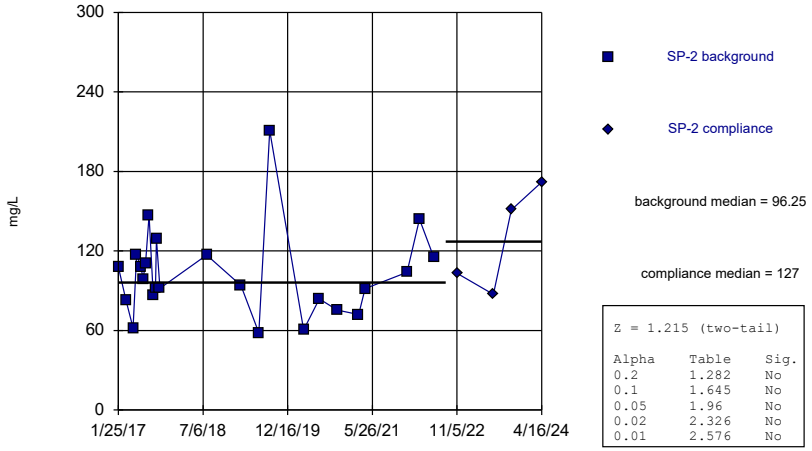
Alpha	Table	Sig.
0.2	1.282	No
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-2



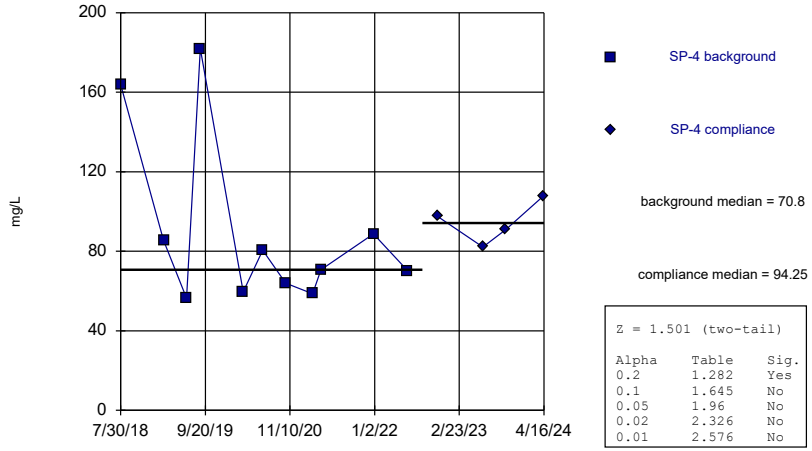
Z = 1.215 (two-tail)

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

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Mann-Whitney (Wilcoxon Rank Sum)

SP-4 (bg)



Z = 1.501 (two-tail)

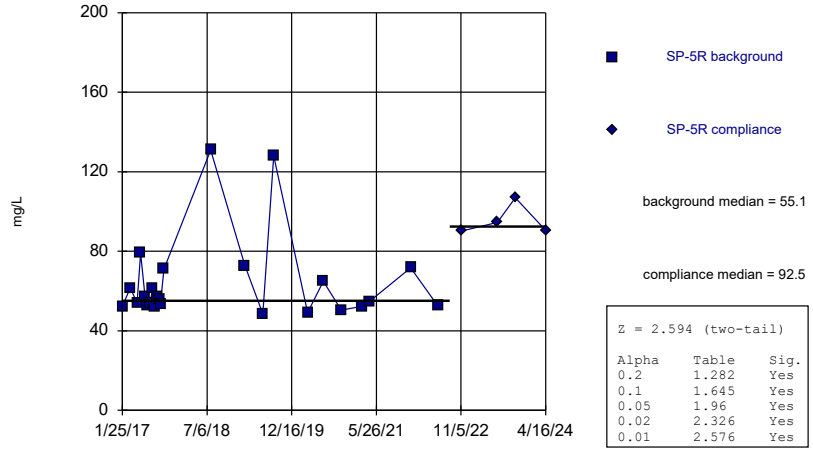
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-5R (bg)



Z = 2.594 (two-tail)

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

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE E

Intrawell PLs

Intrawell Prediction Limits - All Results

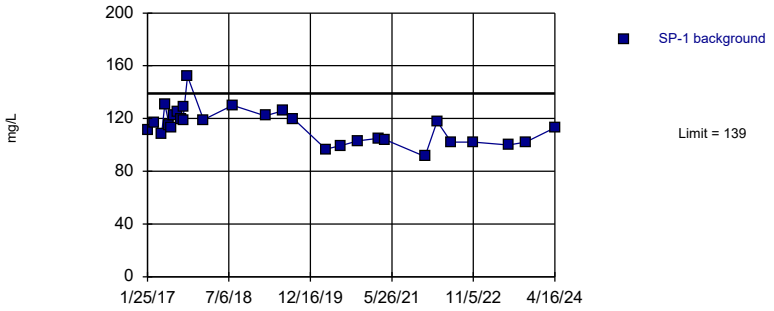
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/16/2025, 11:59 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Calcium (mg/L)	SP-1	139	n/a	n/a	1 future	n/a	29	114.3	13.04	0	None	No	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-10	176.8	n/a	n/a	1 future	n/a	25	4.301	0.4545	0	None	ln(x)	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-11	146.1	n/a	n/a	1 future	n/a	16	81.35	31.19	0	None	No	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-2	171.9	n/a	n/a	1 future	n/a	28	106.2	34.64	0	None	No	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-4	177.2	n/a	n/a	1 future	n/a	15	4.445	0.3465	0	None	ln(x)	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-5R	131	n/a	n/a	1 future	n/a	28	n/a	n/a	0	n/a	n/a	0.002337	NP Intra (normality) 1 of 2

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Prediction Limit

Intrawell Parametric, SP-1



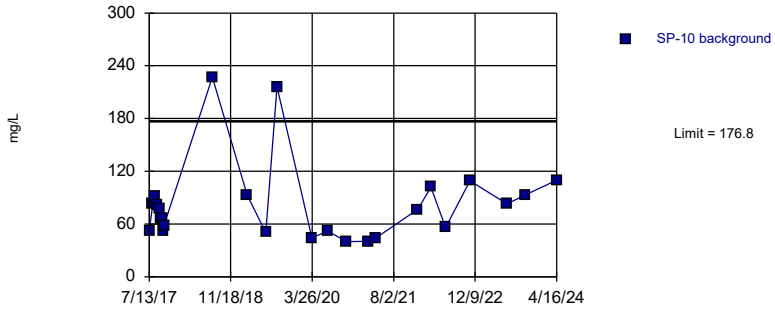
Background Data Summary: Mean=114.3, Std. Dev.=13.04, n=29. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9586, critical = 0.898. Kappa = 1.889 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Parametric, SP-10



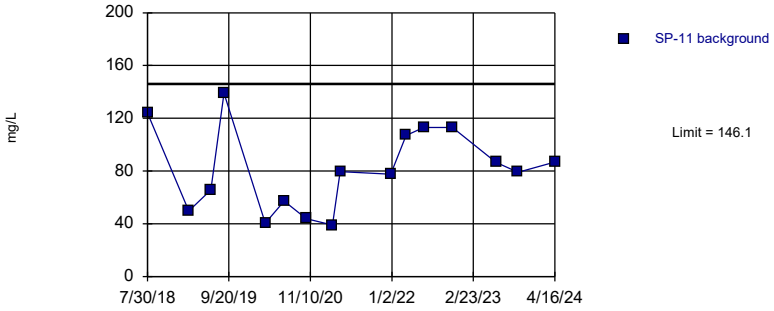
Background Data Summary (based on natural log transformation): Mean=4.301, Std. Dev.=0.4545, n=25. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9159, critical = 0.888. Kappa = 1.924 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Parametric, SP-11



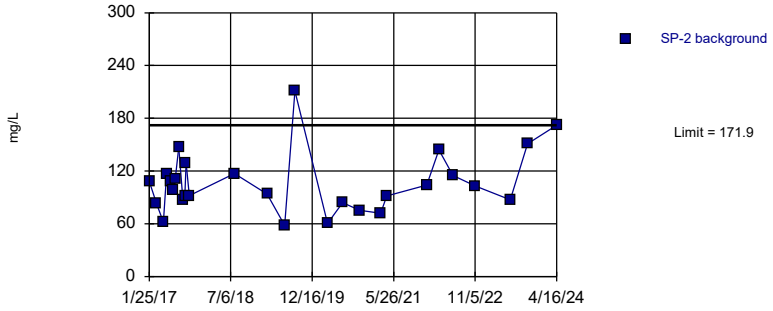
Background Data Summary: Mean=81.35, Std. Dev.=31.19, n=16. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9485, critical = 0.887. Kappa = 2.076 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Parametric, SP-2

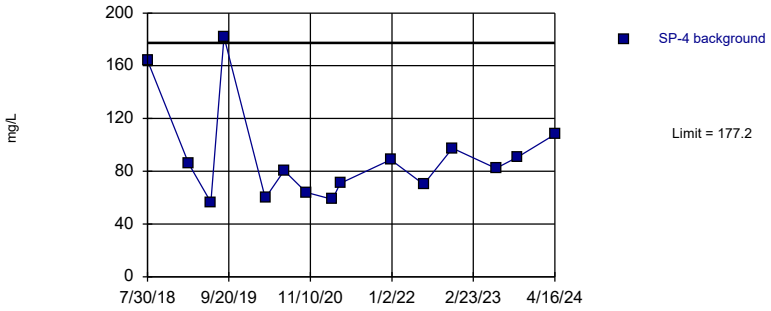


Background Data Summary: Mean=106.2, Std. Dev.=34.64, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9172, critical = 0.896. Kappa = 1.898 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Prediction Limit

Intrawell Parametric, SP-4 (bg)



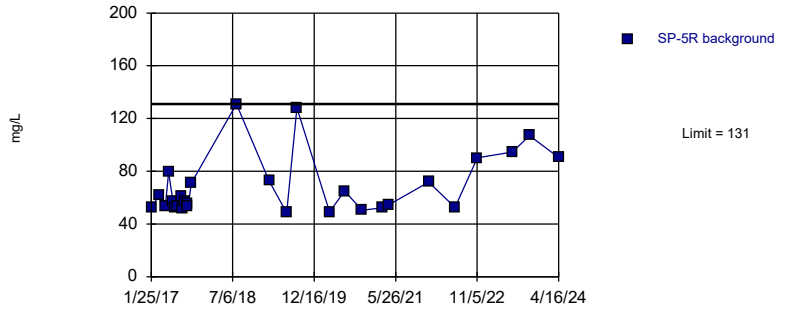
Background Data Summary (based on natural log transformation): Mean=4.445, Std. Dev.=0.3465, n=15. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8974, critical = 0.881. Kappa = 2.115 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Non-parametric, SP-5R (bg)



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 28 background values. Well-constituent pair annual alpha = 0.004669. Individual comparison alpha = 0.002337 (1 of 2). Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE F
Upgradient Well Trend Tests

Trend Tests - Upgradient Wells - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/15/2025, 12:08 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**SP-4 (bg)**	**-0.01186**	**-213**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**SP-5R (bg)**	**-0.007589**	**-179**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	**SP-5R (bg)**	**24.41**	**146**	**118**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**SP-4 (bg)**	**3.611**	**63**	**53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids [TDS] (mg/L)	**SP-5R (bg)**	**27.16**	**125**	**124**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.01**	**NP**

Trend Tests - Upgradient Wells - All Results

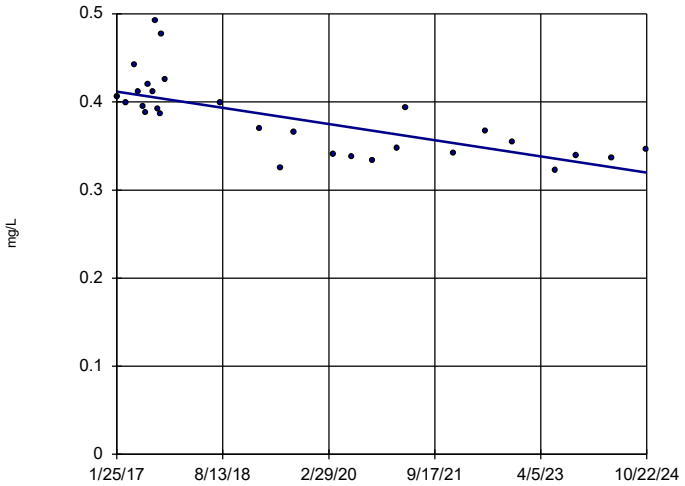
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/15/2025, 12:08 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**SP-4 (bg)**	**-0.01186**	**-213**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**SP-5R (bg)**	**-0.007589**	**-179**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	SP-4 (bg)	-0.5818	-24	-124	No	27	0	n/a	n/a	0.01	NP
Chloride (mg/L)	**SP-5R (bg)**	**24.41**	**146**	**118**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Fluoride (mg/L)	SP-4 (bg)	0	-2	-146	No	30	3.333	n/a	n/a	0.01	NP
Fluoride (mg/L)	SP-5R (bg)	0.002319	9	146	No	30	0	n/a	n/a	0.01	NP
pH, field (SU)	SP-4 (bg)	-0.008935	-13	-131	No	28	0	n/a	n/a	0.01	NP
pH, field (SU)	SP-5R (bg)	-0.05129	-77	-131	No	28	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**SP-4 (bg)**	**3.611**	**63**	**53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	SP-5R (bg)	0.06996	1	53	No	15	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	SP-4 (bg)	1.836	27	131	No	28	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	**SP-5R (bg)**	**27.16**	**125**	**124**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.01**	**NP**

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Sen's Slope Estimator

SP-4 (bg)



n = 29

Slope = -0.01186 units per year.

Mann-Kendall statistic = -213 critical = -139

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

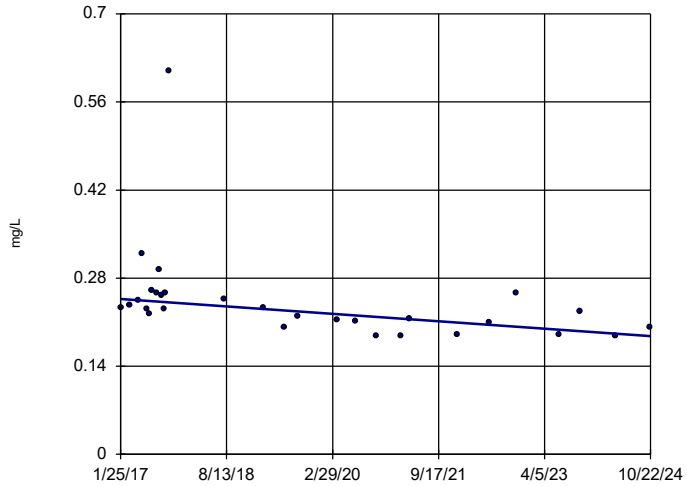
Constituent: Boron Analysis Run 1/15/2025 12:06 PM View: Interwell

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 29

Slope = -0.007589 units per year.

Mann-Kendall statistic = -179 critical = -139

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

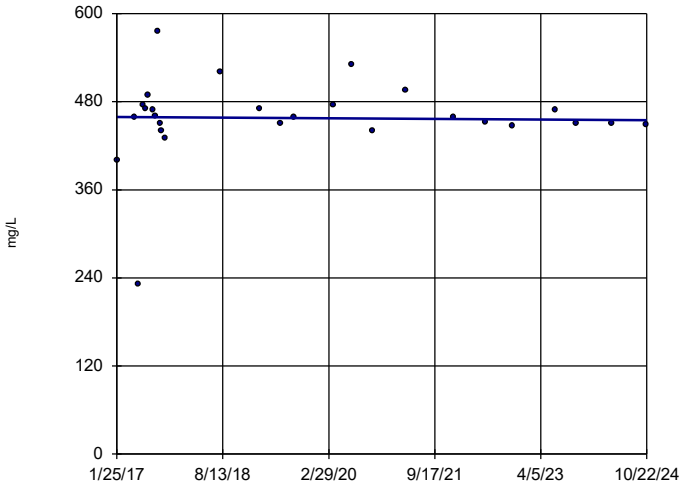
Constituent: Boron Analysis Run 1/15/2025 12:06 PM View: Interwell

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 27

Slope = -0.5818 units per year.

Mann-Kendall statistic = -24 critical = -124

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

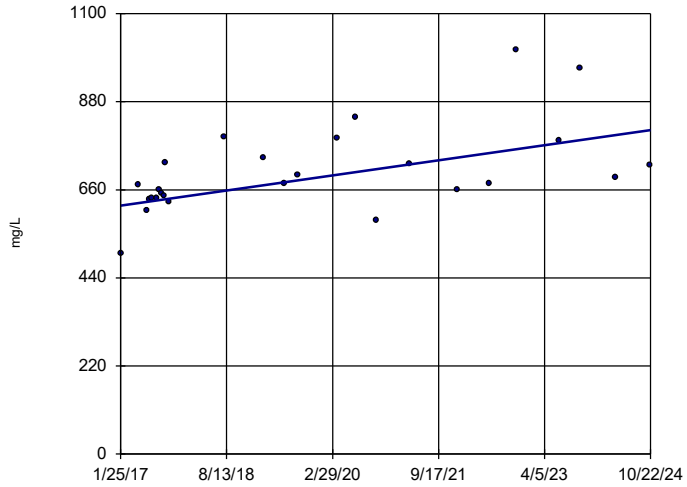
Constituent: Chloride Analysis Run 1/15/2025 12:06 PM View: Interwell

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 26

Slope = 24.41 units per year.

Mann-Kendall statistic = 146 critical = 118

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

Constituent: Chloride Analysis Run 1/15/2025 12:06 PM View: Interwell

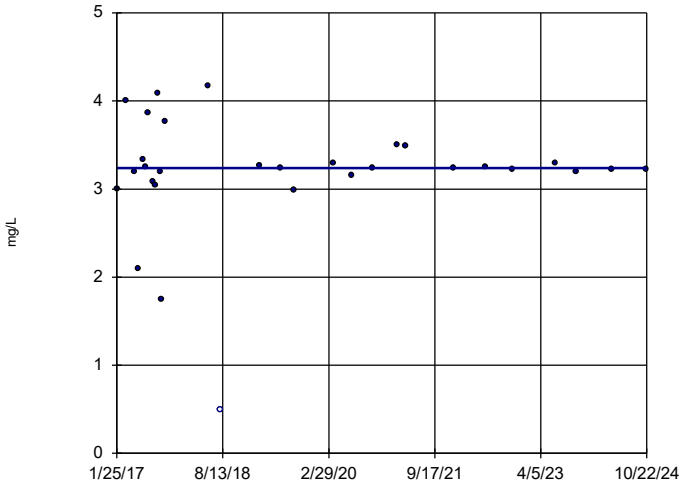
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-4 (bg)



n = 30

Slope = 0 units per year.

Mann-Kendall statistic = -2
critical = -146

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

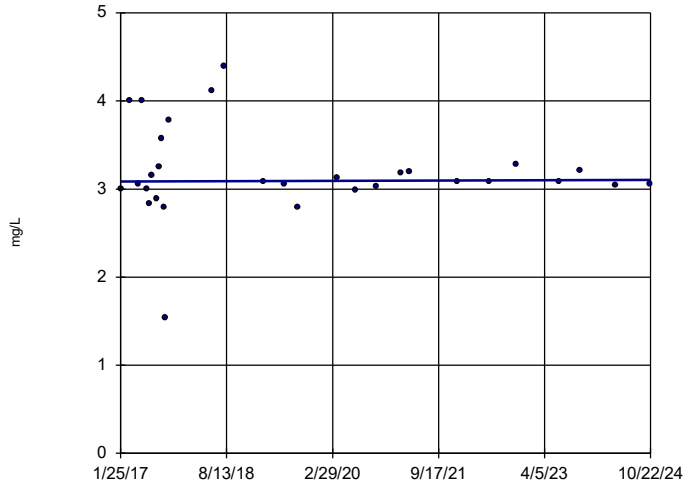
Constituent: Fluoride Analysis Run 1/15/2025 12:06 PM View: Interwell

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = 0.002319 units per year.

Mann-Kendall statistic = 9
critical = 146

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

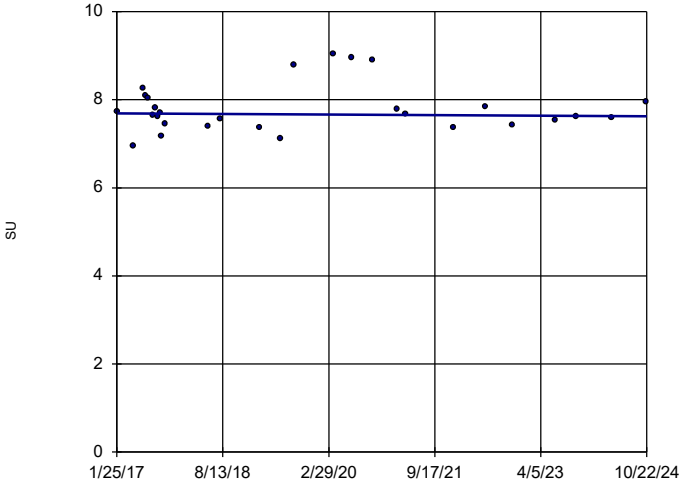
Constituent: Fluoride Analysis Run 1/15/2025 12:06 PM View: Interwell

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 28

Slope = -0.008935 units per year.

Mann-Kendall statistic = -13
critical = -131

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

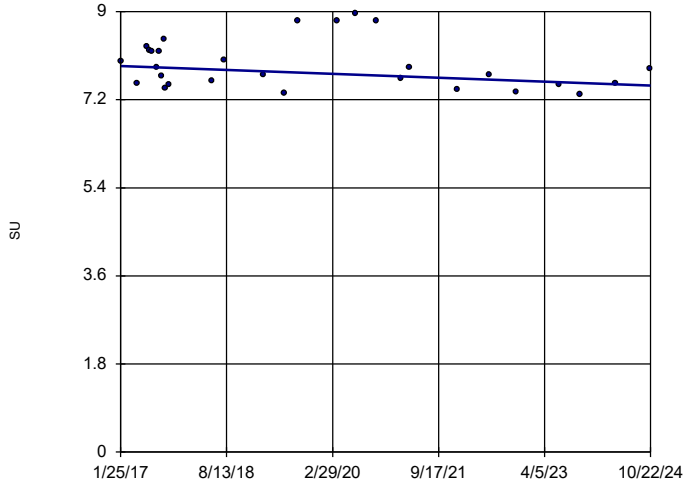
Constituent: pH, field Analysis Run 1/15/2025 12:06 PM View: Interwell

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 28

Slope = -0.05129 units per year.

Mann-Kendall statistic = -77
critical = -131

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

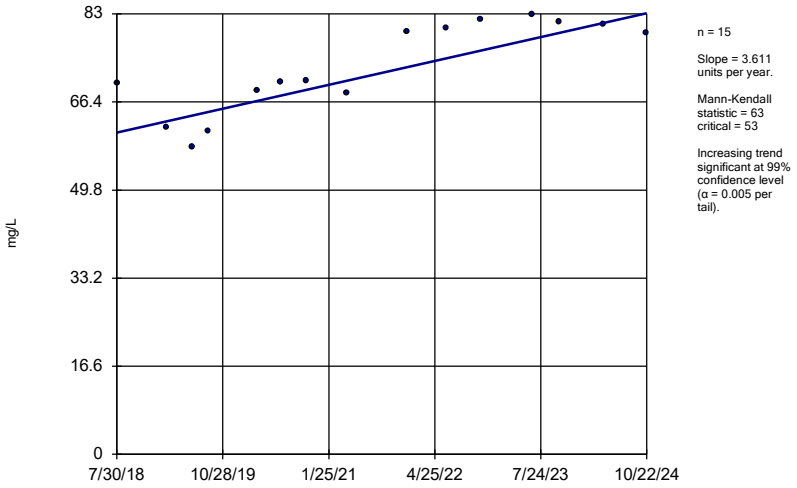
Constituent: pH, field Analysis Run 1/15/2025 12:06 PM View: Interwell

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 15

Slope = 3.611 units per year.

Mann-Kendall statistic = 63
critical = 53

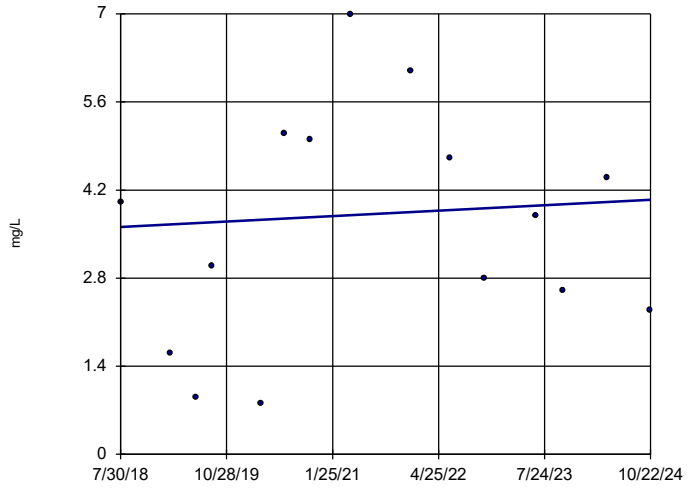
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 15

Slope = 0.06996 units per year.

Mann-Kendall statistic = 1
critical = 53

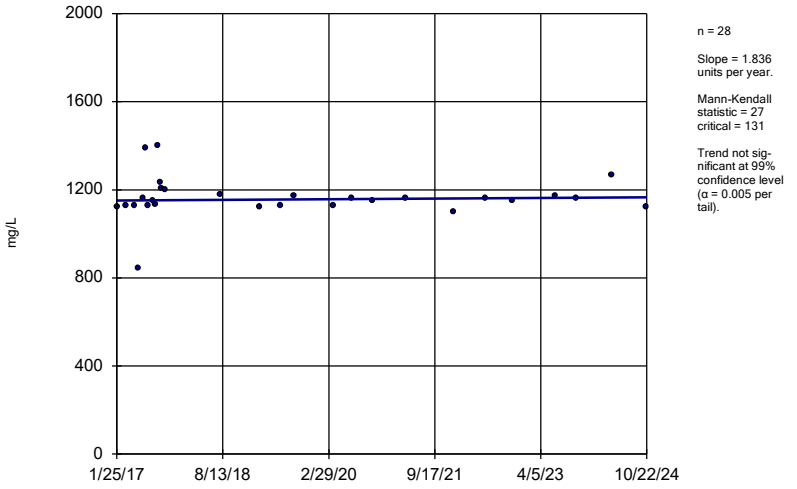
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 28

Slope = 1.836 units per year.

Mann-Kendall statistic = 27
critical = 131

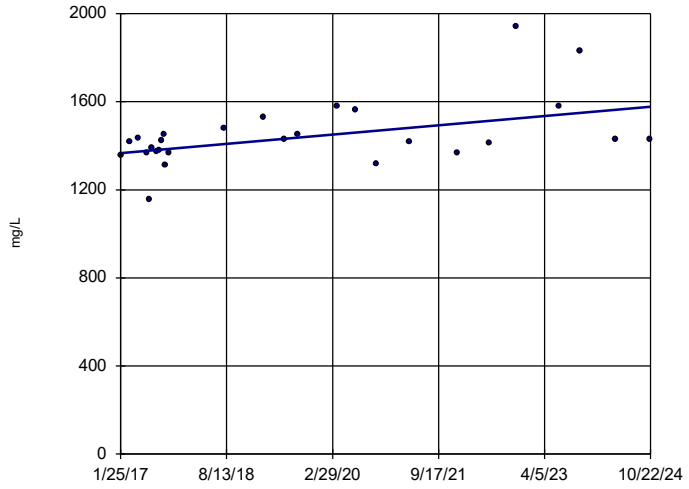
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 27

Slope = 27.16 units per year.

Mann-Kendall statistic = 125
critical = 124

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

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE G

Interwell PLs

Interwell Prediction Limits - All Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/17/2025, 11:41 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	n/a	0.4906	n/a	n/a	4 future	n/a	58	0.5525	0.08283	0	None	sqrt(x)	0.00188	Param Inter 1 of 2
Chloride (mg/L)	n/a	1010	n/a	n/a	4 future	n/a	53	n/a	n/a	0	n/a	n/a	0.0006789	NP Inter (normality) 1 of 2
Fluoride (mg/L)	n/a	4.39	n/a	n/a	4 future	n/a	60	n/a	n/a	1.667	n/a	n/a	0.0005243	NP Inter (normality) 1 of 2
pH, field (SU)	n/a	9.05	6.96	n/a	4 future	n/a	56	n/a	n/a	0	n/a	n/a	0.001225	NP Inter (normality) 1 of 2
Sulfate (mg/L)	n/a	83	n/a	n/a	4 future	n/a	30	n/a	n/a	0	n/a	n/a	0.001957	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	n/a	1940	n/a	n/a	4 future	n/a	55	n/a	n/a	0	n/a	n/a	0.0006347	NP Inter (normality) 1 of 2

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Prediction Limit

Interwell Parametric



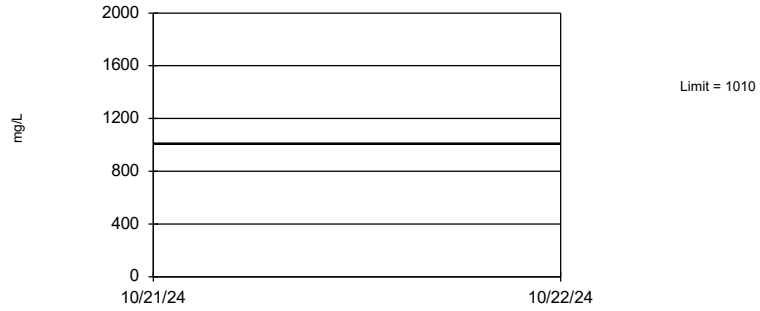
Background Data Summary (based on square root transformation): Mean=0.5525, Std. Dev.=0.08283, n=58. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9479, critical = 0.944. Kappa = 1.786 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.00188. Assumes 4 future values.

Constituent: Boron Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Interwell Non-parametric



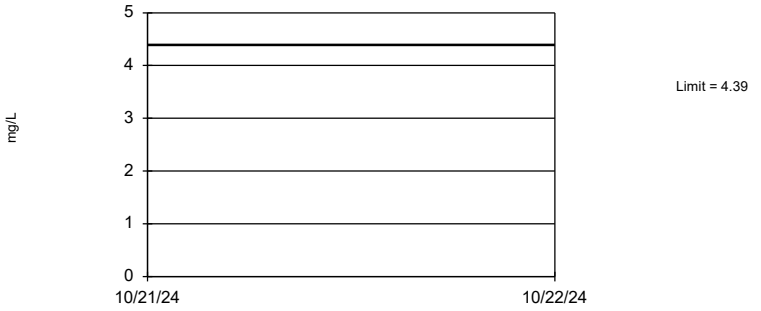
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 53 background values. Annual per-constituent alpha = 0.005418. Individual comparison alpha = 0.0006789 (1 of 2). Assumes 4 future values.

Constituent: Chloride Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Interwell Non-parametric



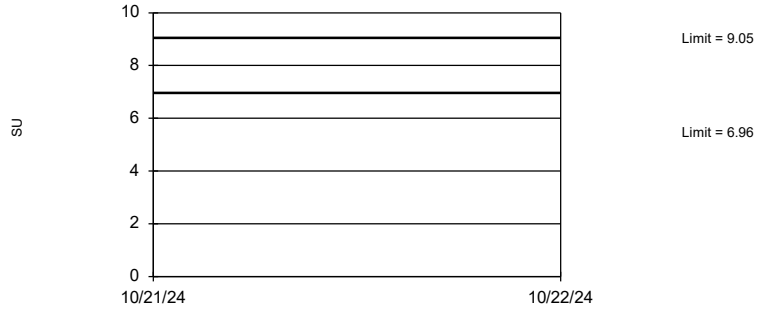
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 60 background values. 1.667% NDs. Annual per-constituent alpha = 0.004187. Individual comparison alpha = 0.0005243 (1 of 2). Assumes 4 future values.

Constituent: Fluoride Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Interwell Non-parametric



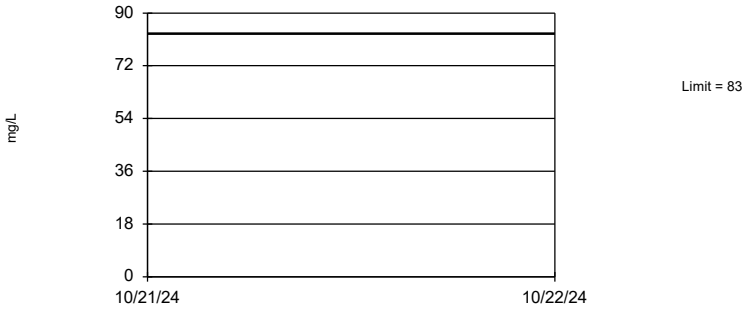
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 56 background values. Annual per-constituent alpha = 0.009781. Individual comparison alpha = 0.001225 (1 of 2). Assumes 4 future values.

Constituent: pH, field Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Interwell Non-parametric



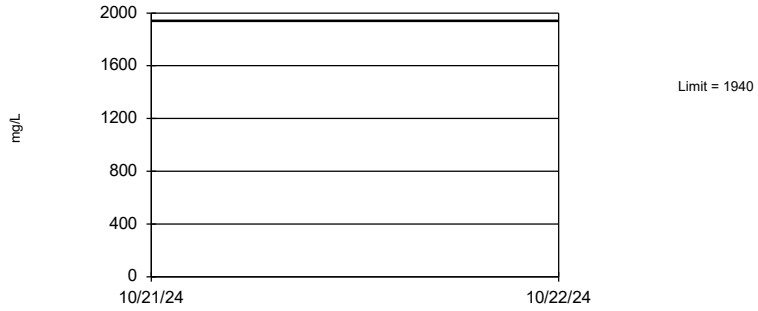
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. Annual per-constituent alpha = 0.01555. Individual comparison alpha = 0.001957 (1 of 2). Assumes 4 future values.

Constituent: Sulfate Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 55 background values. Annual per-constituent alpha = 0.005067. Individual comparison alpha = 0.0006347 (1 of 2). Assumes 4 future values.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE H

UTLs

Upper Tolerance Limits Summary Table

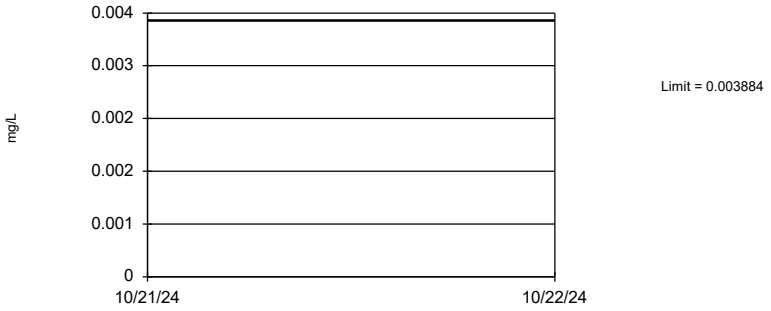
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:29 PM

Constituent	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	0.003884	n/a	n/a	n/a	n/a	58	29.31	ln(x)	0.05	Inter
Arsenic (mg/L)	0.0599	n/a	n/a	n/a	n/a	57	5.263	n/a	0.05373	NP Inter(normality)
Barium (mg/L)	2.77	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Beryllium (mg/L)	0.00212	n/a	n/a	n/a	n/a	57	17.54	n/a	0.05373	NP Inter(normality)
Cadmium (mg/L)	0.000168	n/a	n/a	n/a	n/a	34	17.65	ln(x)	0.05	Inter
Chromium (mg/L)	0.00339	n/a	n/a	n/a	n/a	46	10.87	ln(x)	0.05	Inter
Cobalt (mg/L)	0.01786	n/a	n/a	n/a	n/a	57	8.772	n/a	0.05373	NP Inter(normality)
Combined Radium 226 + 228 (pCi/L)	19.05	n/a	n/a	n/a	n/a	57	0	sqrt(x)	0.05	Inter
Fluoride (mg/L)	4.39	n/a	n/a	n/a	n/a	60	1.667	n/a	0.04607	NP Inter(normality)
Lead (mg/L)	0.008571	n/a	n/a	n/a	n/a	57	22.81	ln(x)	0.05	Inter
Lithium (mg/L)	0.163	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Mercury (mg/L)	0.00003	n/a	n/a	n/a	n/a	57	77.19	n/a	0.05373	NP Inter(NDs)
Molybdenum (mg/L)	0.01	n/a	n/a	n/a	n/a	58	29.31	n/a	0.05105	NP Inter(normality)
Selenium (mg/L)	0.00499	n/a	n/a	n/a	n/a	46	26.09	n/a	0.09447	NP Inter(normality)
Thallium (mg/L)	0.00162	n/a	n/a	n/a	n/a	34	76.47	n/a	0.1748	NP Inter(NDs)

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Tolerance Limit

Interwell Parametric



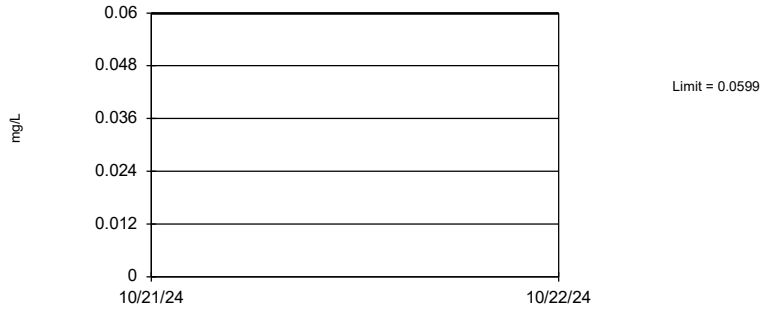
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-8.101, Std. Dev.=1.259, n=58, 29.31% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9551, critical = 0.944. Report alpha = 0.05.

Constituent: Antimony Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



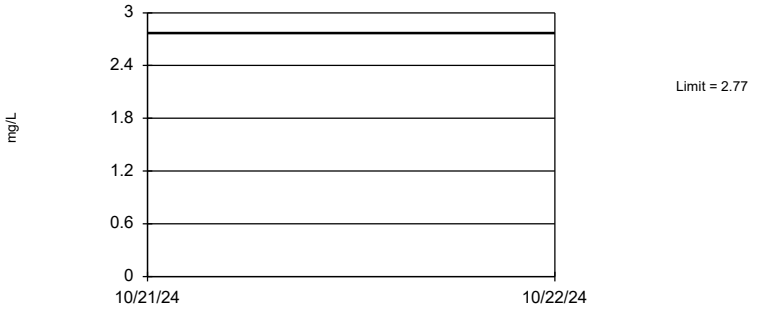
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 5.263% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Arsenic Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



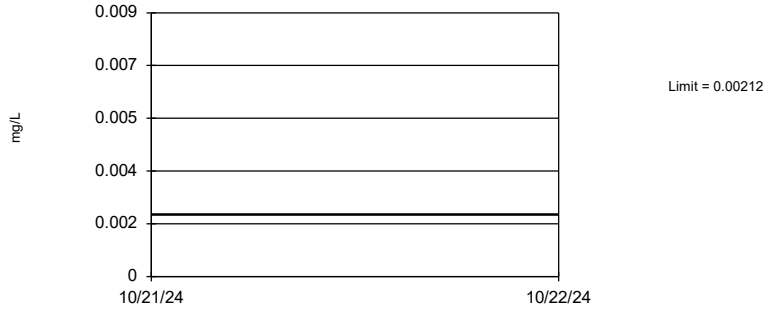
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Barium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



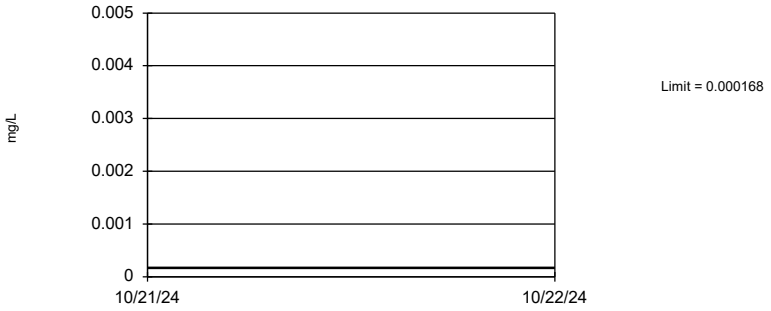
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 17.54% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Beryllium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



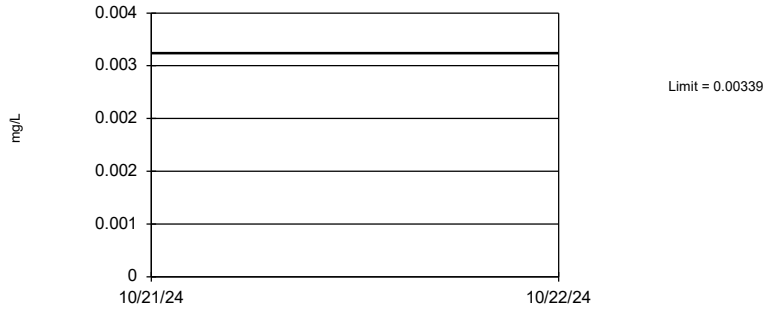
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-10.33, Std. Dev.=0.7505, n=34, 17.65% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9488, critical = 0.908. Report alpha = 0.05.

Constituent: Cadmium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



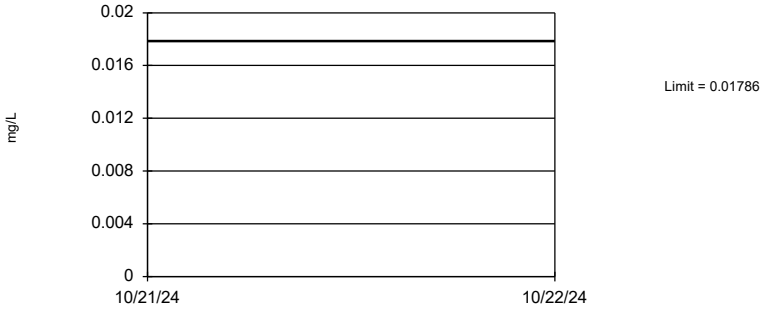
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.303, Std. Dev.=0.7743, n=46, 10.87% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9536, critical = 0.927. Report alpha = 0.05.

Constituent: Chromium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



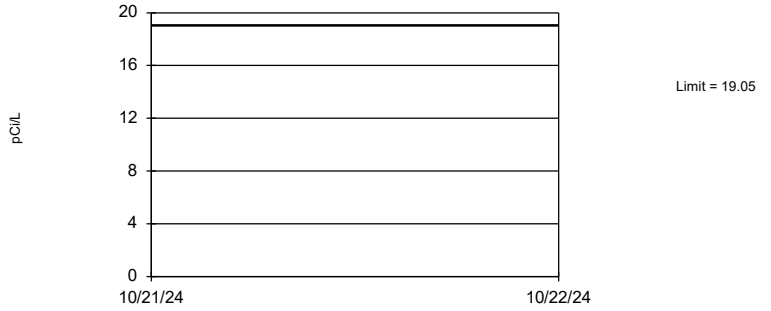
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 8.772% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Cobalt Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=2.801, Std. Dev.=0.7708, n=57. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.947, critical = 0.944. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



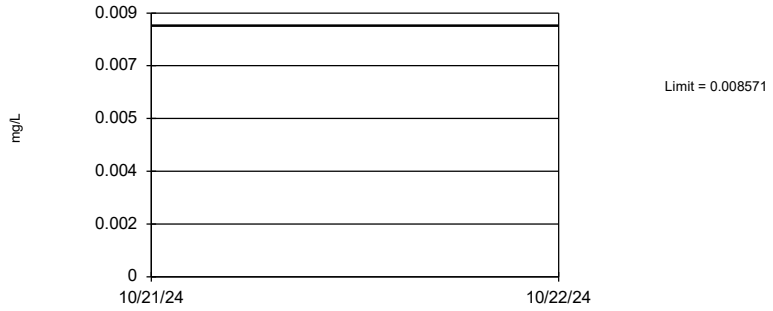
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 60 background values. 1.667% NDs. 92.77% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.04607.

Constituent: Fluoride Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-7.232, Std. Dev.=1.219, n=57, 22.81% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9454, critical = 0.944. Report alpha = 0.05.

Constituent: Lead Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



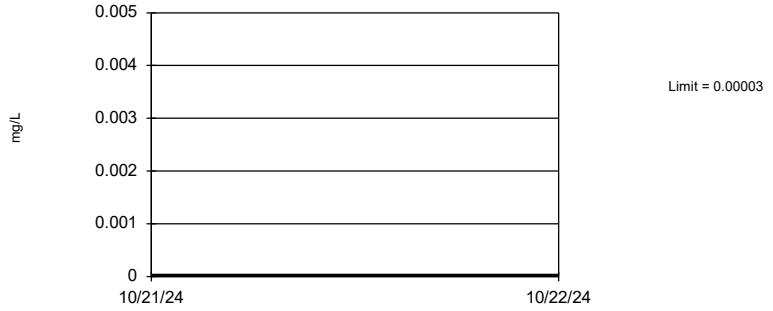
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Lithium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



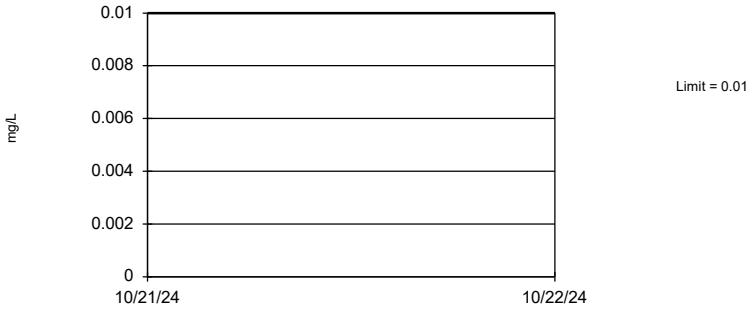
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 57 background values. 77.19% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Mercury Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 58 background values. 29.31% NDs. 92.38% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05105.

Constituent: Molybdenum Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



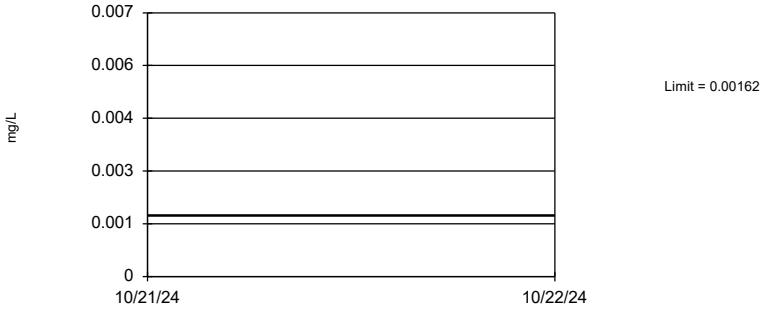
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 26.09% NDs. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Selenium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 34 background values. 76.47% NDs. 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: Thallium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE I

GWPS

NORTHEASTERN BAP GWPS				
Constituent Name	**MCL**	**CCR- Rule Specified Level**	**Background Limit**	**GWPS**
Antimony, Total (mg/L)	0.006		0.0039	0.006
Arsenic, Total (mg/L)	0.01		0.06	0.06
Barium, Total (mg/L)	2		2.77	2.77
Beryllium, Total (mg/L)	0.004		0.0021	0.004
Cadmium, Total (mg/L)	0.005		0.00017	0.005
Chromium, Total (mg/L)	0.1		0.0034	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.018	0.018
Combined Radium, Total (pCi/L)	5		19.05	19.05
Fluoride, Total (mg/L)	4		4.39	4.39
Lead, Total (mg/L)	n/a	0.015	0.0086	0.015
Lithium, Total (mg/L)	n/a	0.04	0.16	0.16
Mercury, Total (mg/L)	0.002		0.00003	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.0016	0.002

**Grey cell indicates Background Limit is higher than MCL*

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

FIGURE J
Confidence Intervals

Confidence Intervals - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/23/2025, 12:00 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Barium (mg/L)	**SP-10**	**6.326**	**4.412**	**2.77**	**Yes**	**18**	**1.582**	**0**	**None**	**No**	**0.01**	**Param.**
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**28**	**2.203**	**10.71**	**None**	**No**	**0.01**	**NP (normality)**
Lithium (mg/L)	**SP-10**	**0.2749**	**0.2377**	**0.16**	**Yes**	**26**	**0.03821**	**0**	**None**	**No**	**0.01**	**Param.**

Confidence Intervals - All Results

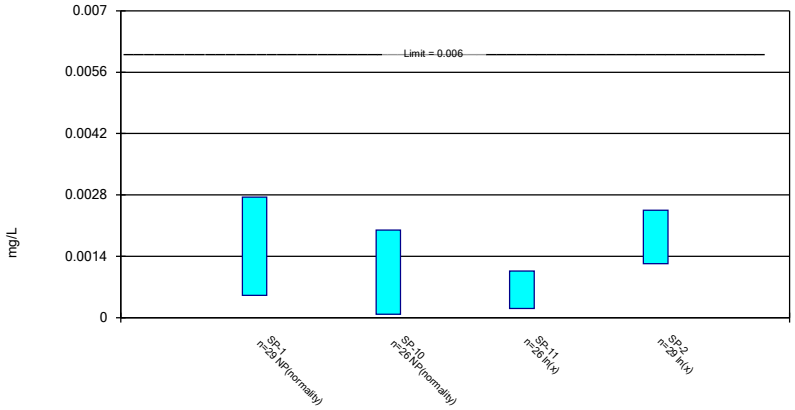
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/23/2025, 12:00 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	SP-1	0.00275	0.00051	0.006	No	29	0.002098	24.14	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-10	0.002	0.00008	0.006	No	26	0.001883	15.38	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-11	0.001064	0.000209	0.006	No	26	0.002733	11.54	None	ln(x)	0.01	Param.
Antimony (mg/L)	SP-2	0.002448	0.00123	0.006	No	29	0.002428	6.897	None	ln(x)	0.01	Param.
Arsenic (mg/L)	SP-1	0.00211	0.00065	0.06	No	29	0.002012	27.59	None	No	0.01	NP (normality)
Arsenic (mg/L)	SP-10	0.004194	0.001017	0.06	No	26	0.004274	7.692	None	sqrt(x)	0.01	Param.
Arsenic (mg/L)	SP-11	0.004631	0.002321	0.06	No	26	0.002781	3.846	None	sqrt(x)	0.01	Param.
Arsenic (mg/L)	SP-2	0.0025	0.00121	0.06	No	29	0.002392	3.448	None	No	0.01	NP (normality)
Barium (mg/L)	SP-1	0.1938	0.1607	2.77	No	29	0.03816	0	None	sqrt(x)	0.01	Param.
Barium (mg/L)	**SP-10**	**6.326**	**4.412**	**2.77**	**Yes**	**18**	**1.582**	**0**	**None**	**No**	**0.01**	**Param.**
Barium (mg/L)	SP-11	0.3836	0.1935	2.77	No	18	0.1661	0	None	sqrt(x)	0.01	Param.
Barium (mg/L)	SP-2	1.324	0.9849	2.77	No	29	0.475	0	None	ln(x)	0.01	Param.
Beryllium (mg/L)	SP-1	0.00014	0.000053	0.004	No	29	0.0003543	17.24	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-10	0.000121	0.00003	0.004	No	26	0.001113	26.92	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-11	0.00025	0.000027	0.004	No	26	0.0001312	26.92	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-2	0.000131	0.00007	0.004	No	29	0.0001481	13.79	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-1	0.0001	0.000051	0.005	No	18	0.0001147	11.11	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-10	0.000089	0.00001	0.005	No	18	0.00007053	16.67	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-11	0.00015	0.00002	0.005	No	26	0.0008961	15.38	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-2	0.0005	0.00006	0.005	No	29	0.0002059	34.48	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-1	0.001061	0.0005494	0.1	No	29	0.0006508	20.69	Kaplan-Meier	sqrt(x)	0.01	Param.
Chromium (mg/L)	SP-10	0.0008684	0.0003241	0.1	No	25	0.001724	8	None	ln(x)	0.01	Param.
Chromium (mg/L)	SP-11	0.00276	0.00043	0.1	No	26	0.01019	3.846	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-2	0.001308	0.0005807	0.1	No	29	0.001051	10.34	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-1	0.001088	0.000462	0.018	No	29	0.001077	10.34	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-10	0.001461	0.0003114	0.018	No	26	0.001748	7.692	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-11	0.003912	0.001157	0.018	No	26	0.004342	3.846	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-2	0.0008923	0.0004406	0.018	No	29	0.0007382	10.34	None	ln(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-1	4.394	3.235	19.05	No	28	1.241	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-10	20.11	3.226	19.05	No	26	8.781	0	None	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SP-11	2.377	1.215	19.05	No	25	1.379	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-2	13.28	8.587	19.05	No	26	5.296	0	None	sqrt(x)	0.01	Param.
Fluoride (mg/L)	SP-1	0.935	0.7124	4.39	No	29	0.2428	6.897	None	No	0.01	Param.
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**28**	**2.203**	**10.71**	**None**	**No**	**0.01**	**NP (normality)**
Fluoride (mg/L)	SP-11	3.059	2.146	4.39	No	28	0.9765	0	None	No	0.01	Param.
Fluoride (mg/L)	SP-2	3.02	2.7	4.39	No	30	0.54	0	None	No	0.01	NP (normality)
Lead (mg/L)	SP-1	0.00247	0.000254	0.015	No	29	0.00204	27.59	None	No	0.01	NP (normality)
Lead (mg/L)	SP-10	0.0003	0.00008	0.015	No	18	0.0002935	11.11	None	No	0.01	NP (normality)
Lead (mg/L)	SP-11	0.001266	0.0002946	0.015	No	26	0.002574	11.54	None	ln(x)	0.01	Param.
Lead (mg/L)	SP-2	0.00202	0.000245	0.015	No	29	0.002158	31.03	None	No	0.01	NP (normality)
Lithium (mg/L)	SP-1	0.006385	0.004908	0.16	No	28	0.001581	0	None	No	0.01	Param.
Lithium (mg/L)	**SP-10**	**0.2749**	**0.2377**	**0.16**	**Yes**	**26**	**0.03821**	**0**	**None**	**No**	**0.01**	**Param.**
Lithium (mg/L)	SP-11	0.03755	0.02179	0.16	No	18	0.01302	0	None	No	0.01	Param.
Lithium (mg/L)	SP-2	0.07867	0.05473	0.16	No	29	0.02613	0	None	No	0.01	Param.
Mercury (mg/L)	SP-1	0.000009	0.000005	0.002	No	29	0.000003566	82.76	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-10	0.000013	0.000005	0.002	No	26	0.000006974	61.54	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-11	0.000009	0.000005	0.002	No	26	0.0000122	50	None	No	0.01	NP (normality)
Mercury (mg/L)	SP-2	0.000005	0.000005	0.002	No	29	0.000001678	86.21	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	SP-1	0.01685	0.01179	0.1	No	29	0.00553	0	None	No	0.01	Param.
Molybdenum (mg/L)	SP-10	0.01503	0.002287	0.1	No	25	0.02693	4	None	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	SP-11	0.04214	0.0018	0.1	No	26	0.02272	3.846	None	No	0.01	NP (normality)
Molybdenum (mg/L)	SP-2	0.02297	0.01706	0.1	No	18	0.004885	0	None	No	0.01	Param.
Selenium (mg/L)	SP-1	0.006814	0.004125	0.05	No	29	0.003287	10.34	None	sqrt(x)	0.01	Param.
Selenium (mg/L)	SP-10	0.0005988	0.000101	0.05	No	26	0.002081	38.46	Kaplan-Meier	ln(x)	0.01	Param.
Selenium (mg/L)	SP-11	0.001207	0.0003145	0.05	No	26	0.002213	7.692	None	ln(x)	0.01	Param.
Selenium (mg/L)	SP-2	0.004453	0.002041	0.05	No	18	0.002164	0	None	sqrt(x)	0.01	Param.
Thallium (mg/L)	SP-1	0.0005	0.00007	0.002	No	18	0.0004651	33.33	None	No	0.01	NP (normality)
Thallium (mg/L)	SP-10	0.0002	0.00004	0.002	No	18	0.00003771	94.44	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-11	0.0002	0.00003	0.002	No	18	0.00004007	94.44	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-2	0.0002	0.00005	0.002	No	18	0.0000763	50	None	No	0.01	NP (normality)

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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.

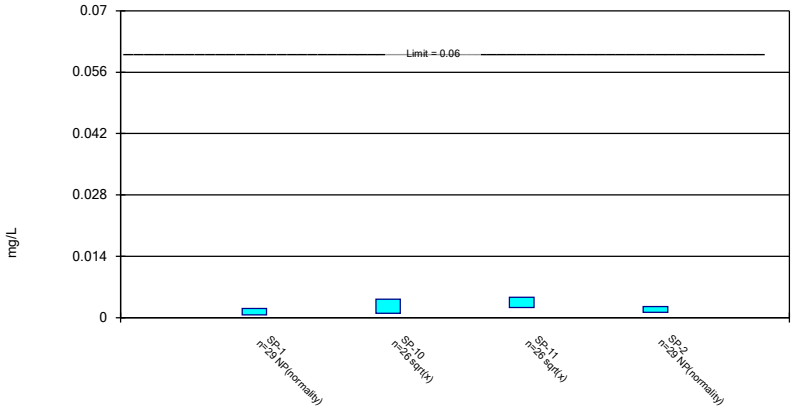


Constituent: Antimony Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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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.

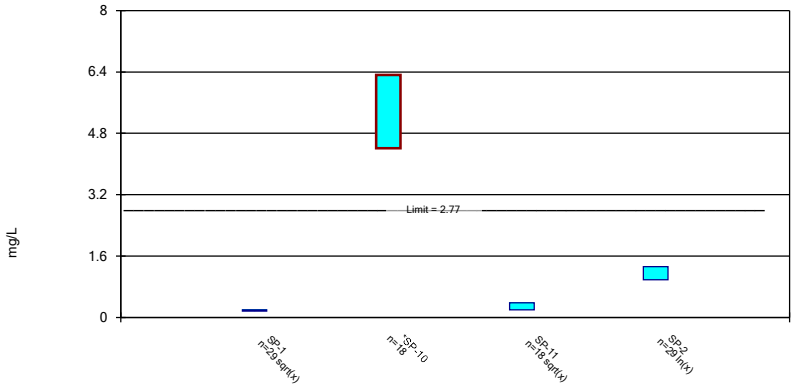


Constituent: Arsenic Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

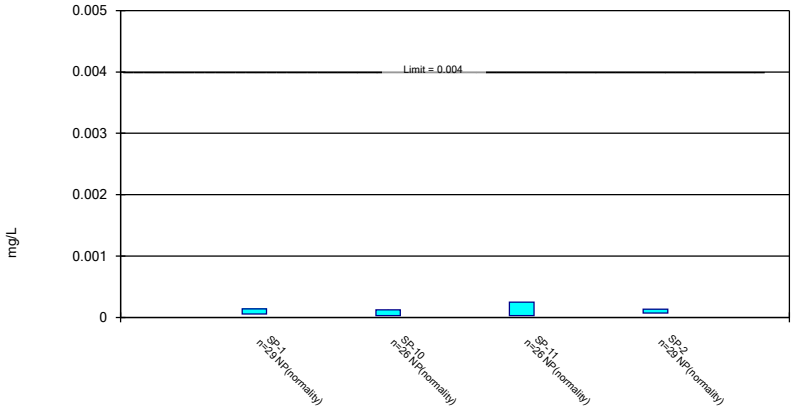


Constituent: Barium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Non-Parametric Confidence Interval

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

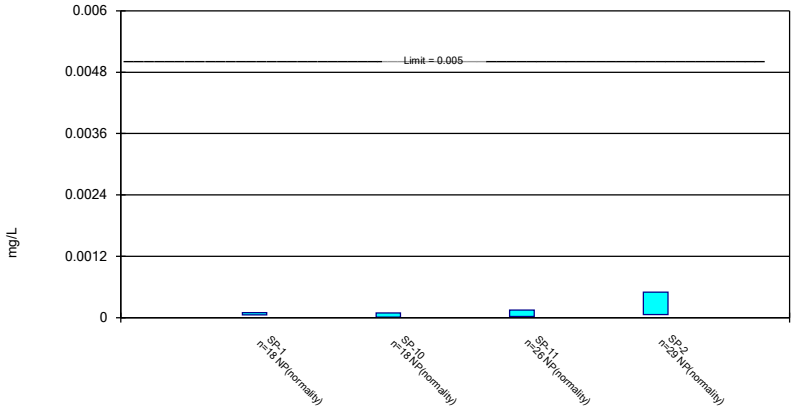


Constituent: Beryllium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Non-Parametric Confidence Interval

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

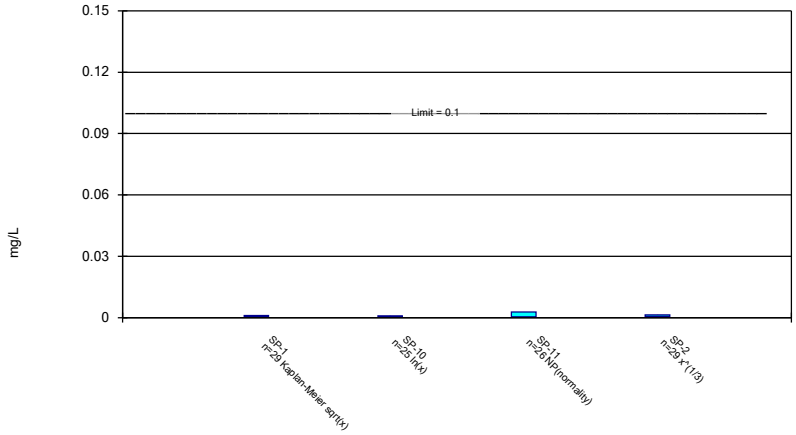


Constituent: Cadmium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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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.

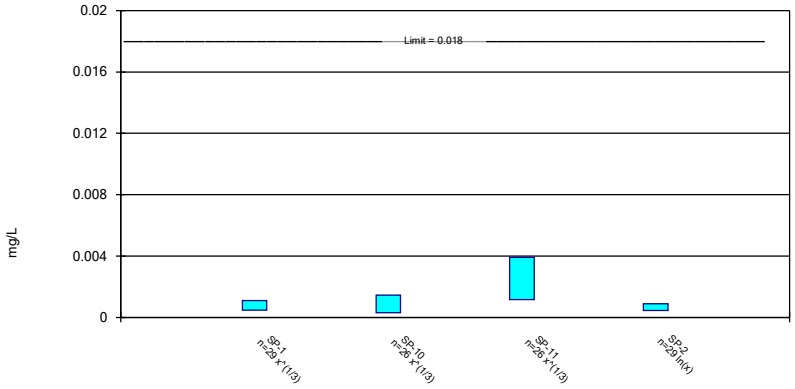


Constituent: Chromium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric Confidence Interval

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

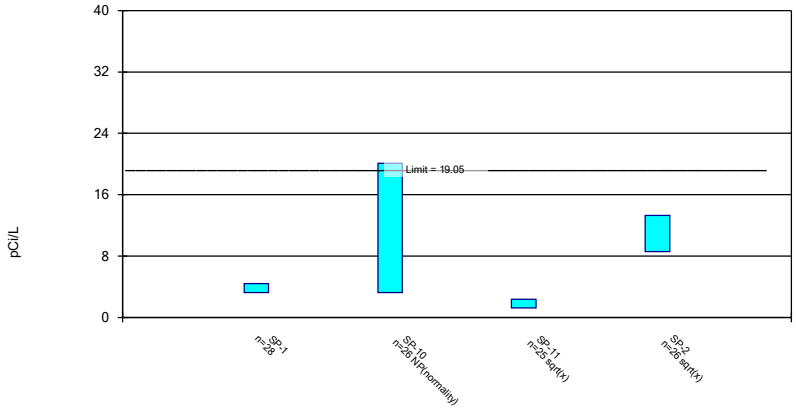


Constituent: Cobalt Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric and Non-Parametric (NP) Confidence Interval

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

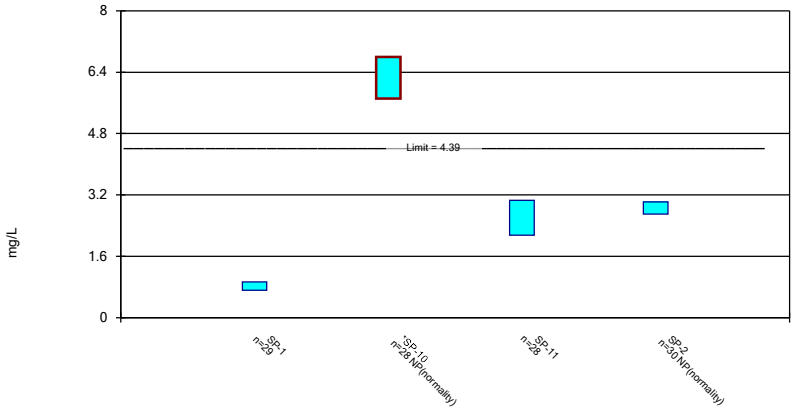


Constituent: Combined Radium 226 + 228 Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

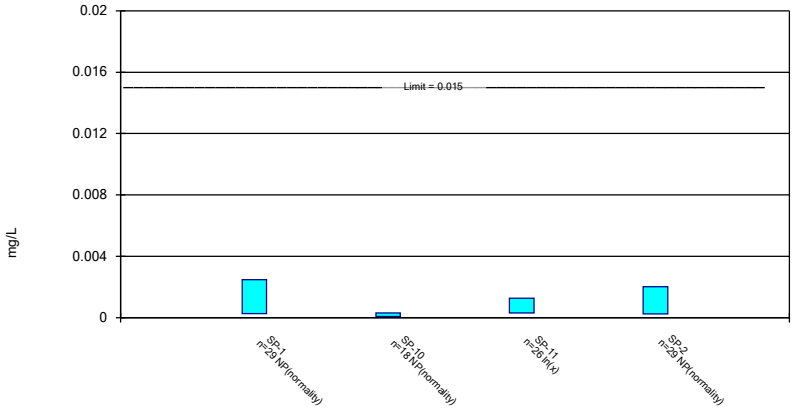


Constituent: Fluoride Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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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.

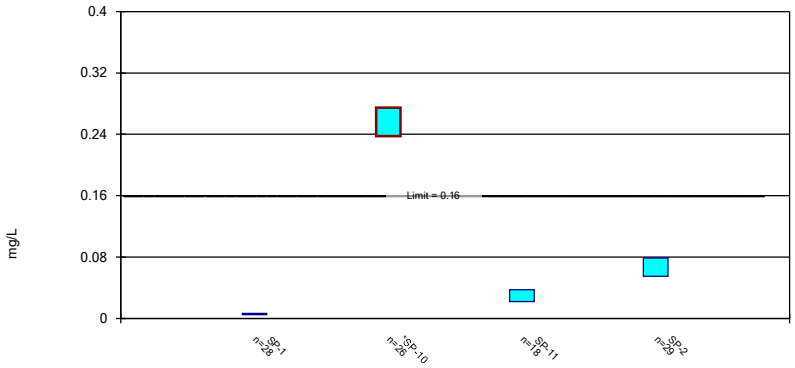


Constituent: Lead Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Parametric Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

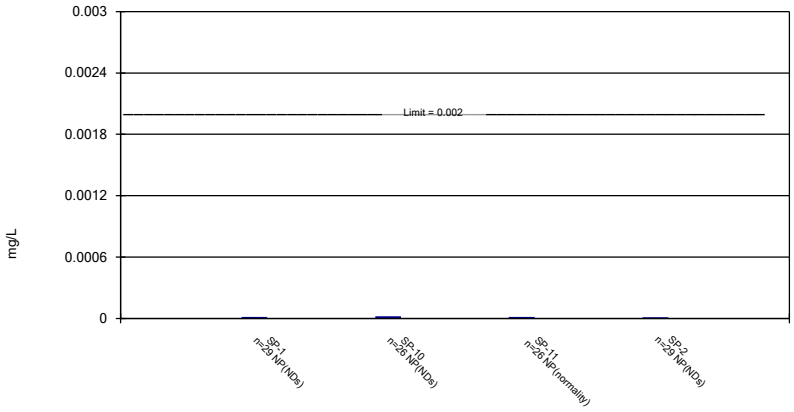


Constituent: Lithium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

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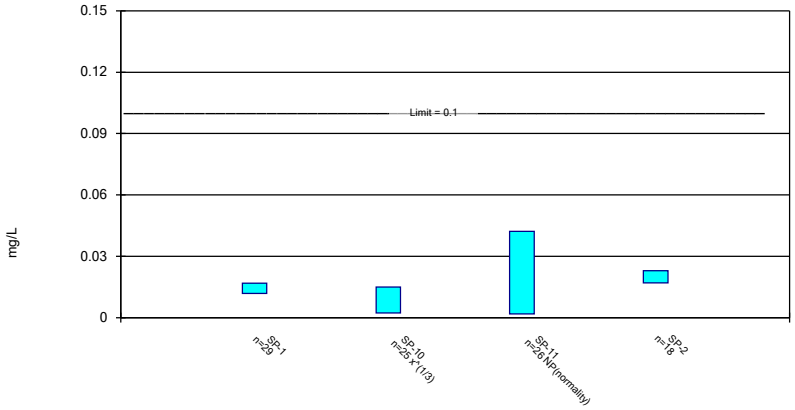


Constituent: Mercury Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to 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.

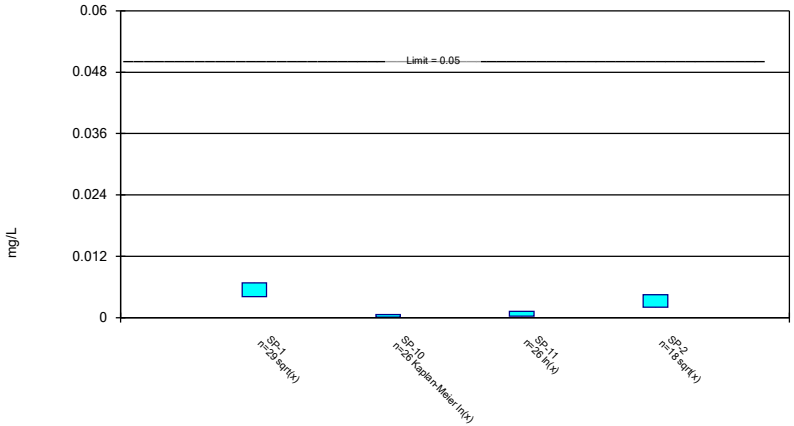


Constituent: Molybdenum Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Parametric Confidence Interval

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

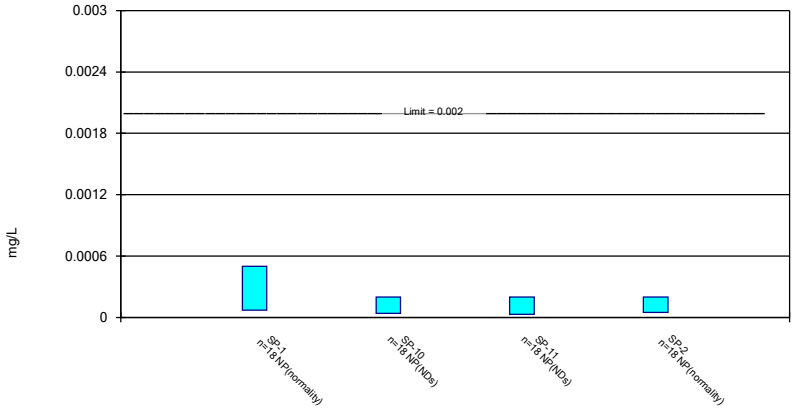


Constituent: Selenium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

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



Constituent: Thallium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE K

Trend Tests – Confidence Interval Exceedances

Trend Tests - Confidence Interval Exceedances - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:46 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.5214**	**56**	**53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01687**	**-53**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.06168**	**150**	**106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-10**	**-0.0116**	**-150**	**-90**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001486**	**-65**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004706**	**-200**	**-106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**

Trend Tests - Confidence Interval Exceedances - All Results

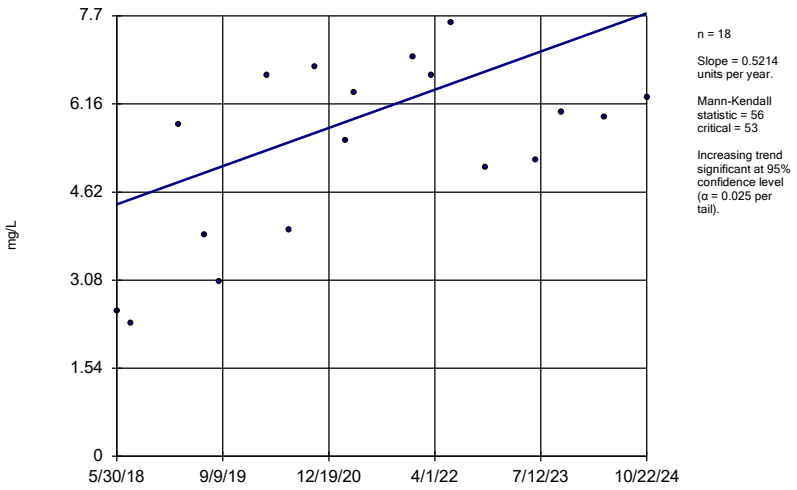
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:46 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.5214**	**56**	**53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01687**	**-53**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.06168**	**150**	**106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Fluoride (mg/L)	SP-10	0.1114	53	101	No	28	10.71	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-4 (bg)	0	-2	-112	No	30	3.333	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-5R (bg)	0.002319	9	112	No	30	0	n/a	n/a	0.05	NP
Lithium (mg/L)	**SP-10**	**-0.0116**	**-150**	**-90**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001486**	**-65**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004706**	**-200**	**-106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**

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Sen's Slope Estimator

SP-10



n = 18

Slope = 0.5214 units per year.

Mann-Kendall statistic = 56 critical = 53

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

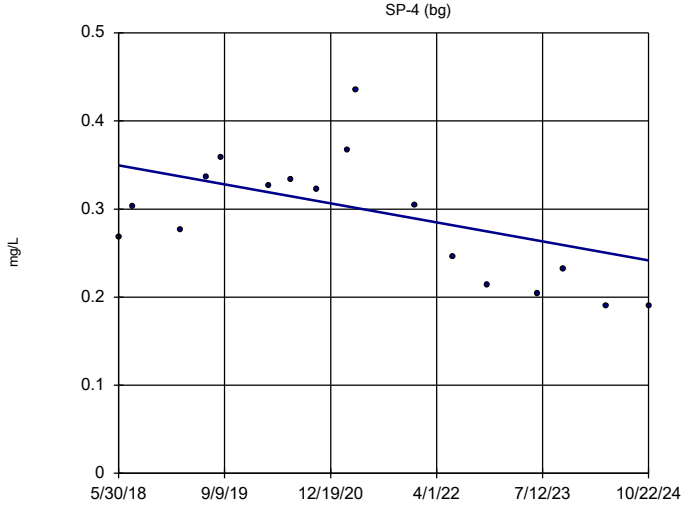
Constituent: Barium Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-4 (bg)



n = 17

Slope = -0.01687 units per year.

Mann-Kendall statistic = -53 critical = -49

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

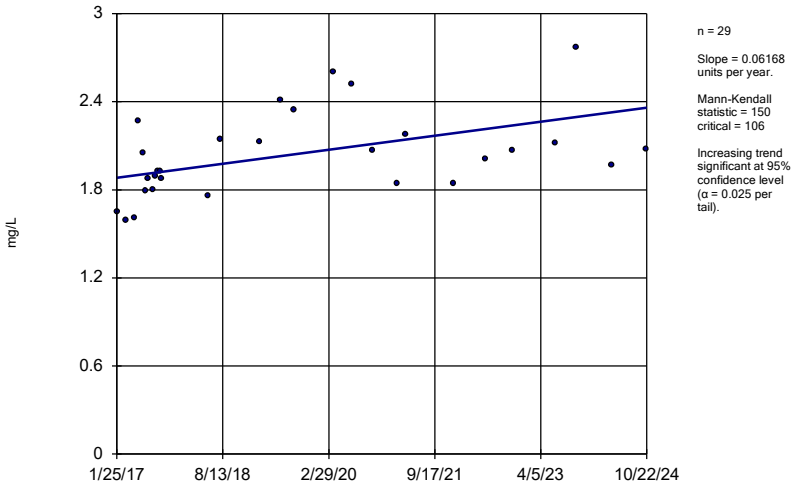
Constituent: Barium Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-5R (bg)



n = 29

Slope = 0.06168 units per year.

Mann-Kendall statistic = 150 critical = 106

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 1/14/2025 2:43 PM View: Trend Tests

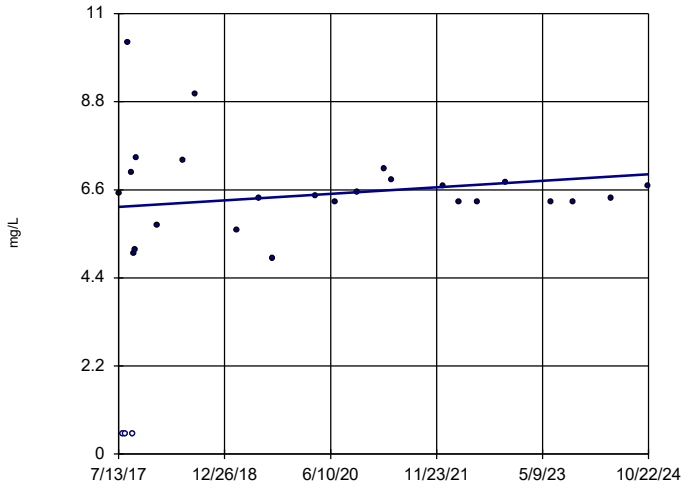
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-10



n = 28

Slope = 0.1114 units per year.

Mann-Kendall statistic = 53 critical = 101

Trend not significant at 95% confidence level (α = 0.025 per tail).

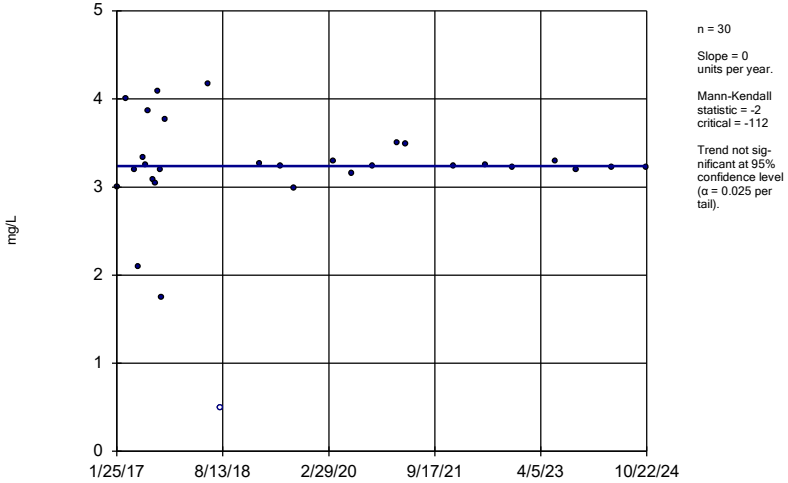
Constituent: Fluoride Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-4 (bg)



n = 30

Slope = 0 units per year.

Mann-Kendall statistic = -2
critical = -112

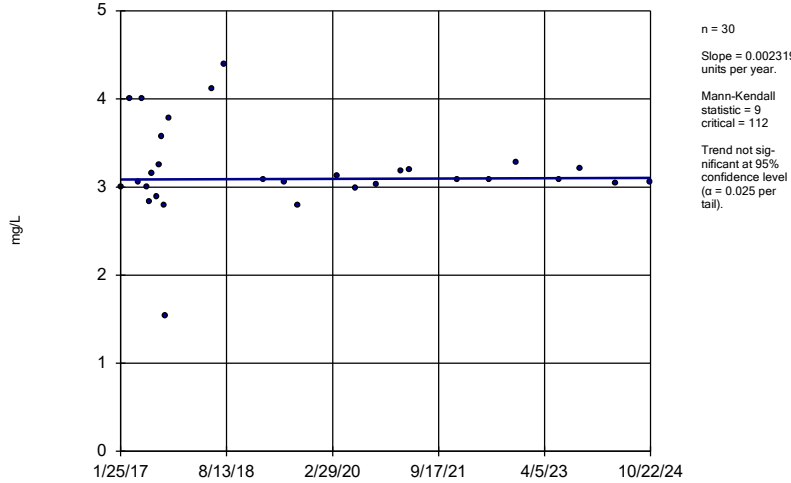
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = 0.002319 units per year.

Mann-Kendall statistic = 9
critical = 112

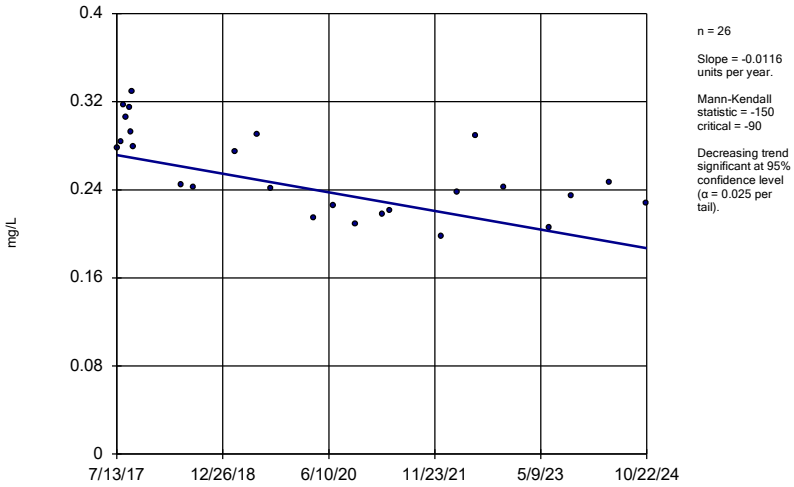
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-10



n = 26

Slope = -0.0116 units per year.

Mann-Kendall statistic = -150
critical = -90

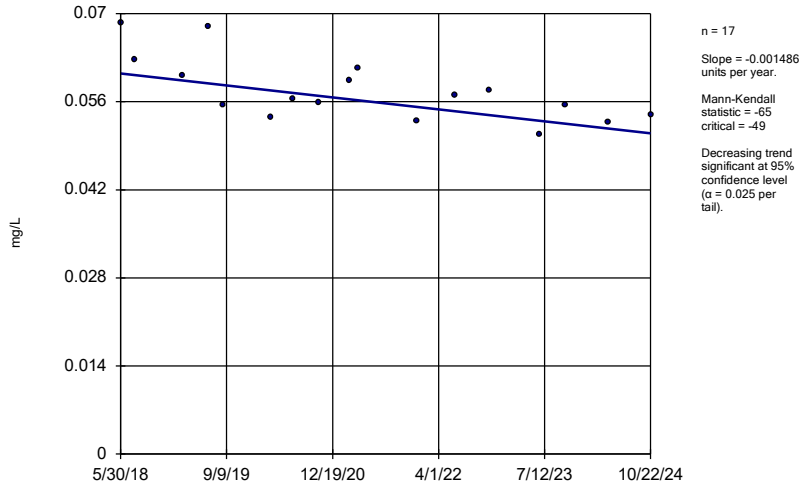
Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-4 (bg)



n = 17

Slope = -0.001486 units per year.

Mann-Kendall statistic = -65
critical = -49

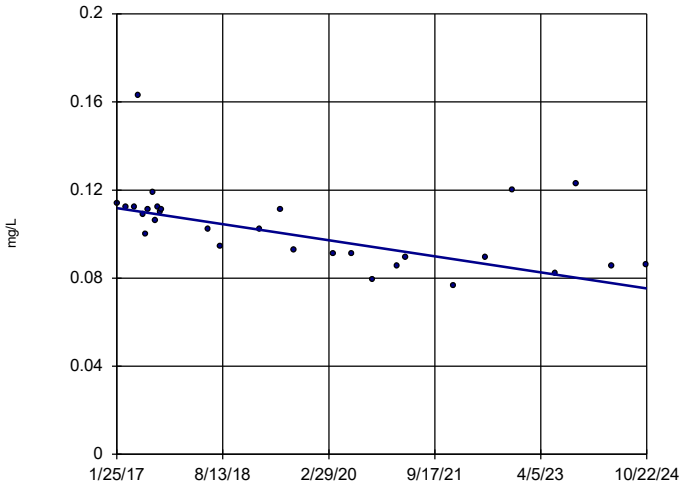
Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-5R (bg)



n = 29

Slope = -0.004706 units per year.

Mann-Kendall statistic = -200 critical = -106

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Geosyntec consultants

engineers | scientists | innovators

STATISTICAL ANALYSIS SUMMARY, 2025 1ST SEMIANNUAL EVENT BOTTOM ASH POND

Northeastern Power Station

Oologah, Oklahoma

Prepared for

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

Prepared by

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Worthington, Ohio 43085

Project Number: CHA1147H

October 2025

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Table 2: Appendix B Groundwater Protection Standards

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Attachment A: Certification by Qualified Professional Engineer

Attachment B: Statistical Analysis Output

ACRONYMS AND ABBREVIATIONS

ASD	alternative source demonstration
BAP	Bottom Ash Pond
CCR	coal combustion residuals
GWPS	groundwater protection standard
LCL	lower confidence limit
LPL	lower prediction limit
mg/L	milligrams per liter
NPS	Northeastern Power Station
OAC	Oklahoma Administrative Code
ODEQ	Oklahoma Department of Environmental Quality
QA/QC	quality assurance and quality control
SSI	statistically significant increase
SSL	statistically significant level
TDS	total dissolved solids
UPL	upper prediction limit

1. INTRODUCTION

In accordance with Oklahoma Department of Environmental Quality (ODEQ) requirements regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Oklahoma Administrative Code [OAC] 252:517), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Northeastern Power Station (NPS) in Oologah, Oklahoma. Recent groundwater monitoring results were used to identify concentrations of Appendix B constituents that are above site-specific groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, chloride, fluoride, total dissolved solids (TDS), and sulfate at the BAP. In addition, pH values below the lower prediction limit (LPL) resulted in SSIs below background as well. GWPSs were set in accordance with OAC 252:517-9-6(h) and a statistical evaluation of the assessment monitoring data was conducted.

During 2024, a sampling event for both Appendix A parameters and Appendix B parameters, as required by OAC 252:517-9-6(d), was completed in October. During the October 2024 assessment monitoring event, statistically significant levels (SSLs) were observed for barium, fluoride, and lithium (Geosyntec 2025a). An alternative source demonstration (ASD) was successfully completed (Geosyntec 2025b), and the unit therefore remained in assessment monitoring. One assessment monitoring event was conducted at the BAP in June 2025, in accordance with OAC 252:517-9-6(d). Results of this event are documented in this report.

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

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. Confidence intervals were calculated for Appendix B parameters at the compliance wells to assess whether SSLs of Appendix B parameters were present above previously established GWPSs. SSLs were identified for barium, fluoride, and lithium. Therefore, either the unit will move to an assessment of corrective measures, or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

During the June 2025 assessment monitoring event, one set of samples was collected for analysis from each background and compliance well to meet the requirements of OAC 252:517-9-6(d)(1). Samples from the June 2025 sampling event were analyzed for all Appendix A and Appendix B parameters. A summary of data collected during this assessment monitoring event are presented in Table 1.

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

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.10.0.27 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

2.2 Statistical Analysis

Statistical analyses for the BAP were conducted in accordance with the November 2021 *Statistical Analysis Plan* (Geosyntec 2021). Time series plots and results for all completed statistical tests are provided in Attachment B. The data obtained in June 2025 were screened for potential outliers. No outliers were identified for this event.

2.2.1 Evaluation of Potential Appendix B SSLs

A confidence interval was constructed for each Appendix B parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$). However, nonparametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). Select datasets were truncated if significant serial correlation was observed among the background samples that were collected on an approximately monthly basis in 2017. The dataset for barium at SP-10 was also truncated as higher concentrations were observed in more recent samples compared to initial results. A list of the truncated well/constituent pairs used for calculation of the confidence limits is provided in Attachment B.

An SSL was concluded if the lower confidence limit (LCL) was above the GWPS (i.e., if the entire confidence interval was above the GWPS). The calculated confidence limits (Attachment B) were compared to the GWPSs provided in Table 3. The GWPSs were established during a previous statistical analysis as either (a) the background concentration or (b) the maximum contaminant level and risk-based levels specified in OAC 252:517-9-6(h), whichever was greater (Geosyntec 2025a).

The following SSLs were identified at the Northeastern BAP:

- The LCL for barium was above the GWPS of 2.77 milligrams per liter (mg/L) at SP-10 (4.50 mg/L).

- The LCL for fluoride was above the GWPS of 4.39 mg/L at SP-10 (5.71 mg/L).

- The LCL for lithium was above the GWPS of 0.163 mg/L at SP-10 (0.235 mg/L).

ODEQ previously noted in a letter provided to the NPS that "[i]f lithium and fluoride continue to exceed their relative GWPS in the future and conditions have not changed, NPS may refer to the October 29, 2019 ASD approval for lithium and June 4, 2021 approval for fluoride and continue assessment monitoring for the BAP in accordance with OAC 252:517-6(g)(3)(B)" (ODEQ 2021). ODEQ provided a similar letter dated September 20, 2022 documenting ASD approval for a barium SSL at SP-10 which is applicable in the future if conditions do not change (ODEQ 2022). Therefore, an ASD will be submitted to ODEQ demonstrating that conditions at the BAP remain unchanged so that the unit will continue assessment monitoring.

2.2.2 Evaluation of Potential Appendix A SSIs

While SSLs were identified, a review of the Appendix A results was also completed to assess whether concentrations of Appendix A parameters at the compliance wells were above background concentrations. Data collected during the June 2025 assessment monitoring event from each compliance well were compared to previously calculated prediction limits to assess whether the results are above background values (Table 3).

The following concentrations were above the upper prediction limits (UPLs):

- Boron concentrations were above the interwell UPL of 0.491 mg/L at SP-10 (0.965 mg/L) and SP-11 (0.549 mg/L).

- The chloride concentration was above the interwell UPL of 1,010 mg/L at SP-10 (1,750 mg/L).

- The fluoride concentration was above the interwell UPL of 4.39 mg/L at SP-10 (6.8 mg/L).

- Sulfate concentrations were above the interwell UPL of 83.0 mg/L at SP-1 (83.9 mg/L) and SP-11 (231 mg/L).

- The TDS concentration was above the interwell UPL of 1,940 mg/L at SP-10 (3,480 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the June 2025 sample was above the UPL or, in the case of pH, below the LPL.

2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the CCR rule. The laboratory and field data were reviewed prior to statistical analysis, and no QA/QC issues that

impacted data usability were identified. A review of outliers identified no potential outliers in the June 2025 data. A confidence interval was constructed at each compliance well for each Appendix B parameter; SSLs were concluded if the entire confidence interval was above the GWPSs. SSLs were identified for barium, fluoride, and lithium. Appendix A parameters were compared to prediction limits, with concentrations of boron, chloride, fluoride, sulfate, and TDS above background levels.

Based on this evaluation, the Northeastern BAP CCR unit will either move to an assessment of corrective measures or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring.

3. REFERENCES

Geosyntec. 2021. Statistical Analysis Plan – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants, Inc. November.

Geosyntec. 2025a. Statistical Analysis Summary, 2024 2nd Semiannual Event – Bottom Ash Pond, Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants, Inc. February.

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ODEQ. 2021. Letter Transmittal – Alternate Source Demonstration for Fluoride and Lithium Exceedance – Bottom Ash Pond. Public Service Company of Oklahoma – Northeastern Power Station. Oklahoma Department of Environmental Quality. June.

ODEQ. 2022. Letter Transmittal – Alternate Source Demonstration for Barium, Fluoride, and Lithium Exceedance – Bottom Ash Pond. Public Service Company of Oklahoma – Northeastern Power Station. Oklahoma Department of Environmental Quality. September.

ODEQ. 2023. Letter Transmittal – Alternate Source Demonstration for Fluoride, and Lithium Exceedance – Bottom Ash Pond. Public Service Company of Oklahoma – Northeastern Power Station. Oklahoma Department of Environmental Quality. March.

TABLES

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

Parameter	Unit	SP-1	SP-2	SP-4	SP-5R	SP-10	SP-11
		6/18/2025	6/18/2025	6/18/2025	6/18/2025	6/18/2025	6/18/2025
Antimony	µg/L	0.754	0.855	0.166	0.102	0.034 J1	0.092 J1
Arsenic	µg/L	0.75	1.36	0.80	14.7	0.16	2.28
Barium	µg/L	146	1,090	210	2,240	6,090	243
Beryllium	µg/L	0.081	0.075	0.057	0.059	0.035 J1	0.028 J1
Boron	mg/L	0.240	0.129	0.356	0.226	0.965	0.549
Cadmium	µg/L	0.058	0.050	0.026	0.022	0.005 J1	0.007 J1
Calcium	mg/L	113	99.7	87.3	73.8	82.5	78.5
Chloride	mg/L	49.3	956	439	797	1,750	106
Chromium	µg/L	0.76	0.66	0.56	0.57	0.33	0.43
Cobalt	µg/L	1.45	0.676	0.369	1.56	0.035	0.369
Combined Radium	pCi/L	2.45	6.89	3.29	12.27	21.22	1.36
Fluoride	mg/L	0.98	3.11	2.9	3.31	6.8	1.7
Lead	µg/L	0.67	0.23	0.17 J1	0.91	0.2 U1	0.16 J1
Lithium	mg/L	0.00801	0.0416	0.0544	0.0922	0.184	0.0172
Mercury	µg/L	0.005 U1	0.005 U1	0.005 U1	0.005 U1	0.005 U1	0.005 U1
Molybdenum	µg/L	21.3	13.0	2.4	0.7	0.3 J1	1.2
Selenium	µg/L	6.28	1.78	0.30 J1	0.05 J1	0.5 U1	0.11 J1
Sulfate	mg/L	83.9	10.5	79	2.8	14.3	231
Thallium	µg/L	0.13 J1	0.03 J1	0.02 J1	0.2 U1	0.2 U1	0.2 U1
Total Dissolved Solids	mg/L	500 S7	1,870	1,190	1,590	3,480	960
pH	SU	7.5	7.6	7.5	7.7	7.8	7.6

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

Table 2. Appendix B Groundwater Protection Standards
Statistical Analysis Summary
Northeastern Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600		0.00388	0.00600
Arsenic, Total (mg/L)	0.0100		0.0599	0.0599
Barium, Total (mg/L)	2.00		2.77	2.77
Beryllium, Total (mg/L)	0.00400		0.00212	0.00400
Cadmium, Total (mg/L)	0.00500		0.000168	0.00500
Chromium, Total (mg/L)	0.100		0.00339	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.0179	0.0179
Combined Radium, Total (pCi/L)	5.00		19.1	19.1
Fluoride, Total (mg/L)	4.00		4.39	4.39
Lead, Total (mg/L)	n/a	0.0150	0.00857	0.0150
Lithium, Total (mg/L)	n/a	0.0400	0.163	0.163
Mercury, Total (mg/L)	0.00200		0.0000300	0.00200
Molybdenum, Total (mg/L)	n/a	0.100	0.0100	0.100
Selenium, Total (mg/L)	0.0500		0.00499	0.0500
Thallium, Total (mg/L)	0.00200		0.00162	0.00200

Notes:
1. Calculated UTL (upper tolerance limit) represents site-specific background values.
2. Grey cells indicate the GWPS is based on the calculated UTL, which is higher than the MCL or CCR Rule-specified value.
CCR: coal combustion residuals
GWPS: groundwater protection standard
MCL: maximum contaminant level
mg/L: milligrams per liter
n/a: not applicable
pCi/L: picocuries per liter

Table 3. Appendix A Data Summary
Statistical Analysis Summary
Northeastern – Bottom Ash Pond

Analyte	Unit	Description	SP-1	SP-2	SP-10	SP-11
			6/18/2025	6/18/2025	6/18/2025	6/18/2025
Boron	mg/L	Interwell Background Value (UPL)	0.491			
		Analytical Result	0.240	0.129	**0.965**	**0.549**
Calcium	mg/L	Intrawell Background Value (UPL)	139	172	177	146
		Analytical Result	113	99.7	82.5	78.5
Chloride	mg/L	Interwell Background Value (UPL)	1,010			
		Analytical Result	49.3	956	**1,750**	106
Fluoride	mg/L	Interwell Background Value (UPL)	4.39			
		Analytical Result	0.98	3.11	**6.8**	1.7
pH	SU	Interwell Background Value (UPL)	9.1			
		Interwell Background Value (LPL)	7.0			
		Analytical Result	7.5	7.6	7.8	7.6
Sulfate	mg/L	Interwell Background Value (UPL)	83.0			
		Analytical Result	**83.9**	10.5	14.3	**231**
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,940			
		Analytical Result	500	1,870	**3,480**	960

Notes:
1. Bold values exceed the background value.
2. Background values are shaded gray.
LPL: lower prediction limit
mg/L: milligrams per liter
SU: standard units
UPL: upper prediction limit

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Northeastern Bottom Ash Pond CCR management area and that the requirements of OAC 252:517-9-4(g) have been met.



David Anthony Miller

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature

26057	**Oklahoma**	**10.14.2025**
License Number	Licensing State	Date

ATTACHMENT B
Statistical Analysis Output

Sanitas™ v.10.0.27 Software licensed to Groundwater Stats Consulting. UG

Date Ranges

Date: 9/9/2025 1:42 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Barium (mg/L)
- SP-10 overall:5/30/2018-6/18/2025
- SP-11 overall:5/30/2018-6/18/2025
- SP-4 overall:5/30/2018-6/18/2025

Cadmium (mg/L)
- SP-1 overall:5/30/2018-6/18/2025
- SP-10 overall:5/30/2018-6/18/2025
- SP-4 overall:5/30/2018-6/18/2025
- SP-5R overall:5/30/2018-6/18/2025

Chromium (mg/L)
- SP-4 overall:5/30/2018-6/18/2025

Lead (mg/L)
- SP-10 overall:5/30/2018-6/18/2025

Lithium (mg/L)
- SP-11 overall:5/30/2018-6/18/2025
- SP-4 overall:5/30/2018-6/18/2025

Molybdenum (mg/L)
- SP-2 overall:5/30/2018-6/18/2025

Selenium (mg/L)
- SP-2 overall:5/30/2018-6/18/2025
- SP-5R overall:5/30/2018-6/18/2025

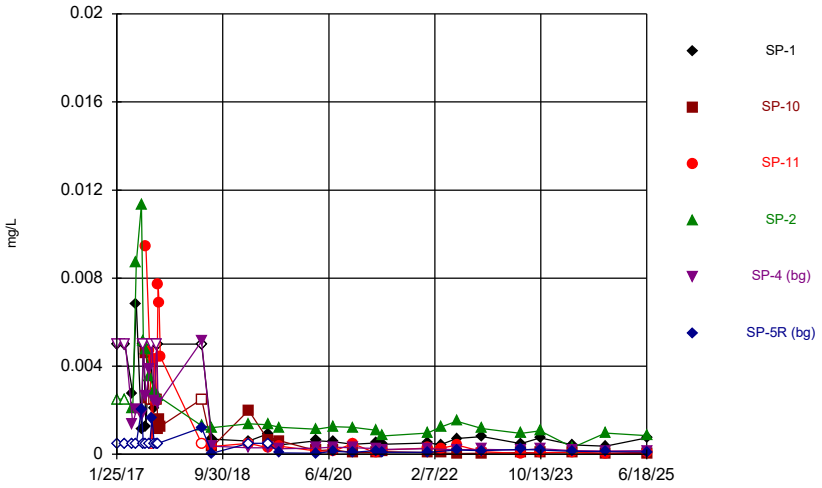
Thallium (mg/L)
- overall:5/30/2018-6/18/2025

FIGURE A

Time Series

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

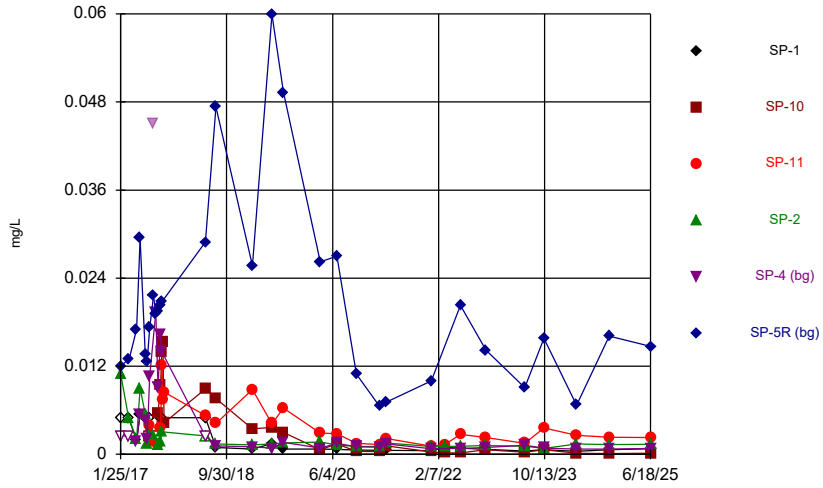
Time Series



Constituent: Antimony Analysis Run 8/29/2025 5:22 PM View: Appendix B
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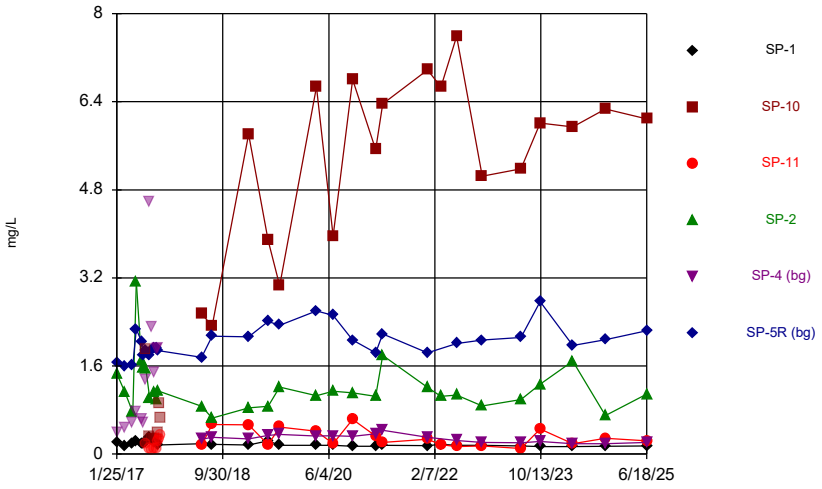
Time Series



Constituent: Arsenic Analysis Run 8/29/2025 5:22 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

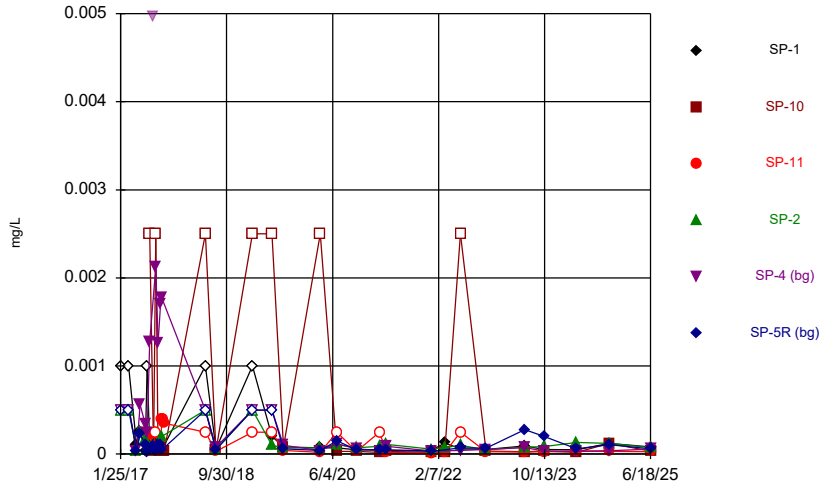
Time Series



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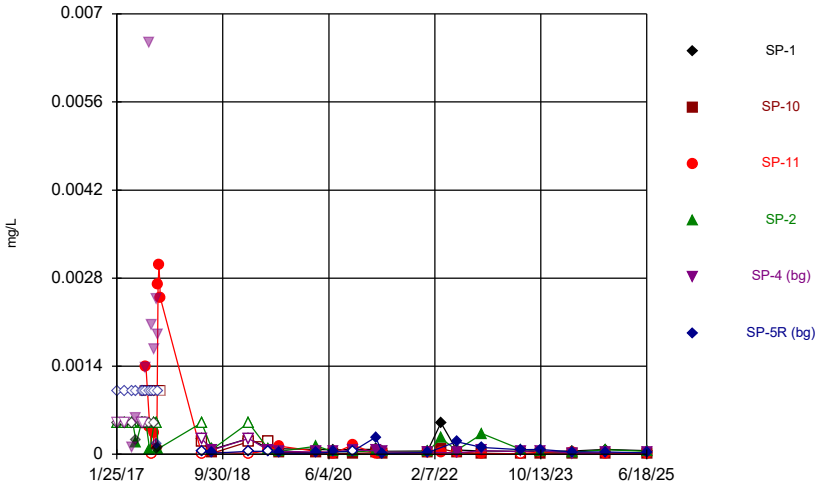
Time Series



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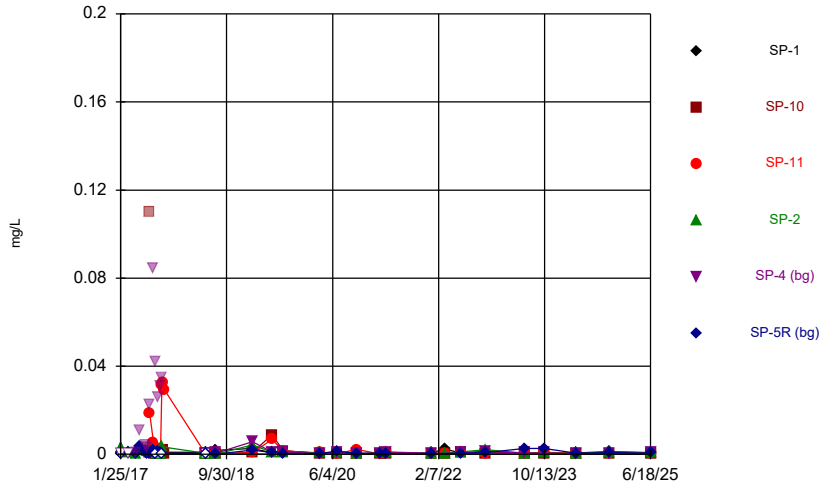
Time Series



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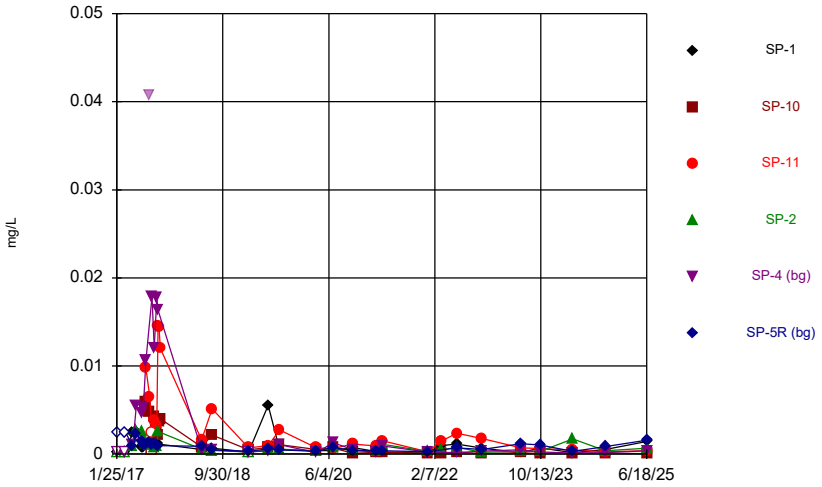
Time Series



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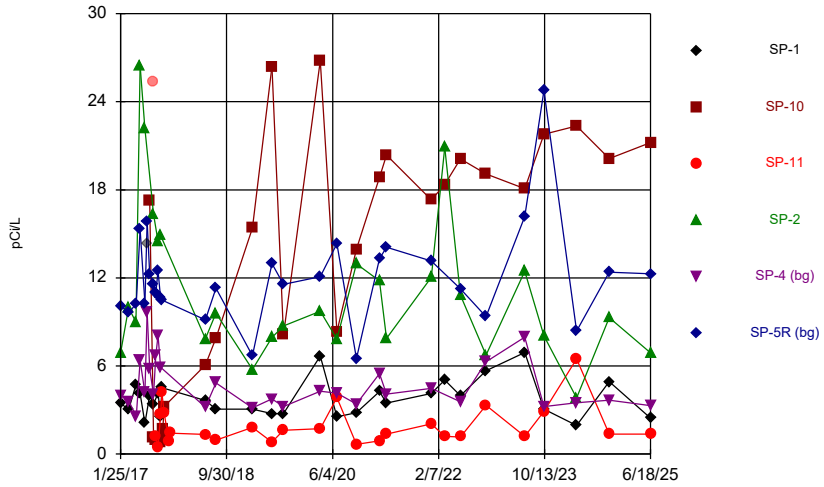
Time Series



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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

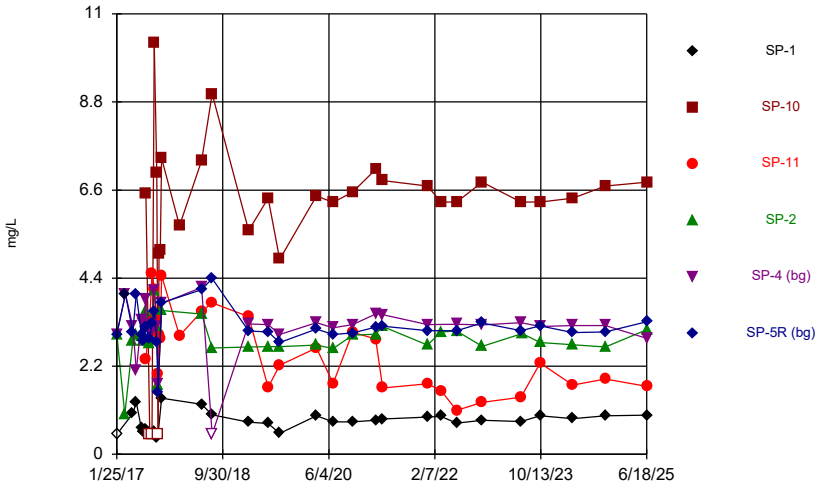
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 8/29/2025 5:22 PM View: Appendix B
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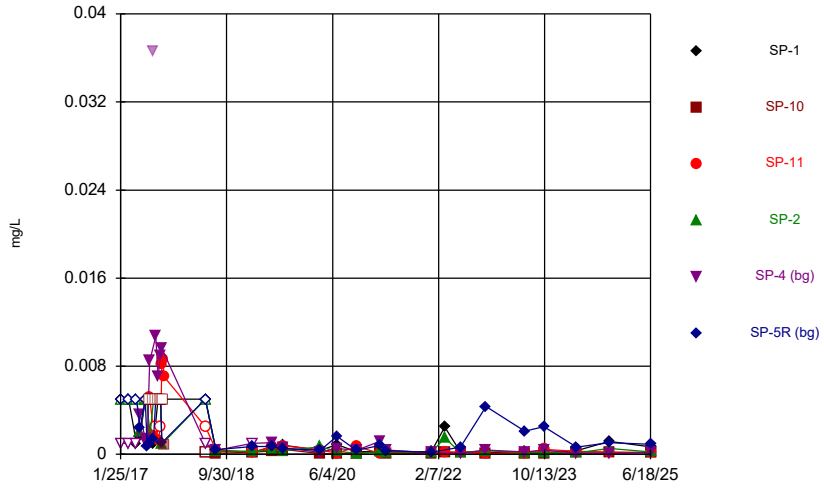
Time Series



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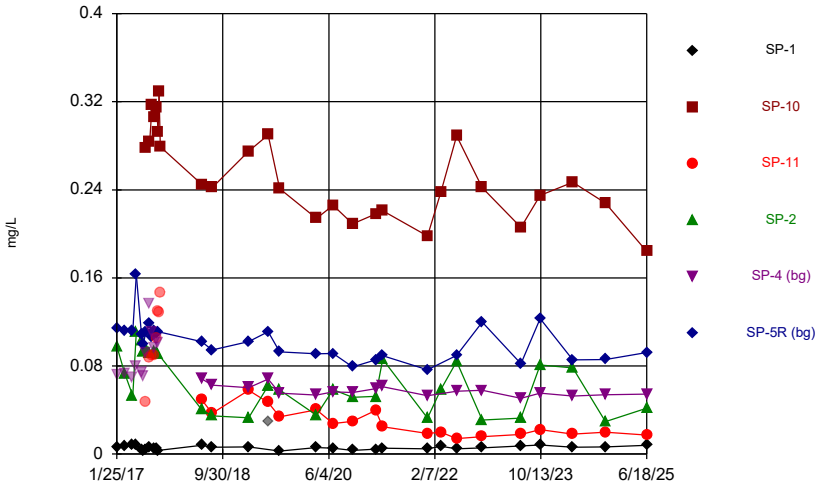
Time Series



Constituent: Lead Analysis Run 8/29/2025 5:22 PM View: Appendix B
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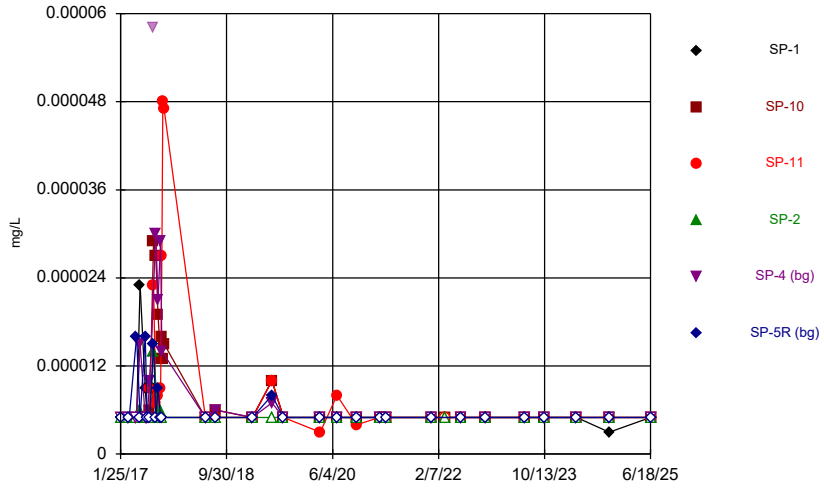
Time Series



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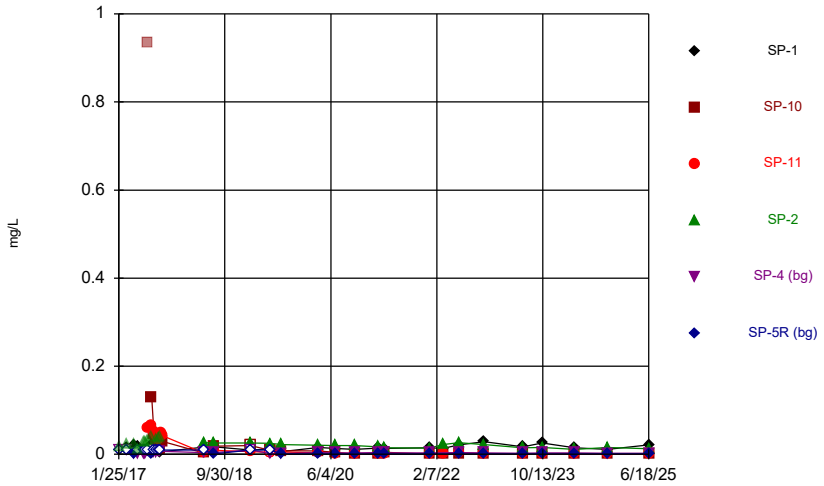
Time Series



Constituent: Mercury Analysis Run 8/29/2025 5:22 PM View: Appendix B
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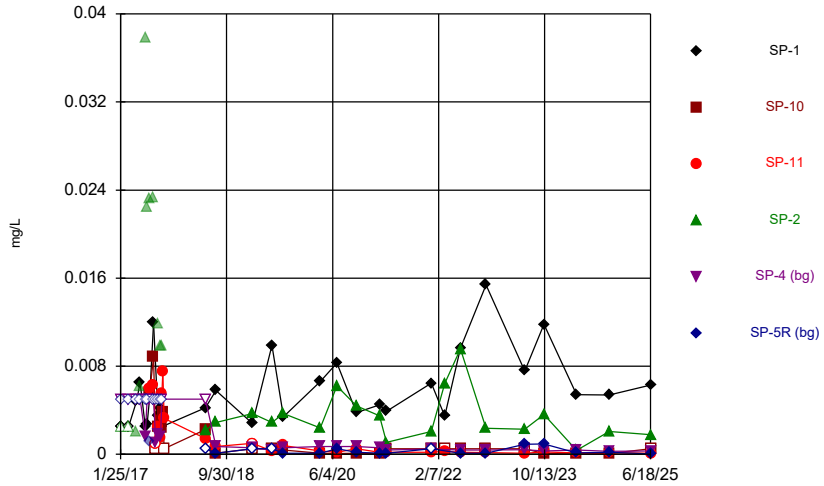
Time Series



Constituent: Molybdenum Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
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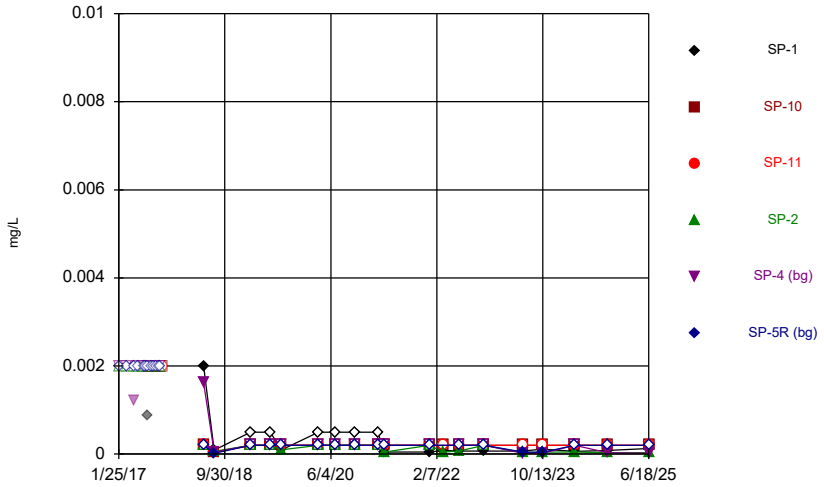
Time Series



Constituent: Selenium Analysis Run 8/29/2025 5:22 PM View: Appendix B
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Hollow symbols indicate censored values.

Time Series

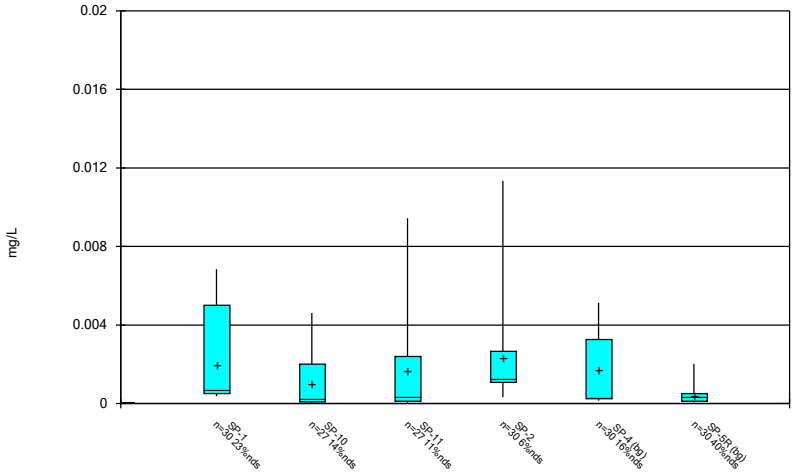


Constituent: Thallium Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE B

Box Plots

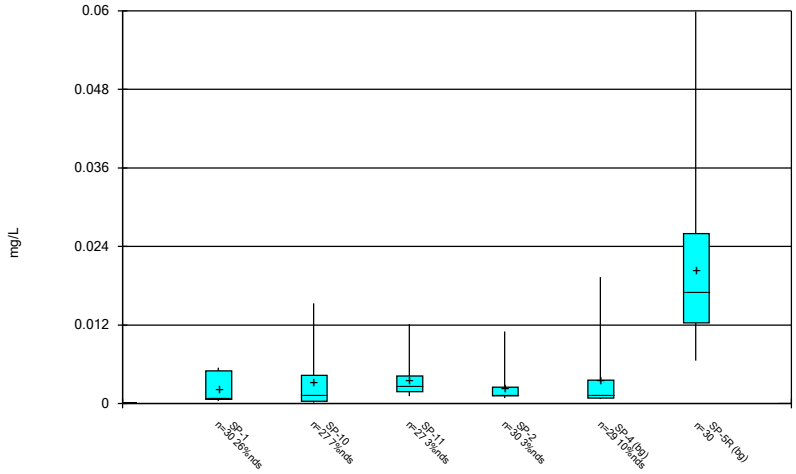
Box & Whiskers Plot



Constituent: Antimony Analysis Run 8/29/2025 5:23 PM View: Appendix B
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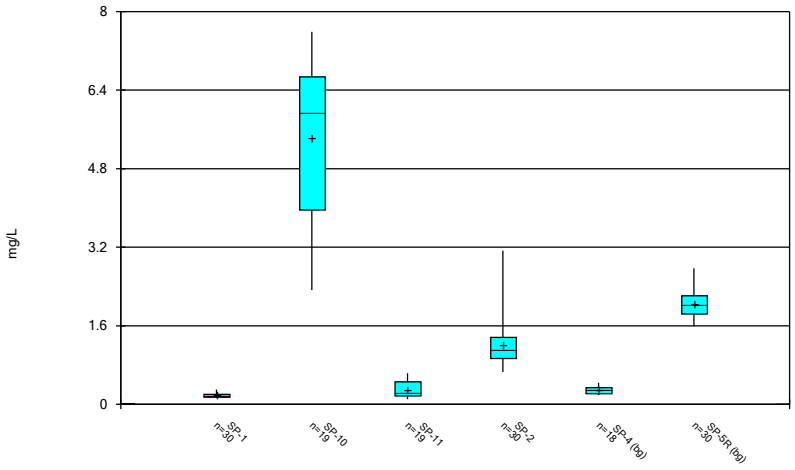
Box & Whiskers Plot



Constituent: Arsenic Analysis Run 8/29/2025 5:23 PM View: Appendix B
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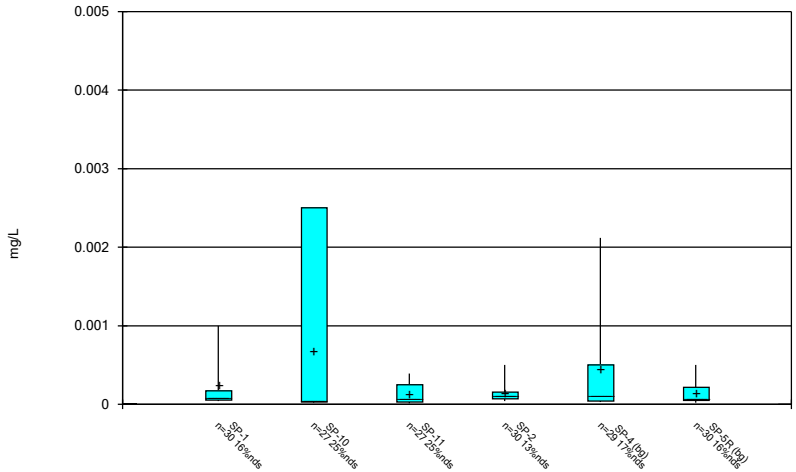
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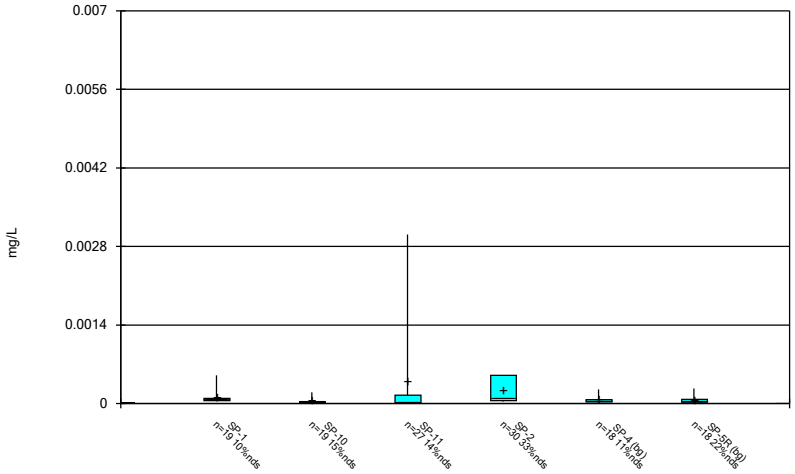
Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Beryllium Analysis Run 8/29/2025 5:23 PM View: Appendix B
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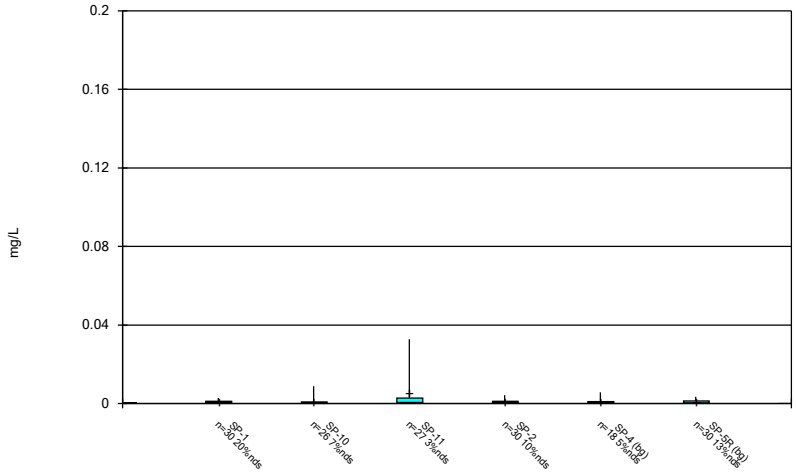
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 8/29/2025 5:23 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

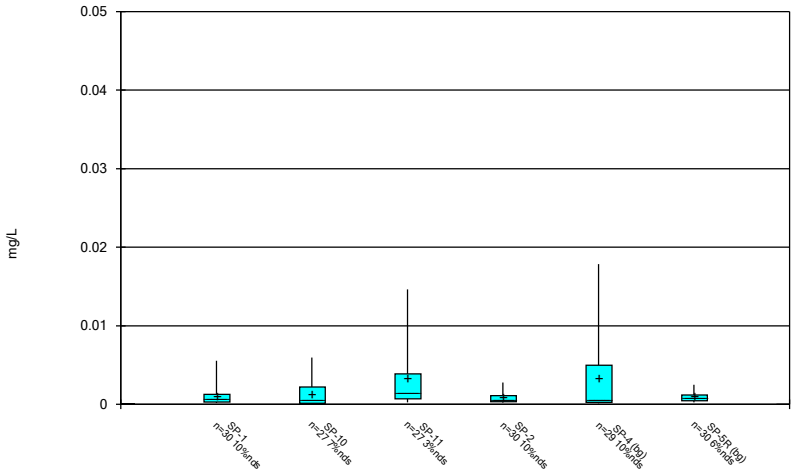
Box & Whiskers Plot



Constituent: Chromium Analysis Run 8/29/2025 5:23 PM View: Appendix B
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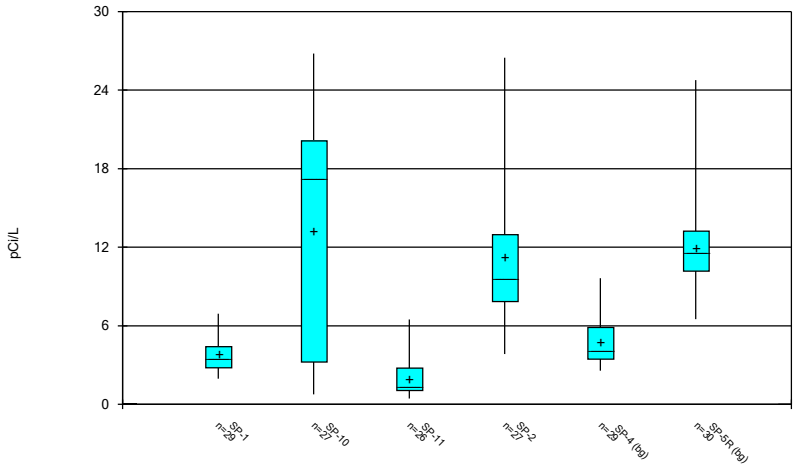
Box & Whiskers Plot



Constituent: Cobalt Analysis Run 8/29/2025 5:23 PM View: Appendix B
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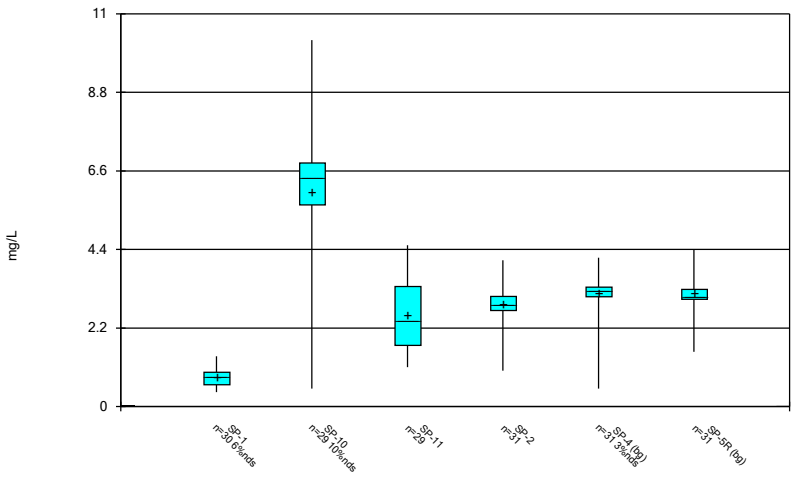
Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 8/29/2025 5:23 PM View: Appendix B
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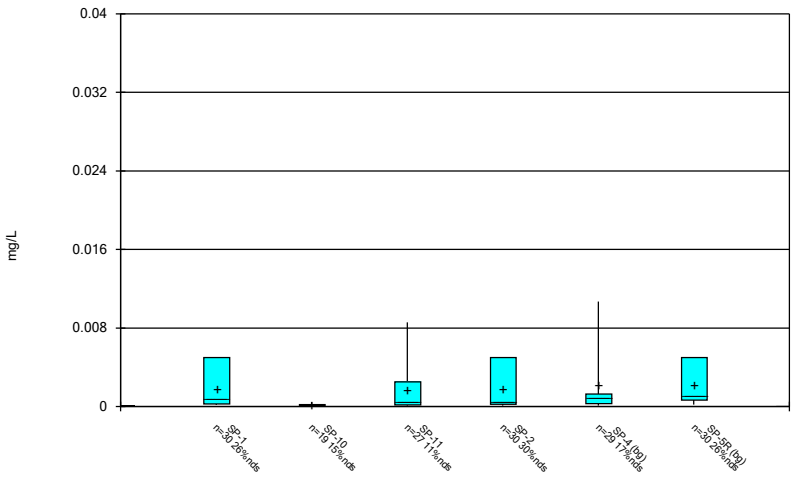
Box & Whiskers Plot



Constituent: Fluoride Analysis Run 8/29/2025 5:23 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

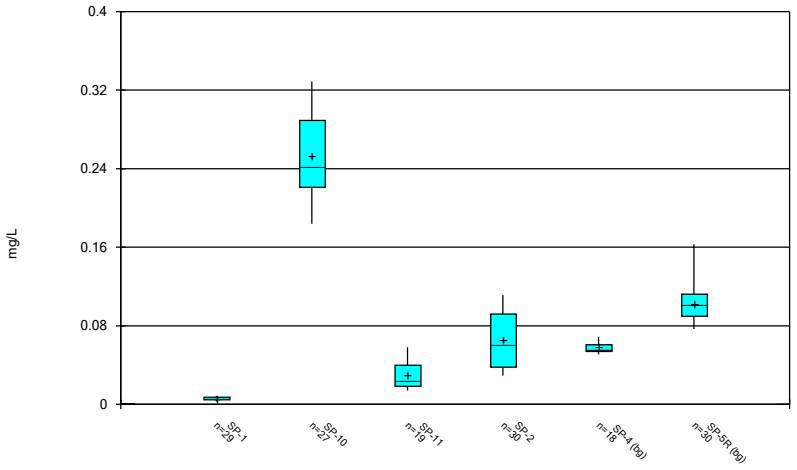
Box & Whiskers Plot



Constituent: Lead Analysis Run 8/29/2025 5:23 PM View: Appendix B
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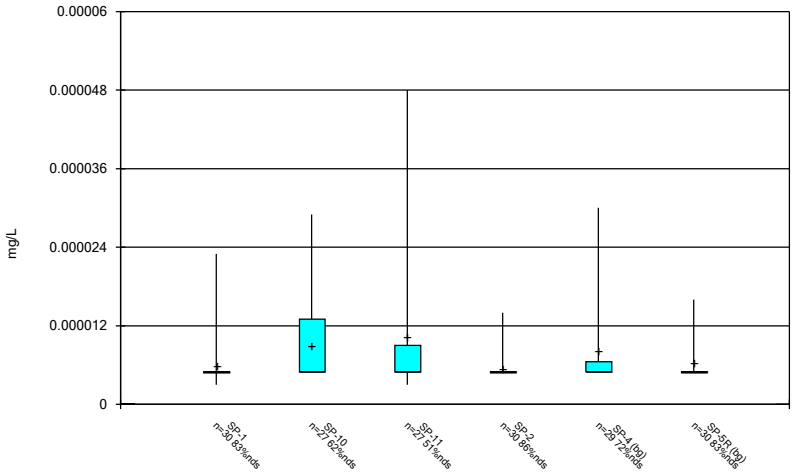
Box & Whiskers Plot



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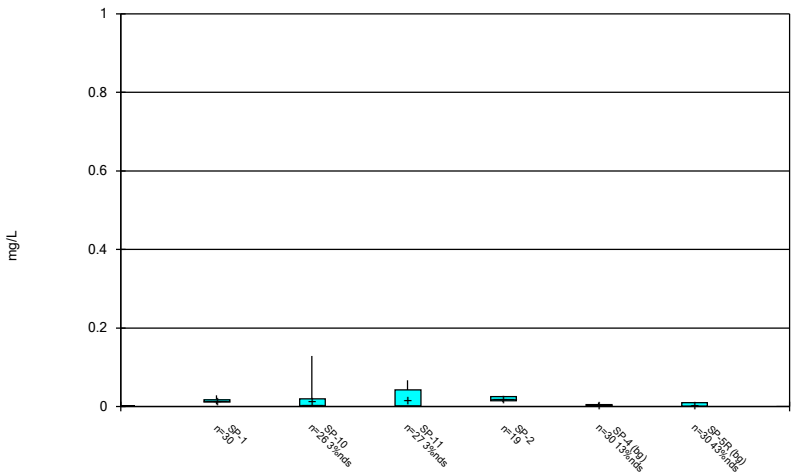
Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Mercury Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

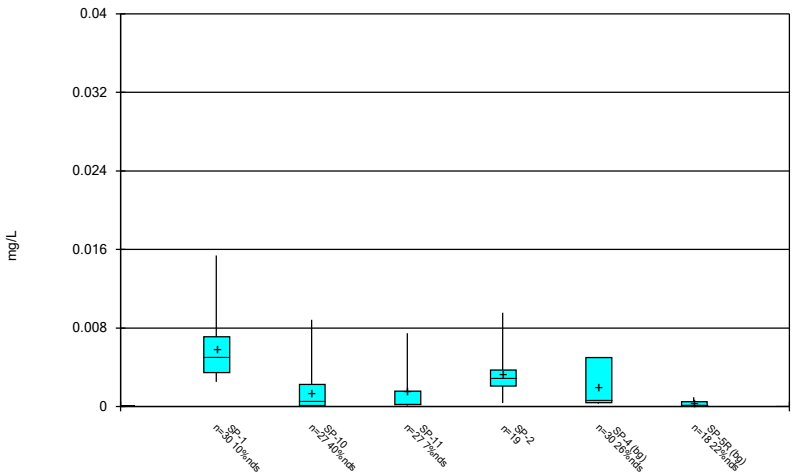
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

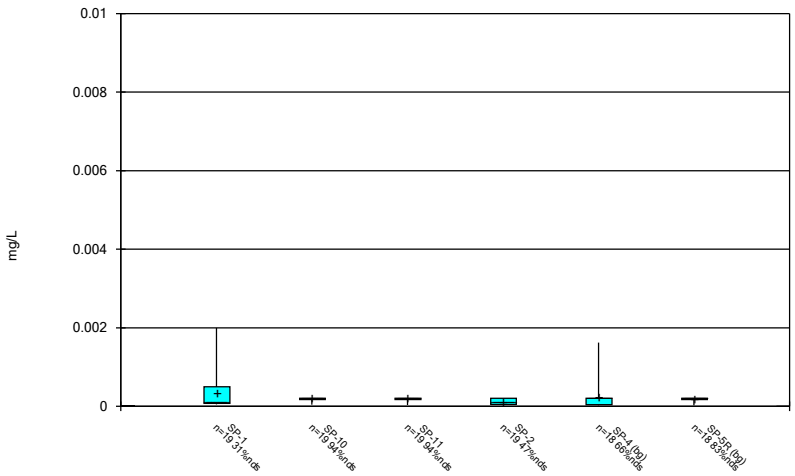
Box & Whiskers Plot



Constituent: Selenium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Thallium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE C
Outlier Summary

Outlier Summary

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 8/29/2025, 5:23 PM

	SP-4 Arsenic (mg/L)	SP-4 Beryllium (mg/L)	SP-10 Chromium (mg/L)	SP-4 Cobalt (mg/L)	SP-1 Combined Radium 226 + 228 (pCi/L)	SP-11 Combined Radium 226 + 228 (pCi/L)	SP-1 Fluoride (mg/L)	SP-4 Lead (mg/L)	SP-1 Lithium (mg/L)	SP-4 Mercury (mg/L)
3/13/2017							4 (o)			
6/27/2017					14.29 (o)					
7/13/2017			0.11 (o)							
8/4/2017	0.04498 (o)	0.00497 (o)		0.04069 (o)		25.367 (o)		0.03663 (o)		5.8E-05 (o)
6/20/2019									0.03 (J,o)	

	SP-10 Molybdenum (mg/L)
3/13/2017	
6/27/2017	
7/13/2017	0.934 (o)
8/4/2017	
6/20/2019	

FIGURE D

SP-10 Trend Test

SP-10 Trend Test - All/Significant Results

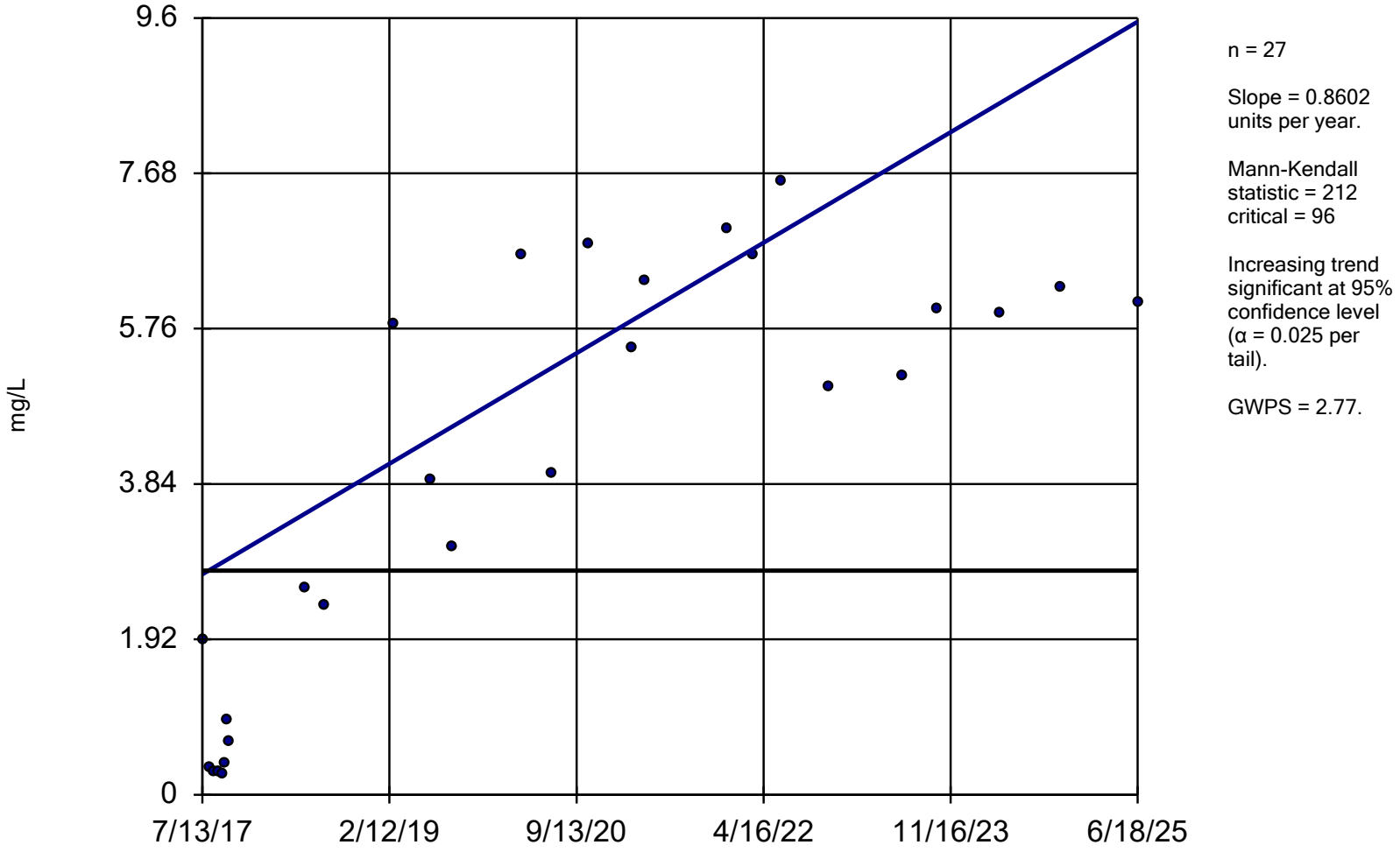
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/8/2025, 9:00 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Alpha	Method
Barium (mg/L)	**SP-10**	**0.8602**	**212**	**96**	**Yes**	**27**	**0**	**n/a**	**0.05**	**NP**

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Sen's Slope Estimator

SP-10



n = 27

Slope = 0.8602 units per year.

Mann-Kendall statistic = 212
critical = 96

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

GWPS = 2.77.

Constituent: Barium Analysis Run 9/8/2025 8:59 AM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

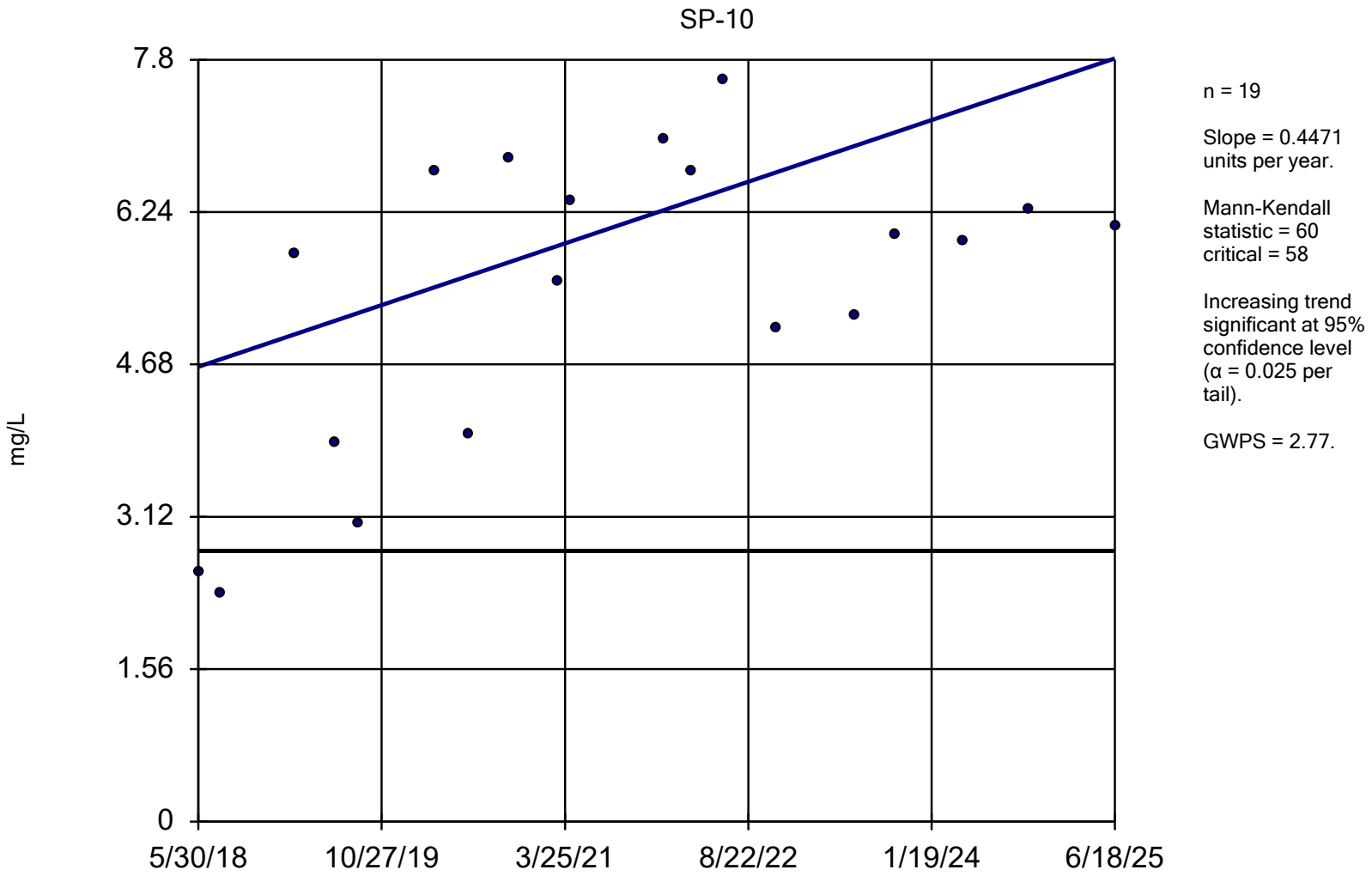
SP-10 Trend Test - Truncated Record - All/Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/8/2025, 9:02 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Alpha	Method
Barium (mg/L)	**SP-10**	**0.4471**	**60**	**58**	**Yes**	**19**	**0**	**n/a**	**0.05**	**NP**

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Sen's Slope Estimator



Constituent: Barium Analysis Run 9/8/2025 9:02 AM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE E

UTLs

Upper Tolerance Limits Summary Table

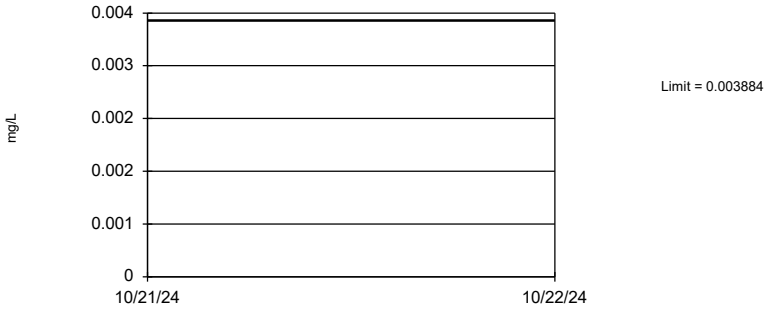
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:29 PM

Constituent	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	0.003884	n/a	n/a	n/a	n/a	58	29.31	ln(x)	0.05	Inter
Arsenic (mg/L)	0.0599	n/a	n/a	n/a	n/a	57	5.263	n/a	0.05373	NP Inter(normality)
Barium (mg/L)	2.77	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Beryllium (mg/L)	0.00212	n/a	n/a	n/a	n/a	57	17.54	n/a	0.05373	NP Inter(normality)
Cadmium (mg/L)	0.000168	n/a	n/a	n/a	n/a	34	17.65	ln(x)	0.05	Inter
Chromium (mg/L)	0.00339	n/a	n/a	n/a	n/a	46	10.87	ln(x)	0.05	Inter
Cobalt (mg/L)	0.01786	n/a	n/a	n/a	n/a	57	8.772	n/a	0.05373	NP Inter(normality)
Combined Radium 226 + 228 (pCi/L)	19.05	n/a	n/a	n/a	n/a	57	0	sqrt(x)	0.05	Inter
Fluoride (mg/L)	4.39	n/a	n/a	n/a	n/a	60	1.667	n/a	0.04607	NP Inter(normality)
Lead (mg/L)	0.008571	n/a	n/a	n/a	n/a	57	22.81	ln(x)	0.05	Inter
Lithium (mg/L)	0.163	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Mercury (mg/L)	0.00003	n/a	n/a	n/a	n/a	57	77.19	n/a	0.05373	NP Inter(NDs)
Molybdenum (mg/L)	0.01	n/a	n/a	n/a	n/a	58	29.31	n/a	0.05105	NP Inter(normality)
Selenium (mg/L)	0.00499	n/a	n/a	n/a	n/a	46	26.09	n/a	0.09447	NP Inter(normality)
Thallium (mg/L)	0.00162	n/a	n/a	n/a	n/a	34	76.47	n/a	0.1748	NP Inter(NDs)

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Tolerance Limit

Interwell Parametric



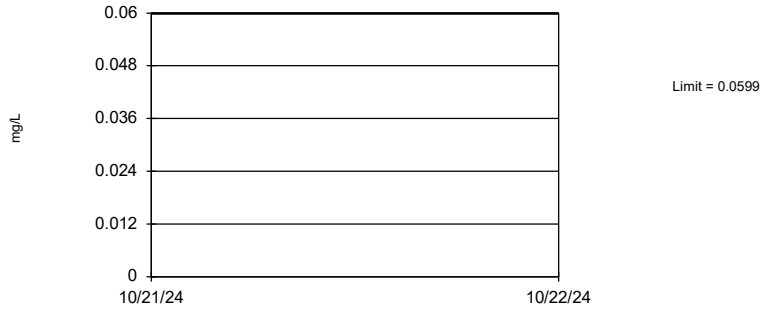
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-8.101, Std. Dev.=1.259, n=58, 29.31% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9551, critical = 0.944. Report alpha = 0.05.

Constituent: Antimony Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



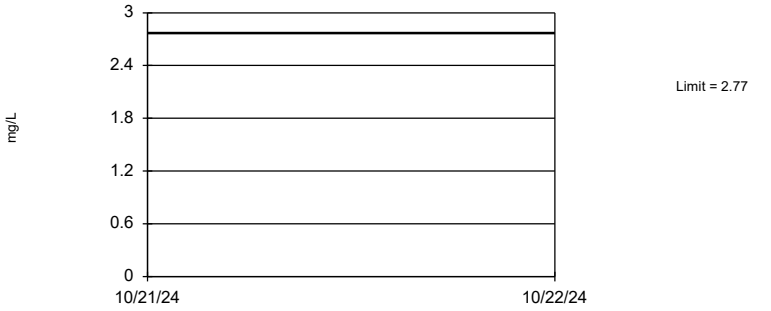
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 5.263% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Arsenic Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



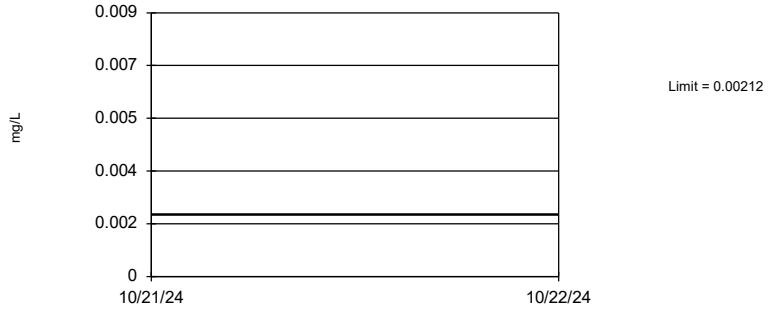
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Barium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



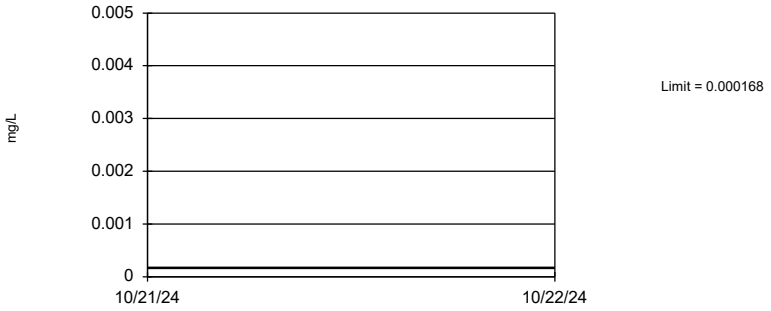
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 17.54% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Beryllium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



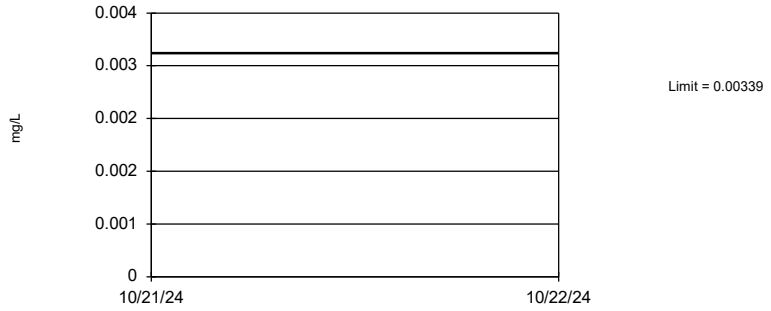
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-10.33, Std. Dev.=0.7505, n=34, 17.65% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9488, critical = 0.908. Report alpha = 0.05.

Constituent: Cadmium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



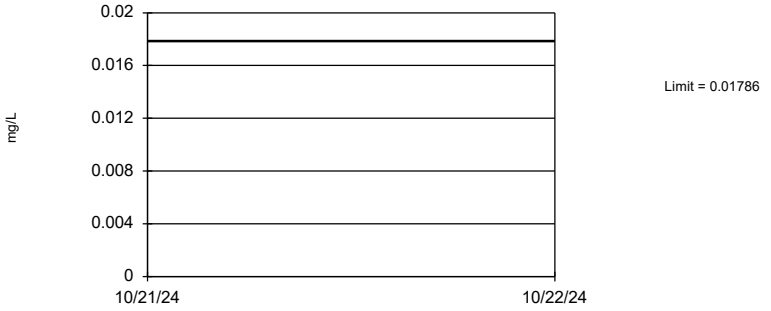
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.303, Std. Dev.=0.7743, n=46, 10.87% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9536, critical = 0.927. Report alpha = 0.05.

Constituent: Chromium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



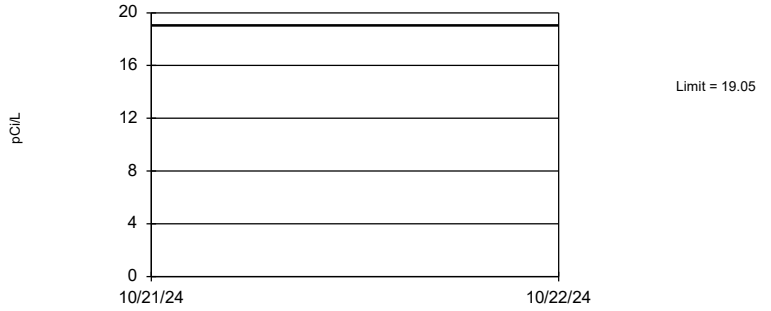
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 8.772% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Cobalt Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=2.801, Std. Dev.=0.7708, n=57. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.947, critical = 0.944. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



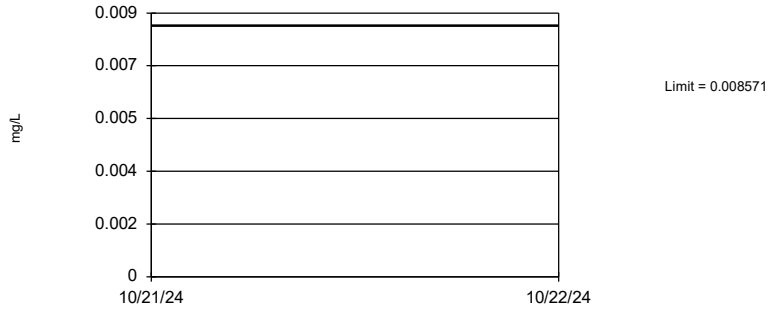
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 60 background values. 1.667% NDs. 92.77% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.04607.

Constituent: Fluoride Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-7.232, Std. Dev.=1.219, n=57, 22.81% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9454, critical = 0.944. Report alpha = 0.05.

Constituent: Lead Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Tolerance Limit

Interwell Non-parametric



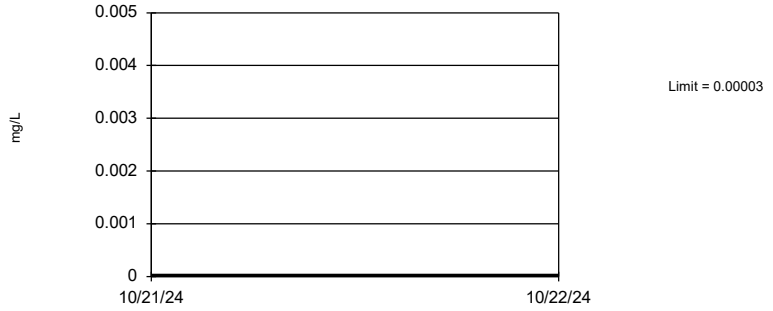
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Lithium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



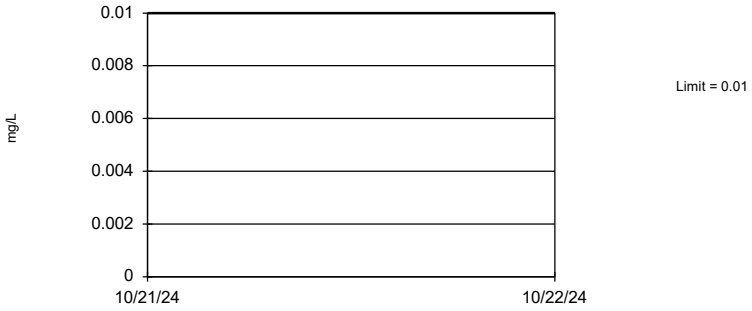
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 57 background values. 77.19% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Mercury Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 58 background values. 29.31% NDs. 92.38% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05105.

Constituent: Molybdenum Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



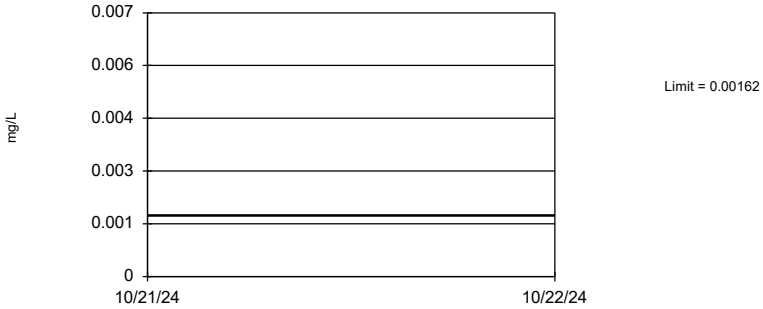
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 26.09% NDs. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Selenium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 34 background values. 76.47% NDs. 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: Thallium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE F

GWPS

NORTHEASTERN BAP GWPS				
Constituent Name	**MCL**	**CCR- Rule Specified Level**	**Background Limit**	**GWPS**
Antimony, Total (mg/L)	0.006		0.0039	0.006
Arsenic, Total (mg/L)	0.01		0.06	0.06
Barium, Total (mg/L)	2		2.77	2.77
Beryllium, Total (mg/L)	0.004		0.0021	0.004
Cadmium, Total (mg/L)	0.005		0.00017	0.005
Chromium, Total (mg/L)	0.1		0.0034	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.018	0.018
Combined Radium, Total (pCi/L)	5		19.05	19.05
Fluoride, Total (mg/L)	4		4.39	4.39
Lead, Total (mg/L)	n/a	0.015	0.0086	0.015
Lithium, Total (mg/L)	n/a	0.04	0.16	0.16
Mercury, Total (mg/L)	0.002		0.00003	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.0016	0.002

**Grey cell indicates Background Limit is higher than MCL*

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

FIGURE G
Confidence Intervals

Confidence Intervals - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 8/29/2025, 5:30 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Barium (mg/L)	**SP-10**	**6.312**	**4.501**	**2.77**	**Yes**	**19**	**5.407**	**1.547**	**0**	**None**	**No**	**0.01**	**Param.**
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**29**	**5.985**	**2.169**	**10.34**	**None**	**No**	**0.01**	**NP (normality)**
Lithium (mg/L)	**SP-10**	**0.2727**	**0.2346**	**0.16**	**Yes**	**27**	**0.2536**	**0.03997**	**0**	**None**	**No**	**0.01**	**Param.**

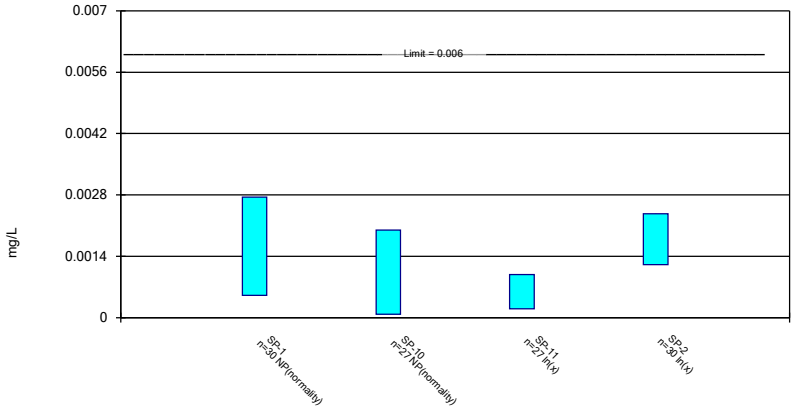
Confidence Intervals - All Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 8/29/2025, 5:30 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	SP-1	0.00275	0.00051	0.006	No	30	0.001987	0.002075	23.33	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-10	0.002	0.000076	0.006	No	27	0.0009596	0.001213	14.81	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-11	0.0009831	0.0002004	0.006	No	27	0.001662	0.002699	11.11	None	ln(x)	0.01	Param.
Antimony (mg/L)	SP-2	0.002373	0.00121	0.006	No	30	0.002328	0.002402	6.667	None	ln(x)	0.01	Param.
Arsenic (mg/L)	SP-1	0.00211	0.00065	0.06	No	30	0.002118	0.001994	26.67	None	No	0.01	NP (normality)
Arsenic (mg/L)	SP-10	0.003531	0.0008343	0.06	No	27	0.003308	0.004238	7.407	None	x^(1/3)	0.01	Param.
Arsenic (mg/L)	SP-11	0.004532	0.002318	0.06	No	27	0.003722	0.002743	3.704	None	sqrt(x)	0.01	Param.
Arsenic (mg/L)	SP-2	0.00208	0.00125	0.06	No	30	0.002349	0.002358	3.333	None	No	0.01	NP (normality)
Barium (mg/L)	SP-1	0.1915	0.1598	2.77	No	30	0.1775	0.03797	0	None	x^(1/3)	0.01	Param.
Barium (mg/L)	**SP-10**	**6.312**	**4.501**	**2.77**	**Yes**	**19**	**5.407**	**1.547**	**0**	**None**	**No**	**0.01**	**Param.**
Barium (mg/L)	SP-11	0.3748	0.1964	2.77	No	19	0.2982	0.162	0	None	sqrt(x)	0.01	Param.
Barium (mg/L)	SP-2	1.315	0.9886	2.77	No	30	1.204	0.4673	0	None	ln(x)	0.01	Param.
Beryllium (mg/L)	SP-1	0.000126	0.000054	0.004	No	30	0.0002389	0.0003494	16.67	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-10	0.000121	0.00003	0.004	No	27	0.0006782	0.001099	25.93	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-11	0.00025	0.000028	0.004	No	27	0.0001355	0.0001305	25.93	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-2	0.000121	0.00007	0.004	No	30	0.0001523	0.0001462	13.33	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-1	0.0001	0.000051	0.005	No	19	0.0001094	0.0001122	10.53	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-10	0.000089	0.000009	0.005	No	19	0.00004968	0.00006939	15.79	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-11	0.00015	0.00001	0.005	No	27	0.0004129	0.0008831	14.81	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-2	0.000328	0.00006	0.005	No	30	0.0002284	0.0002051	33.33	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-1	0.001052	0.0005593	0.1	No	30	0.0009769	0.0006408	20	Kaplan-Meier	sqrt(x)	0.01	Param.
Chromium (mg/L)	SP-10	0.000837	0.0003242	0.1	No	26	0.000949	0.001694	7.692	None	ln(x)	0.01	Param.
Chromium (mg/L)	SP-11	0.00276	0.00043	0.1	No	27	0.005235	0.01004	3.704	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-2	0.001281	0.0005834	0.1	No	30	0.001117	0.001036	10	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-1	0.001103	0.0004817	0.018	No	30	0.0009737	0.001062	10	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-10	0.001369	0.0002864	0.018	No	27	0.001321	0.001734	7.407	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-11	0.003003	0.0009638	0.018	No	27	0.003376	0.0043	3.704	None	ln(x)	0.01	Param.
Cobalt (mg/L)	SP-2	0.0009709	0.0004717	0.018	No	30	0.0008442	0.000726	10	None	x^(1/3)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-1	4.338	3.197	19.05	No	29	3.768	1.244	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-10	20.13	3.226	19.05	No	27	13.24	8.757	0	None	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SP-11	2.332	1.221	19.05	No	26	1.912	1.356	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-2	13.04	8.497	19.05	No	27	11.16	5.263	0	None	sqrt(x)	0.01	Param.
Fluoride (mg/L)	SP-1	0.9369	0.7209	4.39	No	30	0.8289	0.2403	6.667	None	No	0.01	Param.
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**29**	**5.985**	**2.169**	**10.34**	**None**	**No**	**0.01**	**NP (normality)**
Fluoride (mg/L)	SP-11	3.017	2.125	4.39	No	29	2.571	0.9734	0	None	No	0.01	Param.
Fluoride (mg/L)	SP-2	3.06	2.7	4.39	No	31	2.88	0.5326	0	None	No	0.01	NP (normality)
Lead (mg/L)	SP-1	0.00247	0.000259	0.015	No	30	0.001814	0.002016	26.67	None	No	0.01	NP (normality)
Lead (mg/L)	SP-10	0.0001783	0.00007778	0.015	No	19	0.0001553	0.00009929	15.79	Kaplan-Meier	sqrt(x)	0.01	Param.
Lead (mg/L)	SP-11	0.001183	0.0002857	0.015	No	27	0.001671	0.002542	11.11	None	ln(x)	0.01	Param.
Lead (mg/L)	SP-2	0.00202	0.000245	0.015	No	30	0.00185	0.002143	30	None	No	0.01	NP (normality)
Lithium (mg/L)	SP-1	0.006467	0.004989	0.16	No	29	0.005728	0.001613	0	None	No	0.01	Param.
Lithium (mg/L)	**SP-10**	**0.2727**	**0.2346**	**0.16**	**Yes**	**27**	**0.2536**	**0.03997**	**0**	**None**	**No**	**0.01**	**Param.**
Lithium (mg/L)	SP-11	0.03537	0.02103	0.16	No	19	0.02902	0.01297	0	None	sqrt(x)	0.01	Param.
Lithium (mg/L)	SP-2	0.07759	0.05414	0.16	No	30	0.06587	0.02608	0	None	No	0.01	Param.
Mercury (mg/L)	SP-1	0.000009	0.000005	0.002	No	30	0.000005967	0.000003508	83.33	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-10	0.00001	0.000005	0.002	No	27	0.000008852	0.000006882	62.96	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-11	0.000009	0.000005	0.002	No	27	0.0000103	0.00001201	51.85	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-2	0.000005	0.000005	0.002	No	30	0.000005367	0.00000165	86.67	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	SP-1	0.01706	0.01204	0.1	No	30	0.01455	0.005581	0	None	No	0.01	Param.
Molybdenum (mg/L)	SP-10	0.01398	0.002109	0.1	No	26	0.01467	0.02655	3.846	None	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	SP-11	0.04214	0.0018	0.1	No	27	0.01667	0.0225	3.704	None	No	0.01	NP (normality)
Molybdenum (mg/L)	SP-2	0.02258	0.01671	0.1	No	19	0.01965	0.005013	0	None	No	0.01	Param.
Selenium (mg/L)	SP-1	0.006794	0.004191	0.05	No	30	0.005788	0.003231	10	None	sqrt(x)	0.01	Param.
Selenium (mg/L)	SP-10	0.0005561	0.00009923	0.05	No	27	0.001302	0.002046	40.74	Kaplan-Meier	ln(x)	0.01	Param.
Selenium (mg/L)	SP-11	0.00155	0.0002	0.05	No	27	0.001503	0.002188	7.407	None	No	0.01	NP (normality)
Selenium (mg/L)	SP-2	0.004295	0.002018	0.05	No	19	0.003344	0.002137	0	None	sqrt(x)	0.01	Param.
Thallium (mg/L)	SP-1	0.0005	0.00007	0.002	No	19	0.0003137	0.0004542	31.58	None	No	0.01	NP (normality)
Thallium (mg/L)	SP-10	0.0002	0.00004	0.002	No	19	0.0001916	0.00003671	94.74	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-11	0.0002	0.00003	0.002	No	19	0.0001911	0.000039	94.74	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-2	0.0002	0.00005	0.002	No	19	0.0001221	0.00007743	47.37	None	No	0.01	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

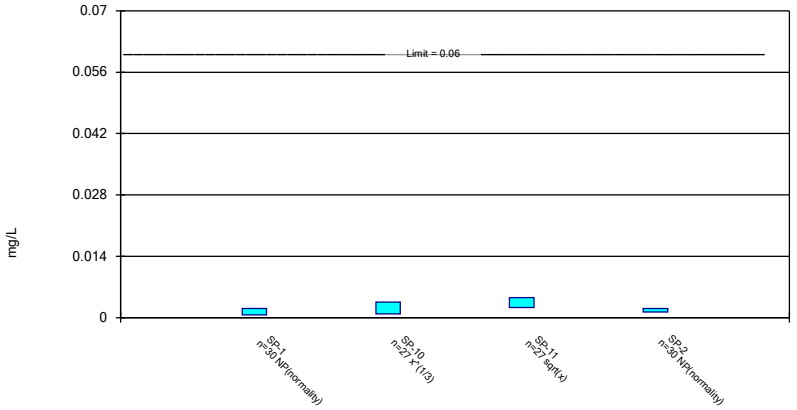
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Antimony Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

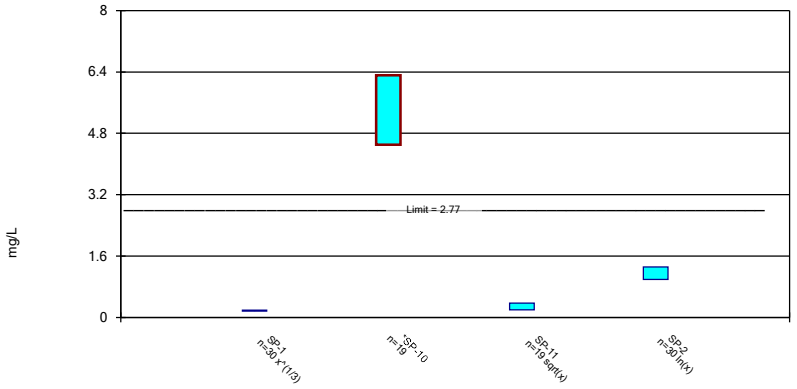
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric Confidence Interval

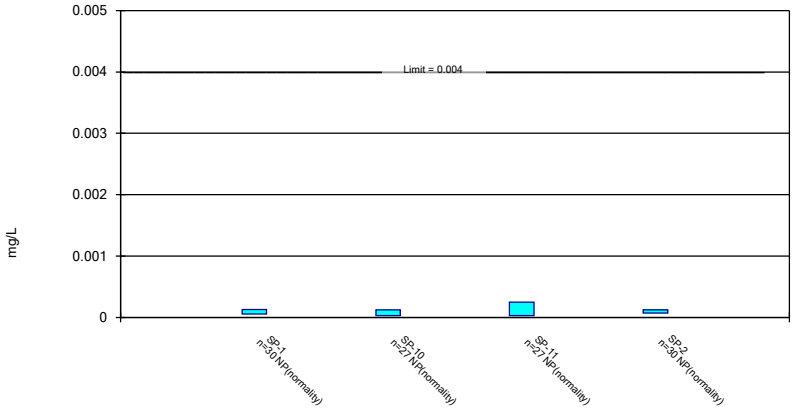
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Non-Parametric Confidence Interval

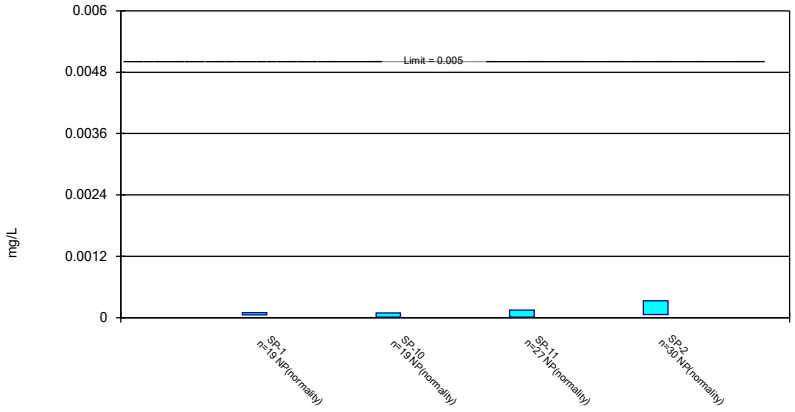
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Beryllium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Non-Parametric Confidence Interval

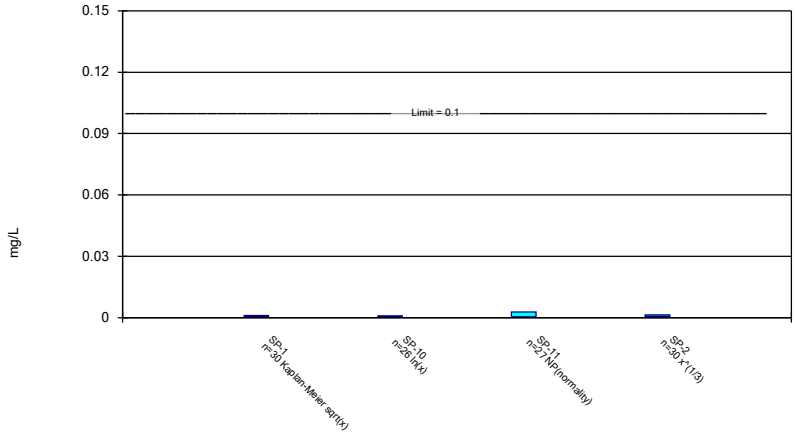
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Cadmium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

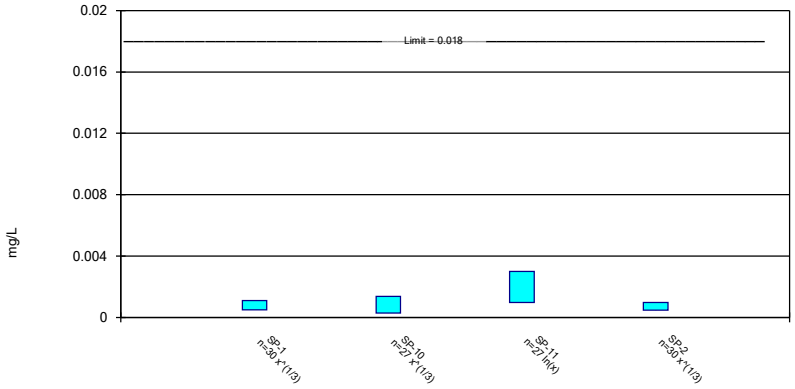
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric Confidence Interval

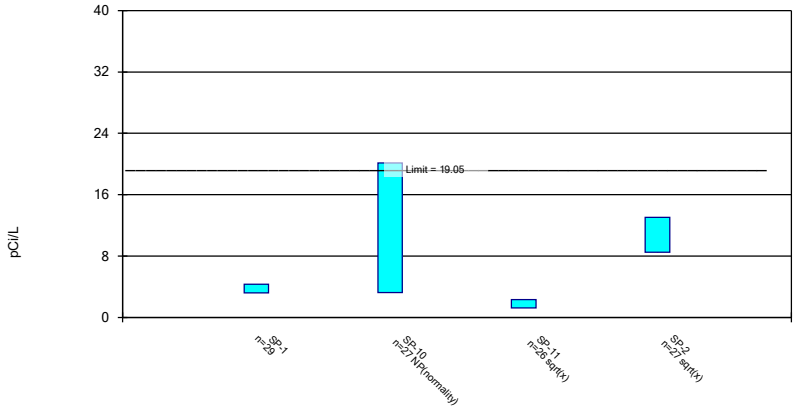
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

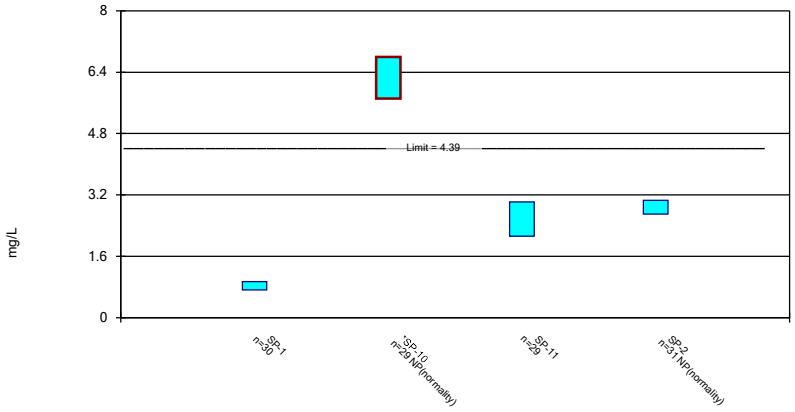
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

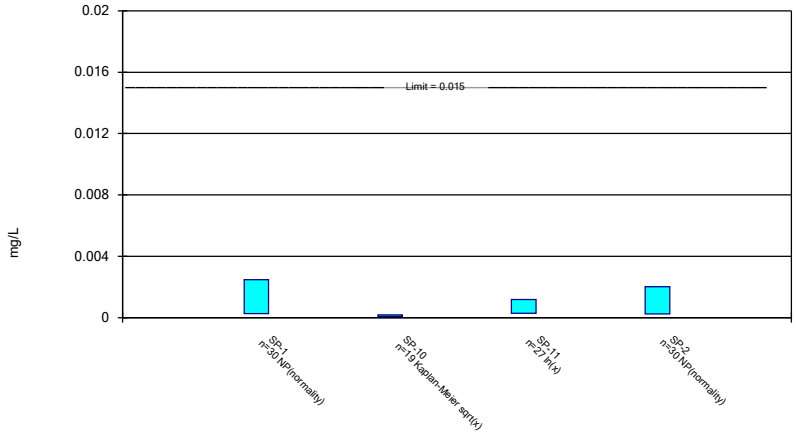
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

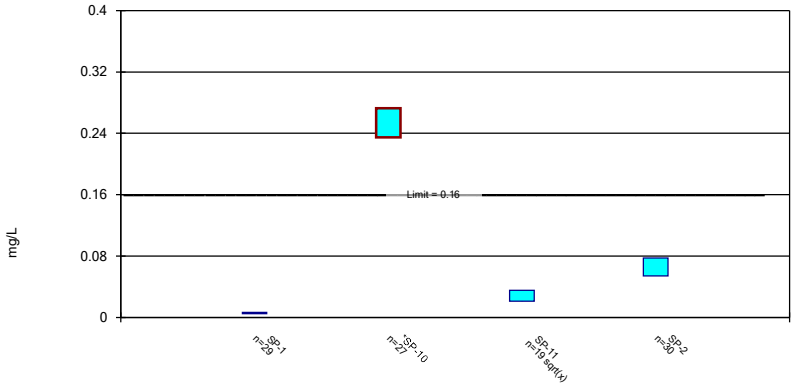
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric Confidence Interval

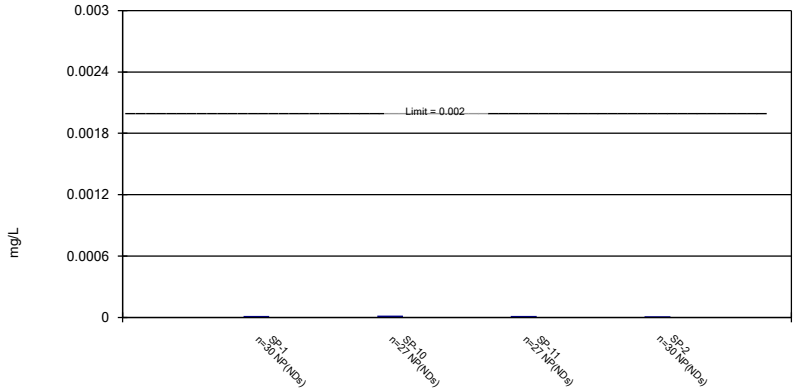
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Non-Parametric Confidence Interval

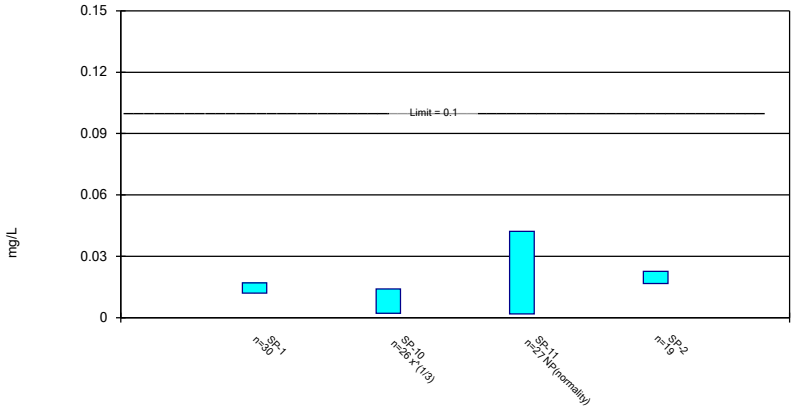
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Mercury Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern 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.

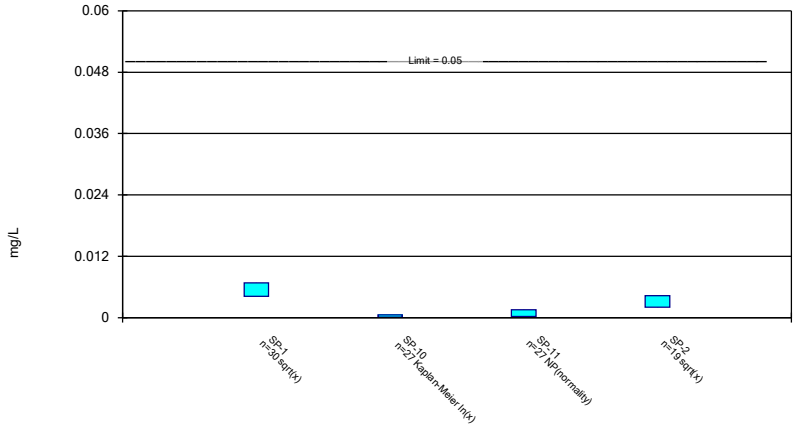


Constituent: Molybdenum Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by 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.

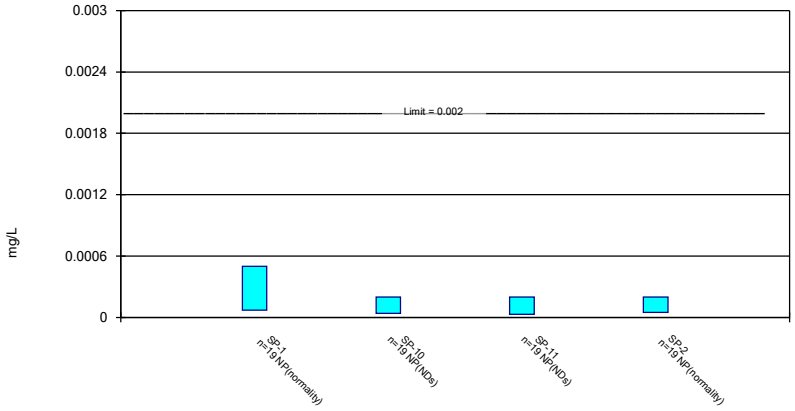


Constituent: Selenium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

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



Constituent: Thallium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE H
Trend Tests – Appendix B

Appendix B Trend Tests - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/5/2025, 4:48 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.8602**	**212**	**96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01676**	**-64**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.05659**	**167**	**112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-10**	**-0.01184**	**-176**	**-96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001352**	**-72**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004347**	**-209**	**-112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**

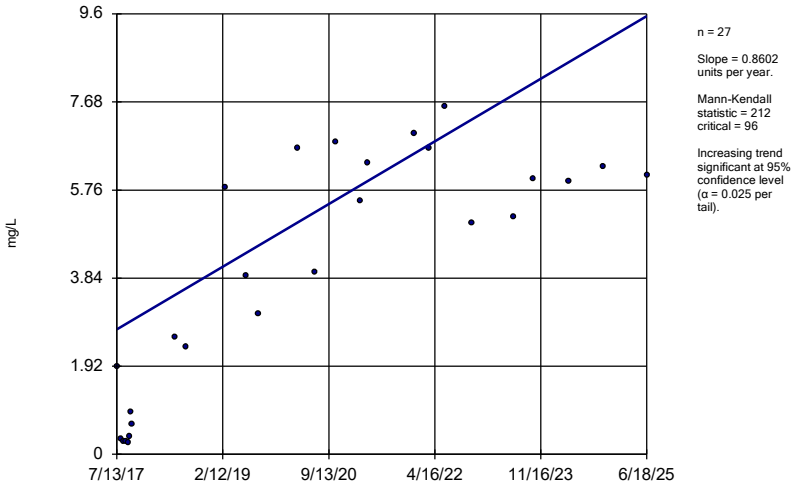
Appendix B Trend Tests - All Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/5/2025, 4:48 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.8602**	**212**	**96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01676**	**-64**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.05659**	**167**	**112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Fluoride (mg/L)	SP-10	0.1114	66	106	No	29	10.34	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-4 (bg)	-0.003946	-26	-117	No	31	3.226	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-5R (bg)	0.005849	27	117	No	31	0	n/a	n/a	0.05	NP
Lithium (mg/L)	**SP-10**	**-0.01184**	**-176**	**-96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001352**	**-72**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004347**	**-209**	**-112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**

Sen's Slope Estimator

SP-10



n = 27

Slope = 0.8602 units per year.

Mann-Kendall statistic = 212
critical = 96

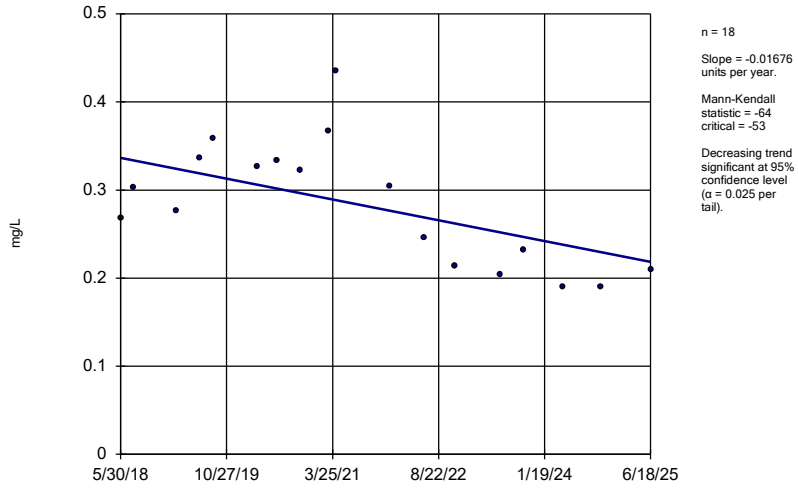
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-4 (bg)



n = 18

Slope = -0.01676 units per year.

Mann-Kendall statistic = -64
critical = -53

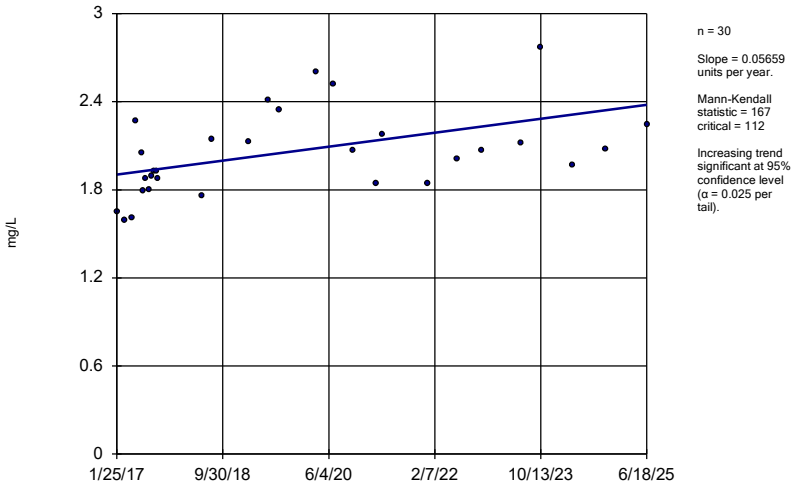
Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = 0.05659 units per year.

Mann-Kendall statistic = 167
critical = 112

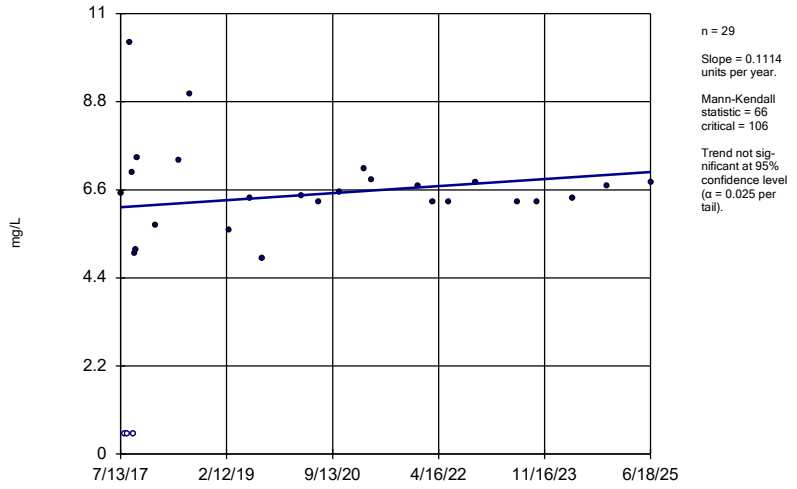
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-10



n = 29

Slope = 0.1114 units per year.

Mann-Kendall statistic = 66
critical = 106

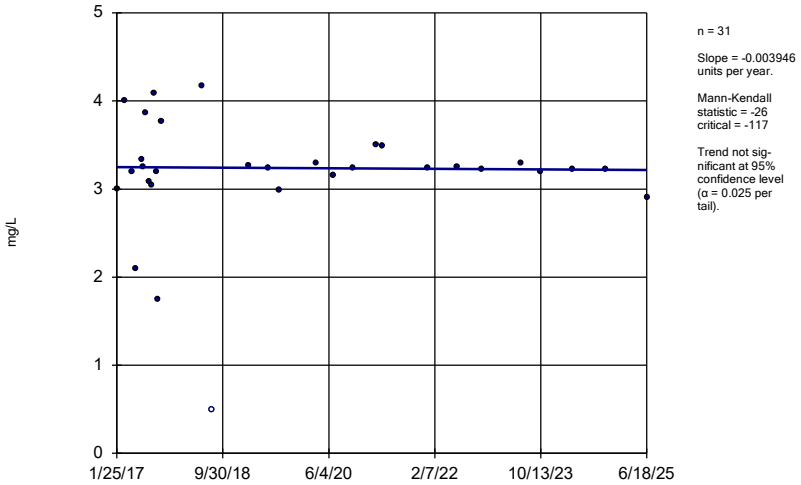
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-4 (bg)



n = 31

Slope = -0.003946 units per year.

Mann-Kendall statistic = -26
critical = -117

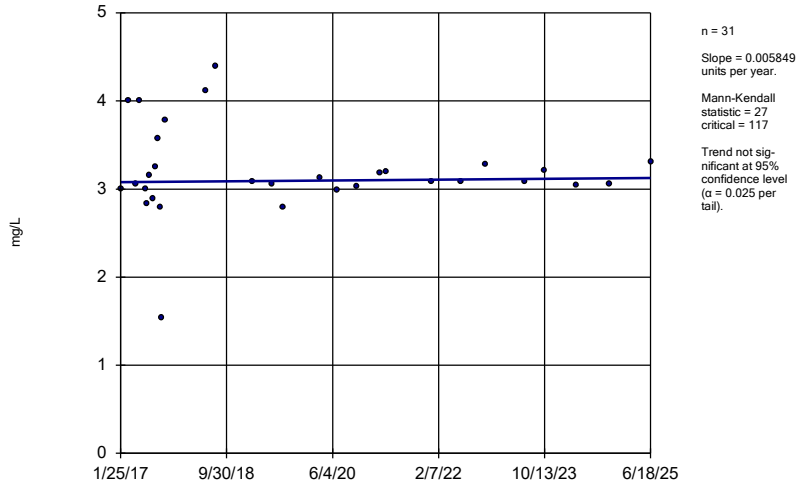
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-5R (bg)



n = 31

Slope = 0.005849 units per year.

Mann-Kendall statistic = 27
critical = 117

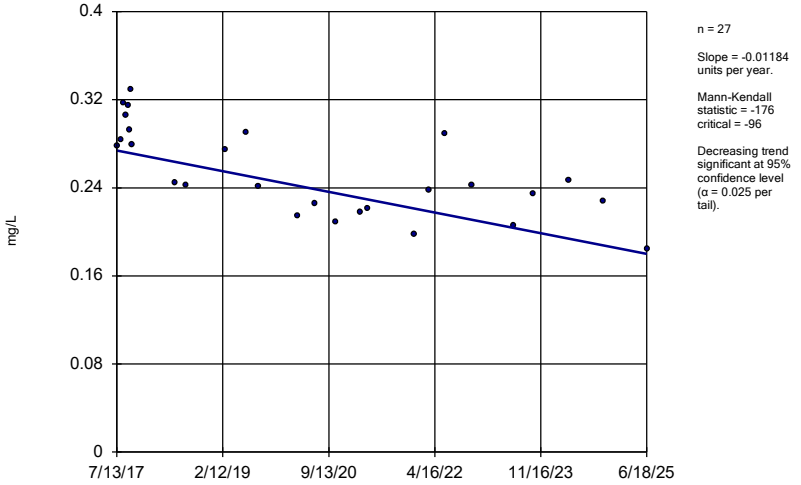
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-10



n = 27

Slope = -0.01184 units per year.

Mann-Kendall statistic = -176
critical = -96

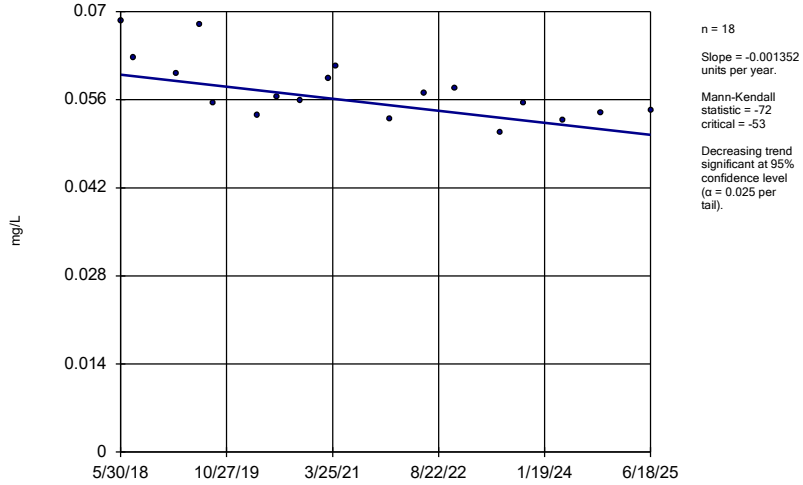
Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-4 (bg)



n = 18

Slope = -0.001352 units per year.

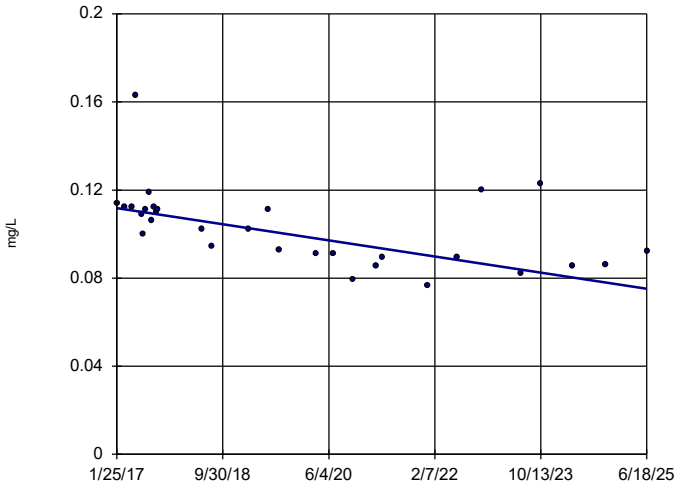
Mann-Kendall statistic = -72
critical = -53

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = -0.004347 units per year.

Mann-Kendall statistic = -209
critical = -112

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

APPENDIX 3

Alternative Source Demonstrations

Geosyntec consultants

500 W. Wilson Bridge Rd, Suite 250
Worthington, Ohio 43085
PH 614.468.0421
www.geosyntec.com

Memorandum

Date:	May 27, 2025
To:	Pryce Warren, American Electric Power (AEP)
From:	Beth Gross, PhD, PE (OK) and Allison Kreinberg, Geosyntec
Subject:	Alternative Source Demonstration Update – 2nd Semiannual Event 2024 Northeastern Power Station Bottom Ash Pond Oologah, Rogers County, Oklahoma

The Bottom Ash Pond (BAP) is a regulated coal combustion residual (CCR) management unit at the Northeastern Power Station (NPS) in Oologah, Oklahoma. A semiannual assessment monitoring event was completed at the BAP on October 22, 2024, in accordance with the assessment monitoring requirements of Oklahoma Administrative Code (OAC) 252:517-9-6. Analysis of the October 2024 data identified statistically significant levels (SSLs) above the groundwater protection standards (GWPSs) for lithium, fluoride, and barium at SP-10 (**Attachment A**). The following SSLs were identified at the Northeastern BAP:

- The lower confidence limit (LCL) for lithium exceeded the GWPS of 0.163 milligrams per liter (mg/L) at SP-10 (0.238 mg/L).
- The LCL for fluoride exceeded the GWPS of 4.39 mg/L at SP-10 (5.71 mg/L).
- The LCL for barium exceeded the GWPS of 2.77 mg/L at SP-10 (4.41 mg/L).

Key analytical results for samples collected from the BAP and from SP-10 are provided in **Table 1**. As described in previous alternative source demonstrations (ASDs) (Geosyntec 2019, Geosyntec 2021a, Geosyntec 2021b, Geosyntec 2021c, Geosyntec 2022, Geosyntec 2023a, Geosyntec 2023b, Geosyntec 2023c, Geosyntec 2024a, Geosyntec 2024b), concentrations of lithium, fluoride, and barium in the BAP water (including pore water) and BAP sediments that are lower than concentrations observed at SP-10 suggest that the BAP is not the source of these exceedances. These previous ASDs demonstrate that the release of lithium from the clay minerals in the shale lens located at 46 feet below ground surface in the screened interval of SP-10 is the likely source of lithium in groundwater at that location. Analytical results suggest that naturally occurring barium and fluoride are also associated with the shale lenses and are contributing to aqueous barium and fluoride concentrations at SP-10.

The Oklahoma Department of Environmental Quality (DEQ) previously noted in a letter to the NPS dated June 4, 2021, that "[i]f lithium and fluoride continue to exceed their relative GWPS in

the future and conditions have not changed, NPS may refer to the October 29, 2019 ASD approval for lithium and this [June 4, 2021] approval for fluoride and continue assessment monitoring for the BAP in accordance with OAC 252:517-6(g)(3)(B)" (DEQ 2021). DEQ provided a similar letter to the NPS dated September 20, 2022, that indicated that the July 14, 2022 ASD "is applicable for the barium exceedance in SP-10 of the GWPS if conditions do not change. AEP may refer to the ASD approval for barium and continue assessment monitoring for the BAP in accordance with OAC 252:517-9-6(g)(3)(B)" (DEQ 2022). This ASD update presents an evaluation of the BAP for changing conditions that may affect previously approved ASDs for lithium, fluoride, and barium exceedances at SP-10.

The sample collected from the October 2024 monitoring event at SP-10 contained a lithium concentration of 0.228 mg/L, fluoride concentration of 6.7 mg/L, and barium concentration of 6.27 mg/L. The lithium concentration (**Figure 1**) and fluoride concentration (**Figure 2**) are consistent with previous results collected during the assessment monitoring period and continue to show no statistically significant positive trends. This is an indication that conditions have not changed substantially since the preceding ASD was submitted (Geosyntec 2024b), and the arguments presented in the previous ASDs are still valid. Therefore, the lithium and fluoride concentrations at SP-10 during the October 2024 assessment monitoring event are not attributed to a release from the BAP.

A time series plot of the barium concentrations at SP-10 and a Mann-Kendall statistical analysis of the reported barium results over time are shown in **Figure 3**. The analysis determined that barium concentrations at SP-10 display a statistically significant increasing trend. However, based on a Piper diagram showing select events where the full suite of major cations and anions were sampled (**Figure 4**), the geochemistry at monitoring well SP-10 does not change over time in a manner indicative of a release from the BAP. The October 2024 sample is displayed on the plot as the purple diamond. **Figure 4** demonstrates that the geochemistry of SP-10 has remained consistent over the past several years, indicating that groundwater condition at SP-10 is geochemically stable.

The information above, as well as the information presented in previous ASDs (Geosyntec 2019, Geosyntec 2021a, Geosyntec 2021b, Geosyntec 2021c, Geosyntec 2022, Geosyntec 2023a, Geosyntec 2023b, Geosyntec 2023c, Geosyntec 2024a, Geosyntec 2024b), continues to support the position that barium, fluoride, and lithium concentrations are a result of natural variation in the underlying lithology, including the presence of shale lenses containing barium, fluoride, and lithium within the screened interval at SP-10. Therefore, no further action is warranted. Certification of this ASD memorandum by a qualified professional engineer is in **Attachment B**.

******

REFERENCES

DEQ. 2021. Alternate Source Demonstration for Fluoride and Lithium Exceedance – Bottom Ash Pond, Public Service Company of Oklahoma Northeastern Power Station, Rogers County. Oklahoma Department of Environmental Quality. June 4.

DEQ. 2022. Alternative Source Demonstration for Barium, Fluoride, and Lithium Exceedances – Bottom Ash Pond, Public Service Company of Oklahoma – Northeastern Power Station, Rogers County. Oklahoma Department of Environmental Quality. September 20.

Geosyntec. 2019. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. April.

Geosyntec. 2021a. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. January.

Geosyntec. 2021b. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. May.

Geosyntec. 2021c. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. October.

Geosyntec. 2022. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. July.

Geosyntec. 2023a. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. January.

Geosyntec. 2023b. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. May.

Geosyntec. 2023c. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. December.

Geosyntec. 2024a. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. May.

Geosyntec. 2024b. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. September.

TABLES

Table 1. Summary of Key Analytical Data
Alternative Source Demonstration Update Memorandum
Northeastern Power Station Bottom Ash Pond, Oologah, Oklahoma

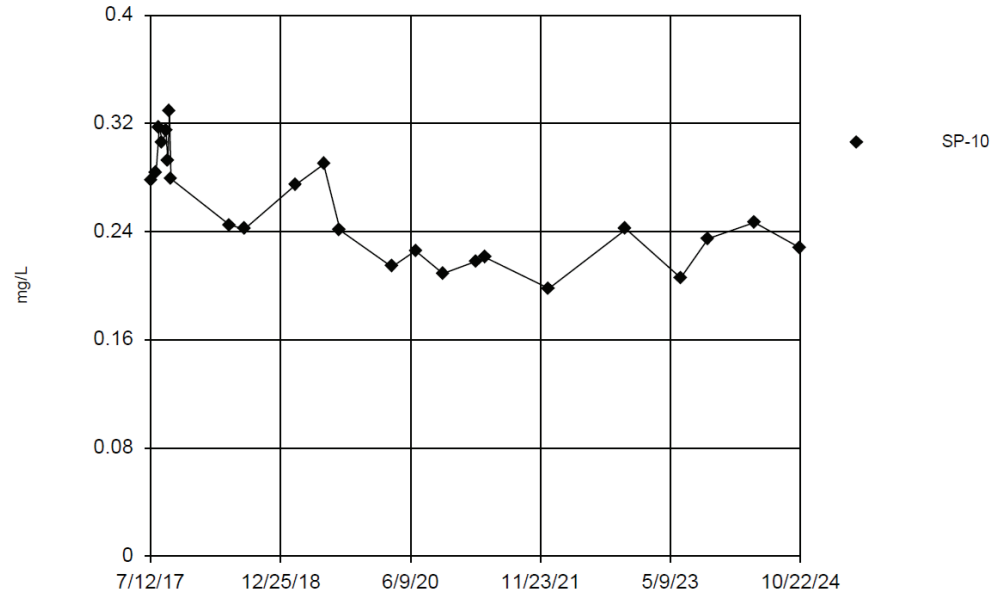
Sample	Sample Date	Lithium Concentration (mg/L)	Fluoride Concentration (mg/L)	Barium Concentration (mg/L)
SPLP Leachate of Bottom Ash	7/10/2019	0.001	0.458	0.352
	8/25/2022	< 0.5	NA	0.22
BAP Surface Water	2/5/2019	0.00874	0.37	0.315
BAP Pore Water	7/10/2019	0.003	< 0.83	0.083
SP-10 October 2024 Result	10/22/2024	0.228	6.7	6.27

Notes:
1. Nondetect results are shown as less than the reporting limit.
BAP: Bottom Ash Pond
mg/L: milligram per liter
NA: not analyzed
SPLP: synthetic precipitation leaching procedure

FIGURES

Sanitas™ v.10.0.16 Software for use by regulators in official oversight duties. EPA

Time Series

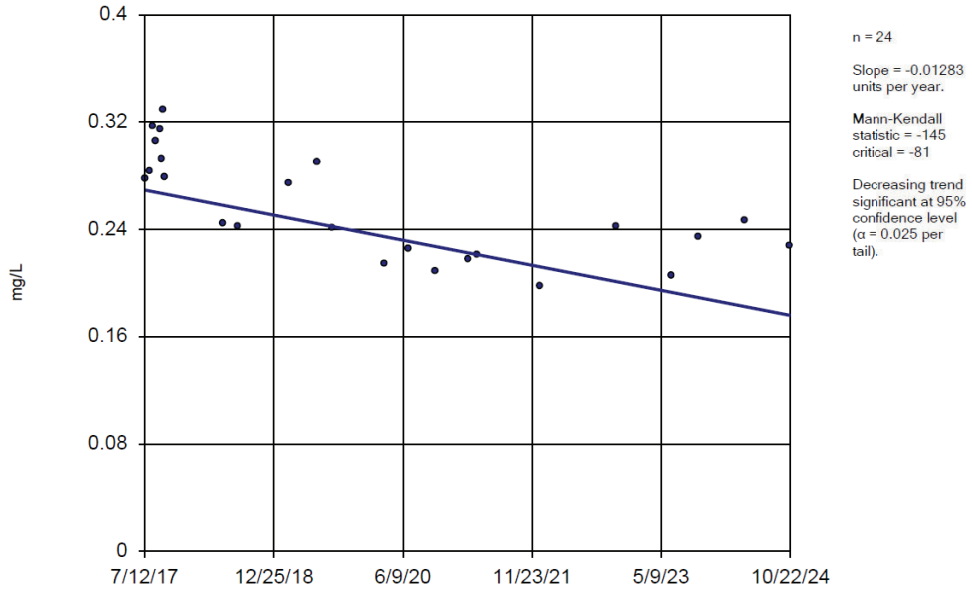


Constituent: Lithium Analysis Run 3/2/2025 7:41 PM

Sanitas™ v.10.0.16 Software for use by regulators in official oversight duties. EPA

Sen's Slope Estimator

SP-10



n = 24

Slope = -0.01283 units per year.

Mann-Kendall statistic = -145 critical = -81

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 3/2/2025 7:44 PM

Notes: Lithium results from monitoring well SP-10 are displayed on the plots.

AEP: American Electric Power
mg/L: milligrams per liter

Lithium Time Series and Trend Test: SP-10
Northeastern Bottom Ash Pond

Geosyntec consultants

AMERICAN ELECTRIC POWER

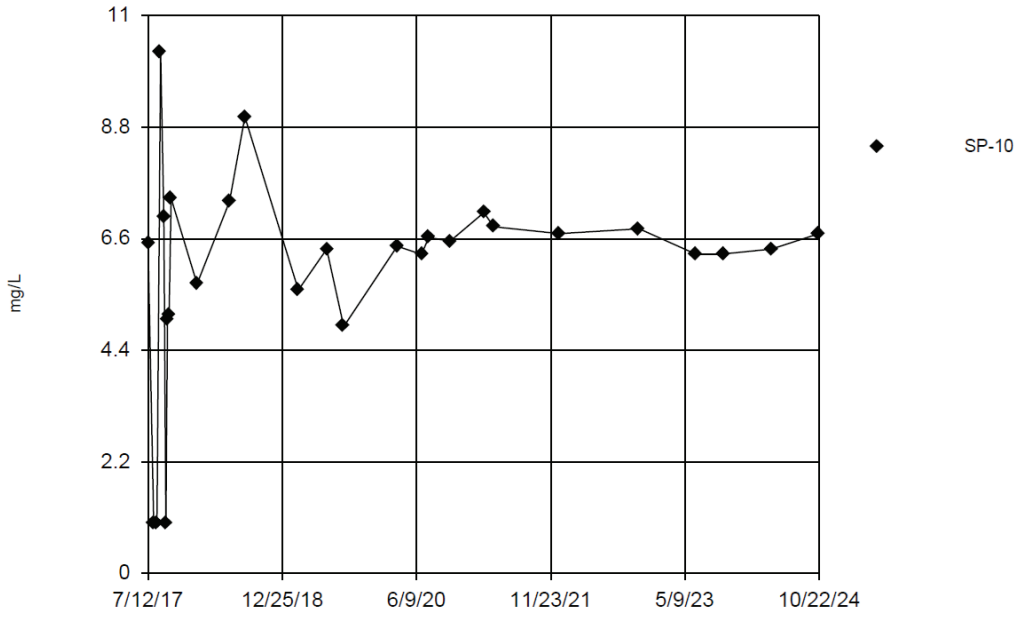
Figure 1

Columbus, Ohio

March 3, 2025

Sanitas™ v.10.0.16 Software for use by regulators in official oversight duties. EPA

Time Series

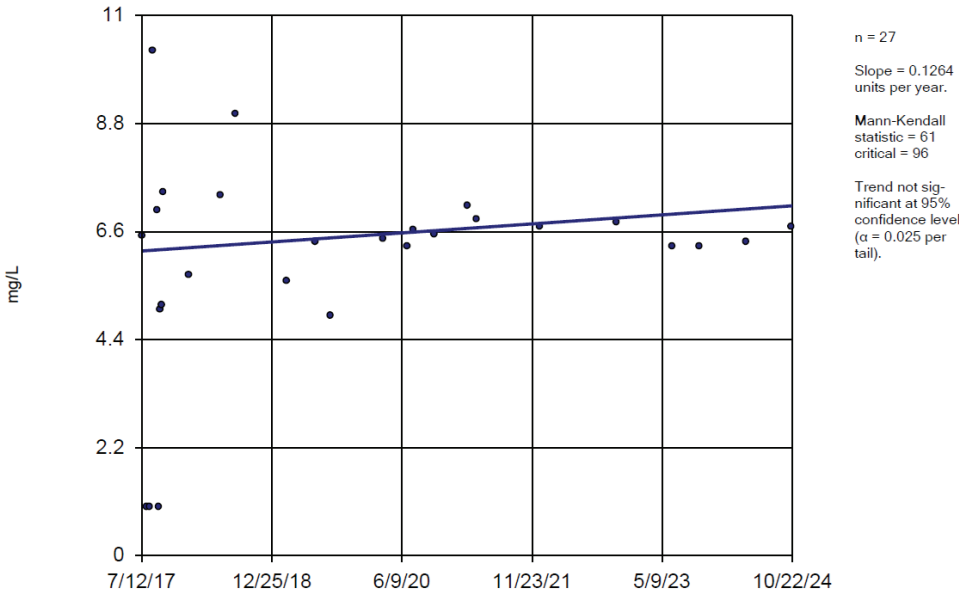


Constituent: Fluoride Analysis Run 3/2/2025 7:41 PM

Sanitas™ v.10.0.16 Software for use by regulators in official oversight duties. EPA

Sen's Slope Estimator

SP-10



Constituent: Fluoride Analysis Run 3/2/2025 7:44 PM

Notes: Fluoride results from monitoring well SP-10 are displayed on the plots.

AEP: American Electric Power
mg/L: milligrams per liter

Fluoride Time Series and Trend Test: SP-10
Northeastern Bottom Ash Pond

Geosyntec consultants

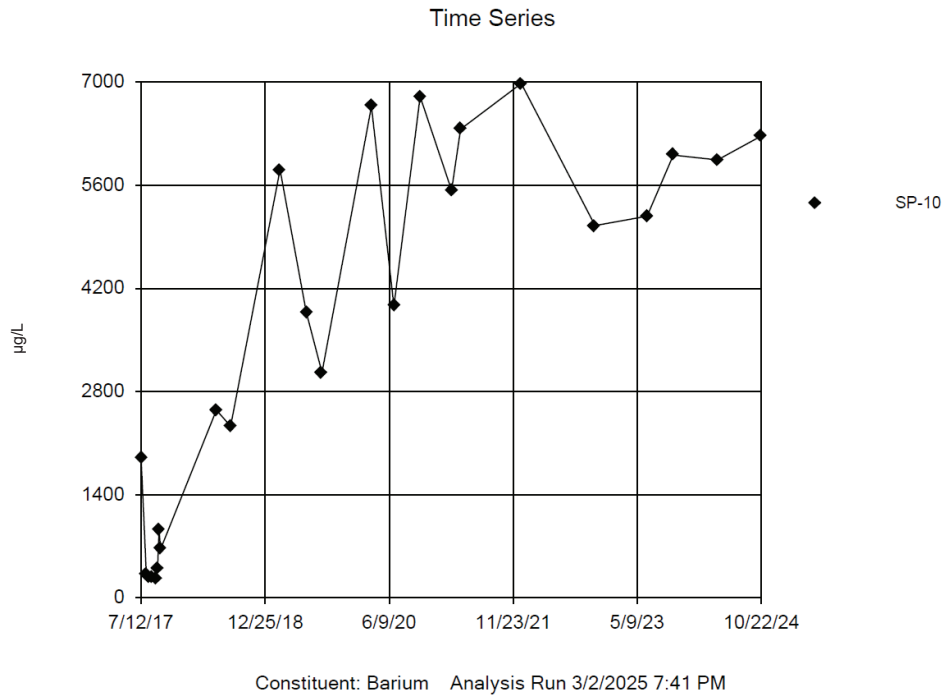
AMERICAN ELECTRIC POWER

Figure 2

Columbus, Ohio

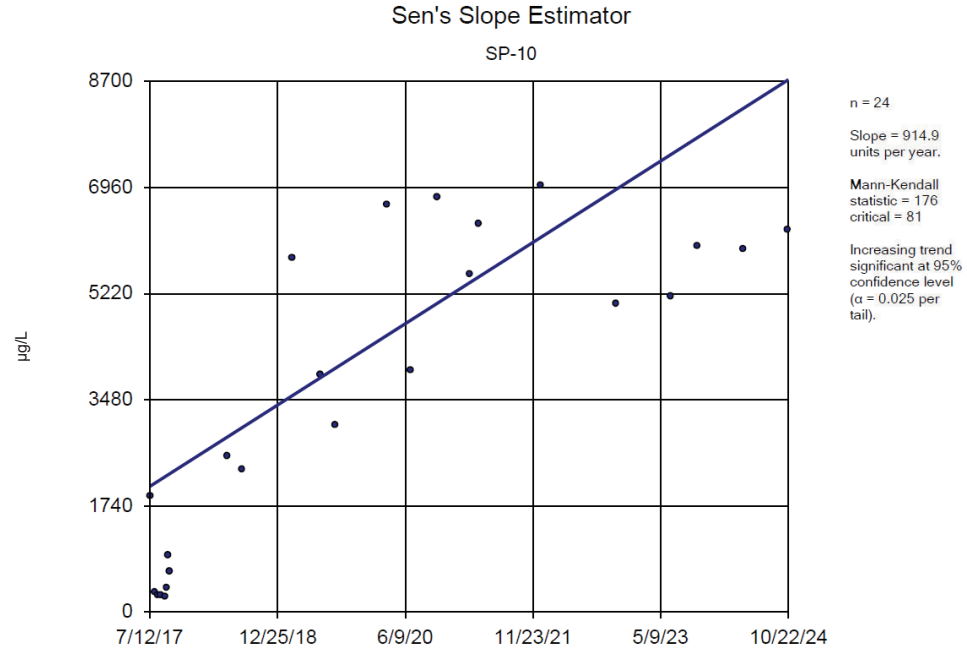
March 3, 2025

Sanitas™ v.10.0.16 Software for use by regulators in official oversight duties. EPA



Constituent: Barium Analysis Run 3/2/2025 7:41 PM

Sanitas™ v.10.0.16 Software for use by regulators in official oversight duties. EPA



Constituent: Barium Analysis Run 3/2/2025 7:44 PM

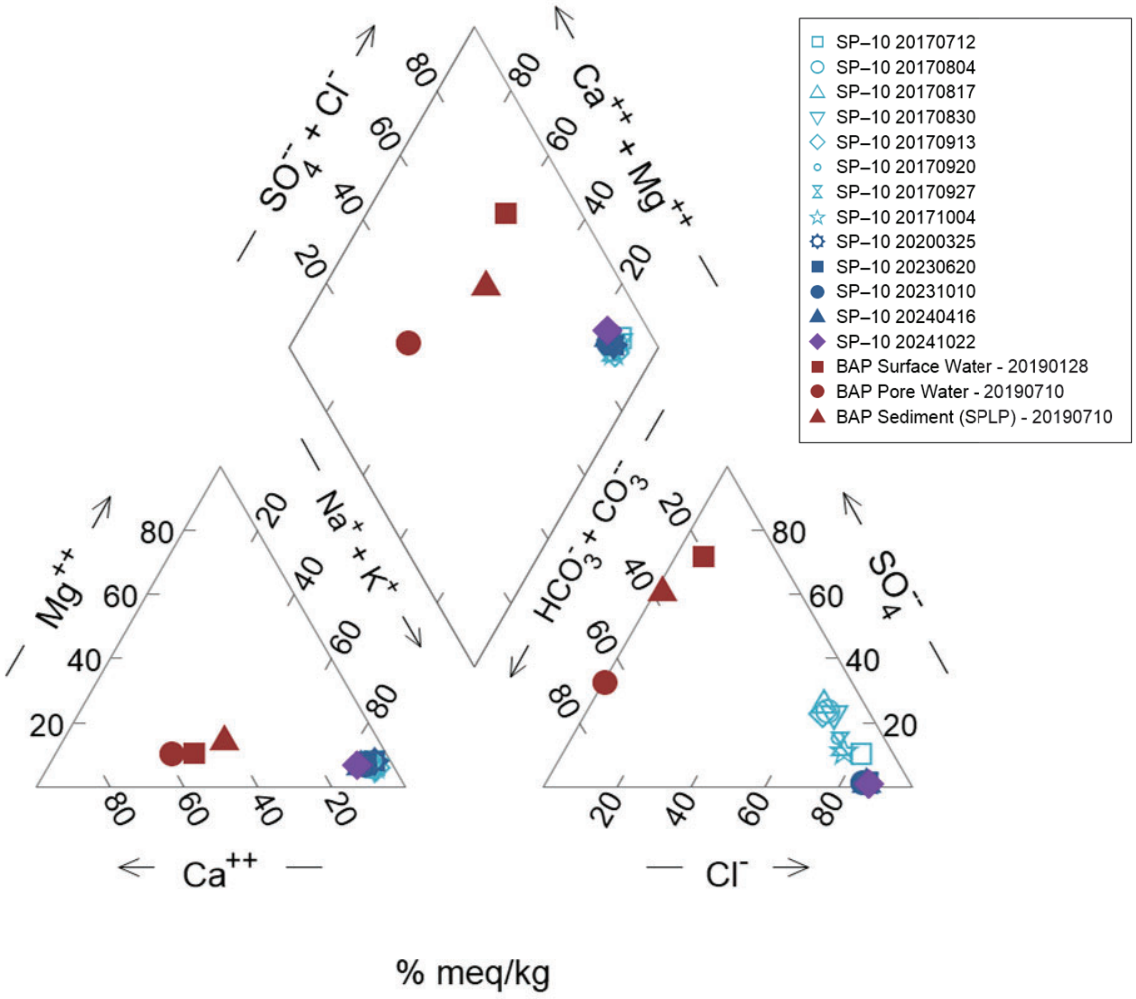
Notes: Barium results from monitoring well SP-10 are displayed on the plots.

AEP: American Electric Power
µg/L: micrograms per liter

Barium Time Series and Trend Test: SP-10
Northeastern Bottom Ash Pond

Geosyntec consultants | AMERICAN ELECTRIC POWER | Figure 3

Columbus, Ohio | March 3, 2025



Notes:
% meq/kg: percent milliequivalents per kilogram
SPLP: synthetic precipitation leaching procedure

Piper Diagram – SP-10 and BAP Samples
Northeastern Bottom Ash Pond

Geosyntec consultants | AMERICAN ELECTRIC POWER

Columbus, Ohio | March 2025

Figure **4**

ATTACHMENT A

Assessment Statistics Summary

2024 Second Semiannual Event

Geosyntec consultants

engineers | scientists | innovators

STATISTICAL ANALYSIS SUMMARY 2024 2ND SEMIANNUAL EVENT BOTTOM ASH POND

Northeastern Power Station

Oologah, Oklahoma

Prepared for

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

Prepared by

Geosyntec Consultants, Inc.
500 West Wilson Bridge Road, Suite 250
Worthington, Ohio 43085

Project Number: CHA8500B

February 2025

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   2.1 Data Validation and QA/QC 2
   2.2 Statistical Analysis 2
      2.2.1 Establishment of GWPSs 2
      2.2.2 Evaluation of Potential Appendix B SSLs 2
      2.2.3 Establishment of Appendix A Prediction Limits 3
      2.2.4 Evaluation of Potential Appendix A SSIs 4
   2.3 Conclusions 5

3. REFERENCES 6

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Table 1: Groundwater Data Summary

Table 2: Appendix B Groundwater Protection Standards

Table 3: Appendix A Data Summary

LIST OF ATTACHMENTS

Attachment A: Certification by Qualified Professional Engineer

Attachment B: Statistical Analysis Output

ACRONYMS AND ABBREVIATIONS

ASD	alternative source demonstration
BAP	bottom ash pond
CCR	coal combustion residuals
GWPS	groundwater protection standard
LCL	lower confidence limit
LPL	lower prediction limit
mg/L	milligrams per liter
NPS	Northeastern Power Station
OAC	Oklahoma Administrative Code
ODEQ	Oklahoma Department of Environmental Quality
PQL	practical quantitation limit
QA/QC	quality assurance and quality control
SSI	statistically significant increase
SSL	statistically significant level
TDS	total dissolved solids
UPL	upper prediction limit

1. INTRODUCTION

In accordance with Oklahoma Department of Environmental Quality (ODEQ) requirements regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Oklahoma Administrative Code [OAC] 252:517), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Northeastern Power Station (NPS) in Oologah, Oklahoma. Recent groundwater monitoring results were used to identify concentrations of Appendix B constituents that are above site-specific groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, chloride, fluoride, total dissolved solids (TDS), and sulfate at the BAP. In addition, pH values below the lower prediction limit (LPL) resulted in SSIs below background as well. GWPSs were set in accordance with OAC 252:517-9-6(h) and a statistical evaluation of the assessment monitoring was conducted.

During 2024, a sampling event for both Appendix A parameters and Appendix B parameters, as required by OAC 252:517-9-6(d), was completed in April. During the April 2024 assessment monitoring event, statistically significant levels (SSLs) were observed for barium, fluoride, and lithium (Geosyntec 2024a). An alternative source demonstration (ASD) was successfully completed (Geosyntec 2024b). Therefore, the unit remained in assessment monitoring. One assessment monitoring event was conducted at the BAP in October 2024 in accordance with OAC 252:517-9-6(d). The results of the October 2024 assessment event are documented in this report.

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

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. GWPSs were reestablished for the Appendix B parameters. Confidence intervals were calculated for Appendix B parameters at the compliance wells to assess whether SSLs of Appendix B parameters were present above the GWPS. SSLs were identified for barium, fluoride, and lithium. Therefore, either the unit will move to an assessment of corrective measures, or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

During the October 2024 assessment monitoring event, one set of samples was collected for analysis from each background and compliance well to meet the requirements of OAC 252:517-9-6(d)(1). Samples from the October 2024 sampling event were analyzed for all Appendix A and Appendix B parameters. A summary of data collected during this assessment monitoring event are presented in Table 1.

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

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.10.0.24 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

2.2 Statistical Analysis

Statistical analyses for the BAP were conducted in accordance with the November 2021 *Statistical Analysis Plan* (Geosyntec 2021). Time series plots and results for all completed statistical tests are provided in Attachment B. The data obtained in October 2024 were screened for potential outliers. No outliers were identified for this event.

2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix B parameter in accordance with the Statistical Analysis Plan (Geosyntec 2021). The established GWPS was set to whichever was greater of the background concentration and the maximum contaminant level for each Appendix B parameter. To determine background concentrations, an upper tolerance limit was calculated using data that were pooled from the background wells collected during the background monitoring and assessment monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for antimony, cadmium, chromium, combined radium, and lead. Nonparametric tolerance limits were calculated for arsenic, barium, beryllium, cobalt, fluoride, lithium, molybdenum, and selenium due to apparent nonnormal distributions, and for mercury and thallium due to a high nondetect frequency. Upper tolerance limits and the final GWPSs are summarized in Table 2.

2.2.2 Evaluation of Potential Appendix B SSLs

A confidence interval was constructed for each Appendix B parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$). However, nonparametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). Select datasets were truncated if significant serial correlation was observed among the background samples that were collected on

an approximately monthly basis in 2017. The dataset for barium at SP-10 was also truncated as higher concentrations were observed in more recent samples compared to the initial results. A list of the truncated well/constituent pairs used for calculation of the confidence limits is provided in Attachment B.

An SSL was concluded if the lower confidence limit (LCL) exceeded the GWPS (i.e., if the entire confidence interval was above the GWPS). Calculated confidence limits are shown in Attachment B.

The following SSLs were identified at the Northeastern BAP:

- The LCL for barium was above the GWPS of 2.77 milligrams per liter (mg/L) at SP-10 (4.41 mg/L).
- The LCL for fluoride was above the GWPS of 4.39 mg/L at SP-10 (5.71 mg/L).
- The LCL for lithium was above the GWPS of 0.163 mg/L at SP-10 (0.238 mg/L).

ODEQ previously noted in a letter provided to the NPS that "[i]f lithium and fluoride continue to exceed their relative GWPS in the future and conditions have not changed, NPS may refer to the October 29, 2019 ASD approval for lithium and June 4, 2021 approval for fluoride and continue assessment monitoring at the BAP in accordance with OAC 252:517-6(g)(3)(B)" (ODEQ 2021). ODEQ provided a similar letter dated September 20, 2022 documenting ASD approval for a barium SSL at SP-10 which is applicable in the future if conditions do not change (ODEQ 2022). Thus, an ASD will be submitted to ODEQ demonstrating that conditions at the BAP remain unchanged so that the unit will continue assessment monitoring.

2.2.3 Establishment of Appendix A Prediction Limits

Upper prediction limits (UPLs) were previously established for all Appendix A parameters following the background monitoring period. Interwell tests were used to evaluate potential SSIs for boron, chloride, fluoride, pH, sulfate, and TDS, and intrawell tests were used to evaluate potential SSIs for calcium. Interwell and intrawell prediction limits are updated periodically during the assessment monitoring period as sufficient data become available.

Mann-Whitney (Wilcoxon rank-sum) tests were performed to determine whether the newer data are affected by a release from the BAP. Because the interwell Appendix A limits and the Appendix B GWPSs are based on data from background wells which we would not expect to have been impacted by a release, these tests were used for intrawell Appendix A tests for calcium only. Mann-Whitney tests were used to compare the medians of historical data (January 2017 – June 2022) to the new compliance samples (November 2022 – April 2024) for calcium. Results were evaluated to determine if the medians of the two groups were statistically different at the 99% confidence level. Where no statistically significant difference was found, the new compliance data were added to the background dataset. Where a statistically significant difference was found between the medians of the two groups, the data were reviewed to evaluate the cause of the difference and to determine if adding newer data to the background dataset, truncating historical data and using only the newer data, or continuing to use the existing background dataset was most

appropriate. If the differences appeared to have been caused by a release, then the previous background dataset would have continued to be used.

The complete Mann-Whitney and trend test results and a summary of the significant findings can be found in Attachment B. The datasets for all wells were updated to include both the historical and more recent results.

Prediction limits for the interwell tests were recalculated using data collected during the 2024 assessment monitoring events. New background well data were tested for outliers before being added to the background data set. Background well data were also evaluated for statistically significant trends using the Sen's Slope/Mann-Kendall trend test, and the results are included in Attachment B.

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

Interwell UPLs were updated for boron, chloride, fluoride, pH, sulfate, and TDS and interwell LPLs were updated for pH using historical data through October 2024. Intrawell UPLs for calcium were updated using data through April 2024 to represent background values. The prediction limits are summarized in Table 3. The prediction limits were calculated for a one-of-two retesting procedure: If at least one sample in a series of two is not above the UPL (or, in the case of pH, is neither less than the LPL nor greater than the UPL), then it can be concluded that an SSI has not occurred. In practice, where the initial result does not exceed the UPL (or, in the case of pH, is neither less than the LPL nor greater than the UPL), a second sample will not be collected. The retesting procedures allow achieving an acceptably high statistical power to detect changes at downgradient wells for constituents evaluated using intrawell prediction limits.

2.2.4 Evaluation of Potential Appendix A SSIs

While SSLs were identified, a review of the Appendix A results were also completed to assess whether concentrations of Appendix A parameters at the compliance wells were above background concentrations. Data collected during the October 2024 assessment monitoring event from each compliance well were compared to updated interwell and intrawell prediction limits to assess whether the results are above background values (Table 3).

The following concentrations were above the UPLs:

- Boron concentrations were above the interwell UPL of 0.491 mg/L at SP-10 (1.06 mg/L).
- Chloride concentrations were above the interwell UPL of 1,010 mg/L at SP-10 (1,920 mg/L).
- Fluoride concentrations were above the interwell UPL of 4.39 mg/L at SP-10 (6.7 mg/L).
- Sulfate concentrations were above the interwell UPL of 83.0 mg/L at SP-1 (85.2 mg/L) and SP-11 (204 mg/L).
- TDS concentrations were above the interwell UPL of 1,940 mg/L at SP-10 (3,490 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the October 2024 sample was above the UPL or, in the case of pH, below the LPL. Based on these results, concentrations of Appendix A constituents appear to be above background concentrations.

2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, and no QA/QC issues that impacted data usability were identified. A review of outliers identified no potential outliers in the October 2024 data. GWPSs were reestablished for the Appendix B parameters. A confidence interval was constructed at each compliance well for each Appendix B parameter; SSLs were concluded if the entire confidence interval was above the GWPS. SSLs were identified for barium, fluoride, and lithium. Appendix A parameters were compared to calculated prediction limits, with exceedances identified for boron, chloride, fluoride, sulfate, and TDS.

Based on this evaluation, the Northeastern BAP CCR unit will either move to an assessment of corrective measures or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring.

3. REFERENCES

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ODEQ. 2021. Letter Transmittal – Alternative Source Demonstration for Fluoride and Lithium Exceedance – Bottom Ash Pond. Public Service Company of Oklahoma – Northeastern Power Station. Oklahoma Department of Environmental Quality. June.

ODEQ. 2022. Letter Transmittal – Alternative Source Demonstration for Barium, Fluoride, and Lithium Exceedance – Bottom Ash Pond. Public Service Company of Oklahoma – Northeastern Power Station. Oklahoma Department of Environmental Quality. September.

TABLES

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

Parameter	Unit	SP-1	SP-2	SP-4	SP-5R	SP-10	SP-11
		10/22/2024	10/22/2024	10/22/2024	10/22/2024	10/22/2024	10/22/2024
Antimony	µg/L	0.368	0.963	0.147	0.117	0.034 J1	0.054 J1
Arsenic	µg/L	0.62	1.33	0.70	16.1	0.12	2.32
Barium	µg/L	142	698	190	2,080	6,270	285
Beryllium	µg/L	0.120	0.121	0.038 J1	0.108	0.121	0.032 J1
Boron	mg/L	0.185	0.108	0.346	0.201	1.06	0.419
Cadmium	µg/L	0.076	0.072	0.021	0.038	0.014 J1	0.017 J1
Calcium	mg/L	123	135	98	82	125	104
Chloride	mg/L	48.1	365	448	721	1,920	80.6
Chromium	µg/L	1.23	1.02	0.45	0.77	0.46	0.45
Cobalt	µg/L	0.536	0.383	0.146	0.841	0.079	0.257
Combined Radium	pCi/L	4.93	9.3	3.67	12.38	20.13	1.36
Fluoride	mg/L	0.96	2.68	3.22	3.06	6.7	1.88
Lead	µg/L	1.18	0.53	0.09 J1	1.05	0.12 J1	0.22
Lithium	mg/L	0.00658	0.0294	0.054	0.086	0.228	0.020
Mercury	µg/L	0.003 J1	0.005 U1	0.005 U1	0.005 U1	0.005 U1	0.005 U1
Molybdenum	µg/L	11.0	15.8	2.5	0.7	0.3 J1	0.5
Selenium	µg/L	5.39	2.07	0.28 J1	0.20 J1	0.06 J1	0.15 J1
Sulfate	mg/L	85.2	16.5	79.4	2.3	15.9	204
Thallium	µg/L	0.08 J1	0.03 J1	0.03 J1	0.2 U1	0.2 U1	0.2 U1
Total Dissolved Solids	mg/L	510	950 S7	1,120	1,430	3,490	870
pH	SU	7.5	7.3	7.9	7.8	7.9	7.4

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

Table 2. Appendix B Groundwater Protection Standards
Statistical Analysis Summary
Northeastern Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600		0.00388	0.00600
Arsenic, Total (mg/L)	0.0100		0.0599	0.0599
Barium, Total (mg/L)	2.00		2.77	2.77
Beryllium, Total (mg/L)	0.00400		0.00212	0.00400
Cadmium, Total (mg/L)	0.00500		0.000168	0.00500
Chromium, Total (mg/L)	0.100		0.00339	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.0179	0.0179
Combined Radium, Total (pCi/L)	5.00		19.1	19.1
Fluoride, Total (mg/L)	4.00		4.39	4.39
Lead, Total (mg/L)	n/a	0.0150	0.00857	0.0150
Lithium, Total (mg/L)	n/a	0.0400	0.163	0.163
Mercury, Total (mg/L)	0.00200		0.0000300	0.00200
Molybdenum, Total (mg/L)	n/a	0.100	0.0100	0.100
Selenium, Total (mg/L)	0.0500		0.00499	0.0500
Thallium, Total (mg/L)	0.00200		0.00162	0.00200

Notes:
1. Calculated UTL (upper tolerance limit) represents site-specific background values.
2. Grey cells indicate the GWPS is based on the calculated UTL, which is higher than the MCL or CCR Rule-specified value.
CCR: coal combustion residuals
GWPS: groundwater protection standard
MCL: maximum contaminant level
mg/L: milligrams per liter
n/a: not applicable
pCi/L: picocuries per liter

Table 3. Appendix A Data Summary
Statistical Analysis Summary
Northeastern – Bottom Ash Pond

Analyte	Unit	Description	SP-1	SP-2	SP-10	SP-11
			10/22/2024	10/22/2024	10/22/2024	10/22/2024
Boron	mg/L	Interwell Background Value (UPL)	0.491			
		Analytical Result	0.185	0.108	**1.06**	0.419
Calcium	mg/L	Intrawell Background Value (UPL)	139	172	177	146
		Analytical Result	123	135	125	104
Chloride	mg/L	Interwell Background Value (UPL)	1,010			
		Analytical Result	48.1	365	**1,920**	80.6
Fluoride	mg/L	Interwell Background Value (UPL)	4.39			
		Analytical Result	0.96	2.68	**6.7**	1.88
pH	SU	Interwell Background Value (UPL)	9.1			
		Interwell Background Value (LPL)	7.0			
		Analytical Result	7.5	7.3	7.9	7.4
Sulfate	mg/L	Interwell Background Value (UPL)	83.0			
		Analytical Result	**85.2**	16.5	15.9	**204**
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,940			
		Analytical Result	510	950	**3,490**	870

Notes:
1. Bold values exceed the background value.
2. Background values are shaded gray.
LPL: lower prediction limit
mg/L: milligrams per liter
SU: standard units
UPL: upper prediction limit

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Northeastern BAP CCR management area and that the requirements of OAC 252:517-9-4(g) have been met.



David Anthony Miller

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature

26057	Oklahoma	02.27.2025
License Number	Licensing State	Date

ATTACHMENT B
Statistical Analysis Output

GROUNDWATER STATS CONSULTING

February 21, 2025

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

Re: Northeastern BAP (Bottom Ash Pond)
Background Update & Assessment Monitoring Statistics – October 2024

Dear Ms. Kreinberg,

Groundwater Stats Consulting (GSC), formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis and background update of 2024 groundwater data for American Electric Power Inc.'s Northeastern BAP. The analysis complies with the Oklahoma Administrative Code (OAC) as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling began at the site for the OAC program in 2017. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** SP-4 and SP-5R
- **Downgradient wells:** SP-1, SP-2, SP-10, and SP-11

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

The OAC program consists of the following constituents listed below. The terms "constituent" and "parameter" are interchangeable.

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

For all constituents, a substitution of the most recent reporting limit is used for non-detect data. For calculating intrawell prediction limits, the substitution is performed for individual wells and may differ across wells.

Time series plots for Appendix A and B parameters are provided for all wells and are used to evaluate concentrations over time as well as for the purpose of updating statistical limits (Figure A). Additionally, box plots are included for all constituents at upgradient and downgradient wells (Figure B). Values in background which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the graph. A summary of these values follows this letter (Figure C). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells.

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

- Semi-Annual Sampling
- 1-of-2 resample plan
- # Constituents, c=7
- # Downgradient wells, w=4

Summary of Statistical Method – Appendix A Parameters

Based on the original background screening described in the 2017 screening report, the following statistical methods were selected for Appendix A parameters:

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

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

- No statistical analyses are required on wells and analytes containing 100% non-detects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data for parametric limits. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% non-detects.

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

quality. In the interwell case, prediction limits may be 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 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 Appendix A Background Screening and Updates

December 2017 – Initial Background Screening

Interwell prediction limits combined with a 1-of-2 verification strategy were recommended for boron, chloride, fluoride, pH, sulfate and TDS; and intrawell prediction limits combined with a 1-of-2 verification strategy were recommended for calcium. All proposed background data were screened for outliers and trends during the background screening. The findings of those reports were submitted with that analysis. Interwell prediction limits utilize all upgradient well data for construction of statistical limits. During each sample event, upgradient well data may be screened for any newly suspected outliers or obvious trending patterns using time series plots. Intrawell prediction limits utilized the background data set that was originally screened in 2017. As recommended in the EPA Unified Guidance (2009), the background data sets are evaluated for the purpose of updating statistical limits, as described below, using the Mann-Whitney test when at least four additional measurements are available.

2022 & 2023 Updates

Proposed background data, as mentioned above, were originally screened during December 2017. In the Fall 2022 update, an outlier analysis was conducted on calcium, which is evaluated with intrawell prediction limits, using Tukey's outlier test and visual screening on data through June 2022 at all wells. The analysis did not identify any outliers for calcium, and therefore, no values were flagged.

The Mann-Whitney test was applied to compare historical data through August 2020 with new compliance samples through June 2022 at each well for calcium. A statistically significant difference was identified at well SP-1, but this record was updated since most compliance data were within the historical concentration range. Additionally, while no significant difference was detected for calcium at well SP-11, the historical data for this well/constituent pair were truncated to exclude historical elevated concentrations, using stable concentrations to reflect current groundwater quality. All calcium data sets were updated with compliance samples through June 2022.

In the Fall 2023 update, pooled upgradient well data were evaluated using Tukey's outlier test and visual screening on Appendix A constituents that are evaluated with interwell prediction limits (chloride, fluoride, pH, sulfate, and TDS). Any values identified by Tukey's but not flagged appeared representative natural variation. Previously flagged outliers were confirmed by Tukey's test and visual screening, and no changes to values flagged in previous background updates were made.

For boron, chloride, fluoride, pH, sulfate, and TDS, the Sen's Slope/Mann-Kendall trend test was used to assess statistically significant trends at upgradient wells. Significant increasing trends were identified for chloride at well SP-5R, sulfate at well SP-4, and TDS at well SP-5R, while decreasing trends were observed for boron at wells SP-4 and SP-5R. No data records were adjusted, as the resulting statistical limits were representative of upgradient groundwater conditions. Interwell prediction limits were updated using all available data from upgradient wells through October 2023 for boron, chloride, fluoride, pH, sulfate, and TDS. As new data are collected, earlier measurements may be re-evaluated for potential deselection if concentrations no longer reflect upgradient conditions.

Fall 2024 – Current Update

During this analysis, Tukey's outlier test and visual screening were used to assess data at all wells through April 2024 for calcium, which is evaluated with intrawell prediction limits, and pooled upgradient well data through October 2024 for boron, chloride, fluoride, pH, sulfate, and TDS, which are tested using interwell prediction limits (Figure C).

Note that during the Fall 2022 update, the Rank Von Neumann serial correlation test was used to evaluate whether the measurements collected during 2017 represented independent samples, or whether serial correlation was present among the measurements. Significant serial correlation was identified for calcium at upgradient well SP-4 and sulfate at upgradient wells SP-4 and SP-5R; therefore, the records for these well/constituent pairs were truncated to remove earlier measurements for construction of statistical limits using only more recent data that represent independent samples. The truncated observations appear as disconnected points on the time series plots, and the truncated records are listed in the Date Range Table.

<u>Outlier Analysis</u>

For calcium, Tukey's outlier test and visual screening did not identify any outliers; therefore, no values were flagged.

Tukey's outlier test and visual screening on pooled upgradient well data confirmed previously identified values for chloride, fluoride, and TDS, but no additional values were flagged, and no changes were made to previously flagged values. Any values identified by Tukey's but not flagged appeared representative of natural variation upgradient of the facility. As mentioned above, any 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. A summary table of all flagged outliers follows this report (Figure C).

Intrawell – Mann-Whitney Test

For calcium, which is tested using intrawell prediction limits, the Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through June 2022 to the new compliance samples at each well through April 2024 to evaluate whether the groups are statistically different at the 99% confidence level. If no significant difference is found, background data may be updated with compliance data (Figure D). Any records that were truncated in previous updates used the truncated data, not the full records, in the Mann-Whitney test. Discussions of any truncated records were included in previous background update reports. A statistically significant difference was identified for the following well/constituent pair:

Increase:

- Calcium: SP-5R (upgradient)

Decrease:

None

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

In this analysis, a statistically significant difference was identified for calcium at upgradient well SP-5R. Although a statistically significant increase in medians was identified by the Mann-Whitney test, the concentrations were within the range of historic concentrations, and also represent concentrations upgradient of the facility. Therefore, all data sets for calcium were updated with compliance samples through April 2024.

Intrawell - Prediction Limits

Intrawell prediction limits, combined with a 1-of-2 resample plan, are constructed using historical data through April 2024 for calcium at all wells. A summary table of the limits follows this report (Figure E). A list of well/constituent pairs using a truncated portion of their records follows this report (Date Ranges Table). No comparison of the October 2024 observations to the prediction limits was performed in this analysis.

Interwell – Trend Test Evaluation

For parameters tested using interwell prediction limits (boron, chloride, fluoride, pH, sulfate, and TDS), the Sen's Slope/Mann-Kendall trend test was used to evaluate data at upgradient wells to determine whether concentrations are statistically increasing, decreasing or stable at the 99% confidence level (Figure F). Statistically significant trends were identified for the following upgradient well/constituent pairs:

Increasing:

- Chloride: SP-5R
- Sulfate: SP-4
- TDS: SP-5R

Decreasing:

- Boron: SP-4 and SP-5R

Although statistically significant trends were identified, no records were adjusted since the entire background record and resulting statistical limits are representative of upgradient groundwater quality conditions. All available data from upgradient wells were used to construct interwell prediction limits for boron, chloride, fluoride, pH, sulfate, and TDS. As more data are collected, all upgradient well data will be re-evaluated for possible deselection of earlier measurements if concentrations no longer represent upgradient groundwater quality conditions.

Interwell – Prediction Limits

Interwell prediction limits, combined with a 1-of-2 resample plan, were updated using all available data from upgradient wells through October 2024 for boron, chloride, fluoride, pH, sulfate, and TDS (Figure G). Time series plots were included with the interwell prediction limit graphs to display concentrations at upgradient wells that were used to construct the statistical limits. No comparison of the October 2024 data was performed in this analysis.

Evaluation of Appendix B Parameters – October 2024 Event

Prior to evaluating Appendix B parameters, background data are screened through visual screening and Tukey's outlier test for potential outliers and extreme trending patterns that would lead to artificially elevated statistical limits.

As mentioned above, during the Fall 2022 update, the Rank Von Neumann serial correlation test was used to evaluate whether the measurements collected during 2017 represented independent samples, or whether serial correlation was present among the measurements. The following records with statistically significant serial correlation were truncated to remove earlier measurements for construction of statistical limits using only more recent data that represent independent samples:

- Barium: SP-4 (upgradient) and SP-11
- Cadmium: SP-4, SP-5R (both upgradient), SP-1, and SP-10
- Chromium: SP-4 (upgradient)
- Lead: SP-10
- Lithium: SP-4 (upgradient) and SP-11
- Molybdenum: SP-2
- Selenium: SP-5R (upgradient) and SP-2
- Thallium: SP-4, SP-5R (both upgradient), SP-1, SP-2, SP-10, and SP-11

The resulting date ranges are shown in the Date Range Table for these well/constituent pairs along with records truncated as a result of background updates as discussed earlier.

Outlier Analysis

For the current analysis, Tukey's outlier test on pooled upgradient well data identified outliers for fluoride, mercury, and selenium. Several of the values identified by Tukey's test were either very similar to other upgradient observations that were not flagged or were lower than the respective Maximum Contaminant Level (MCL); therefore, those values were not flagged as outliers. Previously flagged outliers were confirmed by Tukey's test or visual screening, and no new outlies were flagged A summary of previously flagged outliers follows this report (Figure C), and a discussion of previously flagged values is presented below

Additionally, downgradient well data through October 2024 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, values that are marginally high relative to the rest of the data are retained unless there is particular justification for excluding them. No new outliers

among downgradient wells were flagged during this analysis. Previously flagged downgradient well values are included in the outlier summary table, and a discussion of those previously flagged values is presented in the following paragraphs.

During previous updates, Tukey's outlier test and visual screening had identified high values at upgradient well SP-4 on 8/4/17, which resulted in flagging the highest values for arsenic, beryllium, cobalt, lead, and mercury as outliers

Among downgradient wells, a high value for combined radium 226 + 228 in well SP-1 was flagged as an outlier along with values at the following well/constituent pairs since they did not adequately represent the populations at their respective wells: chromium in well SP-10; combined radium 226 + 228 in well SP-11; lithium in well SP-1; and molybdenum in well SP-10. More recent concentrations for barium in downgradient well SP-10 were noted to be significantly higher than historical concentrations. Therefore, earlier concentrations were deselected prior to constructing confidence intervals in order to evaluate current groundwater concentrations of barium at this well (USEPA Unified Guidance, 2009, Chapter 7). As mentioned above, a list of well/constituent pairs using a truncated portion of their records follows this report (Date Ranges Table).

Interwell Upper Tolerance Limits

Upper tolerance limits were used to calculate background limits from pooled upgradient well data through October 2024 for Appendix B parameters (Figure H). These limits are updated on an annual basis and will be updated again during the Fall 2025 sample event. Parametric tolerance limits are calculated, with a target of 95% confidence and 95% coverage, when data follow a normal or transformed-normal distribution. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were constructed using the highest background measurement. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

Groundwater Protection Standards

These background limits were compared to the MCLs and CCR Rule-Specified levels as shown in the Groundwater Protection Standard (GWPS) table following this letter to determine the highest limit for use as the GWPS in the Confidence Interval comparisons (Figure I).

Confidence Intervals

Confidence intervals were constructed on downgradient wells through October 2024 for each of the Appendix B parameters and then compared to the GWPS, i.e., the highest limit of the MCL, CCR Rule-Specified level, or background limit as discussed above (Figure J). These intervals were constructed as either parametric or nonparametric confidence intervals depending on the data distribution and percentage of non-detects. When data followed a normal or transformed-normal distribution, parametric confidence intervals were used for Appendix B parameters. Nonparametric confidence intervals were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available.

Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. Complete graphical results of the confidence intervals follow this letter. Exceedances were identified for the following well/constituent pairs:

- Barium: SP-10
- Fluoride: SP-10
- Lithium: SP-10

Trend Test Evaluation

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

Increasing:

- Barium: SP-5R (upgradient) and SP-10

Decreasing:

- Barium: SP-4 (upgradient)
- Lithium: SP-4 and SP-5R (both upgradient) and SP-10

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

For Groundwater Stats Consulting,



Abdul Diane
Groundwater Analyst



Andrew T. Collins
Project Manager

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Date Ranges

Date: 1/16/2025 12:14 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Barium (mg/L)
- SP-10 overall:5/30/2018-10/22/2024
- SP-11 overall:5/30/2018-10/22/2024
- SP-4 overall:5/30/2018-10/22/2024

Cadmium (mg/L)
- SP-1 overall:5/30/2018-10/22/2024
- SP-10 overall:5/30/2018-10/22/2024
- SP-4 overall:5/30/2018-10/22/2024
- SP-5R overall:5/30/2018-10/22/2024

Calcium (mg/L)
- SP-11 background:7/30/2018-4/16/2024
- SP-4 overall:5/30/2018-4/16/2024

Chromium (mg/L)
- SP-4 overall:5/30/2018-10/22/2024

Lead (mg/L)
- SP-10 overall:5/30/2018-10/22/2024

Lithium (mg/L)
- SP-11 overall:5/30/2018-10/22/2024
- SP-4 overall:5/30/2018-10/22/2024

Molybdenum (mg/L)
- SP-2 overall:5/30/2018-10/22/2024

Selenium (mg/L)
- SP-2 overall:5/30/2018-10/22/2024
- SP-5R overall:5/30/2018-10/22/2024

Sulfate (mg/L)
- SP-4 overall:5/30/2018-10/22/2024
- SP-5R overall:5/30/2018-10/22/2024

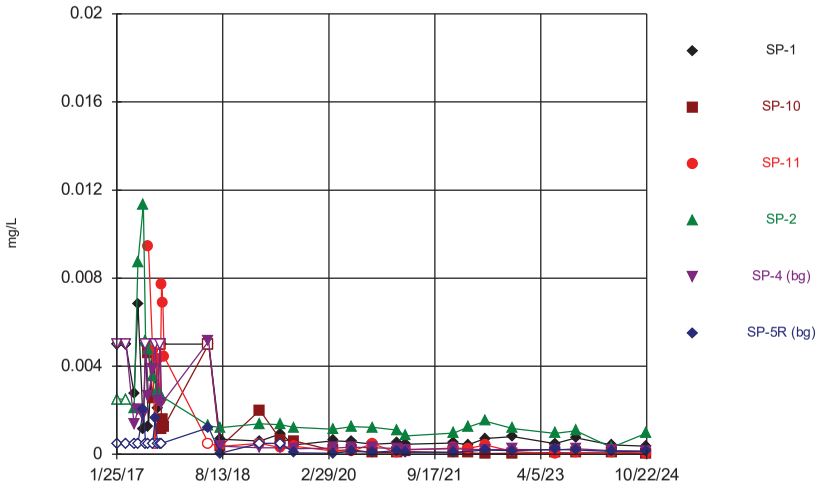
Thallium (mg/L)
- overall:5/30/2018-10/22/2024

FIGURE A

Time Series

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

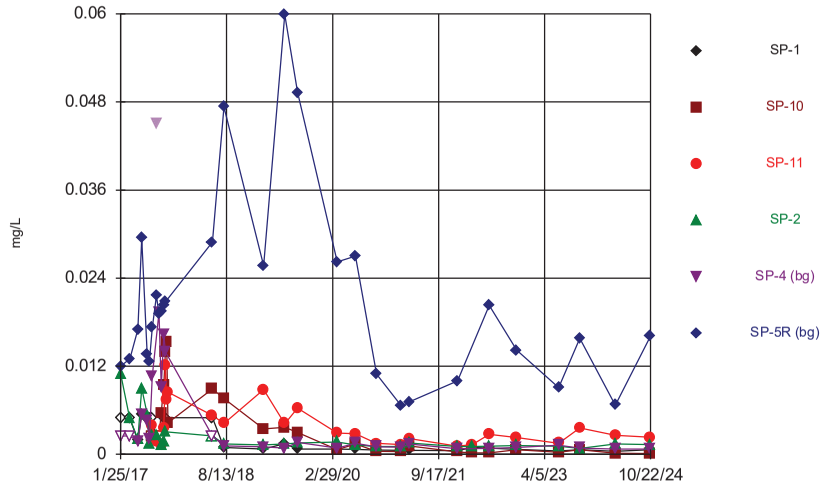
Time Series



Constituent: Antimony Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

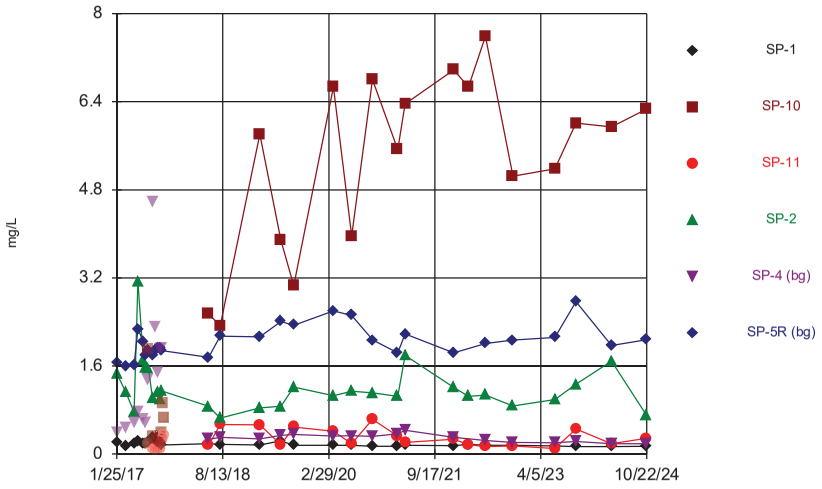
Time Series



Constituent: Arsenic Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

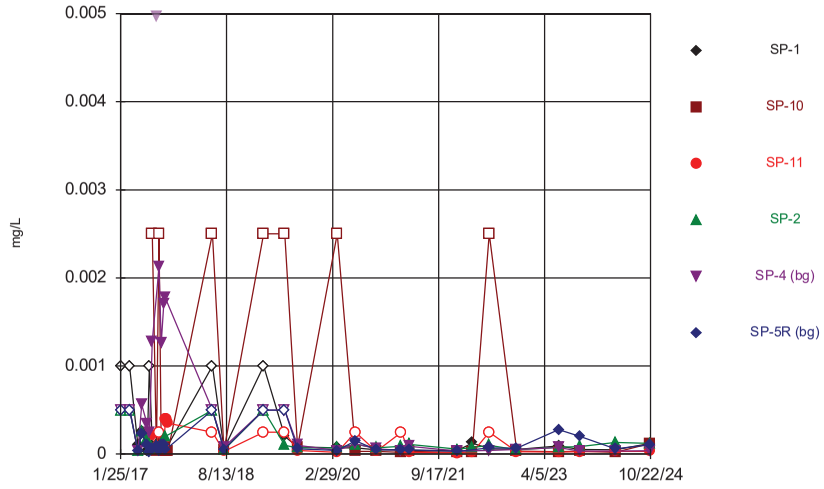
Time Series



Constituent: Barium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

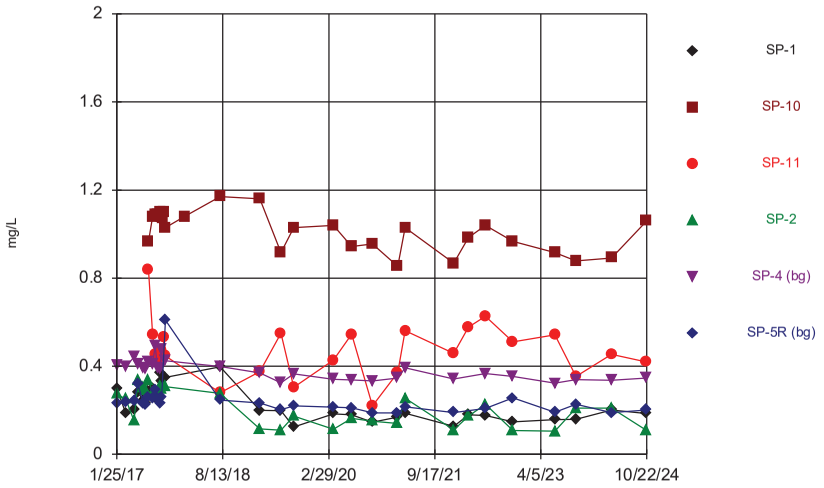
Time Series



Constituent: Beryllium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series



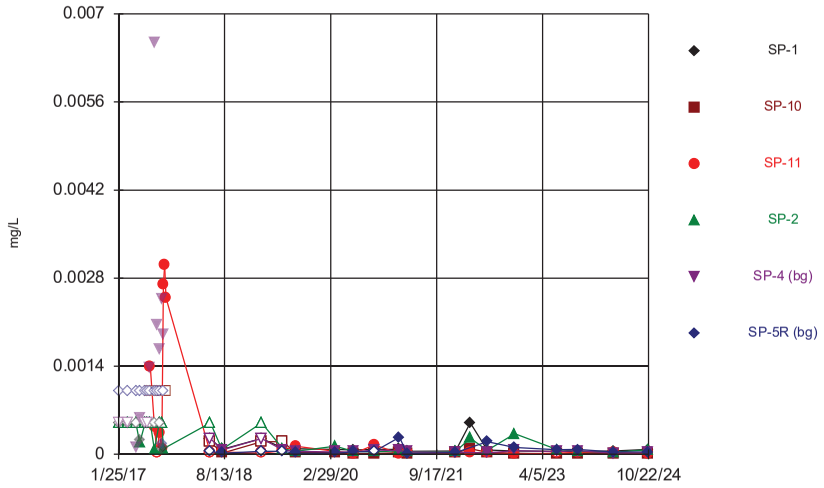
Constituent: Boron Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

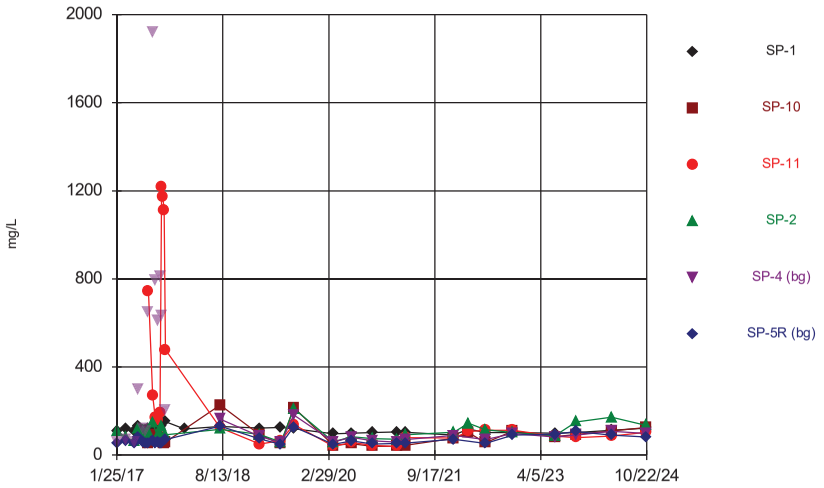


Constituent: Cadmium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series

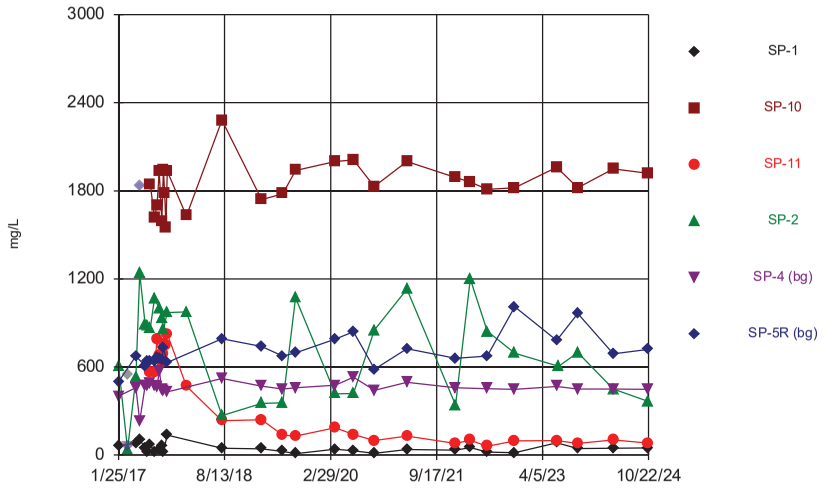


Constituent: Calcium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series

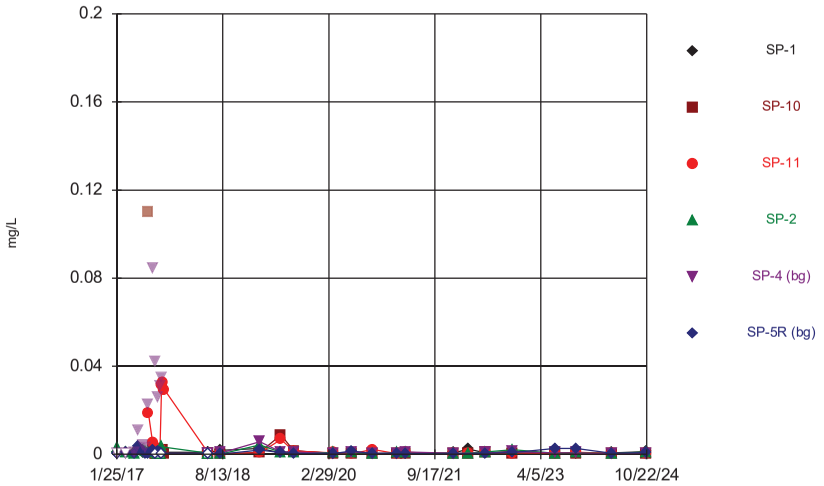


Constituent: Chloride Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

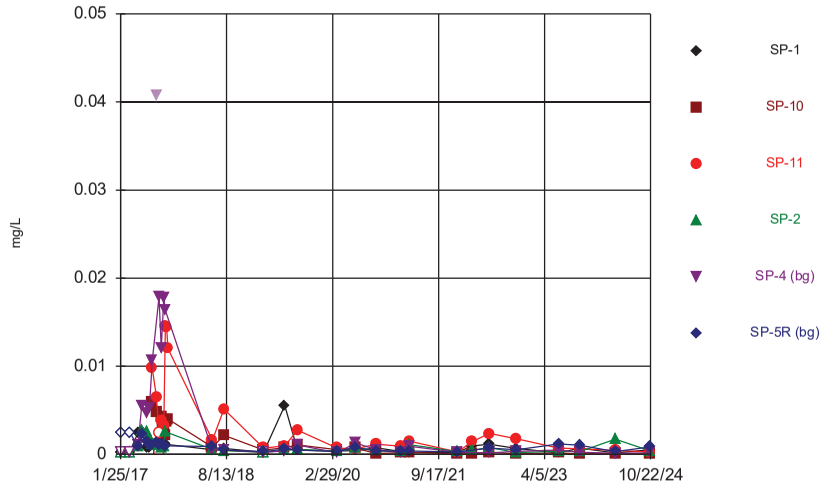
Time Series



Constituent: Chromium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

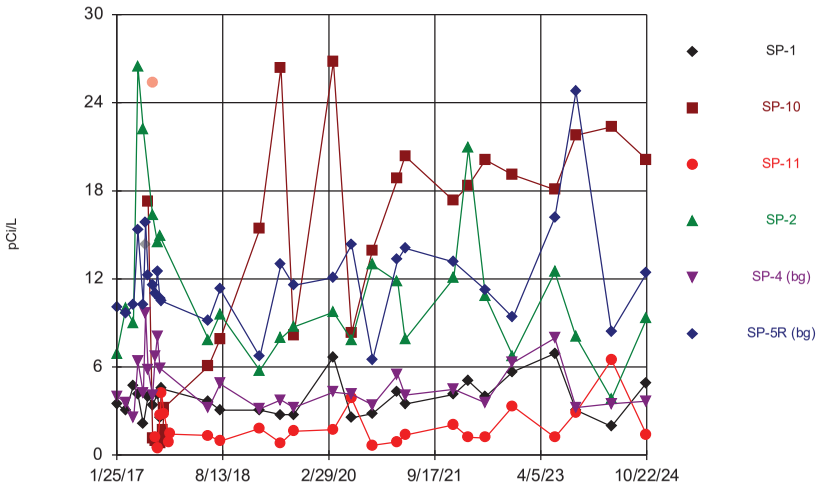
Time Series



Constituent: Cobalt Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

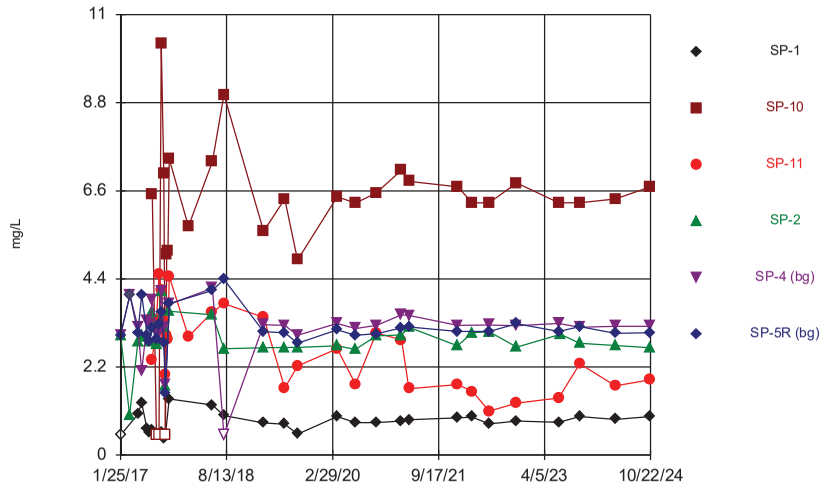
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

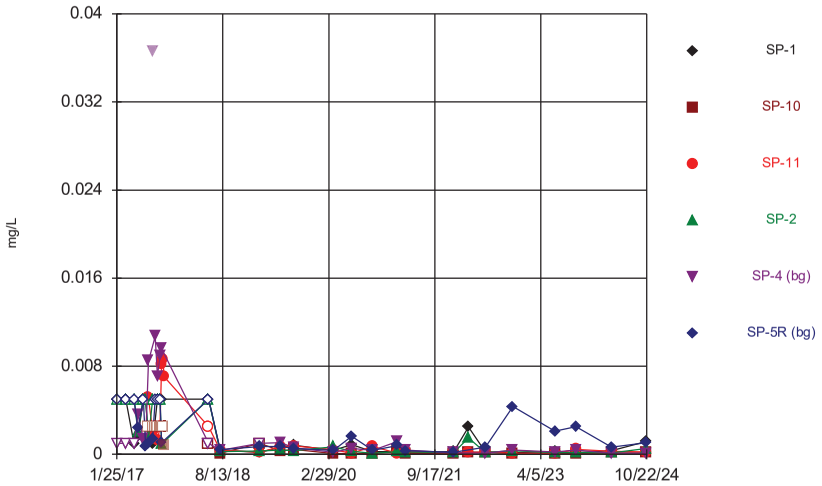
Time Series



Constituent: Fluoride Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

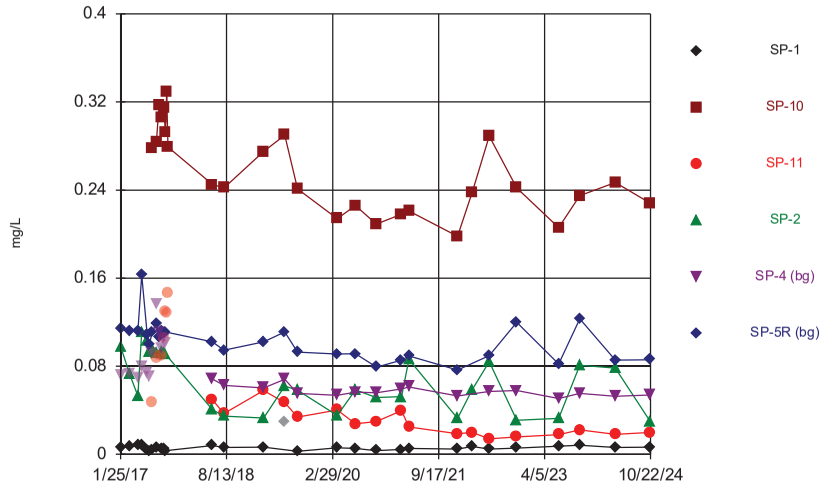
Time Series



Constituent: Lead Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

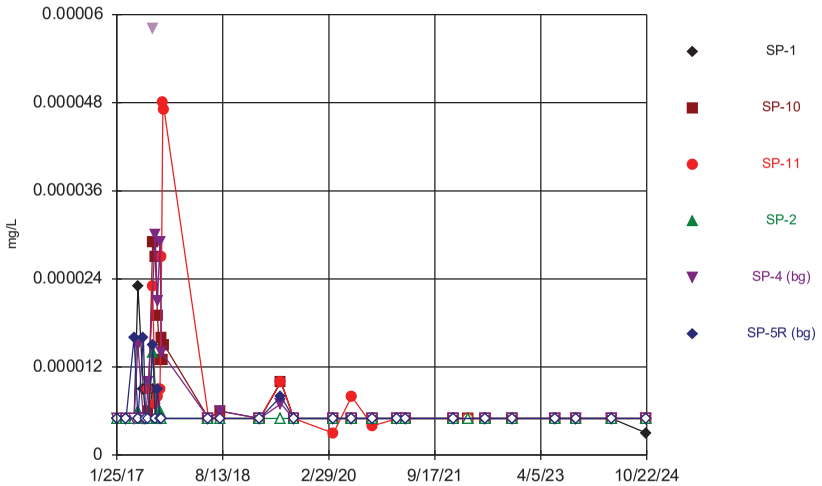
Time Series



Constituent: Lithium Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

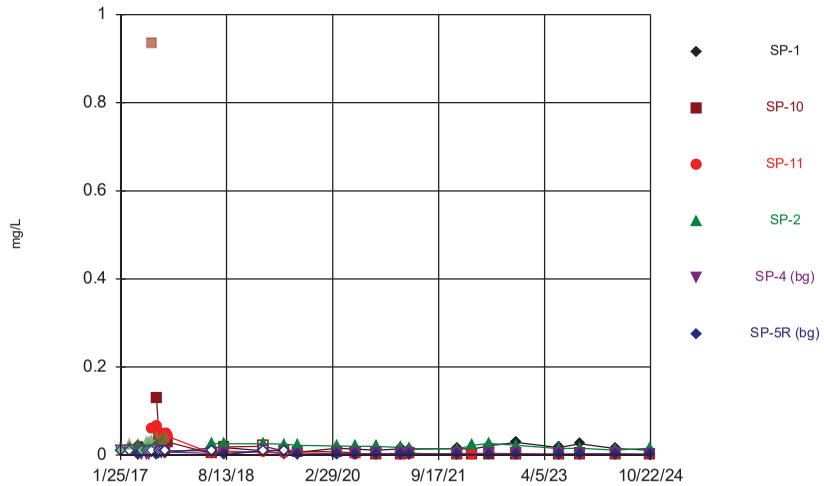
Time Series



Constituent: Mercury Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

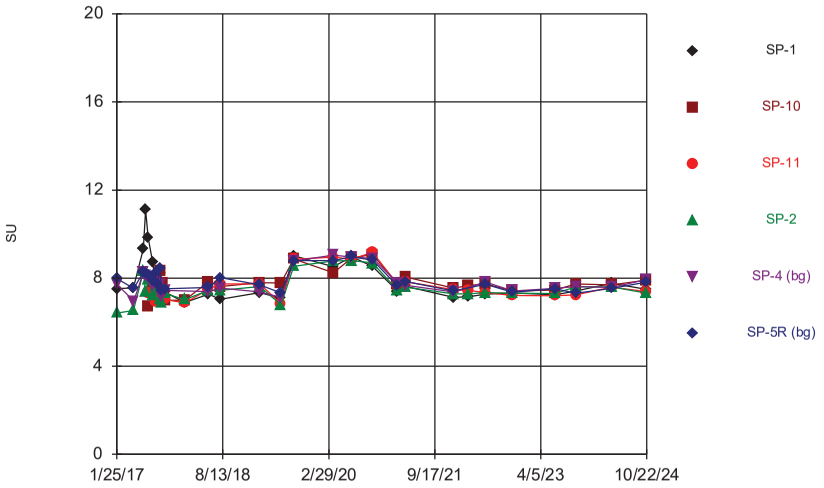
Time Series



Constituent: Molybdenum Analysis Run 1/14/2025 3:58 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series



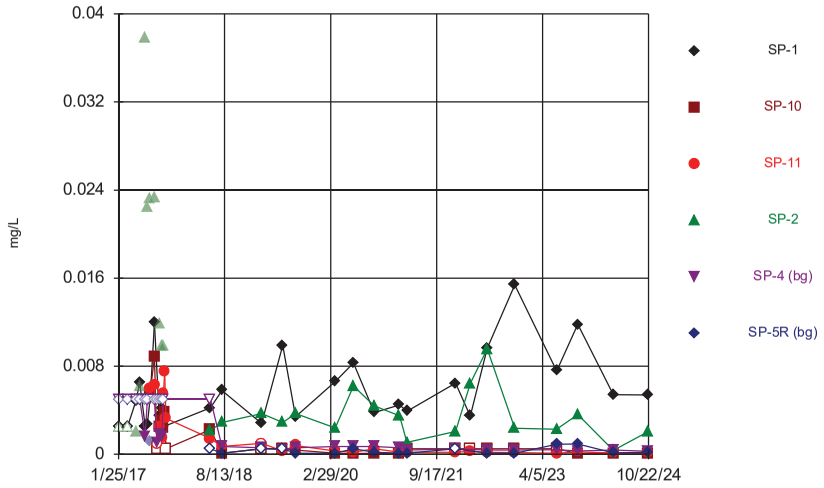
Constituent: pH, field Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

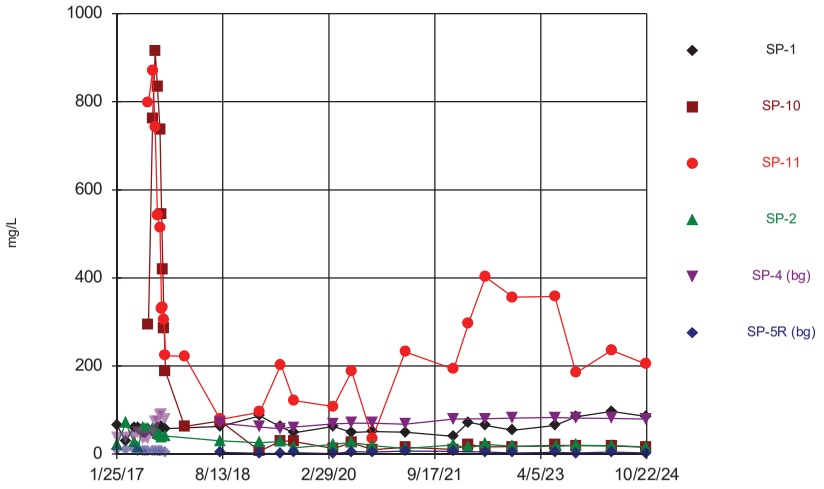


Constituent: Selenium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series



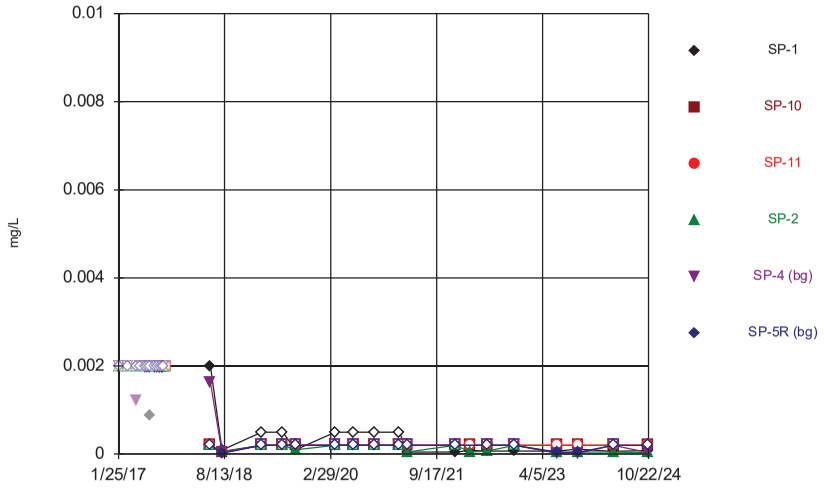
Constituent: Sulfate Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

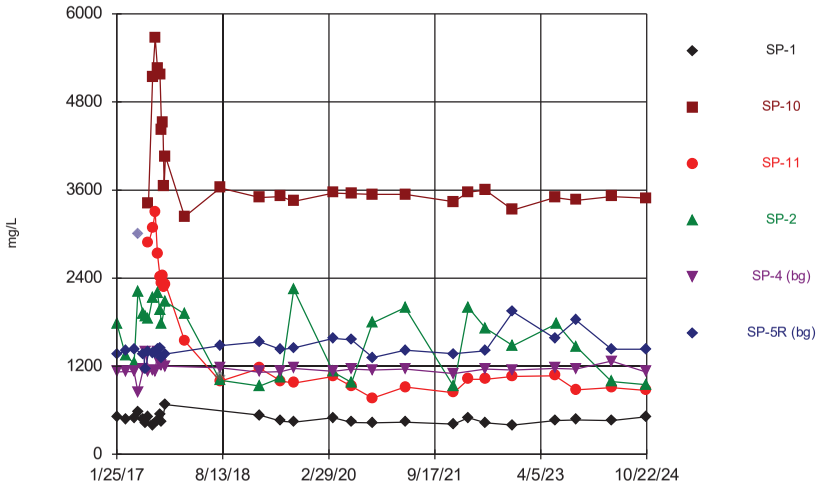


Constituent: Thallium Analysis Run 1/14/2025 3:58 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Time Series



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/14/2025 3:58 PM

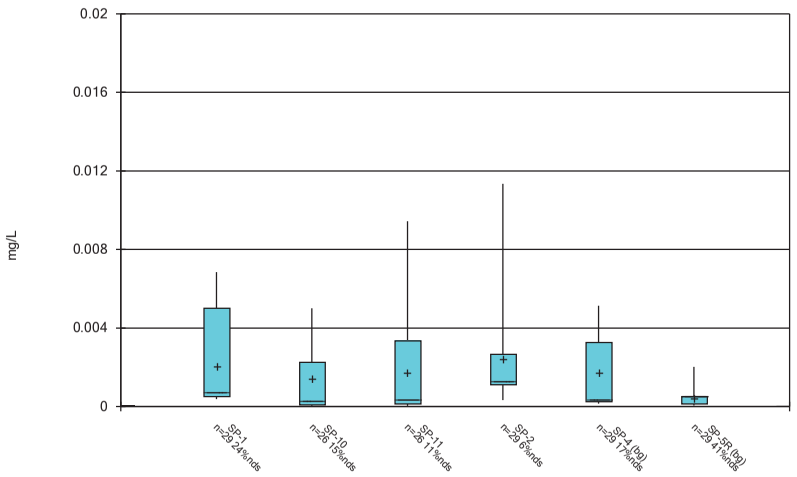
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE B

Box Plots

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

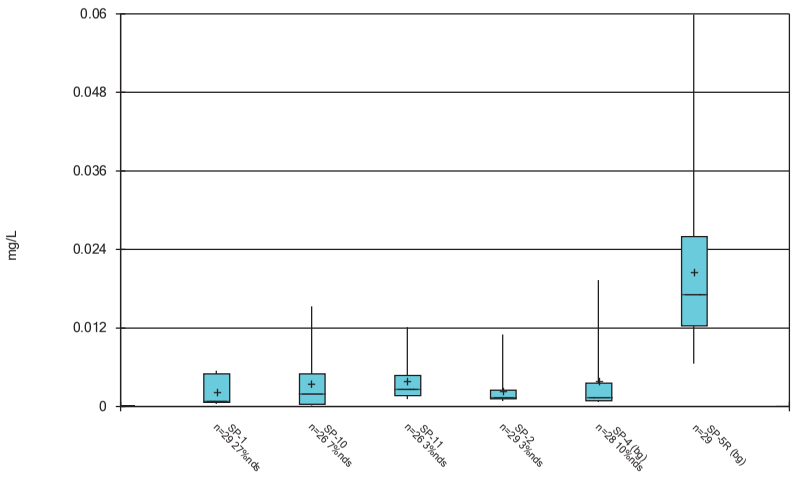
Box & Whiskers Plot



Constituent: Antimony Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

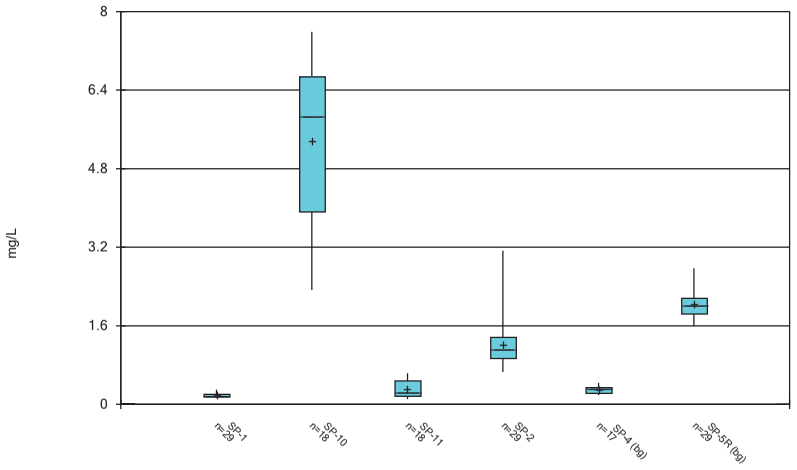
Box & Whiskers Plot



Constituent: Arsenic Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

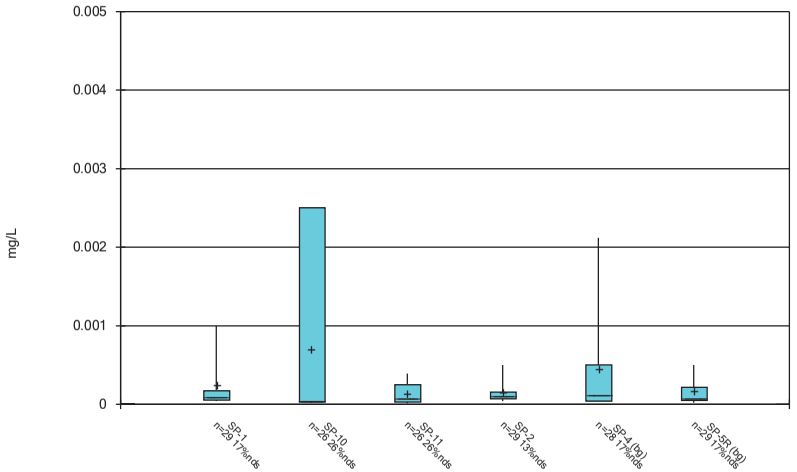
Box & Whiskers Plot



Constituent: Barium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

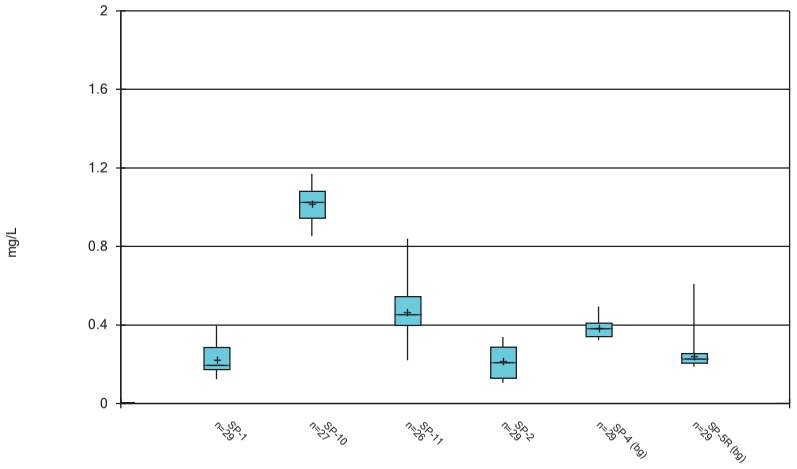
Box & Whiskers Plot



Constituent: Beryllium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

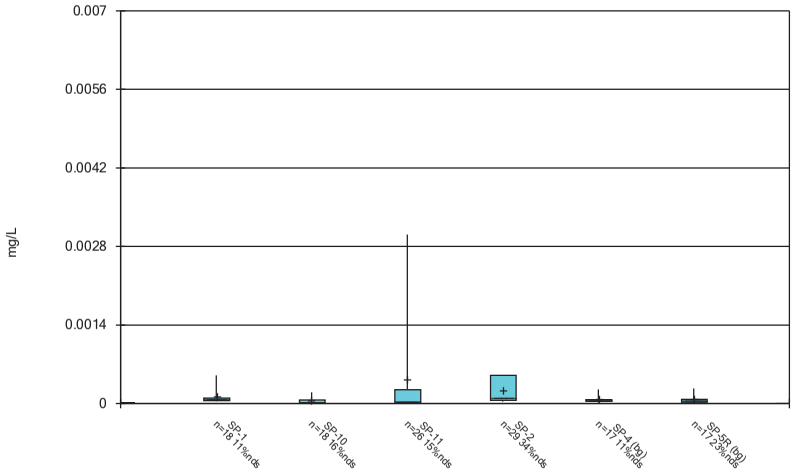
Box & Whiskers Plot



Constituent: Boron Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

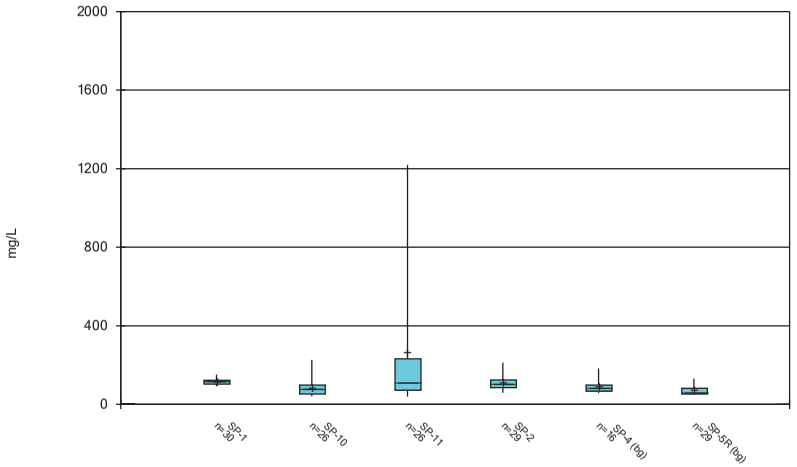
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

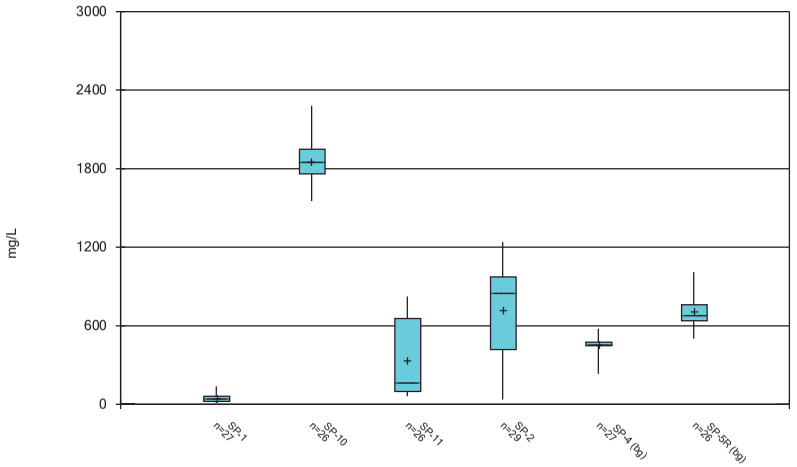
Box & Whiskers Plot



Constituent: Calcium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

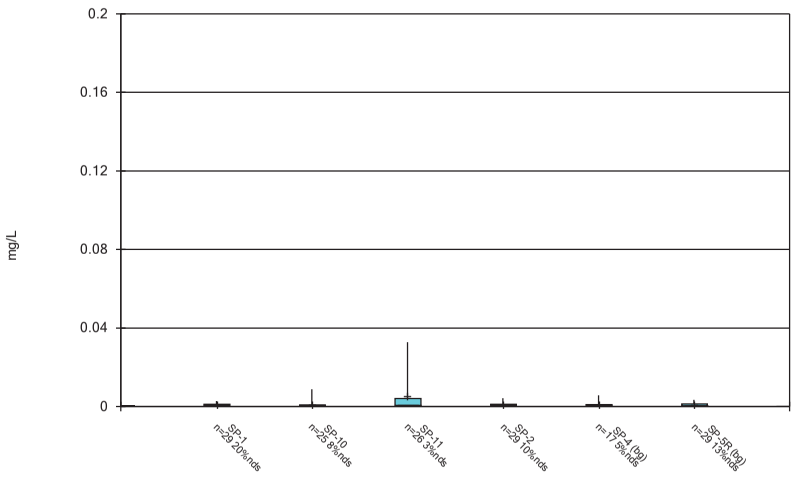
Box & Whiskers Plot



Constituent: Chloride Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

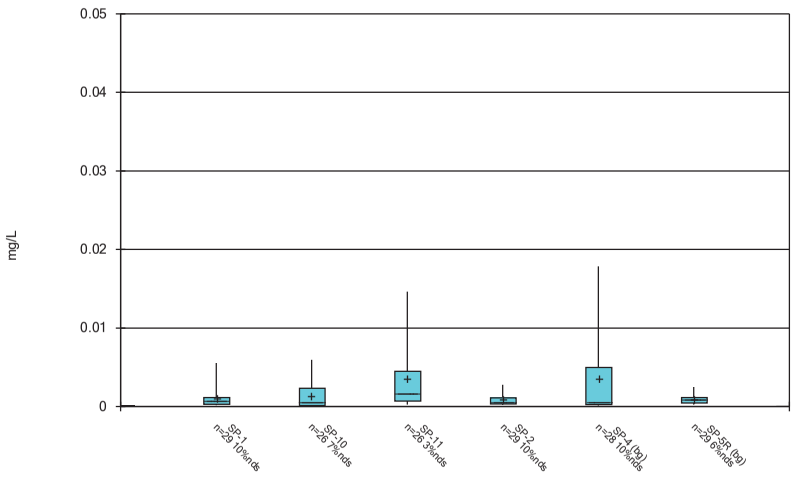
Box & Whiskers Plot



Constituent: Chromium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

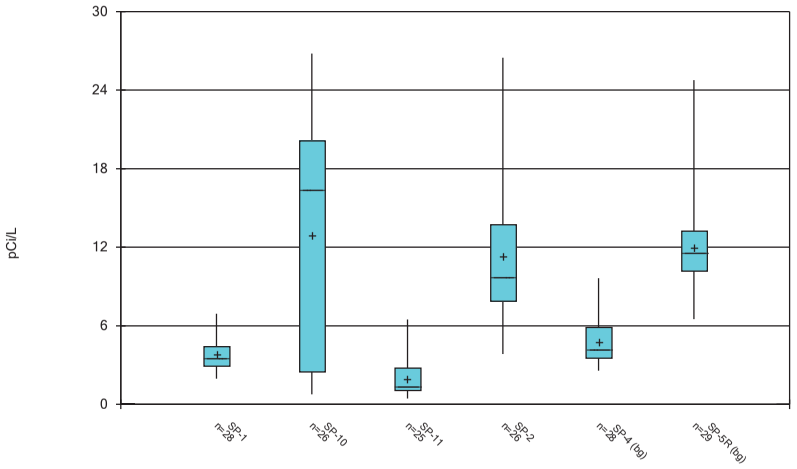
Box & Whiskers Plot



Constituent: Cobalt Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

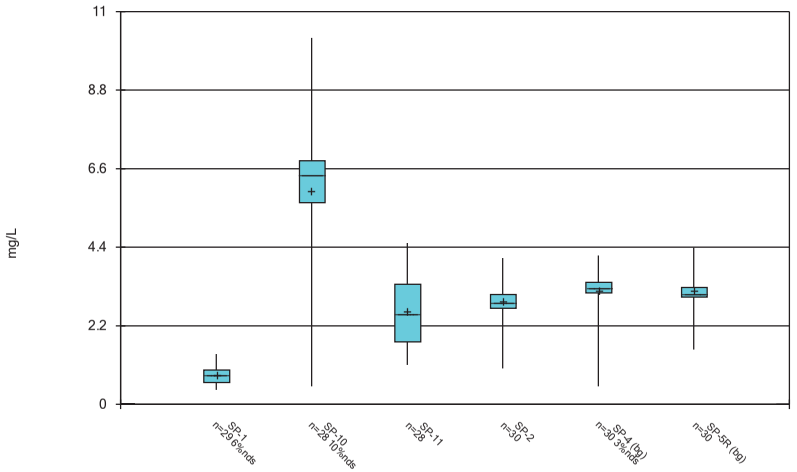
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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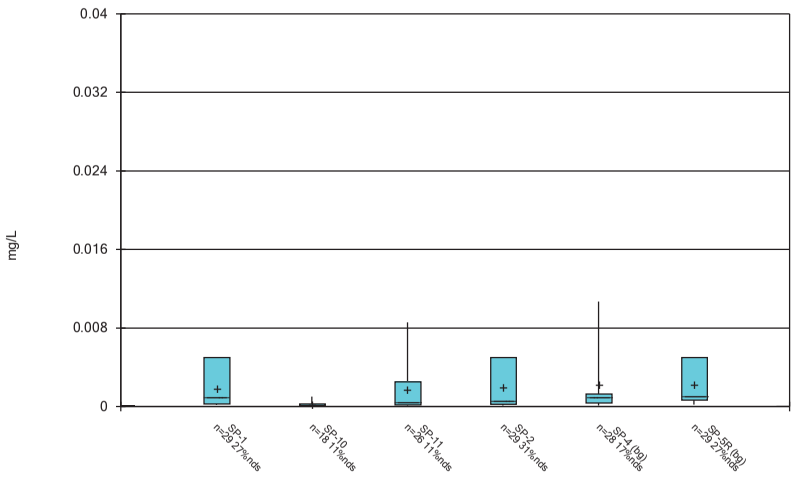
Box & Whiskers Plot



Constituent: Fluoride Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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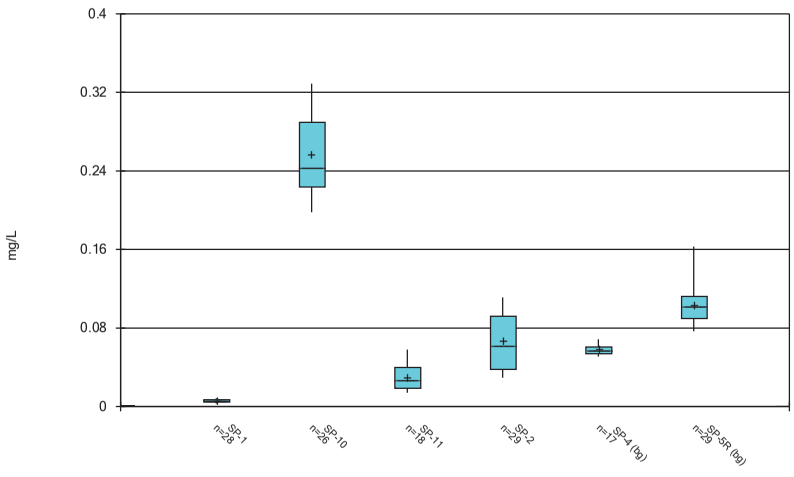
Box & Whiskers Plot



Constituent: Lead Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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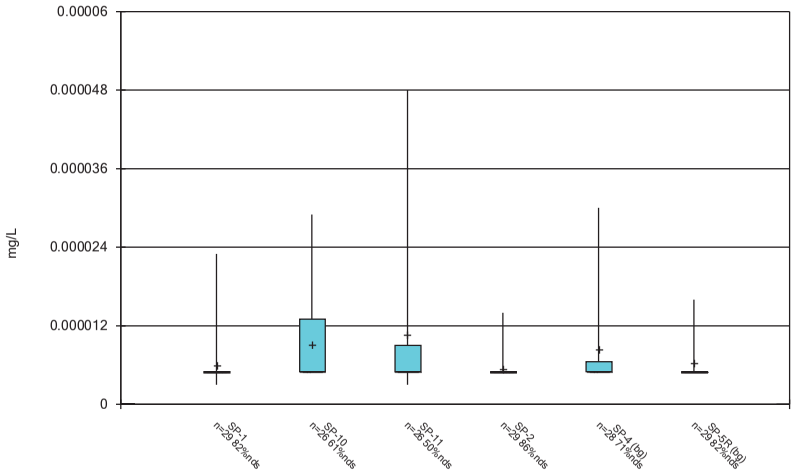
Box & Whiskers Plot



Constituent: Lithium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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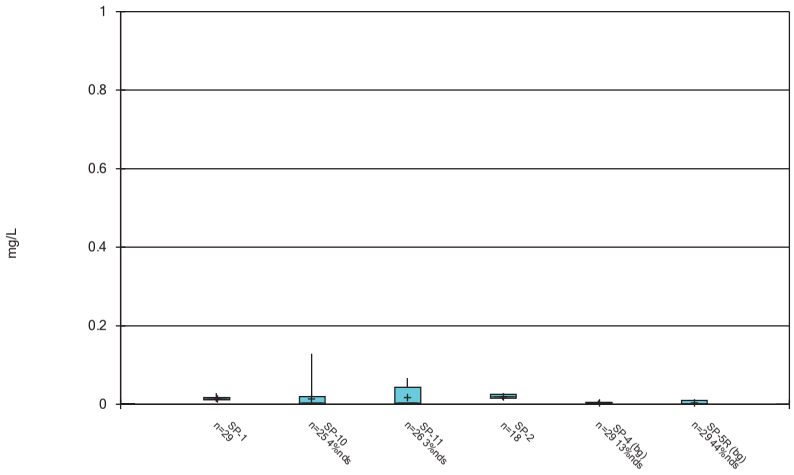
Box & Whiskers Plot



Constituent: Mercury Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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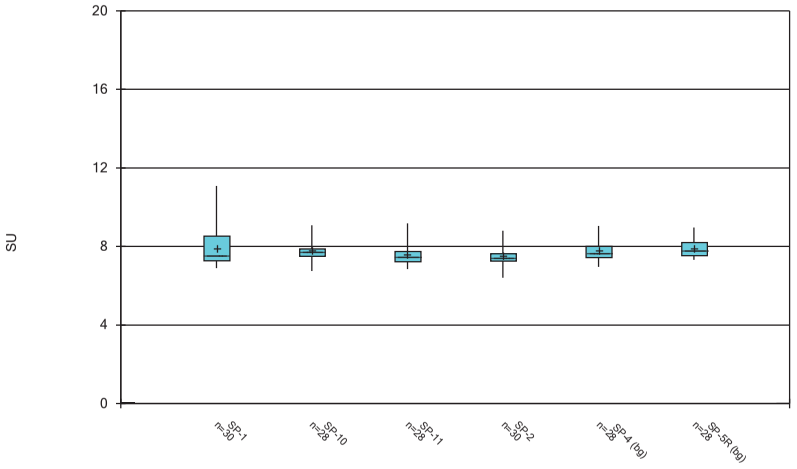
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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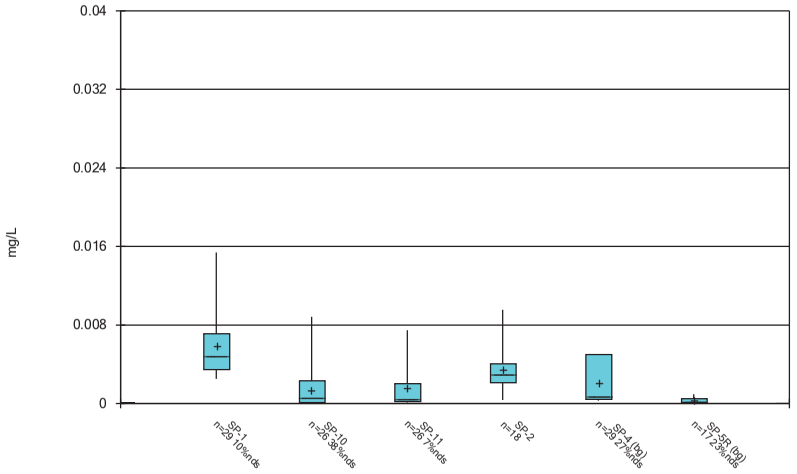
Box & Whiskers Plot



Constituent: pH, field Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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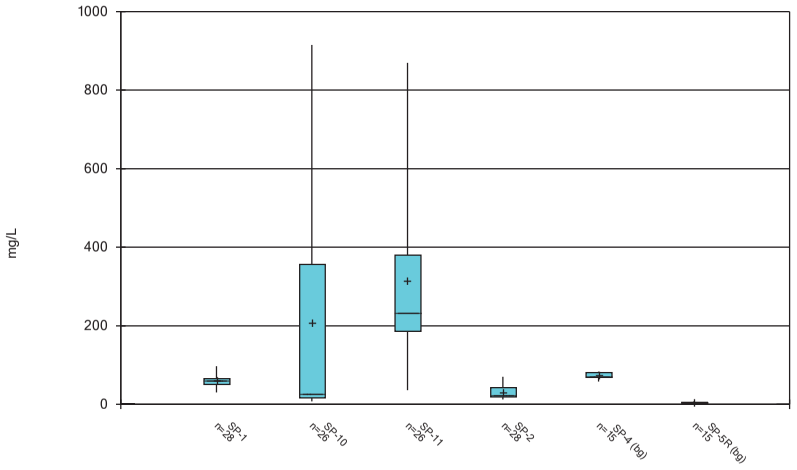
Box & Whiskers Plot



Constituent: Selenium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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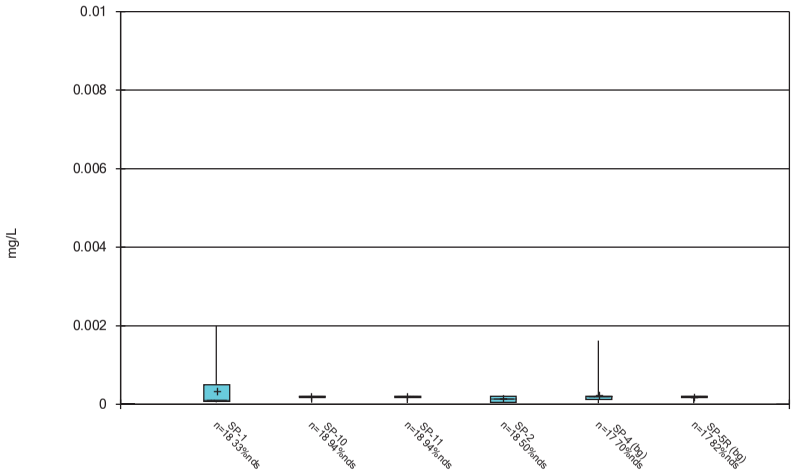
Box & Whiskers Plot



Constituent: Sulfate Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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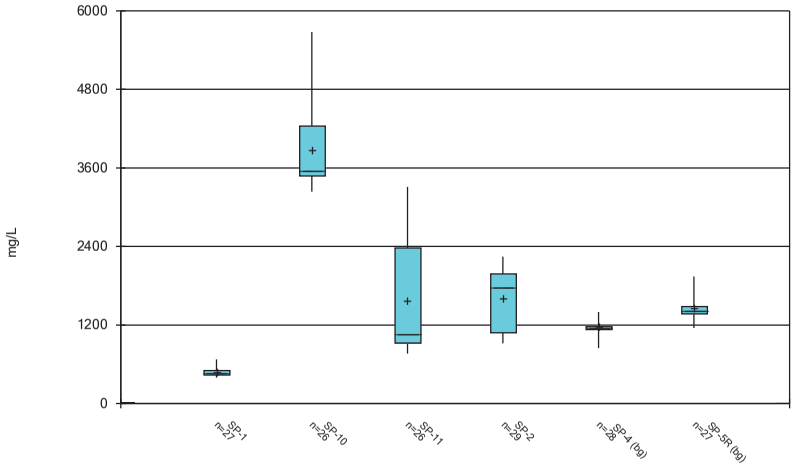
Box & Whiskers Plot



Constituent: Thallium Analysis Run 1/14/2025 3:59 PM
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Box & Whiskers Plot



Constituent: Total Dissolved Solids [TDS] Analysis Run 1/14/2025 3:59 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE C

Outlier Summary and Tukey's Outlier Test

Outlier Summary

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:15 PM

	SP-4 Arsenic (mg/L)	SP-4 Beryllium (mg/L)	SP-1 Chloride (mg/L)	SP-4 Chloride (mg/L)	SP-5R Chloride (mg/L)	SP-10 Chromium (mg/L)	SP-4 Cobalt (mg/L)	SP-1 Combined Radium 226 + 228 (pCi/L)	SP-11 Combined Radium 226 + 228 (pCi/L)	SP-1 Fluoride (mg/L)
3/13/2017			548 (o)							4 (o)
3/15/2017				52 (o)	62 (o)					
5/18/2017					1834 (o)					
6/27/2017								14.29 (o)		
7/13/2017						0.11 (o)				
8/4/2017	0.04498 (o)	0.00497 (o)					0.04069 (o)		25.367 (o)	
7/30/2018										
6/20/2019										

	SP-4 Lead (mg/L)	SP-1 Lithium (mg/L)	SP-4 Mercury (mg/L)	SP-10 Molybdenum (mg/L)	SP-1 Total Dissolved Solids [TDS] (mg/L)	SP-5R Total Dissolved Solids [TDS] (mg/L)
3/13/2017						
3/15/2017						
5/18/2017						3008 (o)
6/27/2017						
7/13/2017				0.934 (o)		
8/4/2017	0.03663 (o)		5.8E-05 (o)			
7/30/2018					1060 (o)	
6/20/2019		0.03 (J,o)				

Tukey's Outlier Test - All Wells - All Results (No Significant)

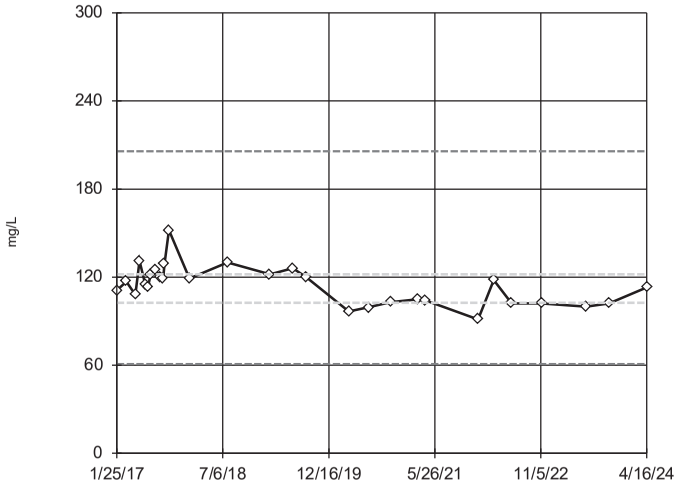
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/16/2025, 11:54 AM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Calcium (mg/L)	SP-1	No	n/a	NP	NaN	29	114.3	13.04	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-10	No	n/a	NP	NaN	25	82.53	47.03	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-11	No	n/a	NP	NaN	25	272.7	370.6	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-2	No	n/a	NP	NaN	28	106.2	34.64	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-4 (bg)	No	n/a	NP	NaN	15	90.6	36.81	ln(x)	ShapiroWilk
Calcium (mg/L)	SP-5R (bg)	No	n/a	NP	NaN	28	68.57	23.15	ln(x)	ShapiroWilk

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Tukey's Outlier Screening

SP-1



n = 29

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

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

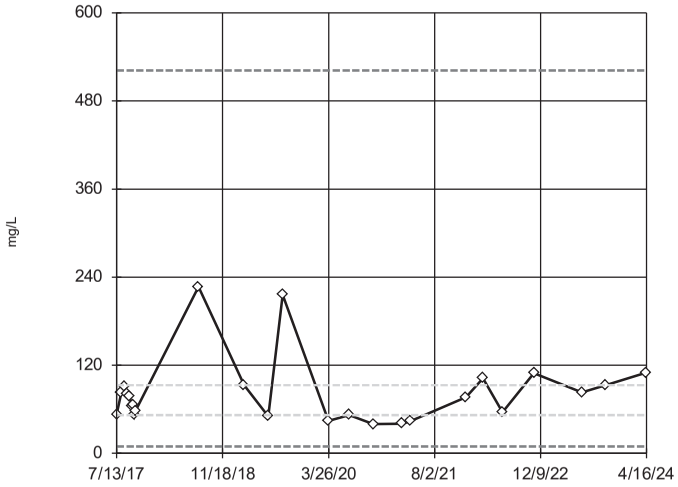
High cutoff = 205.7, low cutoff = 60.78, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-10



n = 25

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

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

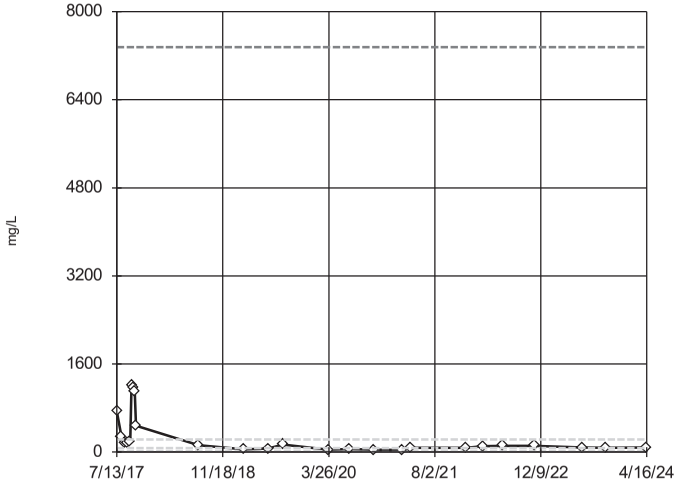
High cutoff = 521.4, low cutoff = 9.29, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-11



n = 25

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

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

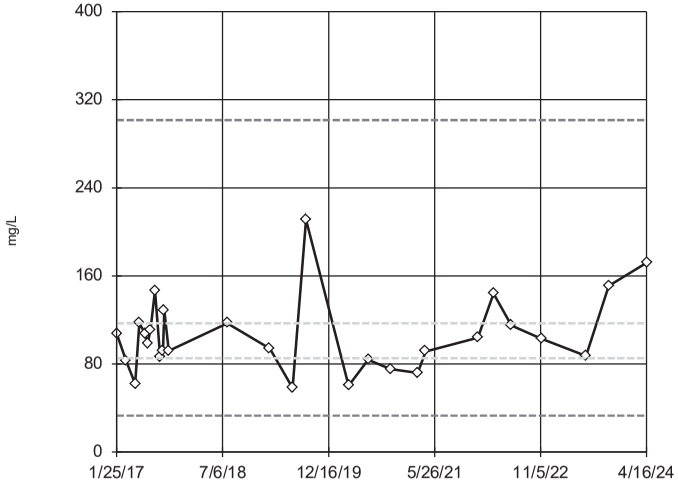
High cutoff = 7354, low cutoff = 2.206, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-2



n = 28

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

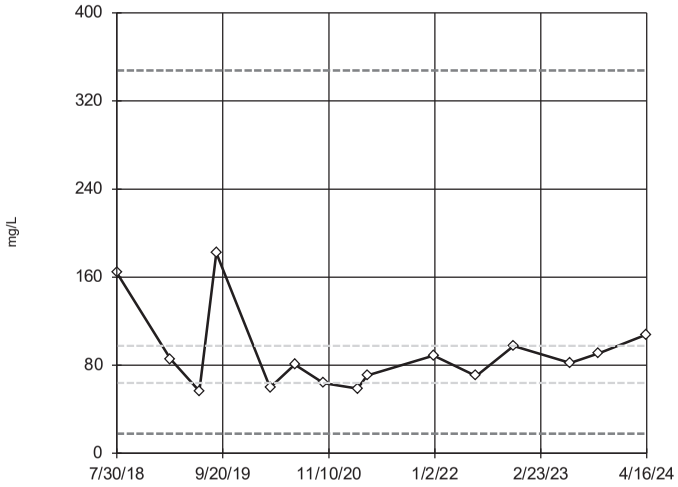
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 301.5, low cutoff = 33.11, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Tukey's Outlier Screening

SP-4 (bg)



n = 15

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

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

High cutoff = 347.8, low cutoff = 17.93, based on IQR multiplier of 3.

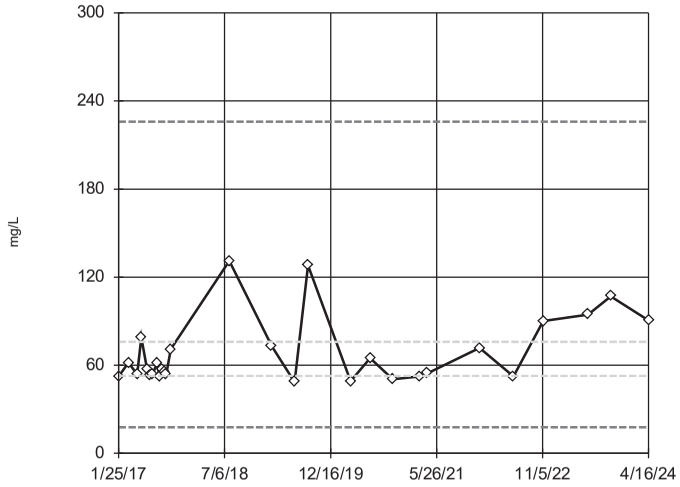
Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening

SP-5R (bg)



n = 28

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 = 225.9, low cutoff = 17.72, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 1/16/2025 11:53 AM View: Outlier Test

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Tukey's Outlier Test - Upgradient Wells - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 1:43 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Chloride (mg/L)	**SP-4,SP-5R**	**Yes**	**52,1834**	**NP**	**NaN**	**56**	**583.4**	**245.6**	**sqrt(x)**	**ShapiroFrancia**
Fluoride (mg/L)	**SP-4,SP-5R**	**Yes**	**4,4,2.1,4.086,1.747,4.17,0.5,1.535,4.11,4.39**	**NP**	**NaN**	**60**	**3.181**	**0.6066**	**x^2**	**ShapiroFrancia**
Mercury (mg/L)	**SP-4,SP-5R**	**Yes**	**0.000015,0.000015,0.00001,0.000058,0.00003,0.0000**	**NP**	**NaN**	**58**	**0.000008172**	**0.000008645**	**ln(x)**	**ShapiroFrancia**
Selenium (mg/L)	**SP-4,SP-5R**	**Yes**	**0.00499**	**NP**	**NaN**	**45**	**0.000636**	**0.0007718**	**ln(x)**	**ShapiroWilk**
Total Dissolved Solids [TDS] (mg/L)	**SP-4,SP-5R**	**Yes**	**3008**	**NP**	**NaN**	**56**	**1335**	**296.9**	**ln(x)**	**ShapiroFrancia**

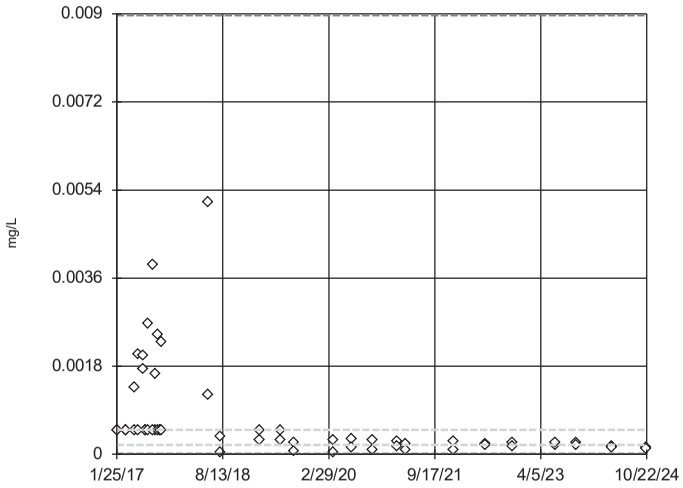
Tukey's Outlier Test - Upgradient Wells - All Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 1:43 PM

Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.0007022	0.0009733	ln(x)	ShapiroFrancia
Arsenic (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.01292	0.01348	x^(1/3)	ShapiroFrancia
Barium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	45	1.419	0.8758	x^3	ShapiroWilk
Beryllium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.0003831	0.0007643	ln(x)	ShapiroFrancia
Boron (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.312	0.09383	ln(x)	ShapiroFrancia
Cadmium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	32	0.00005884	0.00005131	ln(x)	ShapiroWilk
Chloride (mg/L)	**SP-4,SP-5R**	**Yes**	**52,1834**	**NP**	**NaN**	**56**	**583.4**	**245.6**	**sqrt(x)**	**ShapiroFrancia**
Chromium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	45	0.0009502	0.001008	ln(x)	ShapiroWilk
Cobalt (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.002797	0.006582	ln(x)	ShapiroFrancia
Combined Radium 226 + 228 (pCi/L)	SP-4,SP-5R	No	n/a	NP	NaN	57	8.43	4.54	x^(1/3)	ShapiroFrancia
Fluoride (mg/L)	**SP-4,SP-5R**	**Yes**	**4,4,2.1,4.086,1.747,4.17,0.5,1.535,4.11,4.39**	**NP**	**NaN**	**60**	**3.181**	**0.6066**	**x^2**	**ShapiroFrancia**
Lead (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.002249	0.005193	ln(x)	ShapiroFrancia
Lithium (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	45	0.08687	0.02598	sqrt(x)	ShapiroWilk
Mercury (mg/L)	**SP-4,SP-5R**	**Yes**	**0.000015,0.000015,0.00001,0.000058,0.00003,0.0000**	**NP**	**NaN**	**58**	**0.000008172**	**0.000008645**	**ln(x)**	**ShapiroFrancia**
Molybdenum (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	58	0.004588	0.003783	ln(x)	ShapiroFrancia
pH, field (SU)	SP-4,SP-5R	No	n/a	NP	NaN	56	7.855	0.52	ln(x)	ShapiroFrancia
Selenium (mg/L)	**SP-4,SP-5R**	**Yes**	**0.00499**	**NP**	**NaN**	**45**	**0.000636**	**0.0007718**	**ln(x)**	**ShapiroWilk**
Sulfate (mg/L)	SP-4,SP-5R	No	n/a	NP	NaN	28	38.1	35.57	ln(x)	ShapiroWilk
Thallium (mg/L)	SP-4,SP-5R	n/a	n/a	NP	NaN	32	0.0002131	0.0002651	unknown	ShapiroWilk
Total Dissolved Solids [TDS] (mg/L)	**SP-4,SP-5R**	**Yes**	**3008**	**NP**	**NaN**	**56**	**1335**	**296.9**	**ln(x)**	**ShapiroFrancia**

Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

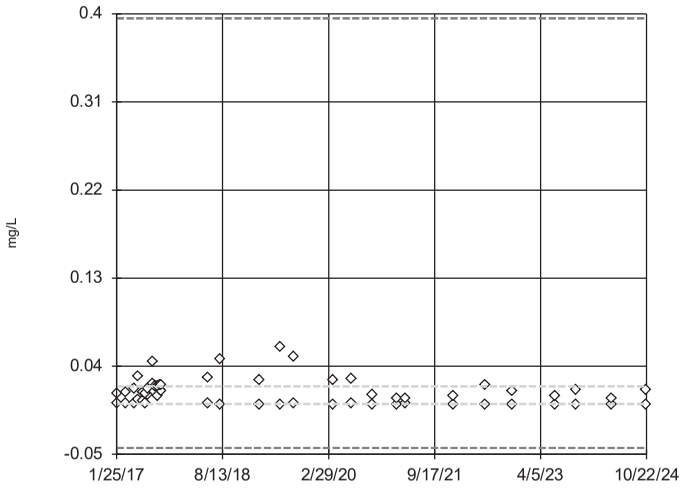
High cutoff = 0.00897, low cutoff = 0.00001065, based on IQR multiplier of 3.

Constituent: Antimony Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

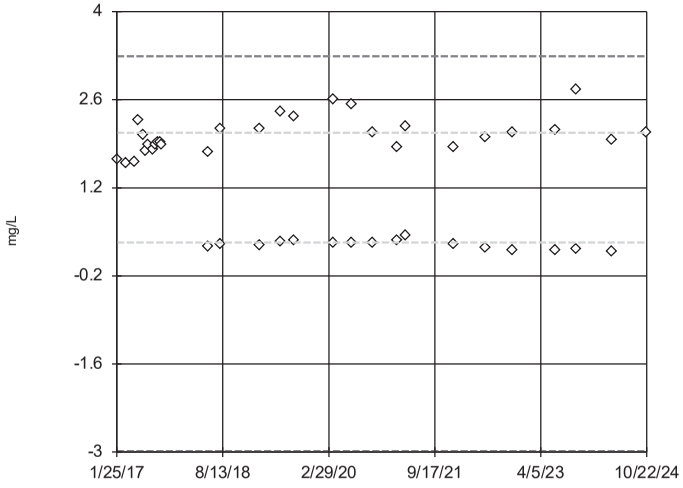
High cutoff = 0.3954, low cutoff = -0.04352, based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

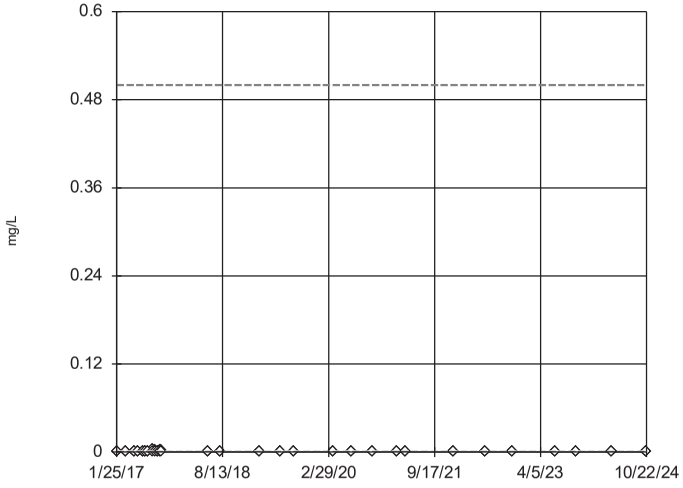
High cutoff = 3.291, low cutoff = -2.987, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

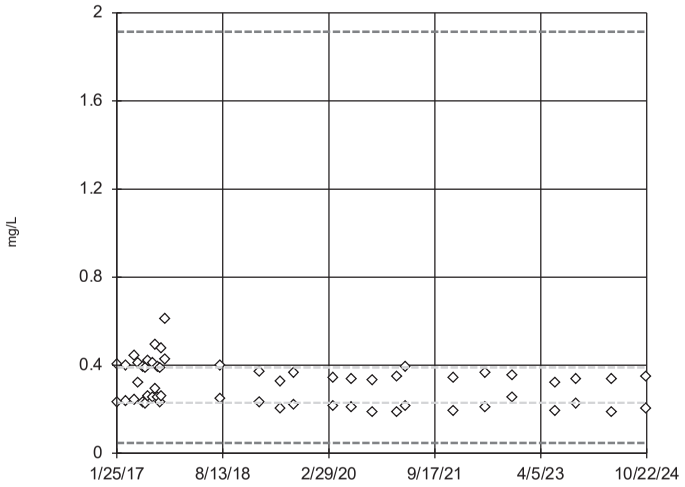
High cutoff = 0.5, low cutoff = 5.0e-8, based on IQR multiplier of 3.

Constituent: Beryllium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

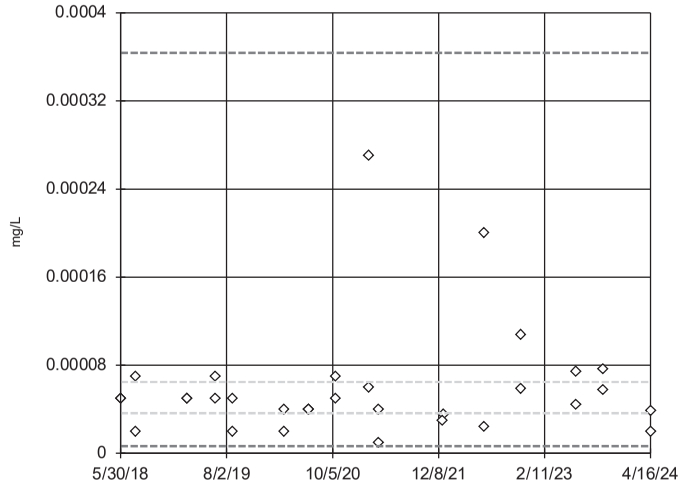
High cutoff = 1.914, low cutoff = 0.04676, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



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).

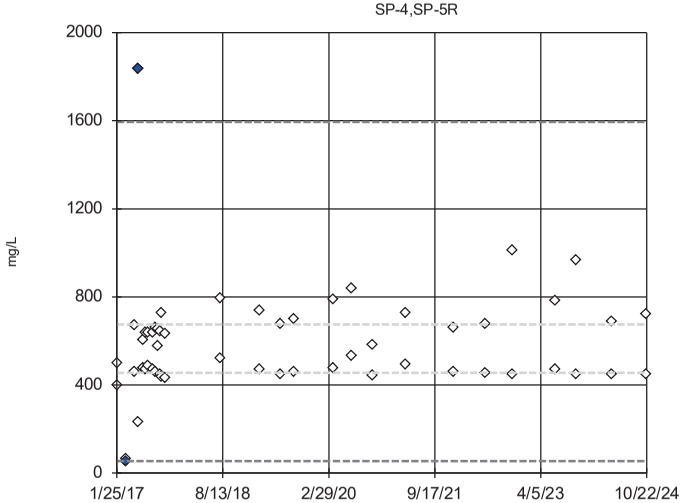
High cutoff = 0.0003637, low cutoff = 0.000006499, based on IQR multiplier of 3.

Constituent: Cadmium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 56

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

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

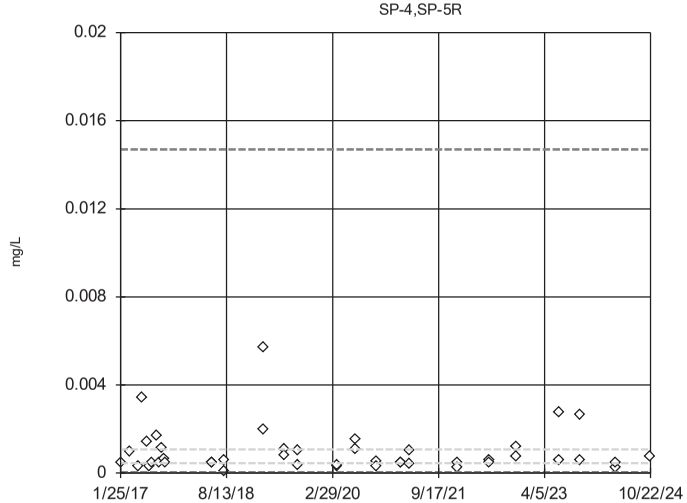
High cutoff = 1595, low cutoff = 54.47, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

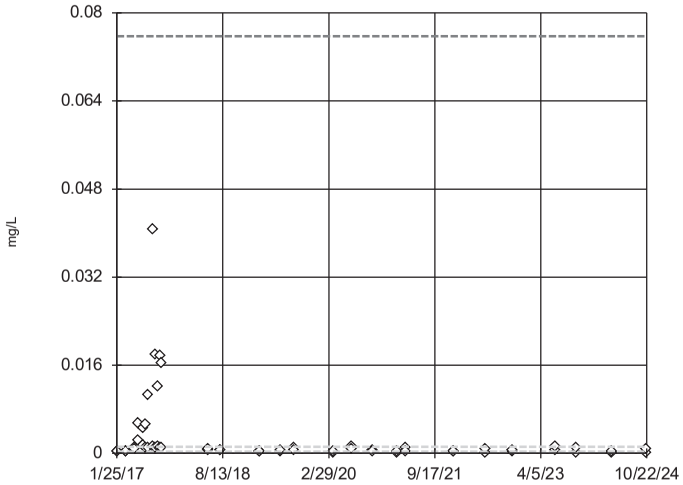
High cutoff = 0.0147, low cutoff = 0.00003287, based on IQR multiplier of 3.

Constituent: Chromium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

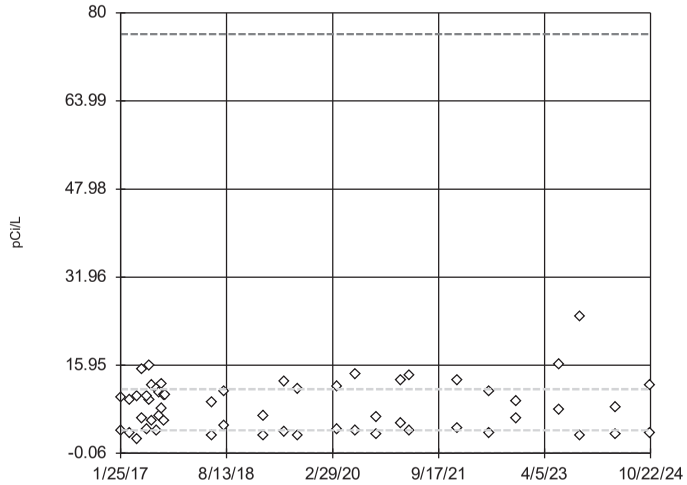
High cutoff = 0.07577, low cutoff = 0.00000468, based on IQR multiplier of 3.

Constituent: Cobalt Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 57

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

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

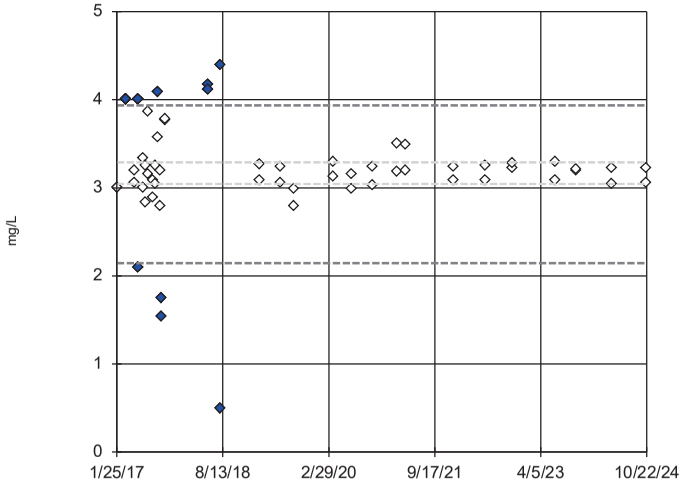
High cutoff = 76.14, low cutoff = -0.05155, based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 60

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

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

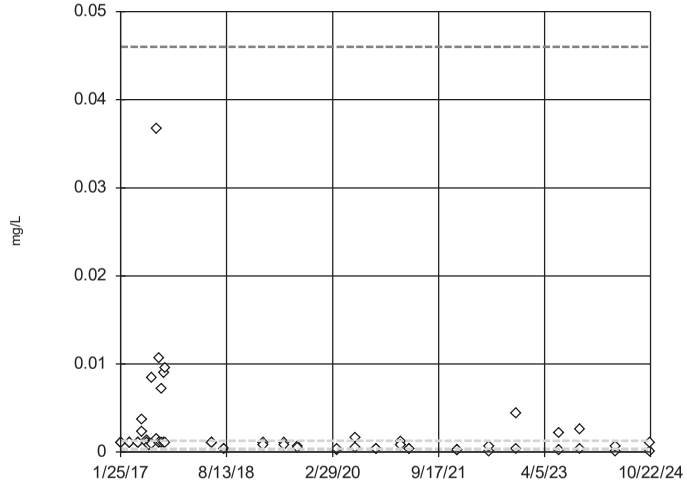
High cutoff = 3.936, low cutoff = 2.146, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

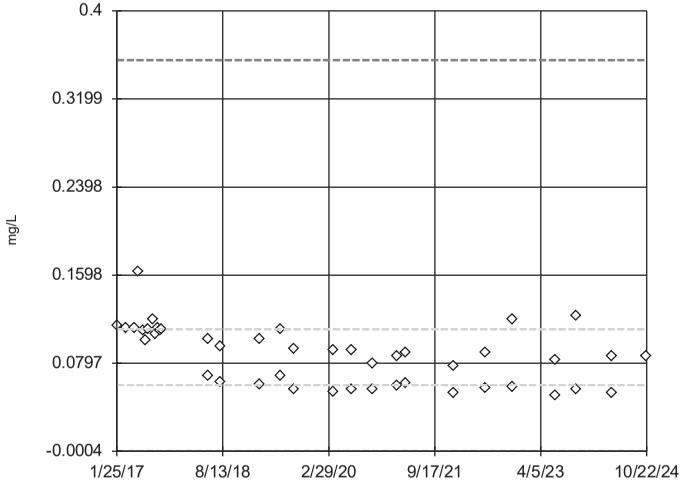
High cutoff = 0.046, low cutoff = 0.0000107, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

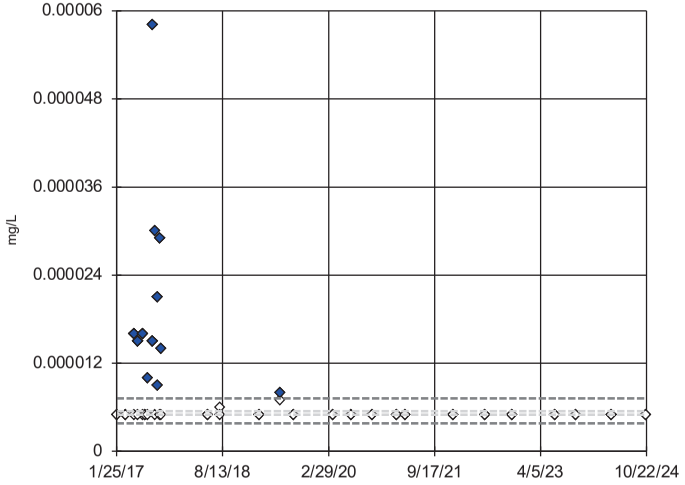
High cutoff = 0.3553, low cutoff = -0.0003643, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

Outliers are drawn as solid.
Tukey's method select-ed by user.

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

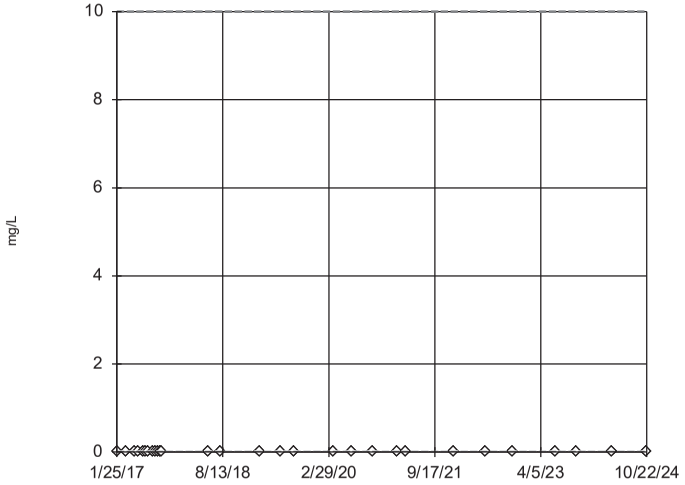
High cutoff = 0.0000072, low cutoff = 0.000003804, based on IQR multiplier of 3.

Constituent: Mercury Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 58

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

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

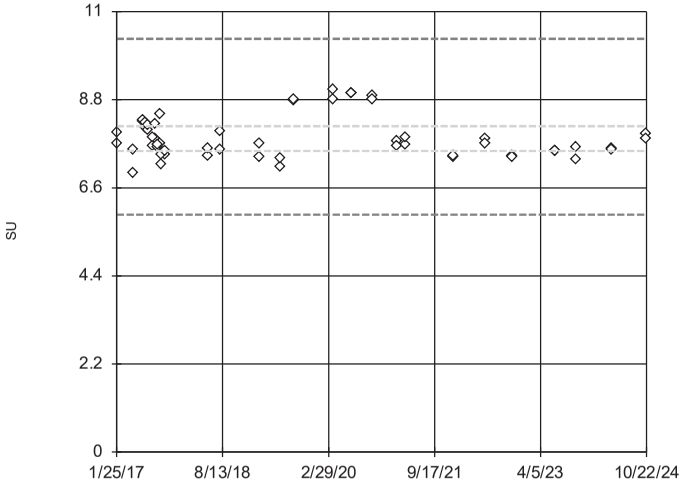
High cutoff = 10, low cutoff = 0.000001, based on IQR multiplier of 3.

Constituent: Molybdenum Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 56

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

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

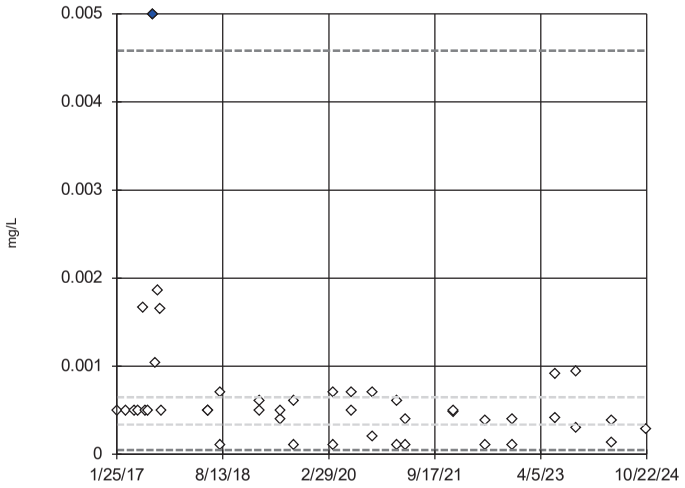
High cutoff = 10.32, low cutoff = 5.929, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 45

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

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

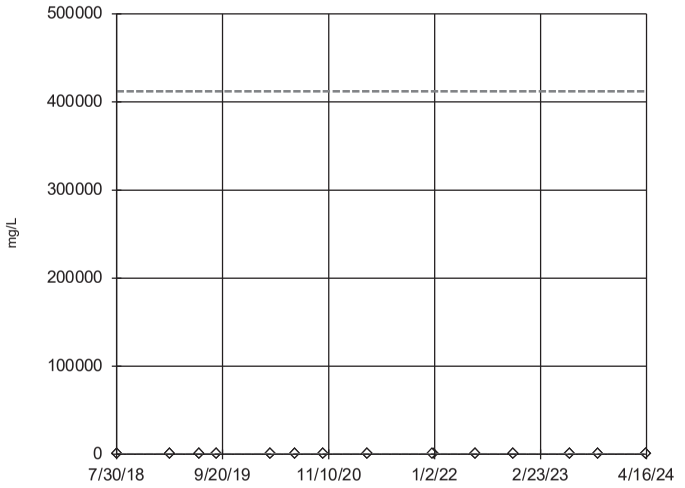
High cutoff = 0.004583, low cutoff = 0.00004775, based on IQR multiplier of 3.

Constituent: Selenium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 28

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

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

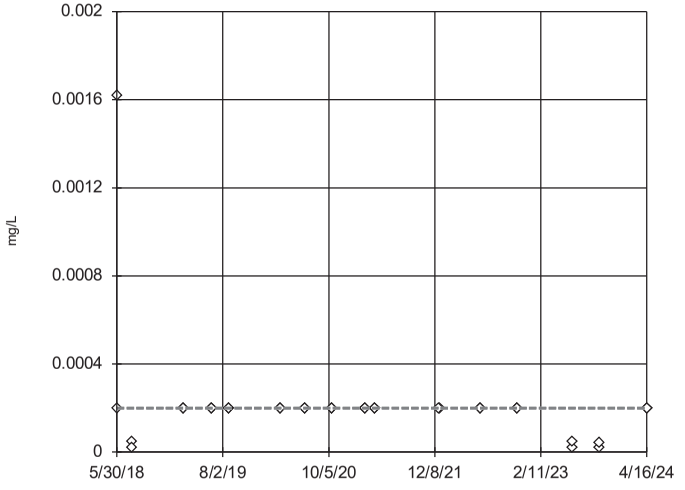
High cutoff = 412149, low cutoff = 0.000665, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



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).

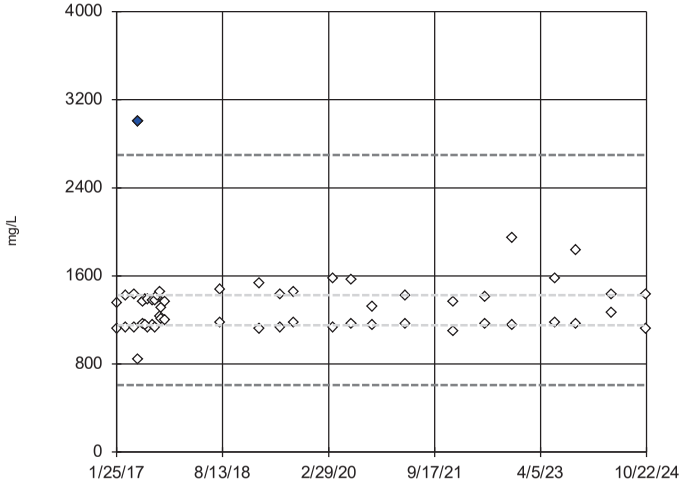
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tukey's Outlier Screening, Pooled Background

SP-4,SP-5R



n = 56

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

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

High cutoff = 2698, low cutoff = 609.5, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/14/2025 1:41 PM View: Outlier
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE D

Mann-Whitney

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

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 2/21/2025, 1:57 PM

Constituent	Well	Calc.	0.01	Alpha	Sig.	Method
Calcium (mg/L)	**SP-5R (bg)**	**2.594**	**Yes**	**0.01**	**Yes**	**Mann-W**

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

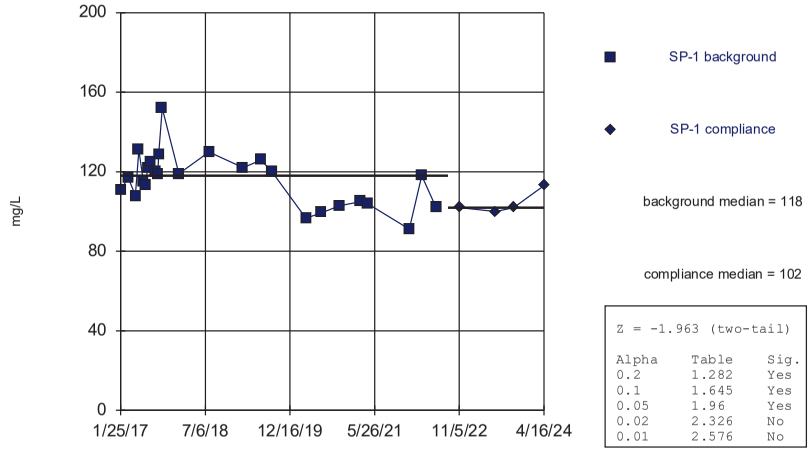
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 2/21/2025, 1:57 PM

Constituent	Well	Calc.	0.01	Alpha	Sig.	Method
Calcium (mg/L)	SP-1	-1.963	No	0.01	No	Mann-W
Calcium (mg/L)	SP-10	2.113	No	0.01	No	Mann-W
Calcium (mg/L)	SP-11	0.9709	No	0.01	No	Mann-W
Calcium (mg/L)	SP-2	1.215	No	0.01	No	Mann-W
Calcium (mg/L)	SP-4 (bg)	1.501	No	0.01	No	Mann-W
Calcium (mg/L)	**SP-5R (bg)**	**2.594**	**Yes**	**0.01**	**Yes**	**Mann-W**

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Mann-Whitney (Wilcoxon Rank Sum)

SP-1



Z = -1.963 (two-tail)

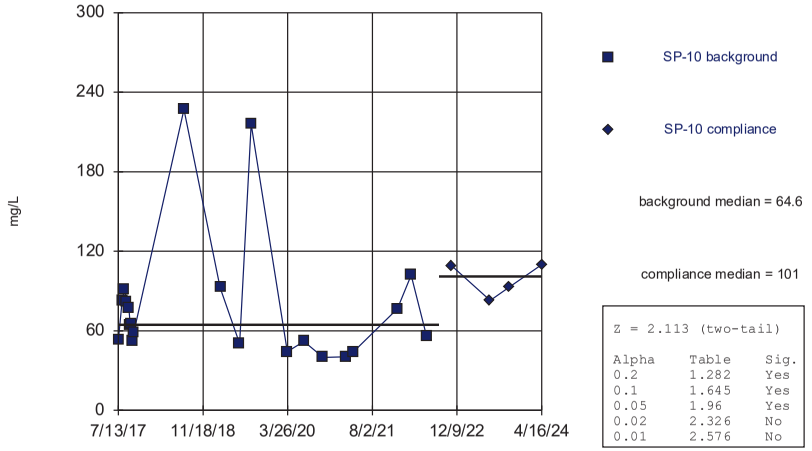
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	Yes
0.05	1.96	Yes
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-10



Z = 2.113 (two-tail)

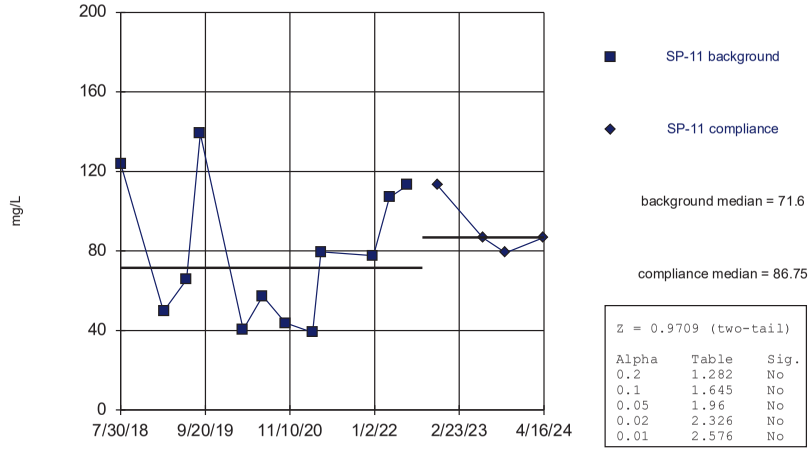
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	Yes
0.05	1.96	Yes
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-11



Z = 0.9709 (two-tail)

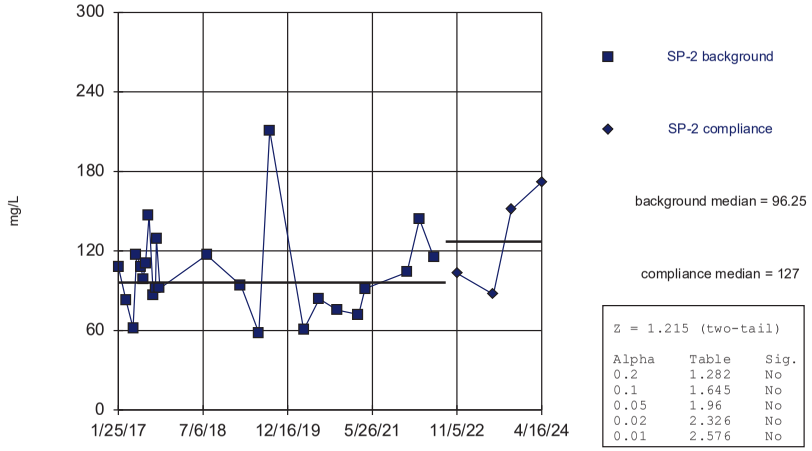
Alpha	Table	Sig.
0.2	1.282	No
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-2



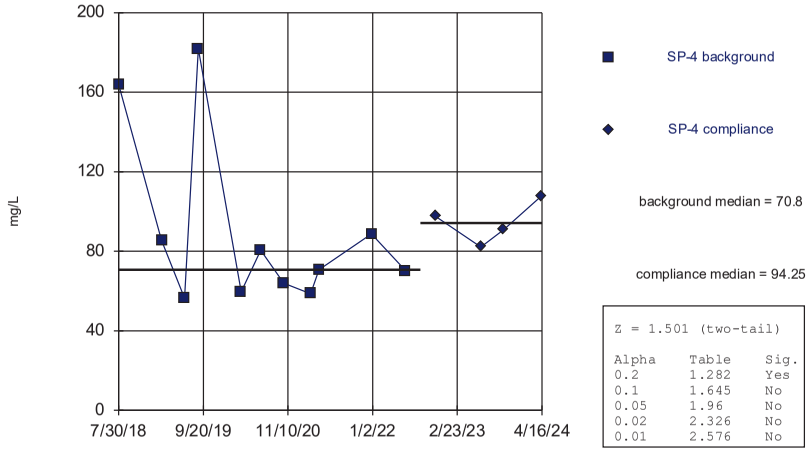
Z = 1.215 (two-tail)

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

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Mann-Whitney (Wilcoxon Rank Sum)

SP-4 (bg)



Z = 1.501 (two-tail)

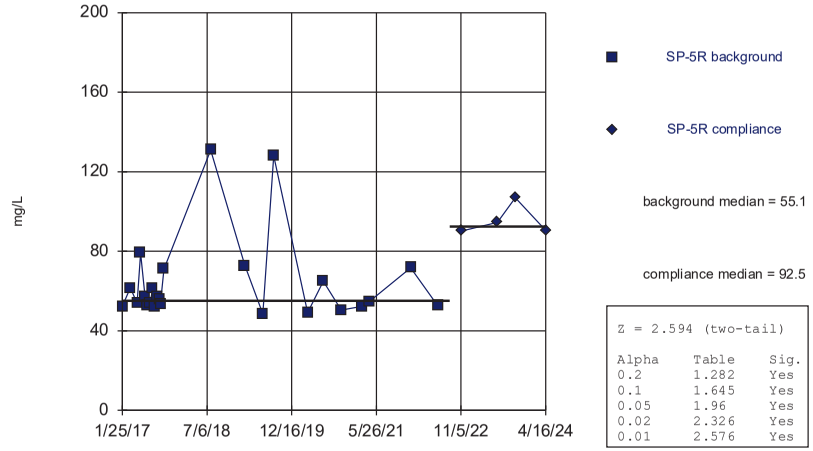
Alpha	Table	Sig.
0.2	1.282	Yes
0.1	1.645	No
0.05	1.96	No
0.02	2.326	No
0.01	2.576	No

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Mann-Whitney (Wilcoxon Rank Sum)

SP-5R (bg)



Z = 2.594 (two-tail)

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

Constituent: Calcium Analysis Run 2/21/2025 1:56 PM View: Mann-Whitney
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE E

Intrawell PLs

Intrawell Prediction Limits - All Results

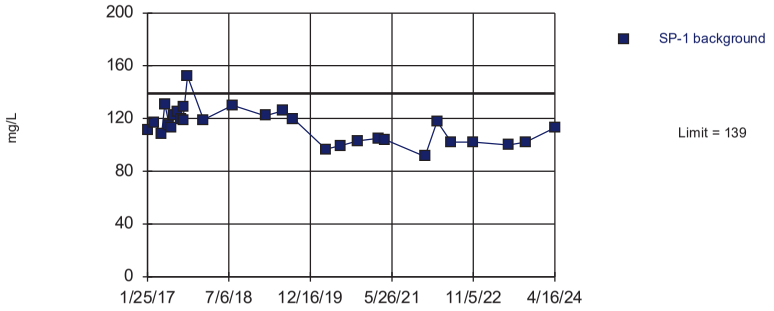
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/16/2025, 11:59 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Calcium (mg/L)	SP-1	139	n/a	n/a	1 future	n/a	29	114.3	13.04	0	None	No	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-10	176.8	n/a	n/a	1 future	n/a	25	4.301	0.4545	0	None	ln(x)	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-11	146.1	n/a	n/a	1 future	n/a	16	81.35	31.19	0	None	No	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-2	171.9	n/a	n/a	1 future	n/a	28	106.2	34.64	0	None	No	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-4	177.2	n/a	n/a	1 future	n/a	15	4.445	0.3465	0	None	ln(x)	0.00188	Param Intra 1 of 2
Calcium (mg/L)	SP-5R	131	n/a	n/a	1 future	n/a	28	n/a	n/a	0	n/a	n/a	0.002337	NP Intra (normality) 1 of 2

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Prediction Limit

Intrawell Parametric, SP-1



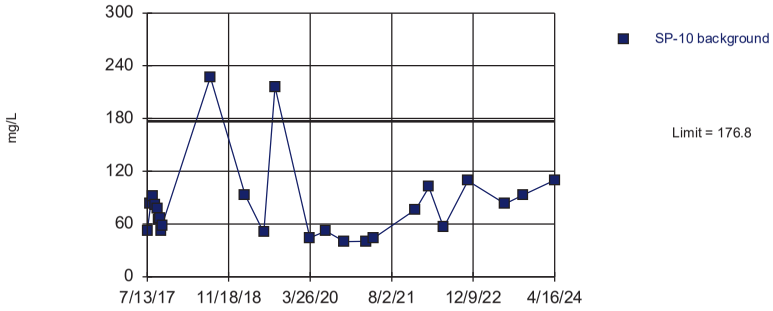
Background Data Summary: Mean=114.3, Std. Dev.=13.04, n=29. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9586, critical = 0.898. Kappa = 1.889 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Parametric, SP-10



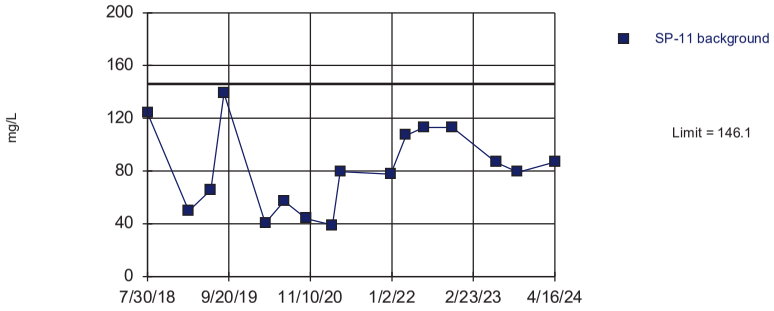
Background Data Summary (based on natural log transformation): Mean=4.301, Std. Dev.=0.4545, n=25. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9159, critical = 0.888. Kappa = 1.924 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Parametric, SP-11



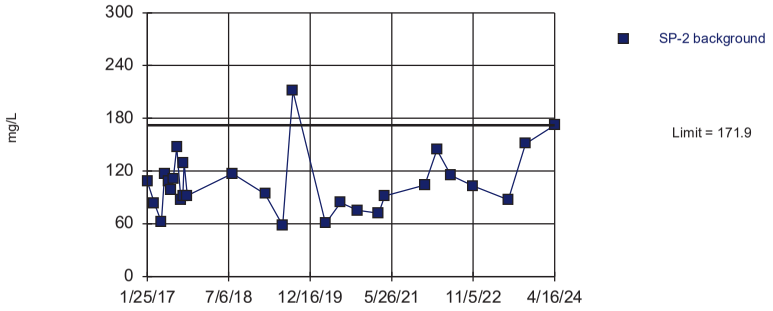
Background Data Summary: Mean=81.35, Std. Dev.=31.19, n=16. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.9485, critical = 0.887. Kappa = 2.076 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Parametric, SP-2

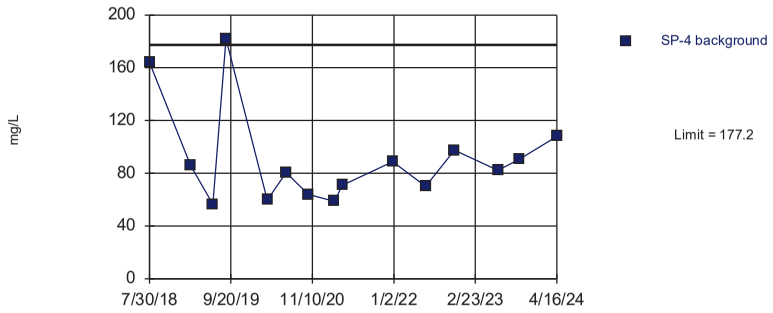


Background Data Summary: Mean=106.2, Std. Dev.=34.64, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9172, critical = 0.896. Kappa = 1.898 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Prediction Limit

Intrawell Parametric, SP-4 (bg)



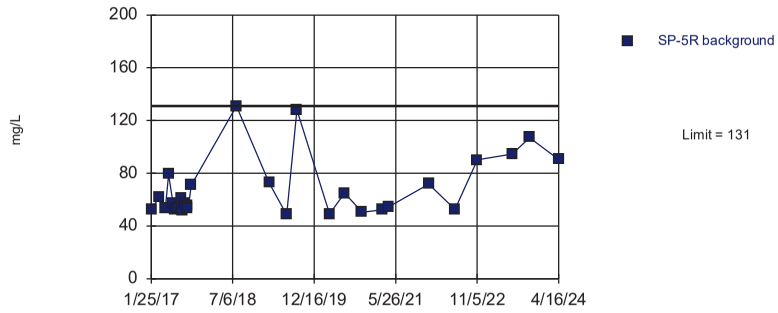
Background Data Summary (based on natural log transformation): Mean=4.445, Std. Dev.=0.3465, n=15. Normality test: Shapiro Wilk @alpha = 0.05, calculated = 0.8974, critical = 0.881. Kappa = 2.115 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.00188. Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Intrawell Non-parametric, SP-5R (bg)



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 28 background values. Well-constituent pair annual alpha = 0.004669. Individual comparison alpha = 0.002337 (1 of 2). Assumes 1 future value.

Constituent: Calcium Analysis Run 1/16/2025 11:58 AM View: Intrawell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE F
Upgradient Well Trend Tests

Trend Tests - Upgradient Wells - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/15/2025, 12:08 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**SP-4 (bg)**	**-0.01186**	**-213**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**SP-5R (bg)**	**-0.007589**	**-179**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	**SP-5R (bg)**	**24.41**	**146**	**118**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**SP-4 (bg)**	**3.611**	**63**	**53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids [TDS] (mg/L)	**SP-5R (bg)**	**27.16**	**125**	**124**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.01**	**NP**

Trend Tests - Upgradient Wells - All Results

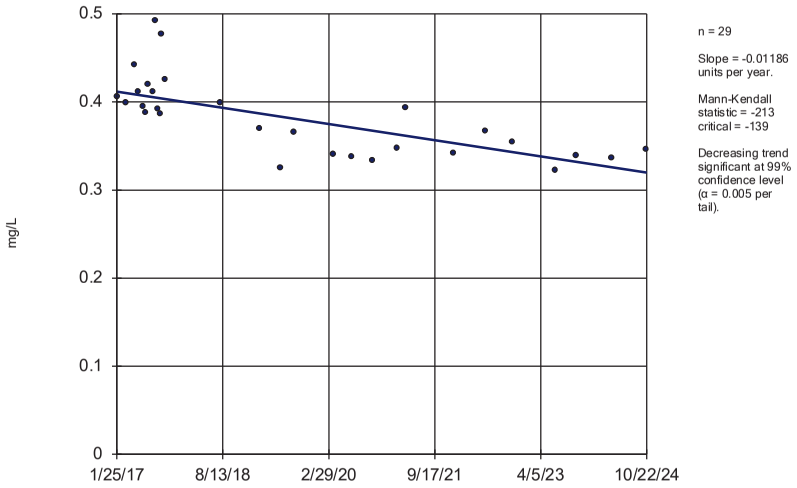
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/15/2025, 12:08 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**SP-4 (bg)**	**-0.01186**	**-213**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**SP-5R (bg)**	**-0.007589**	**-179**	**-139**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	SP-4 (bg)	-0.5818	-24	-124	No	27	0	n/a	n/a	0.01	NP
Chloride (mg/L)	**SP-5R (bg)**	**24.41**	**146**	**118**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Fluoride (mg/L)	SP-4 (bg)	0	-2	-146	No	30	3.333	n/a	n/a	0.01	NP
Fluoride (mg/L)	SP-5R (bg)	0.002319	9	146	No	30	0	n/a	n/a	0.01	NP
pH, field (SU)	SP-4 (bg)	-0.008935	-13	-131	No	28	0	n/a	n/a	0.01	NP
pH, field (SU)	SP-5R (bg)	-0.05129	-77	-131	No	28	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**SP-4 (bg)**	**3.611**	**63**	**53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	SP-5R (bg)	0.06996	1	53	No	15	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	SP-4 (bg)	1.836	27	131	No	28	0	n/a	n/a	0.01	NP
Total Dissolved Solids [TDS] (mg/L)	**SP-5R (bg)**	**27.16**	**125**	**124**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.01**	**NP**

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Sen's Slope Estimator

SP-4 (bg)



n = 29

Slope = -0.01186 units per year.

Mann-Kendall statistic = -213
critical = -139

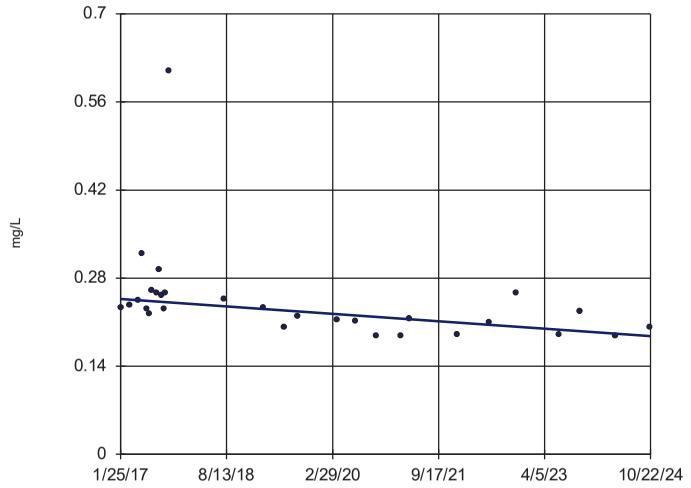
Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 29

Slope = -0.007589 units per year.

Mann-Kendall statistic = -179
critical = -139

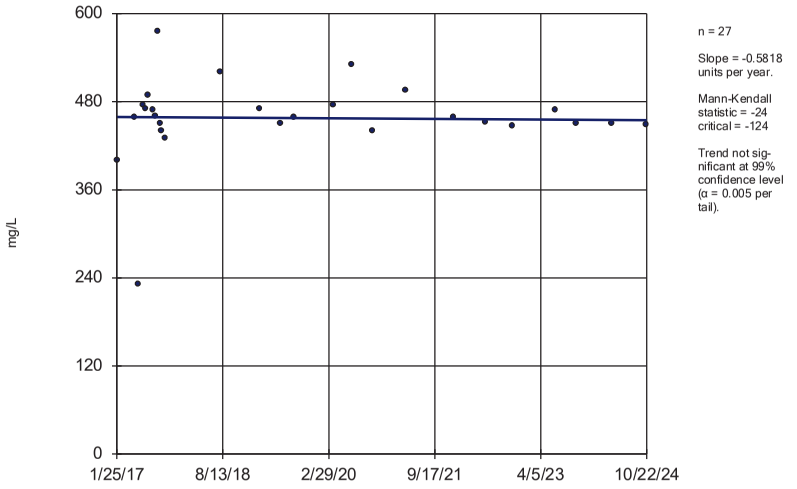
Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 27

Slope = -0.5818 units per year.

Mann-Kendall statistic = -24
critical = -124

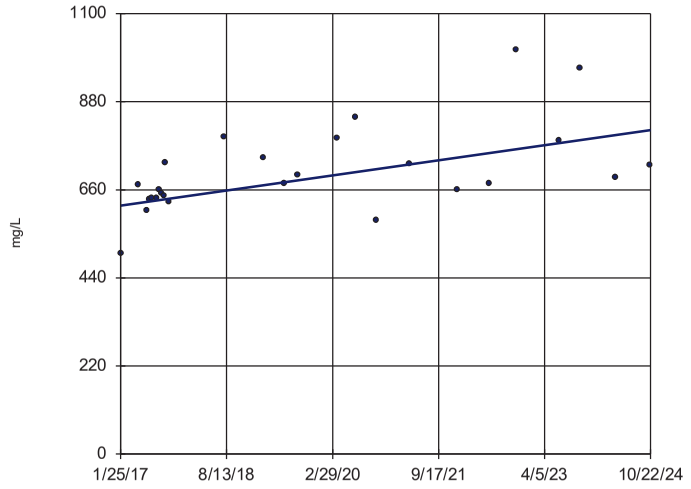
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 26

Slope = 24.41 units per year.

Mann-Kendall statistic = 146
critical = 118

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

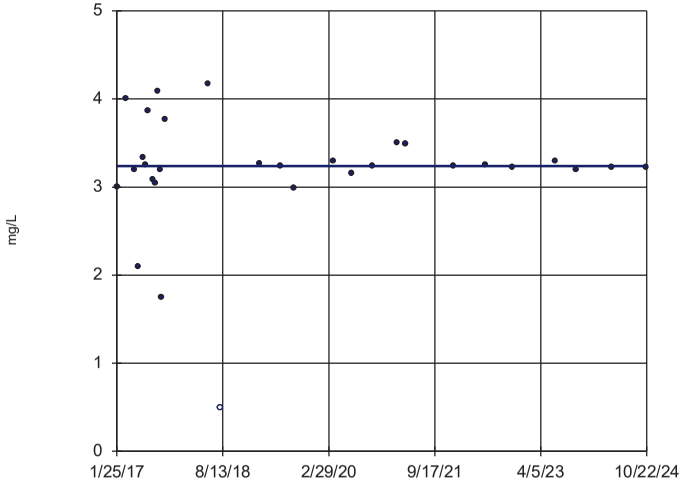
Constituent: Chloride Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-4 (bg)



n = 30

Slope = 0 units per year.

Mann-Kendall statistic = -2
critical = -146

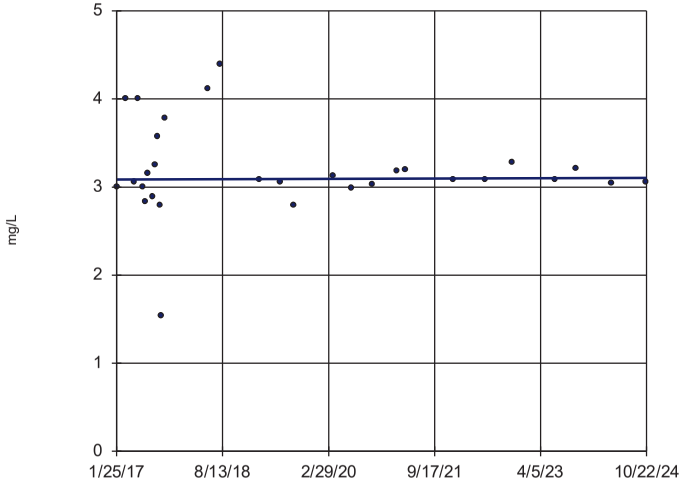
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Fluoride Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = 0.002319 units per year.

Mann-Kendall statistic = 9
critical = 146

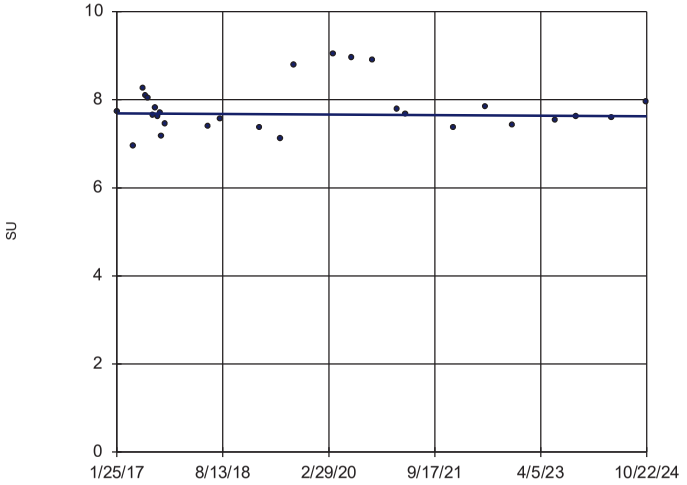
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Fluoride Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 28

Slope = -0.008935 units per year.

Mann-Kendall statistic = -13
critical = -131

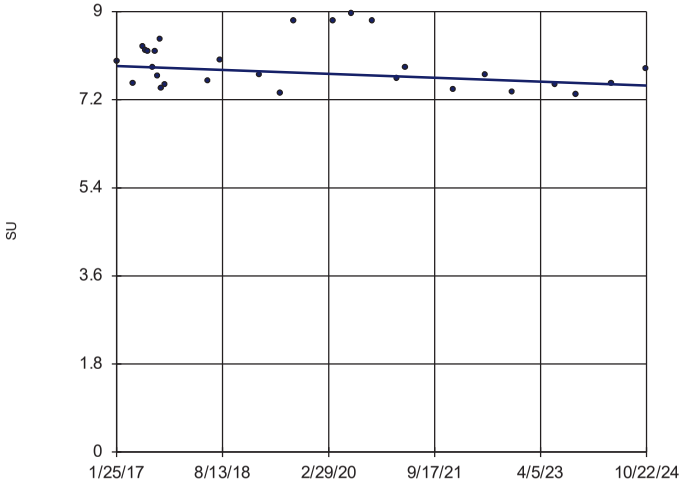
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 28

Slope = -0.05129 units per year.

Mann-Kendall statistic = -77
critical = -131

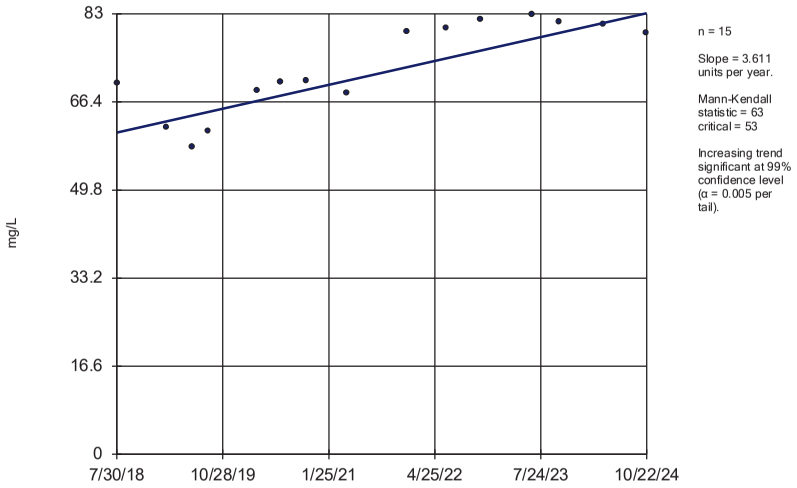
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH, field Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 15

Slope = 3.611 units per year.

Mann-Kendall statistic = 63
critical = 53

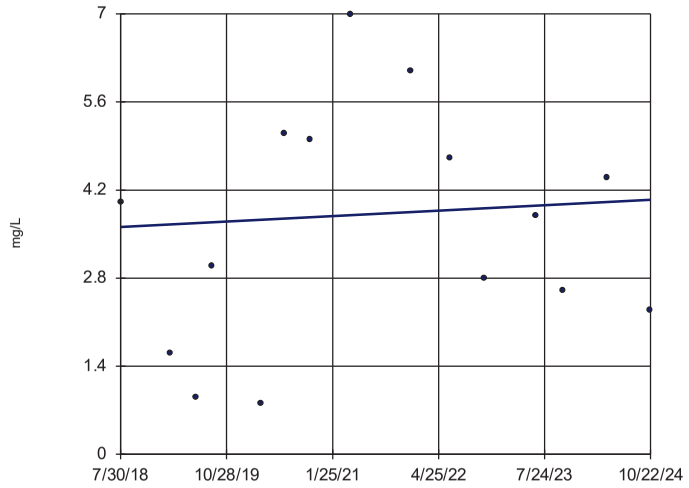
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 15

Slope = 0.06996 units per year.

Mann-Kendall statistic = 1
critical = 53

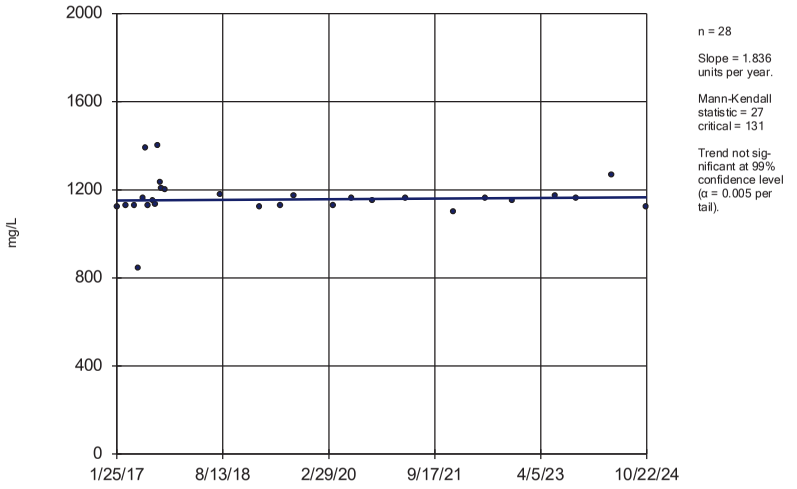
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 28

Slope = 1.836 units per year.

Mann-Kendall statistic = 27
critical = 131

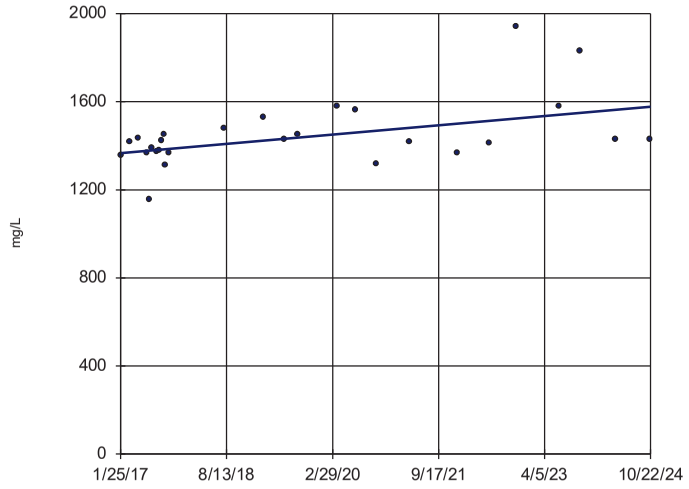
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 27

Slope = 27.16 units per year.

Mann-Kendall statistic = 125
critical = 124

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

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/15/2025 12:06 PM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE G

Interwell PLs

Interwell Prediction Limits - All Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/17/2025, 11:41 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	n/a	0.4906	n/a	n/a	4 future	n/a	58	0.5525	0.08283	0	None	sqrt(x)	0.00188	Param Inter 1 of 2
Chloride (mg/L)	n/a	1010	n/a	n/a	4 future	n/a	53	n/a	n/a	0	n/a	n/a	0.0006789	NP Inter (normality) 1 of 2
Fluoride (mg/L)	n/a	4.39	n/a	n/a	4 future	n/a	60	n/a	n/a	1.667	n/a	n/a	0.0005243	NP Inter (normality) 1 of 2
pH, field (SU)	n/a	9.05	6.96	n/a	4 future	n/a	56	n/a	n/a	0	n/a	n/a	0.001225	NP Inter (normality) 1 of 2
Sulfate (mg/L)	n/a	83	n/a	n/a	4 future	n/a	30	n/a	n/a	0	n/a	n/a	0.001957	NP Inter (normality) 1 of 2
Total Dissolved Solids [TDS] (mg/L)	n/a	1940	n/a	n/a	4 future	n/a	55	n/a	n/a	0	n/a	n/a	0.0006347	NP Inter (normality) 1 of 2

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Prediction Limit

Interwell Parametric



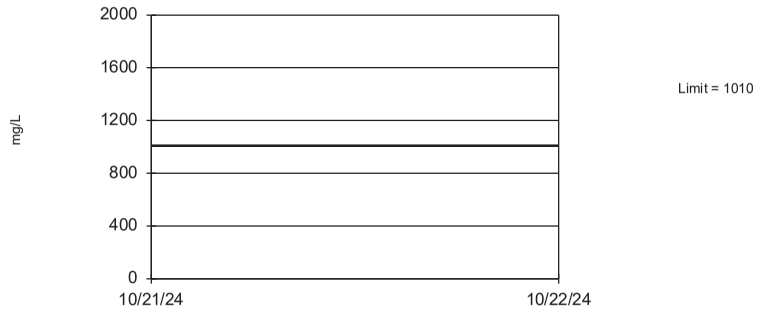
Background Data Summary (based on square root transformation): Mean=0.5525, Std. Dev.=0.08283, n=58. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9479, critical = 0.944. Kappa = 1.786 (c=7, w=4, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.00188. Assumes 4 future values.

Constituent: Boron Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Prediction Limit

Interwell Non-parametric



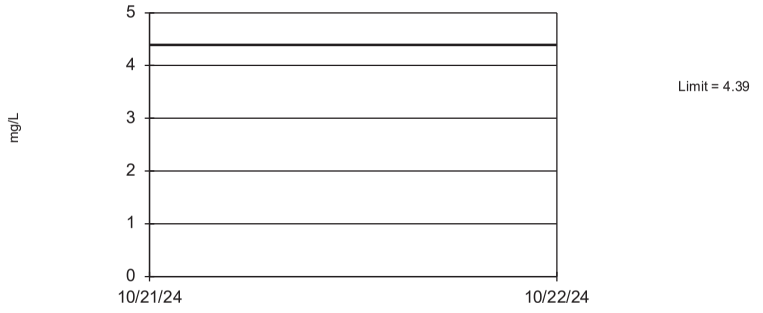
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 53 background values. Annual per-constituent alpha = 0.005418. Individual comparison alpha = 0.0006789 (1 of 2). Assumes 4 future values.

Constituent: Chloride Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Prediction Limit

Interwell Non-parametric



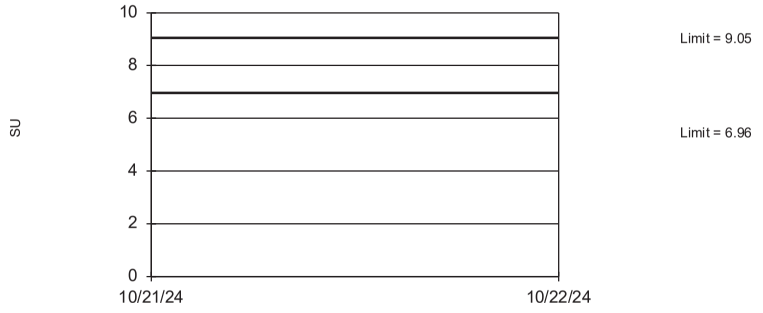
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 60 background values. 1.667% NDs. Annual per-constituent alpha = 0.004187. Individual comparison alpha = 0.0005243 (1 of 2). Assumes 4 future values.

Constituent: Fluoride Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Prediction Limit

Interwell Non-parametric



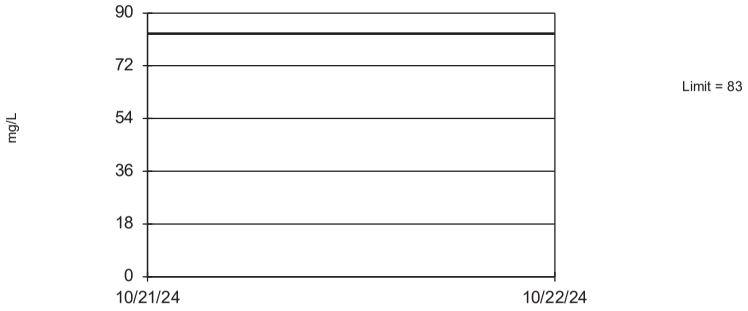
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 56 background values. Annual per-constituent alpha = 0.009781. Individual comparison alpha = 0.001225 (1 of 2). Assumes 4 future values.

Constituent: pH, field Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Prediction Limit

Interwell Non-parametric



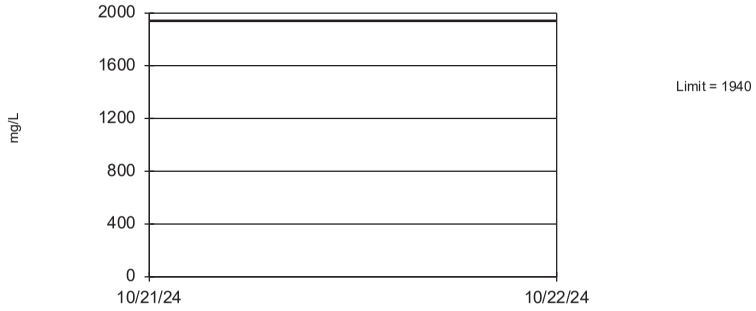
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. Annual per-constituent alpha = 0.01555. Individual comparison alpha = 0.001957 (1 of 2). Assumes 4 future values.

Constituent: Sulfate Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 55 background values. Annual per-constituent alpha = 0.005067. Individual comparison alpha = 0.0006347 (1 of 2). Assumes 4 future values.

Constituent: Total Dissolved Solids [TDS] Analysis Run 1/17/2025 11:39 AM View: Interwell
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE H

UTLs

Upper Tolerance Limits Summary Table

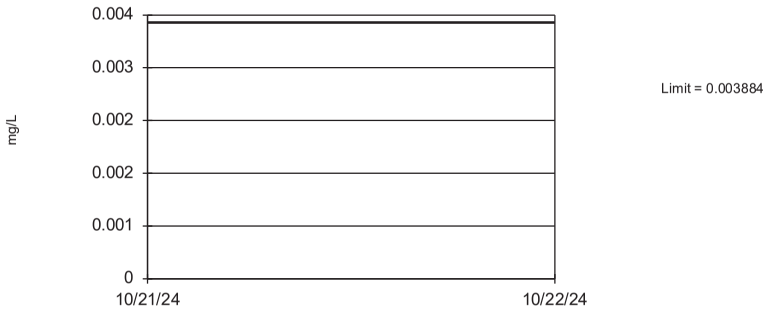
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:29 PM

Constituent	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	0.003884	n/a	n/a	n/a	n/a	58	29.31	ln(x)	0.05	Inter
Arsenic (mg/L)	0.0599	n/a	n/a	n/a	n/a	57	5.263	n/a	0.05373	NP Inter(normality)
Barium (mg/L)	2.77	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Beryllium (mg/L)	0.00212	n/a	n/a	n/a	n/a	57	17.54	n/a	0.05373	NP Inter(normality)
Cadmium (mg/L)	0.000168	n/a	n/a	n/a	n/a	34	17.65	ln(x)	0.05	Inter
Chromium (mg/L)	0.00339	n/a	n/a	n/a	n/a	46	10.87	ln(x)	0.05	Inter
Cobalt (mg/L)	0.01786	n/a	n/a	n/a	n/a	57	8.772	n/a	0.05373	NP Inter(normality)
Combined Radium 226 + 228 (pCi/L)	19.05	n/a	n/a	n/a	n/a	57	0	sqrt(x)	0.05	Inter
Fluoride (mg/L)	4.39	n/a	n/a	n/a	n/a	60	1.667	n/a	0.04607	NP Inter(normality)
Lead (mg/L)	0.008571	n/a	n/a	n/a	n/a	57	22.81	ln(x)	0.05	Inter
Lithium (mg/L)	0.163	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Mercury (mg/L)	0.00003	n/a	n/a	n/a	n/a	57	77.19	n/a	0.05373	NP Inter(NDs)
Molybdenum (mg/L)	0.01	n/a	n/a	n/a	n/a	58	29.31	n/a	0.05105	NP Inter(normality)
Selenium (mg/L)	0.00499	n/a	n/a	n/a	n/a	46	26.09	n/a	0.09447	NP Inter(normality)
Thallium (mg/L)	0.00162	n/a	n/a	n/a	n/a	34	76.47	n/a	0.1748	NP Inter(NDs)

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Tolerance Limit

Interwell Parametric



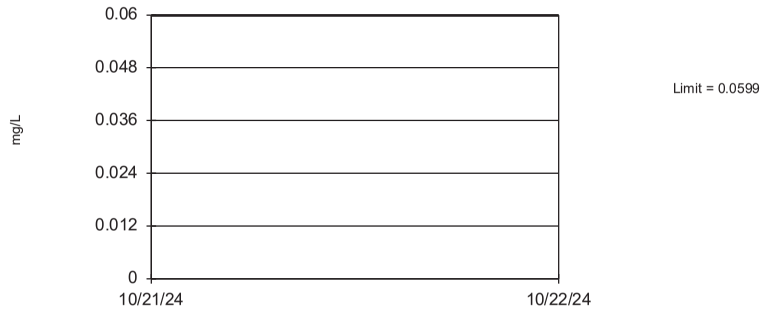
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-8.101, Std. Dev.=1.259, n=58, 29.31% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9551, critical = 0.944. Report alpha = 0.05.

Constituent: Antimony Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



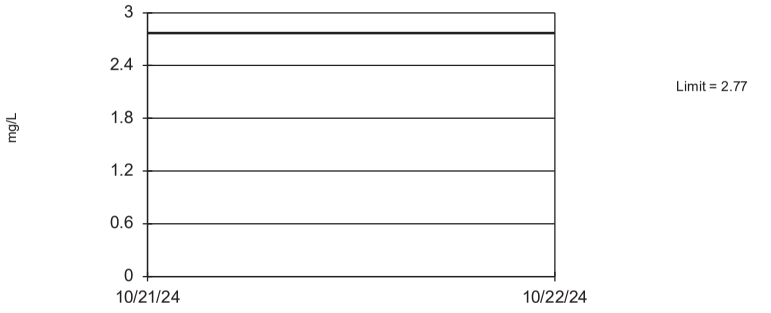
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 5.263% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Arsenic Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



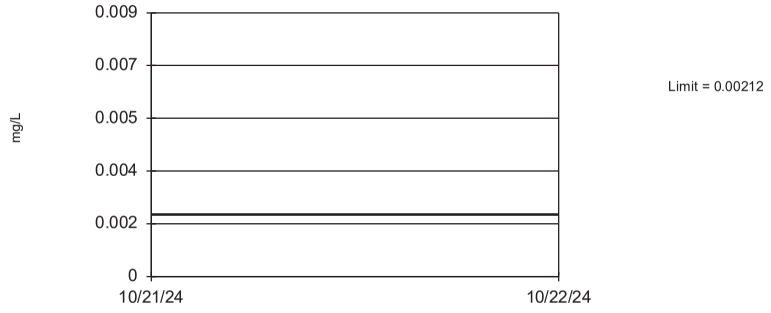
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Barium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



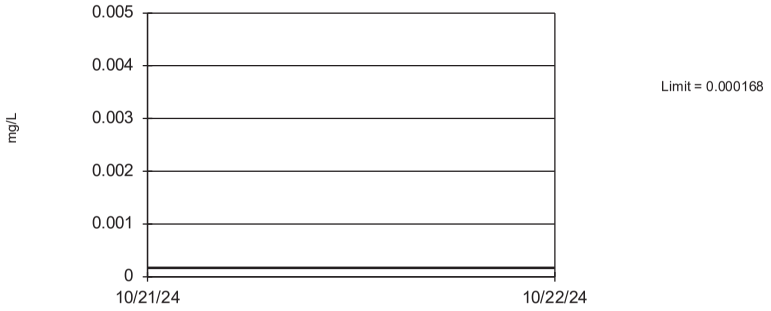
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 17.54% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Beryllium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



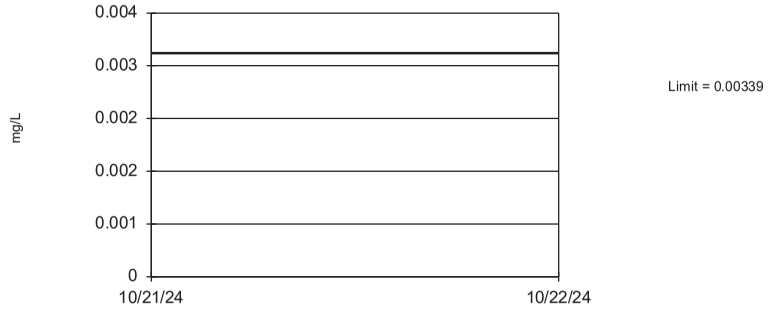
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-10.33, Std. Dev.=0.7505, n=34, 17.65% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9488, critical = 0.908. Report alpha = 0.05.

Constituent: Cadmium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



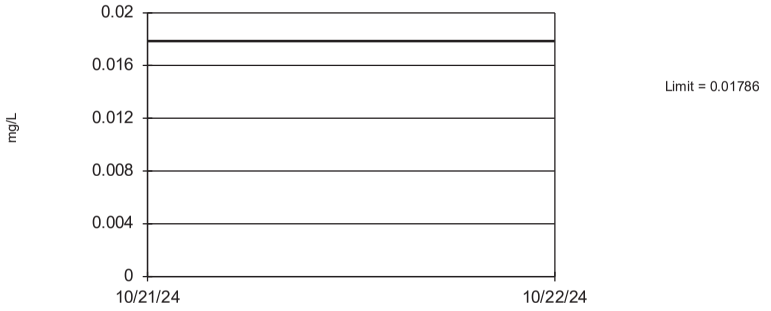
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.303, Std. Dev.=0.7743, n=46, 10.87% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9536, critical = 0.927. Report alpha = 0.05.

Constituent: Chromium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



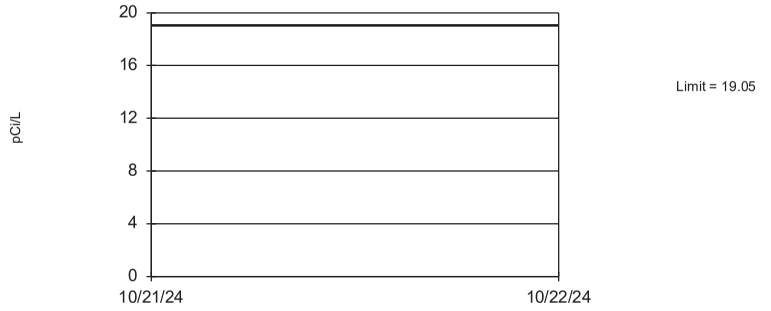
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 8.772% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Cobalt Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=2.801, Std. Dev.=0.7708, n=57. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.947, critical = 0.944. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



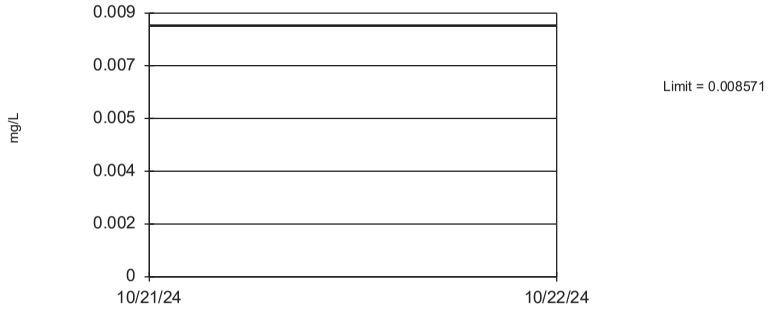
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 60 background values. 1.667% NDs. 92.77% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.04607.

Constituent: Fluoride Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



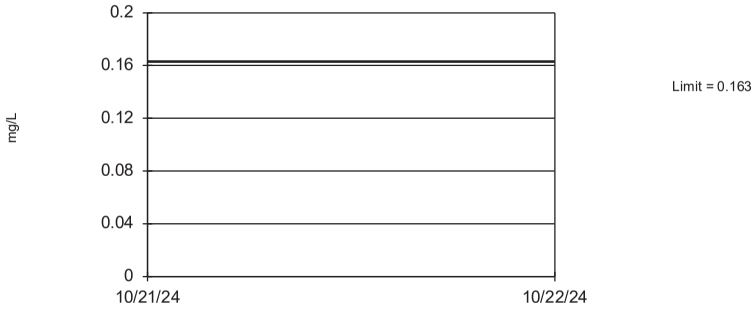
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-7.232, Std. Dev.=1.219, n=57, 22.81% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9454, critical = 0.944. Report alpha = 0.05.

Constituent: Lead Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



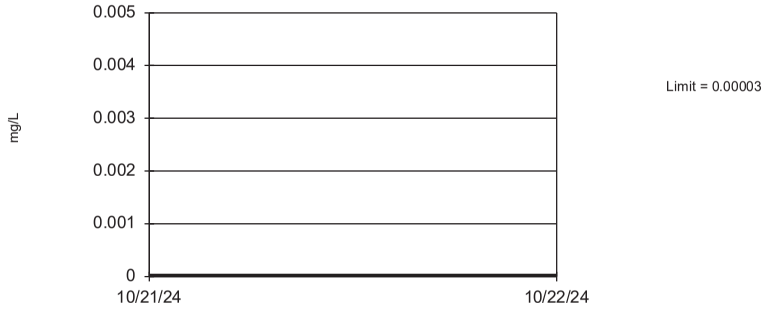
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Lithium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



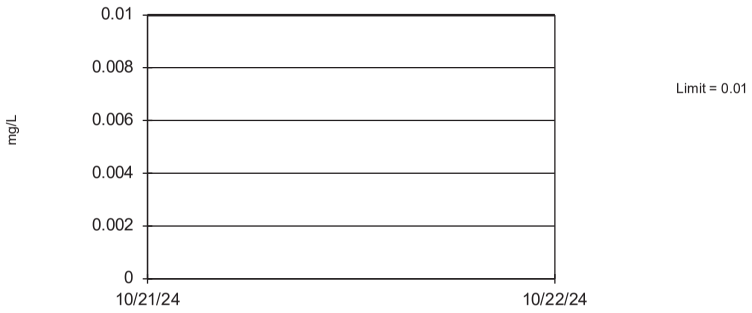
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 57 background values. 77.19% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Mercury Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 58 background values. 29.31% NDs. 92.38% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05105.

Constituent: Molybdenum Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



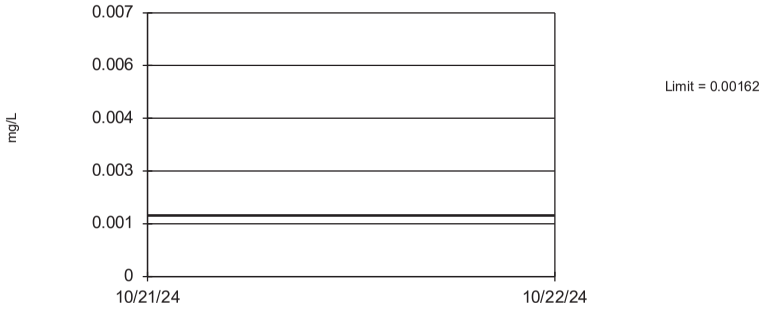
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 26.09% NDs. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Selenium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 34 background values. 76.47% NDs. 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: Thallium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE I

GWPS

NORTHEASTERN BAP GWPS				
Constituent Name	**MCL**	**CCR- Rule Specified Level**	**Background Limit**	**GWPS**
Antimony, Total (mg/L)	0.006		0.0039	0.006
Arsenic, Total (mg/L)	0.01		0.06	0.06
Barium, Total (mg/L)	2		2.77	2.77
Beryllium, Total (mg/L)	0.004		0.0021	0.004
Cadmium, Total (mg/L)	0.005		0.00017	0.005
Chromium, Total (mg/L)	0.1		0.0034	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.018	0.018
Combined Radium, Total (pCi/L)	5		19.05	19.05
Fluoride, Total (mg/L)	4		4.39	4.39
Lead, Total (mg/L)	n/a	0.015	0.0086	0.015
Lithium, Total (mg/L)	n/a	0.04	0.16	0.16
Mercury, Total (mg/L)	0.002		0.00003	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.0016	0.002

**Grey cell indicates Background Limit is higher than MCL*

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

FIGURE J
Confidence Intervals

Confidence Intervals - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/23/2025, 12:00 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Barium (mg/L)	**SP-10**	**6.326**	**4.412**	**2.77**	**Yes**	**18**	**1.582**	**0**	**None**	**No**	**0.01**	**Param.**
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**28**	**2.203**	**10.71**	**None**	**No**	**0.01**	**NP (normality)**
Lithium (mg/L)	**SP-10**	**0.2749**	**0.2377**	**0.16**	**Yes**	**26**	**0.03821**	**0**	**None**	**No**	**0.01**	**Param.**

Confidence Intervals - All Results

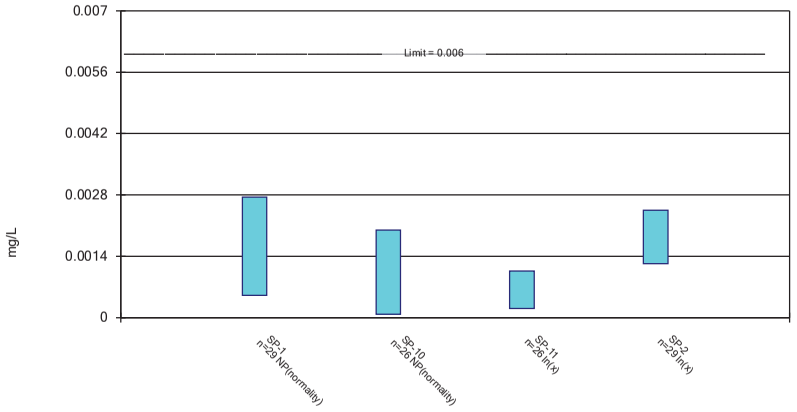
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/23/2025, 12:00 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	SP-1	0.00275	0.00051	0.006	No	29	0.002098	24.14	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-10	0.002	0.00008	0.006	No	26	0.001883	15.38	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-11	0.001064	0.000209	0.006	No	26	0.002733	11.54	None	ln(x)	0.01	Param.
Antimony (mg/L)	SP-2	0.002448	0.00123	0.006	No	29	0.002428	6.897	None	ln(x)	0.01	Param.
Arsenic (mg/L)	SP-1	0.00211	0.00065	0.06	No	29	0.002012	27.59	None	No	0.01	NP (normality)
Arsenic (mg/L)	SP-10	0.004194	0.001017	0.06	No	26	0.004274	7.692	None	sqrt(x)	0.01	Param.
Arsenic (mg/L)	SP-11	0.004631	0.002321	0.06	No	26	0.002781	3.846	None	sqrt(x)	0.01	Param.
Arsenic (mg/L)	SP-2	0.0025	0.00121	0.06	No	29	0.002392	3.448	None	No	0.01	NP (normality)
Barium (mg/L)	SP-1	0.1938	0.1607	2.77	No	29	0.03816	0	None	sqrt(x)	0.01	Param.
Barium (mg/L)	**SP-10**	**6.326**	**4.412**	**2.77**	**Yes**	**18**	**1.582**	**0**	**None**	**No**	**0.01**	**Param.**
Barium (mg/L)	SP-11	0.3836	0.1935	2.77	No	18	0.1661	0	None	sqrt(x)	0.01	Param.
Barium (mg/L)	SP-2	1.324	0.9849	2.77	No	29	0.475	0	None	ln(x)	0.01	Param.
Beryllium (mg/L)	SP-1	0.00014	0.000053	0.004	No	29	0.0003543	17.24	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-10	0.000121	0.00003	0.004	No	26	0.001113	26.92	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-11	0.00025	0.000027	0.004	No	26	0.0001312	26.92	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-2	0.000131	0.00007	0.004	No	29	0.0001481	13.79	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-1	0.0001	0.000051	0.005	No	18	0.0001147	11.11	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-10	0.000089	0.00001	0.005	No	18	0.00007053	16.67	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-11	0.00015	0.00002	0.005	No	26	0.0008961	15.38	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-2	0.0005	0.00006	0.005	No	29	0.0002059	34.48	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-1	0.001061	0.0005494	0.1	No	29	0.0006508	20.69	Kaplan-Meier	sqrt(x)	0.01	Param.
Chromium (mg/L)	SP-10	0.0008684	0.0003241	0.1	No	25	0.001724	8	None	ln(x)	0.01	Param.
Chromium (mg/L)	SP-11	0.00276	0.00043	0.1	No	26	0.01019	3.846	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-2	0.001308	0.0005807	0.1	No	29	0.001051	10.34	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-1	0.001088	0.000462	0.018	No	29	0.001077	10.34	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-10	0.001461	0.0003114	0.018	No	26	0.001748	7.692	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-11	0.003912	0.001157	0.018	No	26	0.004342	3.846	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-2	0.0008923	0.0004406	0.018	No	29	0.0007382	10.34	None	ln(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-1	4.394	3.235	19.05	No	28	1.241	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-10	20.11	3.226	19.05	No	26	8.781	0	None	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SP-11	2.377	1.215	19.05	No	25	1.379	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-2	13.28	8.587	19.05	No	26	5.296	0	None	sqrt(x)	0.01	Param.
Fluoride (mg/L)	SP-1	0.935	0.7124	4.39	No	29	0.2428	6.897	None	No	0.01	Param.
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**28**	**2.203**	**10.71**	**None**	**No**	**0.01**	**NP (normality)**
Fluoride (mg/L)	SP-11	3.059	2.146	4.39	No	28	0.9765	0	None	No	0.01	Param.
Fluoride (mg/L)	SP-2	3.02	2.7	4.39	No	30	0.54	0	None	No	0.01	NP (normality)
Lead (mg/L)	SP-1	0.00247	0.000254	0.015	No	29	0.00204	27.59	None	No	0.01	NP (normality)
Lead (mg/L)	SP-10	0.0003	0.00008	0.015	No	18	0.0002935	11.11	None	No	0.01	NP (normality)
Lead (mg/L)	SP-11	0.001266	0.0002946	0.015	No	26	0.002574	11.54	None	ln(x)	0.01	Param.
Lead (mg/L)	SP-2	0.00202	0.000245	0.015	No	29	0.002158	31.03	None	No	0.01	NP (normality)
Lithium (mg/L)	SP-1	0.006385	0.004908	0.16	No	28	0.001581	0	None	No	0.01	Param.
Lithium (mg/L)	**SP-10**	**0.2749**	**0.2377**	**0.16**	**Yes**	**26**	**0.03821**	**0**	**None**	**No**	**0.01**	**Param.**
Lithium (mg/L)	SP-11	0.03755	0.02179	0.16	No	18	0.01302	0	None	No	0.01	Param.
Lithium (mg/L)	SP-2	0.07867	0.05473	0.16	No	29	0.02613	0	None	No	0.01	Param.
Mercury (mg/L)	SP-1	0.000009	0.000005	0.002	No	29	0.000003566	82.76	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-10	0.000013	0.000005	0.002	No	26	0.000006974	61.54	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-11	0.000009	0.000005	0.002	No	26	0.0000122	50	None	No	0.01	NP (normality)
Mercury (mg/L)	SP-2	0.000005	0.000005	0.002	No	29	0.000001678	86.21	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	SP-1	0.01685	0.01179	0.1	No	29	0.00553	0	None	No	0.01	Param.
Molybdenum (mg/L)	SP-10	0.01503	0.002287	0.1	No	25	0.02693	4	None	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	SP-11	0.04214	0.0018	0.1	No	26	0.02272	3.846	None	No	0.01	NP (normality)
Molybdenum (mg/L)	SP-2	0.02297	0.01706	0.1	No	18	0.004885	0	None	No	0.01	Param.
Selenium (mg/L)	SP-1	0.006814	0.004125	0.05	No	29	0.003287	10.34	None	sqrt(x)	0.01	Param.
Selenium (mg/L)	SP-10	0.0005988	0.000101	0.05	No	26	0.002081	38.46	Kaplan-Meier	ln(x)	0.01	Param.
Selenium (mg/L)	SP-11	0.001207	0.0003145	0.05	No	26	0.002213	7.692	None	ln(x)	0.01	Param.
Selenium (mg/L)	SP-2	0.004453	0.002041	0.05	No	18	0.002164	0	None	sqrt(x)	0.01	Param.
Thallium (mg/L)	SP-1	0.0005	0.00007	0.002	No	18	0.0004651	33.33	None	No	0.01	NP (normality)
Thallium (mg/L)	SP-10	0.0002	0.00004	0.002	No	18	0.00003771	94.44	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-11	0.0002	0.00003	0.002	No	18	0.00004007	94.44	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-2	0.0002	0.00005	0.002	No	18	0.0000763	50	None	No	0.01	NP (normality)

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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.

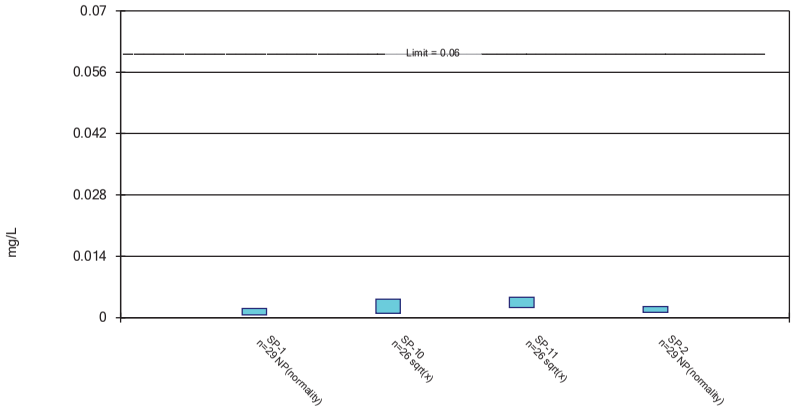


Constituent: Antimony Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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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.

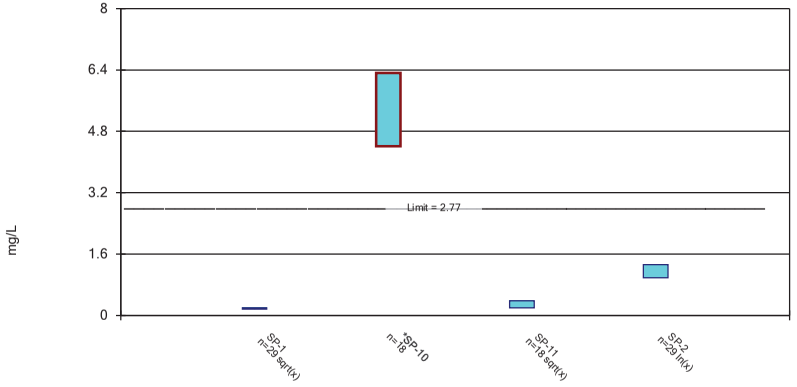


Constituent: Arsenic Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

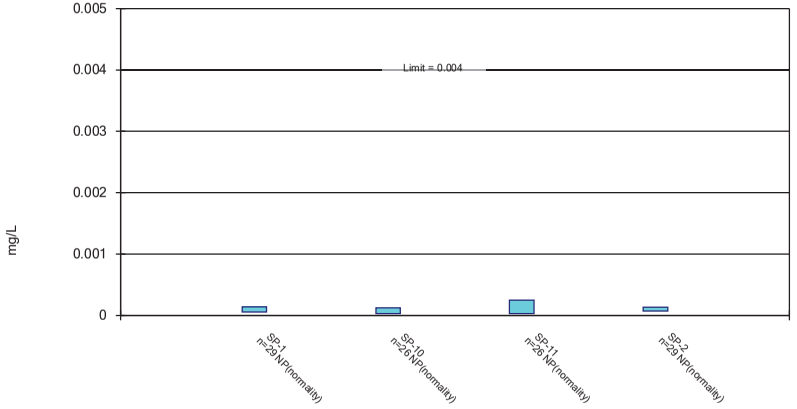


Constituent: Barium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Non-Parametric Confidence Interval

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

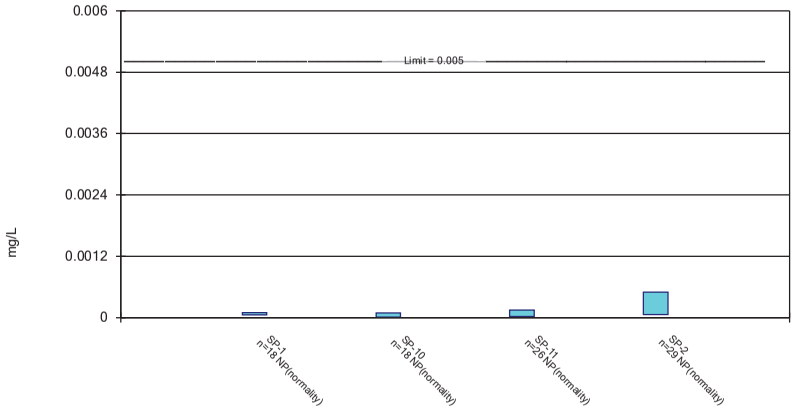


Constituent: Beryllium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Non-Parametric Confidence Interval

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

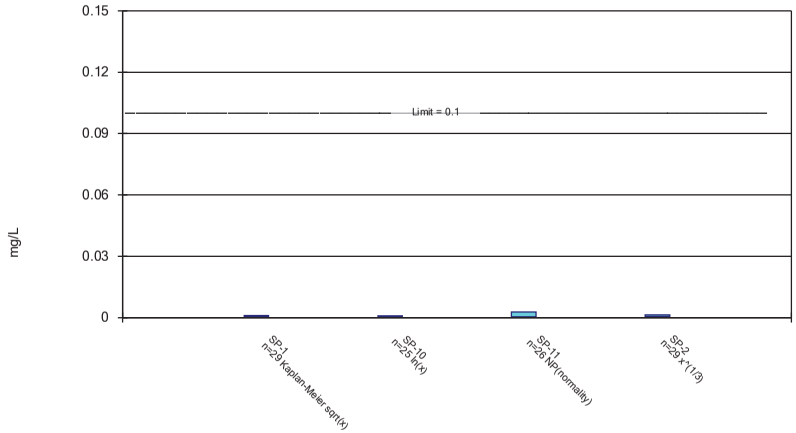


Constituent: Cadmium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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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.

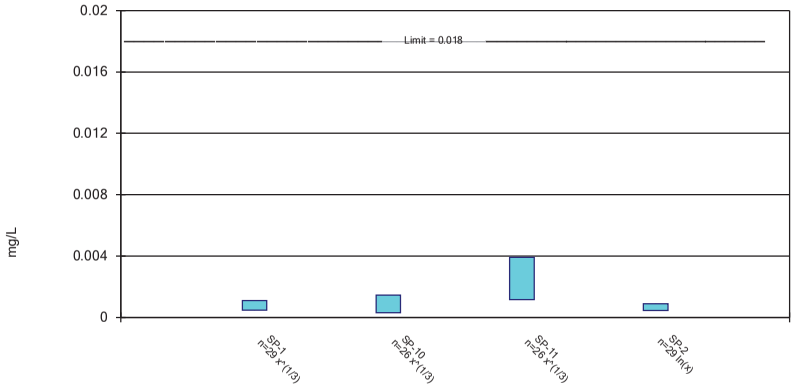


Constituent: Chromium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric Confidence Interval

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

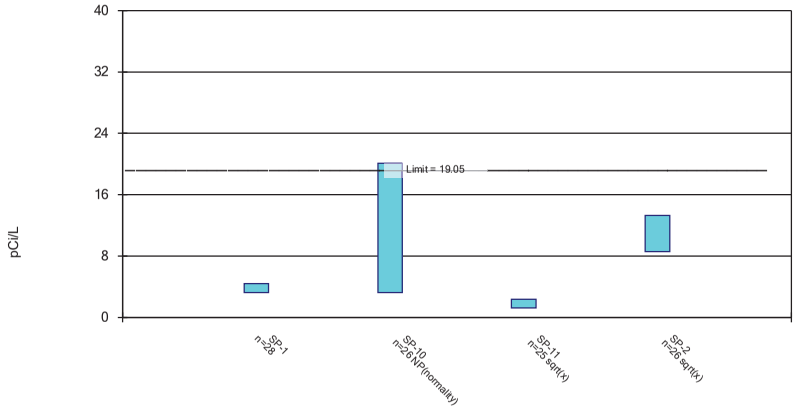


Constituent: Cobalt Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric and Non-Parametric (NP) Confidence Interval

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

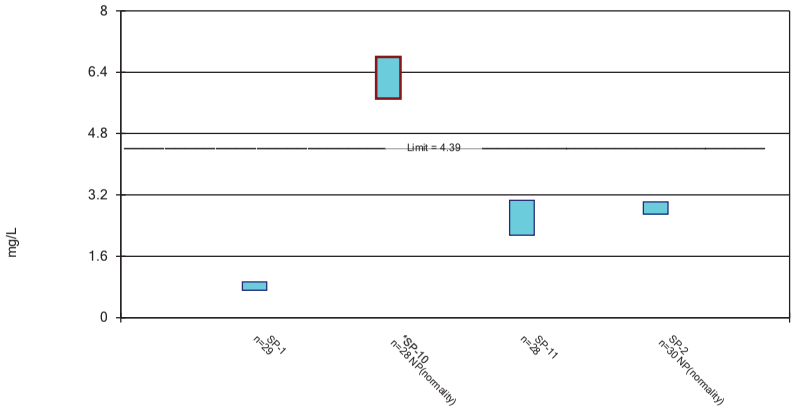


Constituent: Combined Radium 226 + 228 Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

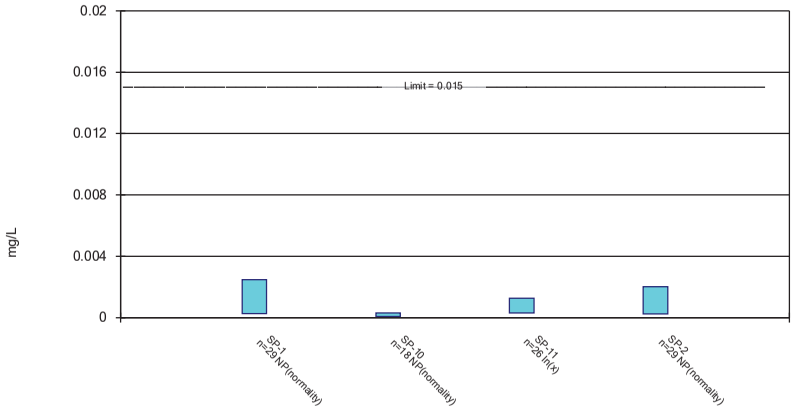


Constituent: Fluoride Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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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.

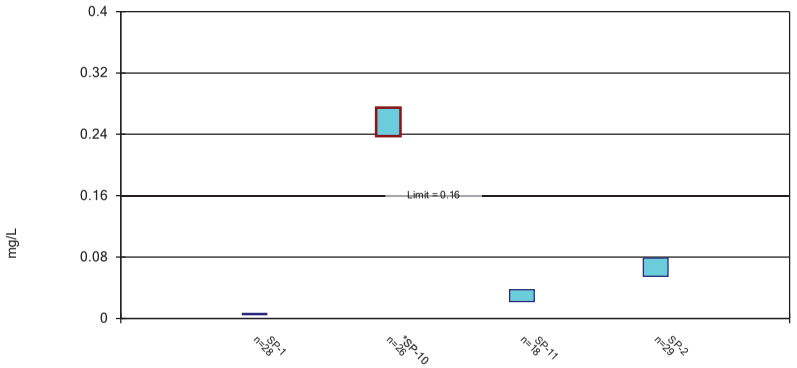


Constituent: Lead Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

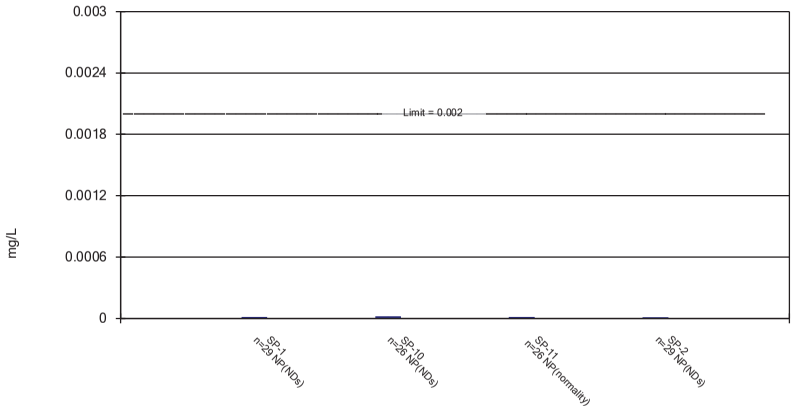


Constituent: Lithium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

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

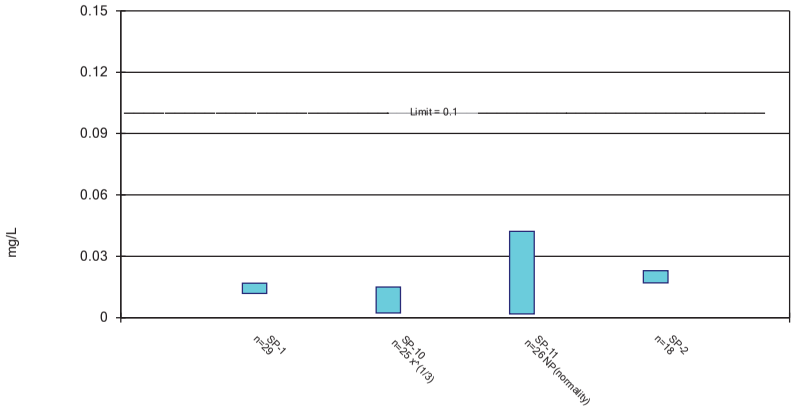


Constituent: Mercury Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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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.

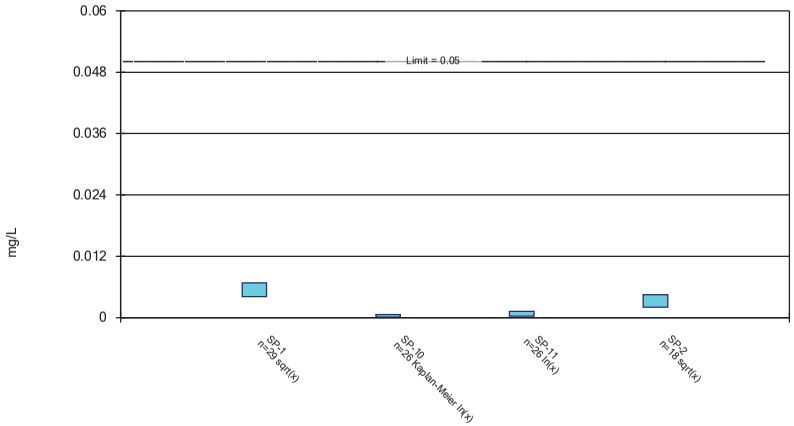


Constituent: Molybdenum Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Parametric Confidence Interval

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

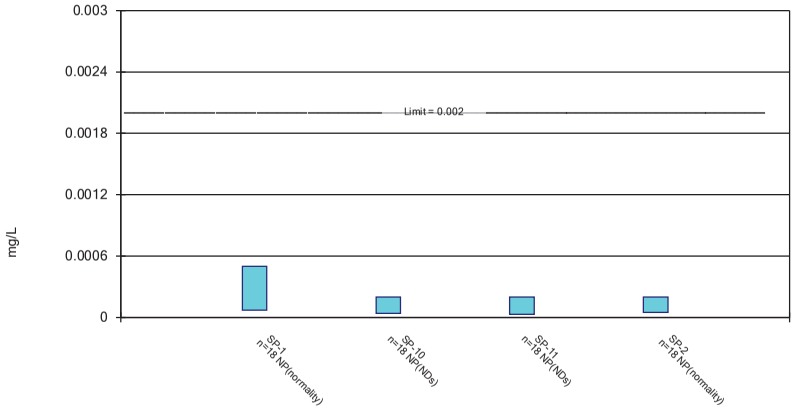


Constituent: Selenium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Non-Parametric Confidence Interval

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



Constituent: Thallium Analysis Run 1/23/2025 11:59 AM View: Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE K

Trend Tests – Confidence Interval Exceedances

Trend Tests - Confidence Interval Exceedances - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:46 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.5214**	**56**	**53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01687**	**-53**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.06168**	**150**	**106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-10**	**-0.0116**	**-150**	**-90**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001486**	**-65**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004706**	**-200**	**-106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**

Trend Tests - Confidence Interval Exceedances - All Results

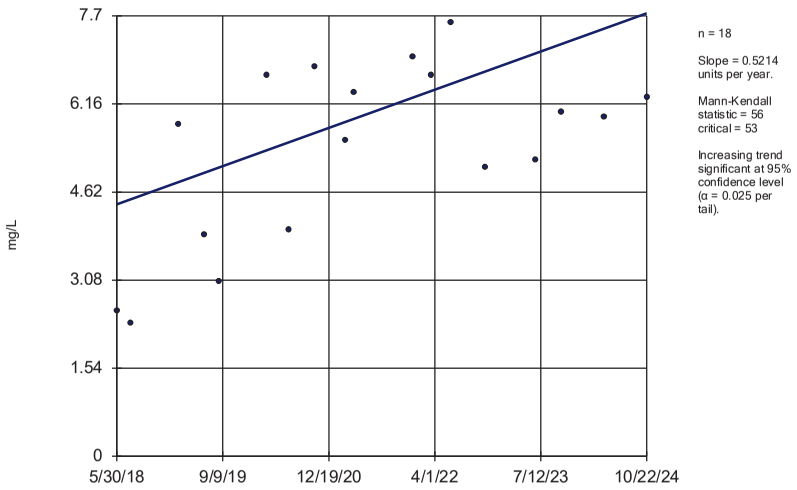
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:46 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.5214**	**56**	**53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01687**	**-53**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.06168**	**150**	**106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Fluoride (mg/L)	SP-10	0.1114	53	101	No	28	10.71	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-4 (bg)	0	-2	-112	No	30	3.333	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-5R (bg)	0.002319	9	112	No	30	0	n/a	n/a	0.05	NP
Lithium (mg/L)	**SP-10**	**-0.0116**	**-150**	**-90**	**Yes**	**26**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001486**	**-65**	**-49**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004706**	**-200**	**-106**	**Yes**	**29**	**0**	**n/a**	**n/a**	**0.05**	**NP**

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Sen's Slope Estimator

SP-10



n = 18

Slope = 0.5214 units per year.

Mann-Kendall statistic = 56
critical = 53

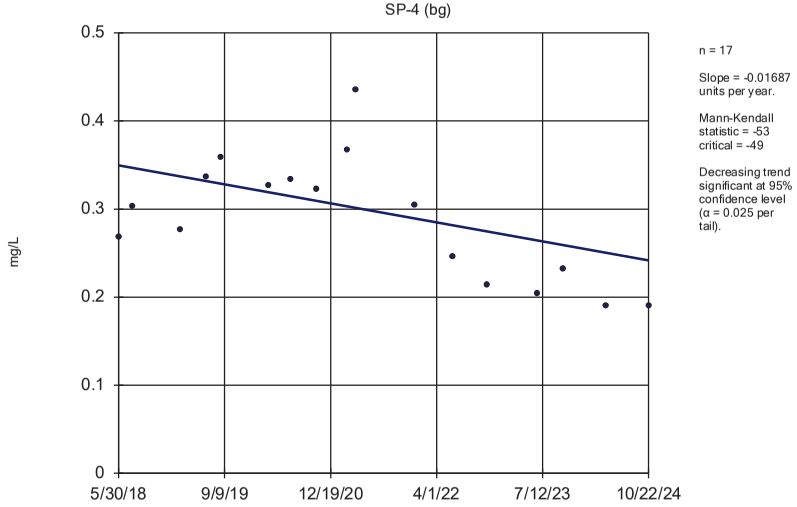
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-4 (bg)



n = 17

Slope = -0.01687 units per year.

Mann-Kendall statistic = -53
critical = -49

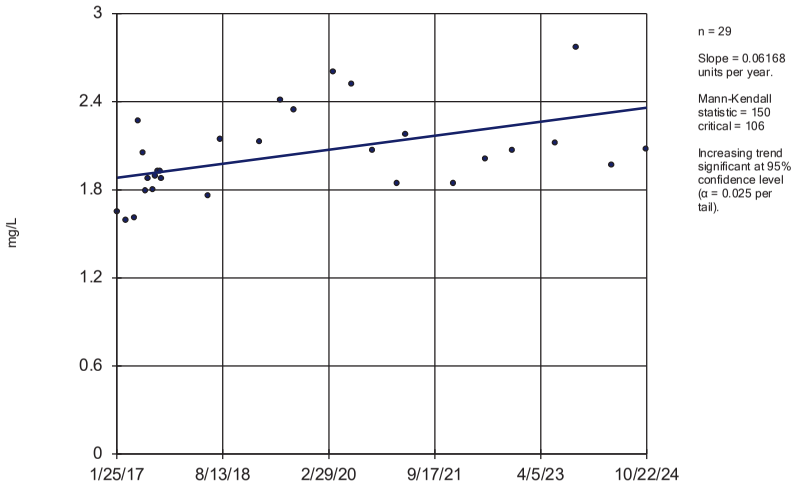
Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 29

Slope = 0.06168 units per year.

Mann-Kendall statistic = 150
critical = 106

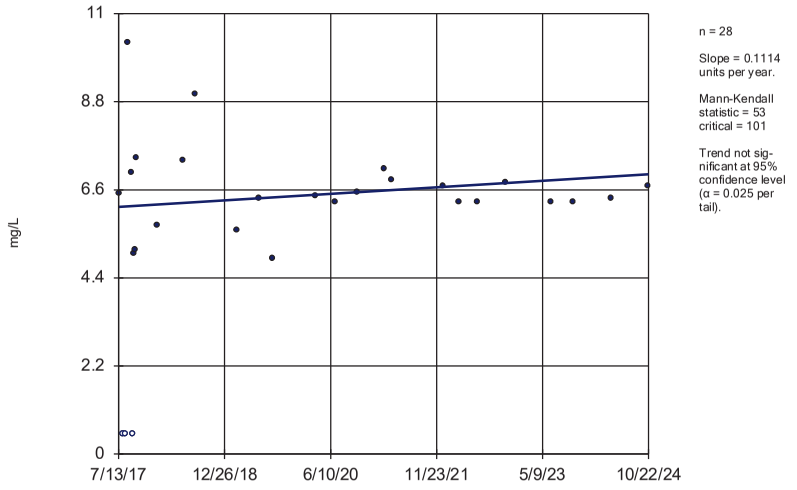
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-10



n = 28

Slope = 0.1114 units per year.

Mann-Kendall statistic = 53
critical = 101

Trend not significant at 95% confidence level (α = 0.025 per tail).

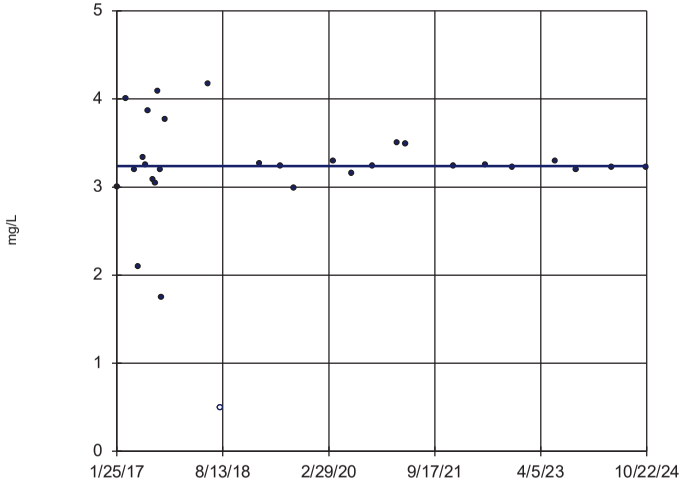
Constituent: Fluoride Analysis Run 1/14/2025 2:43 PM View: Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-4 (bg)



n = 30

Slope = 0 units per year.

Mann-Kendall statistic = -2
critical = -112

Trend not significant at 95% confidence level (α = 0.025 per tail).

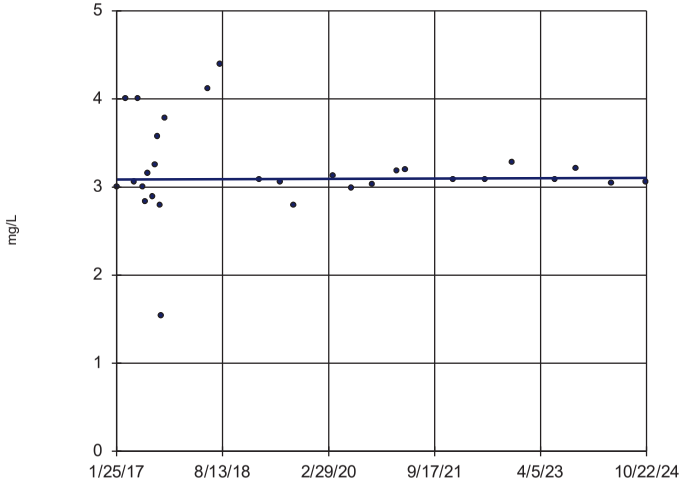
Constituent: Fluoride Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = 0.002319 units per year.

Mann-Kendall statistic = 9
critical = 112

Trend not significant at 95% confidence level (α = 0.025 per tail).

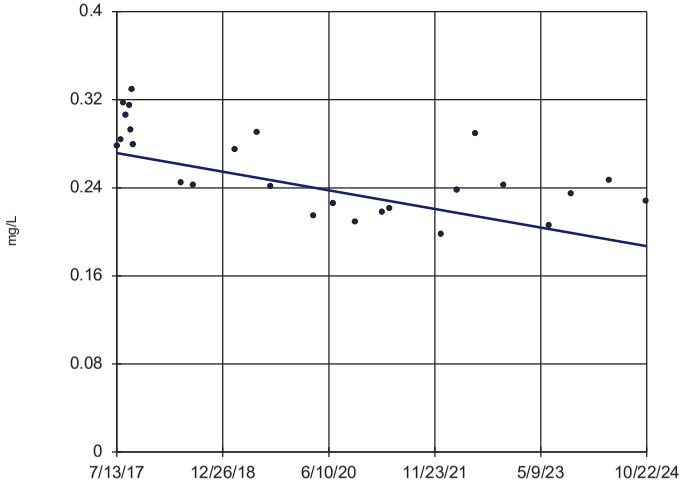
Constituent: Fluoride Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-10



n = 26

Slope = -0.0116 units per year.

Mann-Kendall statistic = -150
critical = -90

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

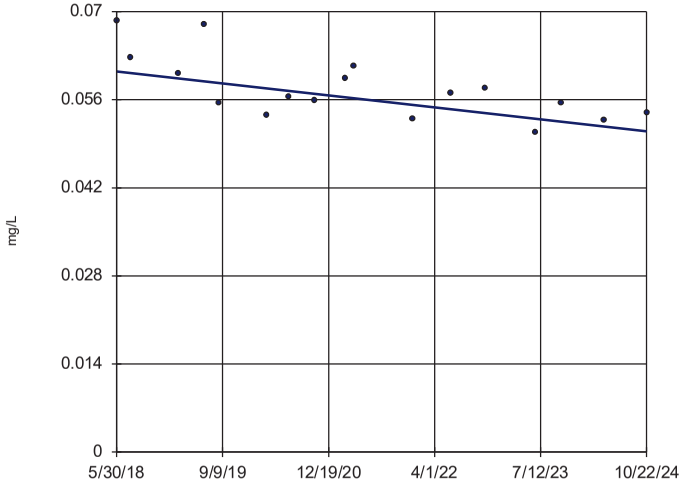
Constituent: Lithium Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.24 Software licensed to Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-4 (bg)



n = 17

Slope = -0.001486 units per year.

Mann-Kendall statistic = -65
critical = -49

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

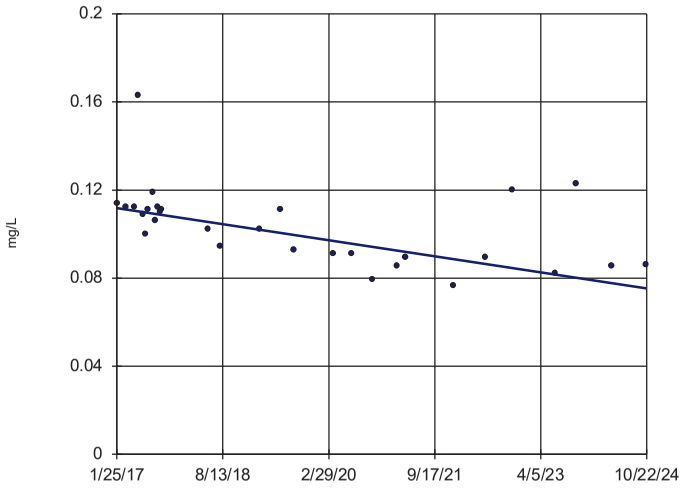
Constituent: Lithium Analysis Run 1/14/2025 2:43 PM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Sen's Slope Estimator

SP-5R (bg)



n = 29

Slope = -0.004706 units per year.

Mann-Kendall statistic = -200
critical = -106

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 1/14/2025 2:43 PM View: Trend Tests

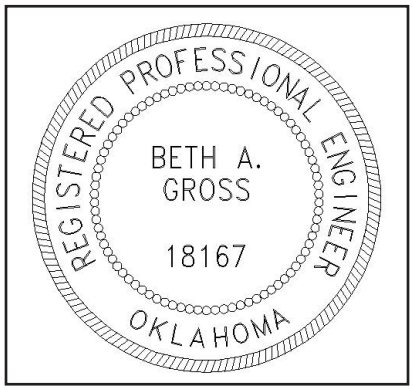
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

ATTACHMENT B

Certification by Qualified Professional Engineer

CERTIFICATION BY A QUALIFIED PROFESSIONAL ENGINEER

I certify that the above described alternative source demonstration is appropriate for evaluating the groundwater monitoring data for the Bottom Ash Pond CCR management area at the Northeastern Power Station and that the requirements of OAC 252:517-9-6(g)(3)(B) have been met.



Beth Ann Gross
Printed Name of Licensed Professional Engineer

Beth Ann Gross
Signature

Geosyntec Consultants
2039 Centre Pointe Boulevard, Suite 103
Tallahassee, Florida 32308

Oklahoma Firm Certificate of
Authorization No. 1996
Exp. 6/30/2026

18167	Oklahoma	5/28/2025
License Number	Licensing State	Date

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Memorandum

Date:	January 8, 2026
To:	Pryce Warren, American Electric Power (AEP)
From:	Beth Gross, PhD, PE (OK) and Allison Kreinberg, Geosyntec
Subject:	Alternative Source Demonstration Update – 1st Semiannual Event 2025 Northeastern Power Station Bottom Ash Pond Oologah, Rogers County, Oklahoma

The Bottom Ash Pond (BAP) is a regulated coal combustion residual (CCR) management unit at the Northeastern Power Station (NPS) in Oologah, Oklahoma. A semiannual assessment monitoring event was completed at the BAP on June 18, 2025, in accordance with the assessment monitoring requirements of Oklahoma Administrative Code (OAC) 252:517-9-6. Analysis of the June 2025 data identified statistically significant levels (SSLs) above the groundwater protection standards (GWPSs) for lithium, fluoride, and barium at SP-10 (**Attachment A**). The following SSLs were identified at the Northeastern BAP:

- The lower confidence limit (LCL) for lithium exceeded the GWPS of 0.163 milligrams per liter (mg/L) at SP-10 (0.235 mg/L).
- The LCL for fluoride exceeded the GWPS of 4.39 mg/L at SP-10 (5.71 mg/L).
- The LCL for barium exceeded the GWPS of 2.77 mg/L at SP-10 (4.50 mg/L).

Key analytical results for samples collected from the BAP and from SP-10 are provided in **Table 1**. As described in previous alternative source demonstrations (ASDs) (Geosyntec 2019, Geosyntec 2021a, Geosyntec 2021b, Geosyntec 2021c, Geosyntec 2022, Geosyntec 2023a, Geosyntec 2023b, Geosyntec 2023c, Geosyntec 2024a, Geosyntec 2024b, Geosyntec 2025), concentrations of lithium, fluoride, and barium in the BAP water (including pore water) and BAP sediments that are lower than concentrations observed at SP-10 suggest that the BAP is not the source of these exceedances. These previous ASDs demonstrate that the release of lithium from the clay minerals in the shale lens located at 46 feet below ground surface in the screened interval of SP-10 is the likely source of lithium in groundwater at that location. Analytical results suggest that naturally occurring barium and fluoride are also associated with the shale lenses and are contributing to aqueous barium and fluoride concentrations at SP-10.

The Oklahoma Department of Environmental Quality (DEQ) previously noted in a letter to the NPS dated June 4, 2021, that "[i]f lithium and fluoride continue to exceed their relative GWPS in

the future and conditions have not changed, NPS may refer to the October 29, 2019 ASD approval for lithium and this [June 4, 2021] approval for fluoride and continue assessment monitoring for the BAP in accordance with OAC 252:517-6(g)(3)(B)" (DEQ 2021). DEQ provided a similar letter to the NPS dated September 20, 2022, that indicated that the July 14, 2022 ASD "is applicable for the barium exceedance in SP-10 of the GWPS if conditions do not change. AEP may refer to the ASD approval for barium and continue assessment monitoring for the BAP in accordance with OAC 252:517-9-6(g)(3)(B)" (DEQ 2022). This ASD update presents an evaluation of the BAP for changing conditions that may affect previously approved ASDs for lithium, fluoride, and barium exceedances at SP-10.

The sample collected from the June 2025 monitoring event at SP-10 contained a lithium concentration of 0.184 mg/L, fluoride concentration of 6.8 mg/L, and barium concentration of 6.09 mg/L. The lithium concentration (**Figure 1**) and fluoride concentration (**Figure 2**) are consistent with previous results collected during the assessment monitoring period and continue to show no statistically significant positive trends. This is an indication that conditions have not changed substantially since the preceding ASD was submitted (Geosyntec 2025), and the arguments presented in the previous ASDs are still valid. Therefore, the lithium and fluoride concentrations at SP-10 during the June 2025 assessment monitoring event are not attributed to a release from the BAP.

A time series plot of the barium concentrations at SP-10 and a Mann-Kendall statistical analysis of the reported barium results over time are shown in **Figure 3**. The analysis determined that barium concentrations at SP-10 display a statistically significant increasing trend. However, based on a Piper diagram showing select events where the full suite of major cations and anions were sampled (**Figure 4**), the geochemistry at monitoring well SP-10 does not change over time in a manner indicative of a release from the BAP. The June 2025 sample is displayed on the plot as the purple diamond. **Figure 4** demonstrates that the geochemistry of SP-10 has remained consistent over the past several years, indicating that groundwater condition at SP-10 is geochemically stable.

The information above, as well as the information presented in previous ASDs (Geosyntec 2019, Geosyntec 2021a, Geosyntec 2021b, Geosyntec 2021c, Geosyntec 2022, Geosyntec 2023a, Geosyntec 2023b, Geosyntec 2023c, Geosyntec 2024a, Geosyntec 2024b, Geosyntec 2025), continues to support the position that barium, fluoride, and lithium concentrations are a result of natural variation in the underlying lithology, including the presence of shale lenses containing barium, fluoride, and lithium within the screened interval at SP-10. Therefore, no further action is warranted. Certification of this ASD memorandum by a qualified professional engineer is in **Attachment B**.

******

REFERENCES

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Geosyntec. 2023c. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. December.

Geosyntec. 2024a. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. May.

Geosyntec. 2024b. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. September.

Geosyntec. 2025. Alternative Source Demonstration. Bottom Ash Pond – Northeastern Power Station, Oologah, Oklahoma. Geosyntec Consultants. May.

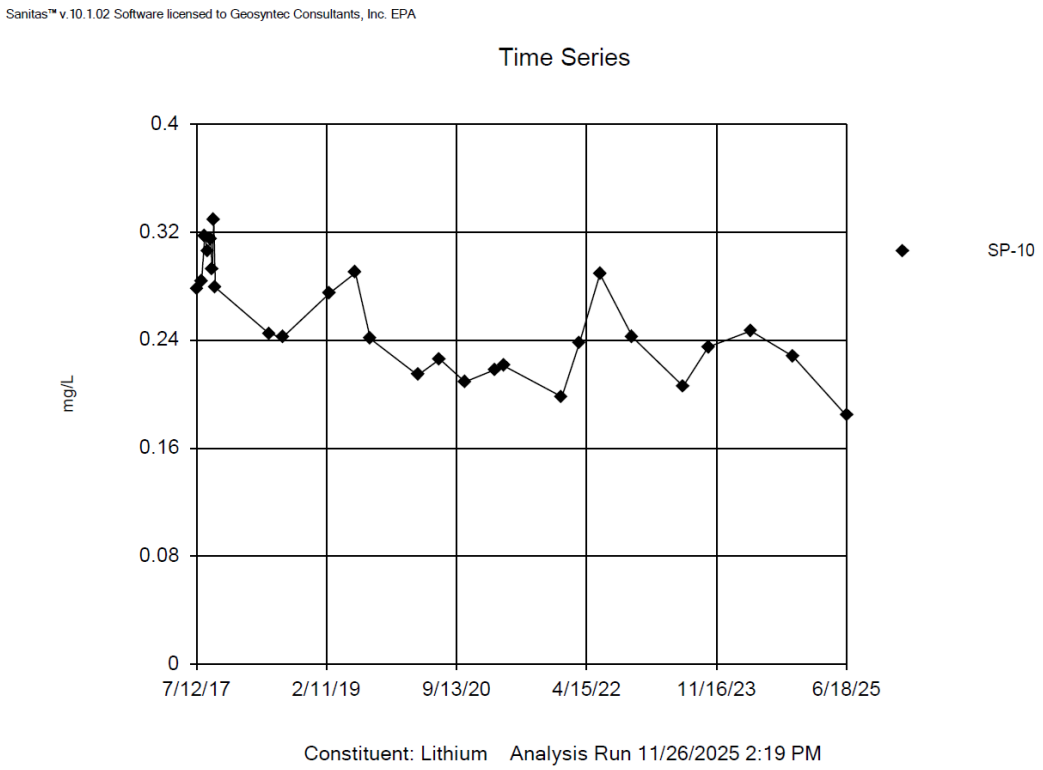
TABLES

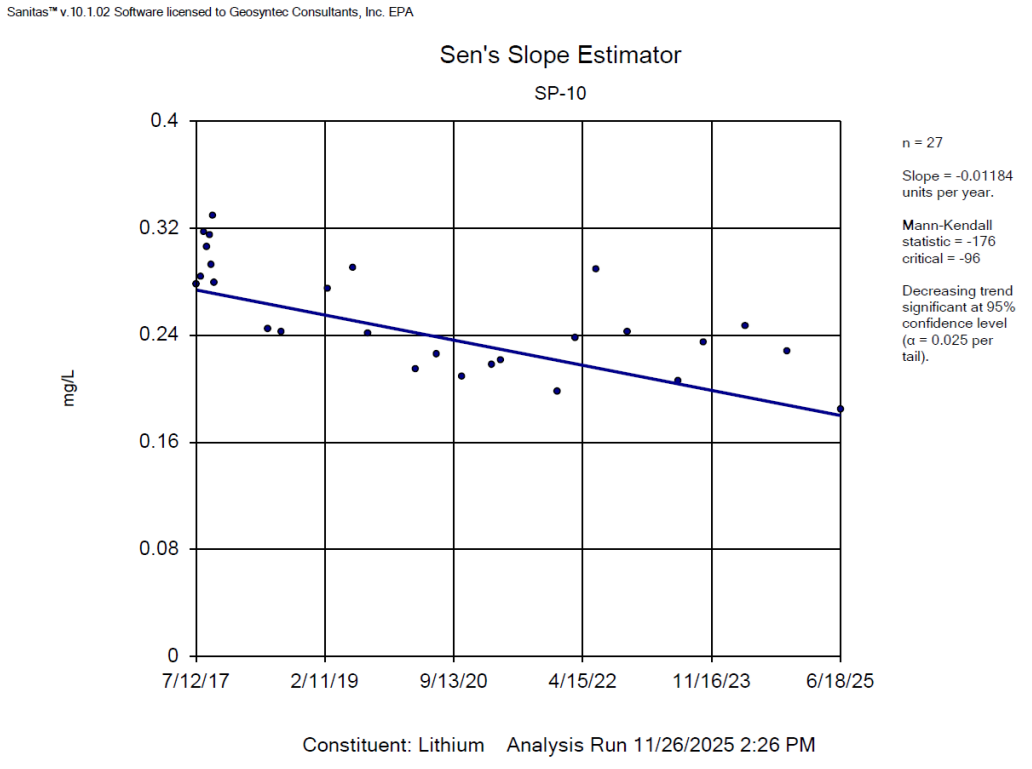
Table 1. Summary of Key Analytical Data
Alternative Source Demonstration Update Memorandum
Northeastern Power Station Bottom Ash Pond, Oologah, Oklahoma

Sample	Sample Date	Lithium Concentration (mg/L)	Fluoride Concentration (mg/L)	Barium Concentration (mg/L)
SPLP Leachate of Bottom Ash	7/10/2019	0.001	0.458	0.352
	8/25/2022	< 0.5	NA	0.22
BAP Surface Water	2/5/2019	0.00874	0.37	0.315
BAP Pore Water	7/10/2019	0.003	< 0.83	0.083
SP-10 June 2025 Result	6/18/2025	0.184	6.8	6.09

Notes:
1. Nondetect results are shown as less than the reporting limit.
BAP: Bottom Ash Pond
mg/L: milligram per liter
NA: not analyzed
SPLP: synthetic precipitation leaching procedure

FIGURES





Notes: Lithium results from monitoring well SP-10 are displayed on the plots.

AEP: American Electric Power
mg/L: milligrams per liter

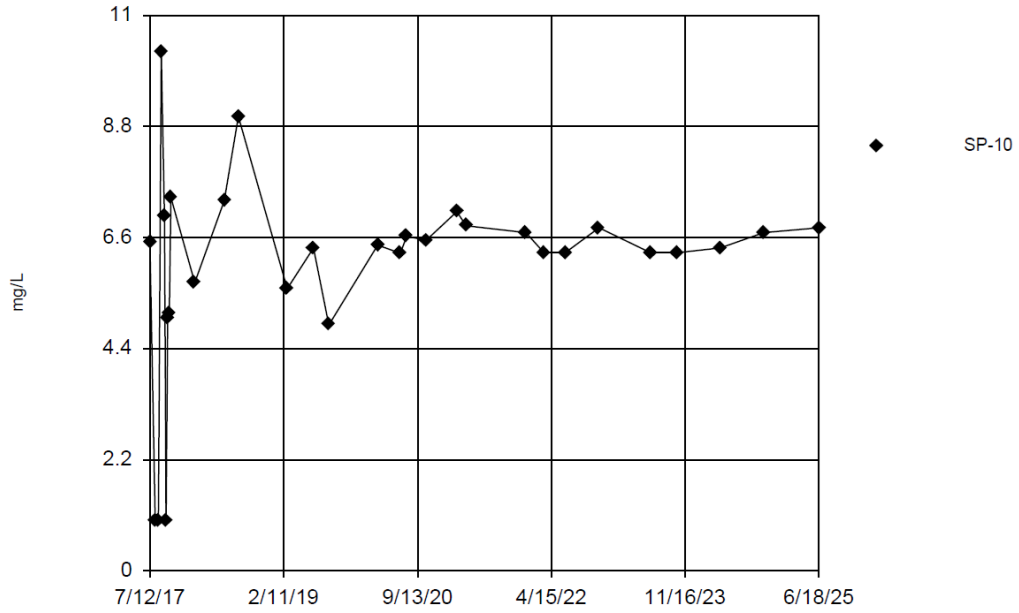
Lithium Time Series and Trend Test: SP-10
Northeastern Bottom Ash Pond

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Columbus, Ohio | December 2025

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Time Series

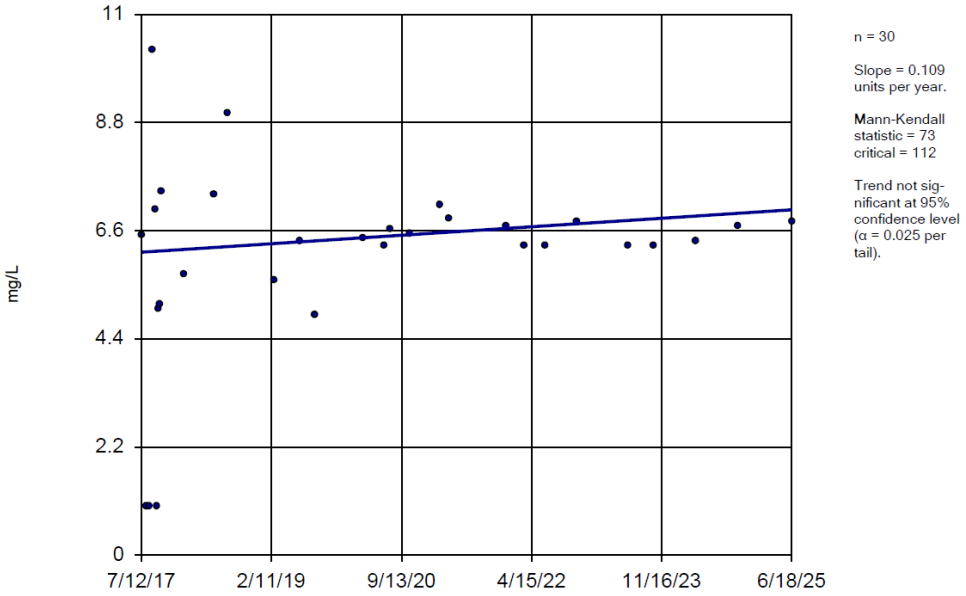


Constituent: Fluoride Analysis Run 11/26/2025 2:19 PM

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Sen's Slope Estimator

SP-10



Constituent: Fluoride Analysis Run 11/26/2025 2:26 PM

Notes: Fluoride results from monitoring well SP-10 are displayed on the plots.

AEP: American Electric Power
mg/L: milligrams per liter

Fluoride Time Series and Trend Test: SP-10
Northeastern Bottom Ash Pond

Geosyntec consultants

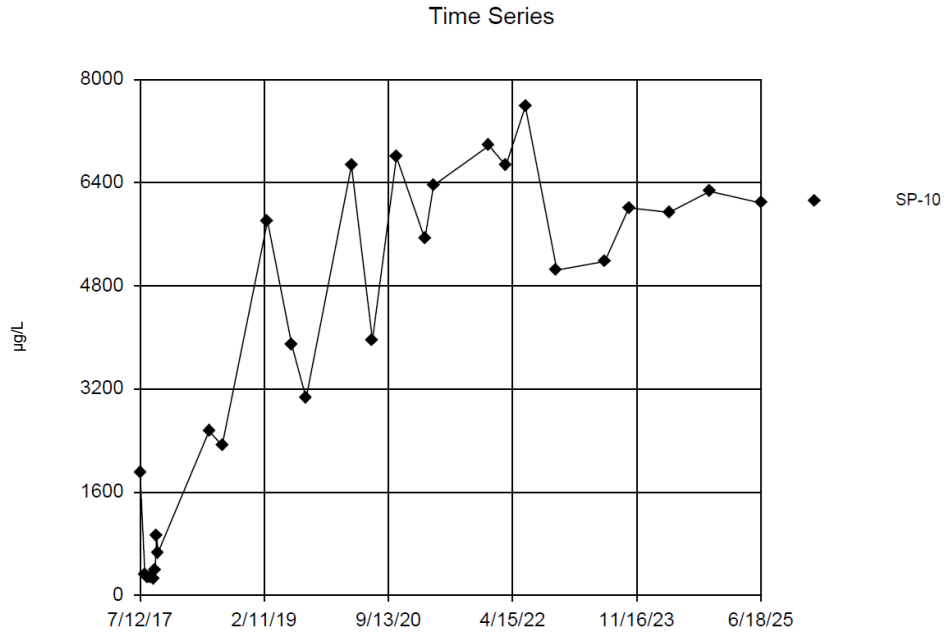
AMERICAN ELECTRIC POWER

Figure **2**

Columbus, Ohio

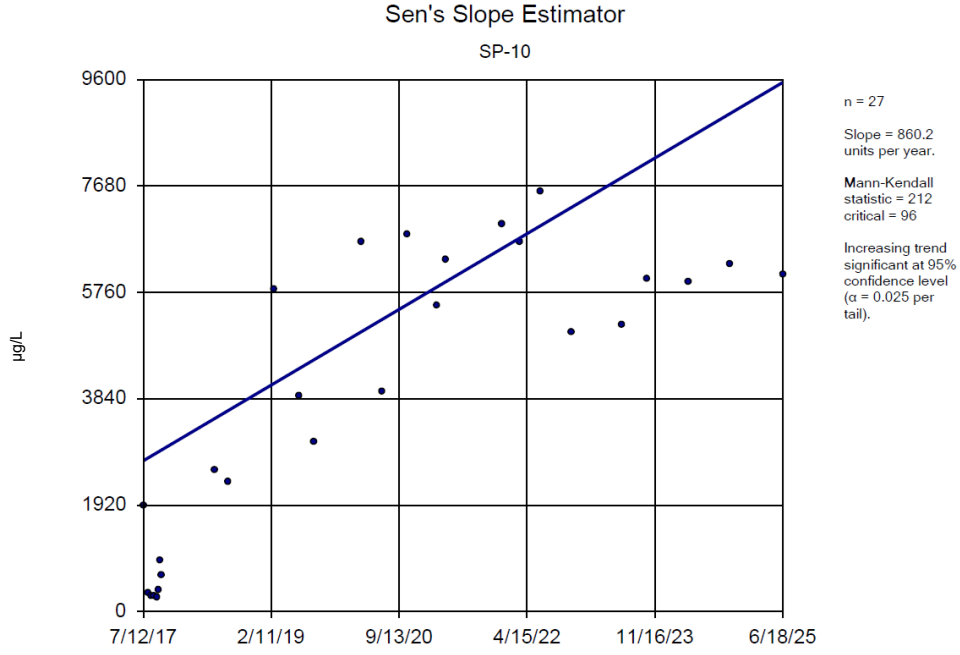
December 2025

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Constituent: Barium Analysis Run 11/26/2025 2:19 PM

Sanitas™ v.10.1.02 Software licensed to Geosyntec Consultants, Inc. EPA



Constituent: Barium Analysis Run 11/26/2025 2:26 PM

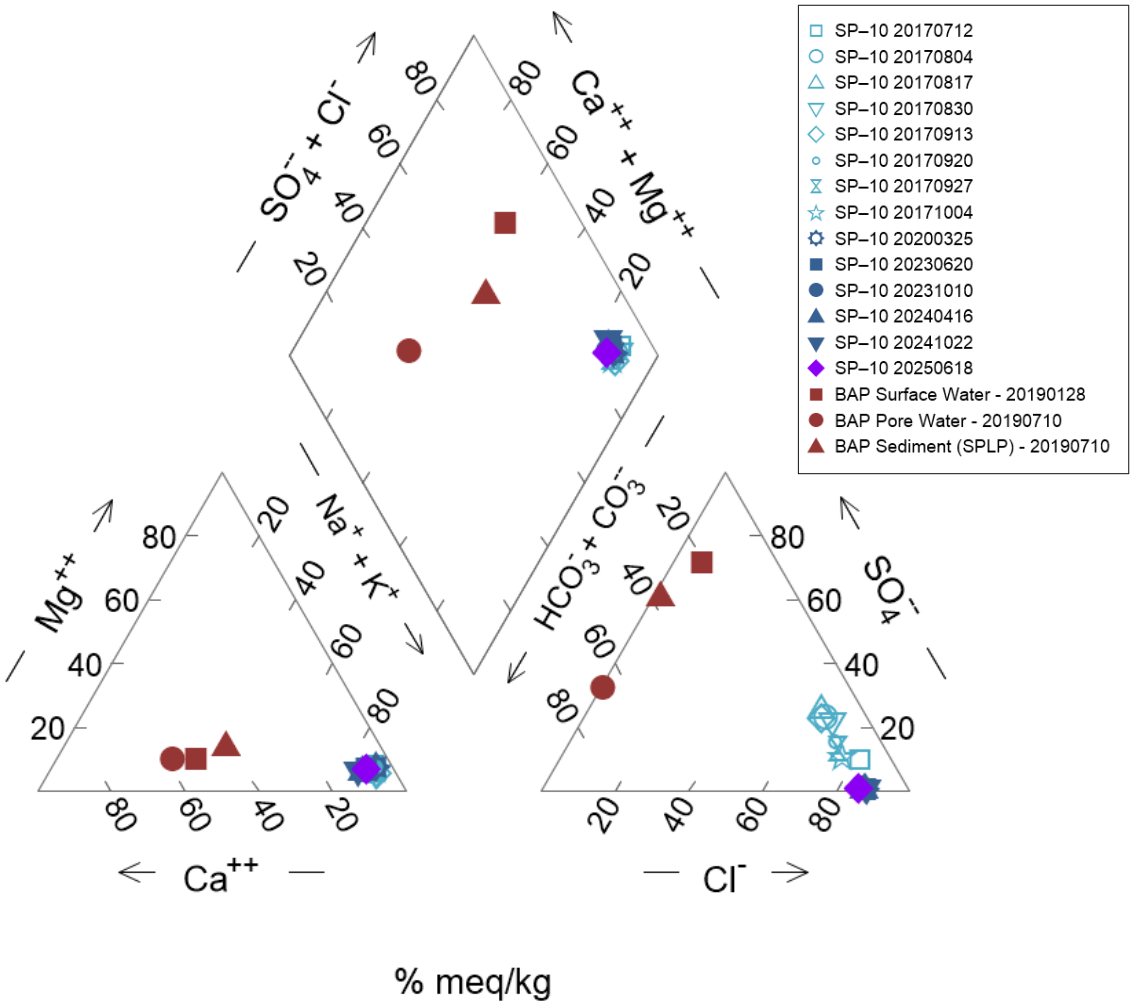
Notes: Barium results from monitoring well SP-10 are displayed on the plots.

AEP: American Electric Power
µg/L: micrograms per liter

Barium Time Series and Trend Test: SP-10
Northeastern Bottom Ash Pond

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Columbus, Ohio | December 2025



Notes:
% meq/kg: percent milliequivalents per kilogram
SPLP: synthetic precipitation leaching procedure

Piper Diagram – SP-10 and BAP Samples
Northeastern Bottom Ash Pond

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Columbus, Ohio | December 2025

Figure **4**

Attachment A

Assessment Statistics Summary

2025 First Semiannual Event

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STATISTICAL ANALYSIS SUMMARY, 2025 1ST SEMIANNUAL EVENT BOTTOM ASH POND

Northeastern Power Station

Oologah, Oklahoma

Prepared for

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

Prepared by

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Project Number: CHA1147H

October 2025

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Attachment B: Statistical Analysis Output

ACRONYMS AND ABBREVIATIONS

ASD	alternative source demonstration
BAP	Bottom Ash Pond
CCR	coal combustion residuals
GWPS	groundwater protection standard
LCL	lower confidence limit
LPL	lower prediction limit
mg/L	milligrams per liter
NPS	Northeastern Power Station
OAC	Oklahoma Administrative Code
ODEQ	Oklahoma Department of Environmental Quality
QA/QC	quality assurance and quality control
SSI	statistically significant increase
SSL	statistically significant level
TDS	total dissolved solids
UPL	upper prediction limit

1. INTRODUCTION

In accordance with Oklahoma Department of Environmental Quality (ODEQ) requirements regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Oklahoma Administrative Code [OAC] 252:517), groundwater monitoring has been conducted at the Bottom Ash Pond (BAP), an existing CCR unit at the Northeastern Power Station (NPS) in Oologah, Oklahoma. Recent groundwater monitoring results were used to identify concentrations of Appendix B constituents that are above site-specific groundwater protection standards (GWPSs).

Based on detection monitoring conducted in 2017 and 2018, statistically significant increases (SSIs) over background were concluded for boron, chloride, fluoride, total dissolved solids (TDS), and sulfate at the BAP. In addition, pH values below the lower prediction limit (LPL) resulted in SSIs below background as well. GWPSs were set in accordance with OAC 252:517-9-6(h) and a statistical evaluation of the assessment monitoring data was conducted.

During 2024, a sampling event for both Appendix A parameters and Appendix B parameters, as required by OAC 252:517-9-6(d), was completed in October. During the October 2024 assessment monitoring event, statistically significant levels (SSLs) were observed for barium, fluoride, and lithium (Geosyntec 2025a). An alternative source demonstration (ASD) was successfully completed (Geosyntec 2025b), and the unit therefore remained in assessment monitoring. One assessment monitoring event was conducted at the BAP in June 2025, in accordance with OAC 252:517-9-6(d). Results of this event are documented in this report.

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

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. Confidence intervals were calculated for Appendix B parameters at the compliance wells to assess whether SSLs of Appendix B parameters were present above previously established GWPSs. SSLs were identified for barium, fluoride, and lithium. Therefore, either the unit will move to an assessment of corrective measures, or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring. Certification of the selected statistical methods by a qualified professional engineer is documented in Attachment A.

2. BOTTOM ASH POND EVALUATION

2.1 Data Validation and QA/QC

During the June 2025 assessment monitoring event, one set of samples was collected for analysis from each background and compliance well to meet the requirements of OAC 252:517-9-6(d)(1). Samples from the June 2025 sampling event were analyzed for all Appendix A and Appendix B parameters. A summary of data collected during this assessment monitoring event are presented in Table 1.

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

The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.10.0.27 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

2.2 Statistical Analysis

Statistical analyses for the BAP were conducted in accordance with the November 2021 *Statistical Analysis Plan* (Geosyntec 2021). Time series plots and results for all completed statistical tests are provided in Attachment B. The data obtained in June 2025 were screened for potential outliers. No outliers were identified for this event.

2.2.1 Evaluation of Potential Appendix B SSLs

A confidence interval was constructed for each Appendix B parameter at each compliance well. Confidence limits were generally calculated parametrically ($\alpha = 0.01$). However, nonparametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). Select datasets were truncated if significant serial correlation was observed among the background samples that were collected on an approximately monthly basis in 2017. The dataset for barium at SP-10 was also truncated as higher concentrations were observed in more recent samples compared to initial results. A list of the truncated well/constituent pairs used for calculation of the confidence limits is provided in Attachment B.

An SSL was concluded if the lower confidence limit (LCL) was above the GWPS (i.e., if the entire confidence interval was above the GWPS). The calculated confidence limits (Attachment B) were compared to the GWPSs provided in Table 3. The GWPSs were established during a previous statistical analysis as either (a) the background concentration or (b) the maximum contaminant level and risk-based levels specified in OAC 252:517-9-6(h), whichever was greater (Geosyntec 2025a).

The following SSLs were identified at the Northeastern BAP:

- The LCL for barium was above the GWPS of 2.77 milligrams per liter (mg/L) at SP-10 (4.50 mg/L).

- The LCL for fluoride was above the GWPS of 4.39 mg/L at SP-10 (5.71 mg/L).

- The LCL for lithium was above the GWPS of 0.163 mg/L at SP-10 (0.235 mg/L).

ODEQ previously noted in a letter provided to the NPS that "[i]f lithium and fluoride continue to exceed their relative GWPS in the future and conditions have not changed, NPS may refer to the October 29, 2019 ASD approval for lithium and June 4, 2021 approval for fluoride and continue assessment monitoring for the BAP in accordance with OAC 252:517-6(g)(3)(B)" (ODEQ 2021). ODEQ provided a similar letter dated September 20, 2022 documenting ASD approval for a barium SSL at SP-10 which is applicable in the future if conditions do not change (ODEQ 2022). Therefore, an ASD will be submitted to ODEQ demonstrating that conditions at the BAP remain unchanged so that the unit will continue assessment monitoring.

2.2.2 Evaluation of Potential Appendix A SSIs

While SSLs were identified, a review of the Appendix A results was also completed to assess whether concentrations of Appendix A parameters at the compliance wells were above background concentrations. Data collected during the June 2025 assessment monitoring event from each compliance well were compared to previously calculated prediction limits to assess whether the results are above background values (Table 3).

The following concentrations were above the upper prediction limits (UPLs):

- Boron concentrations were above the interwell UPL of 0.491 mg/L at SP-10 (0.965 mg/L) and SP-11 (0.549 mg/L).

- The chloride concentration was above the interwell UPL of 1,010 mg/L at SP-10 (1,750 mg/L).

- The fluoride concentration was above the interwell UPL of 4.39 mg/L at SP-10 (6.8 mg/L).

- Sulfate concentrations were above the interwell UPL of 83.0 mg/L at SP-1 (83.9 mg/L) and SP-11 (231 mg/L).

- The TDS concentration was above the interwell UPL of 1,940 mg/L at SP-10 (3,480 mg/L).

While the prediction limits were calculated for a one-of-two retesting procedure, SSIs were conservatively assumed if the June 2025 sample was above the UPL or, in the case of pH, below the LPL.

2.3 Conclusions

A semiannual assessment monitoring event was conducted in accordance with the CCR rule. The laboratory and field data were reviewed prior to statistical analysis, and no QA/QC issues that

impacted data usability were identified. A review of outliers identified no potential outliers in the June 2025 data. A confidence interval was constructed at each compliance well for each Appendix B parameter; SSLs were concluded if the entire confidence interval was above the GWPSs. SSLs were identified for barium, fluoride, and lithium. Appendix A parameters were compared to prediction limits, with concentrations of boron, chloride, fluoride, sulfate, and TDS above background levels.

Based on this evaluation, the Northeastern BAP CCR unit will either move to an assessment of corrective measures or an ASD will be conducted to evaluate if the unit can remain in assessment monitoring.

3. REFERENCES

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TABLES

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

Parameter	Unit	SP-1	SP-2	SP-4	SP-5R	SP-10	SP-11
		6/18/2025	6/18/2025	6/18/2025	6/18/2025	6/18/2025	6/18/2025
Antimony	µg/L	0.754	0.855	0.166	0.102	0.034 J1	0.092 J1
Arsenic	µg/L	0.75	1.36	0.80	14.7	0.16	2.28
Barium	µg/L	146	1,090	210	2,240	6,090	243
Beryllium	µg/L	0.081	0.075	0.057	0.059	0.035 J1	0.028 J1
Boron	mg/L	0.240	0.129	0.356	0.226	0.965	0.549
Cadmium	µg/L	0.058	0.050	0.026	0.022	0.005 J1	0.007 J1
Calcium	mg/L	113	99.7	87.3	73.8	82.5	78.5
Chloride	mg/L	49.3	956	439	797	1,750	106
Chromium	µg/L	0.76	0.66	0.56	0.57	0.33	0.43
Cobalt	µg/L	1.45	0.676	0.369	1.56	0.035	0.369
Combined Radium	pCi/L	2.45	6.89	3.29	12.27	21.22	1.36
Fluoride	mg/L	0.98	3.11	2.9	3.31	6.8	1.7
Lead	µg/L	0.67	0.23	0.17 J1	0.91	0.2 U1	0.16 J1
Lithium	mg/L	0.00801	0.0416	0.0544	0.0922	0.184	0.0172
Mercury	µg/L	0.005 U1	0.005 U1	0.005 U1	0.005 U1	0.005 U1	0.005 U1
Molybdenum	µg/L	21.3	13.0	2.4	0.7	0.3 J1	1.2
Selenium	µg/L	6.28	1.78	0.30 J1	0.05 J1	0.5 U1	0.11 J1
Sulfate	mg/L	83.9	10.5	79	2.8	14.3	231
Thallium	µg/L	0.13 J1	0.03 J1	0.02 J1	0.2 U1	0.2 U1	0.2 U1
Total Dissolved Solids	mg/L	500 S7	1,870	1,190	1,590	3,480	960
pH	SU	7.5	7.6	7.5	7.7	7.8	7.6

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

Table 2. Appendix B Groundwater Protection Standards
Statistical Analysis Summary
Northeastern Plant – Bottom Ash Pond

Geosyntec Consultants, Inc.

Constituent Name	MCL	CCR Rule-Specified	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600		0.00388	0.00600
Arsenic, Total (mg/L)	0.0100		0.0599	0.0599
Barium, Total (mg/L)	2.00		2.77	2.77
Beryllium, Total (mg/L)	0.00400		0.00212	0.00400
Cadmium, Total (mg/L)	0.00500		0.000168	0.00500
Chromium, Total (mg/L)	0.100		0.00339	0.100
Cobalt, Total (mg/L)	n/a	0.00600	0.0179	0.0179
Combined Radium, Total (pCi/L)	5.00		19.1	19.1
Fluoride, Total (mg/L)	4.00		4.39	4.39
Lead, Total (mg/L)	n/a	0.0150	0.00857	0.0150
Lithium, Total (mg/L)	n/a	0.0400	0.163	0.163
Mercury, Total (mg/L)	0.00200		0.0000300	0.00200
Molybdenum, Total (mg/L)	n/a	0.100	0.0100	0.100
Selenium, Total (mg/L)	0.0500		0.00499	0.0500
Thallium, Total (mg/L)	0.00200		0.00162	0.00200

Notes:
1. Calculated UTL (upper tolerance limit) represents site-specific background values.
2. Grey cells indicate the GWPS is based on the calculated UTL, which is higher than the MCL or CCR Rule-specified value.
CCR: coal combustion residuals
GWPS: groundwater protection standard
MCL: maximum contaminant level
mg/L: milligrams per liter
n/a: not applicable
pCi/L: picocuries per liter

Table 3. Appendix A Data Summary
Statistical Analysis Summary
Northeastern – Bottom Ash Pond

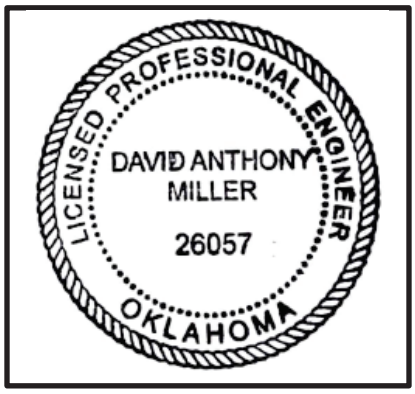
Analyte	Unit	Description	SP-1	SP-2	SP-10	SP-11
			6/18/2025	6/18/2025	6/18/2025	6/18/2025
Boron	mg/L	Interwell Background Value (UPL)	0.491			
		Analytical Result	0.240	0.129	**0.965**	**0.549**
Calcium	mg/L	Intrawell Background Value (UPL)	139	172	177	146
		Analytical Result	113	99.7	82.5	78.5
Chloride	mg/L	Interwell Background Value (UPL)	1,010			
		Analytical Result	49.3	956	**1,750**	106
Fluoride	mg/L	Interwell Background Value (UPL)	4.39			
		Analytical Result	0.98	3.11	**6.8**	1.7
pH	SU	Interwell Background Value (UPL)	9.1			
		Interwell Background Value (LPL)	7.0			
		Analytical Result	7.5	7.6	7.8	7.6
Sulfate	mg/L	Interwell Background Value (UPL)	83.0			
		Analytical Result	**83.9**	10.5	14.3	**231**
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	1,940			
		Analytical Result	500	1,870	**3,480**	960

Notes:
1. Bold values exceed the background value.
2. Background values are shaded gray.
LPL: lower prediction limit
mg/L: milligrams per liter
SU: standard units
UPL: upper prediction limit

ATTACHMENT A
Certification by Qualified Professional Engineer

Certification by Qualified Professional Engineer

I certify that selected and above described statistical method is appropriate for evaluating the groundwater monitoring data for the Northeastern Bottom Ash Pond CCR management area and that the requirements of OAC 252:517-9-4(g) have been met.



David Anthony Miller

Printed Name of Licensed Professional Engineer

David Anthony Miller

Signature

26057	Oklahoma	10.14.2025
License Number	Licensing State	Date

ATTACHMENT B
Statistical Analysis Output

Sanitas™ v.10.0.27 Software licensed to Groundwater Stats Consulting. UG

Date Ranges

Date: 9/9/2025 1:42 PM

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Barium (mg/L)
- SP-10 overall:5/30/2018-6/18/2025
- SP-11 overall:5/30/2018-6/18/2025
- SP-4 overall:5/30/2018-6/18/2025

Cadmium (mg/L)
- SP-1 overall:5/30/2018-6/18/2025
- SP-10 overall:5/30/2018-6/18/2025
- SP-4 overall:5/30/2018-6/18/2025
- SP-5R overall:5/30/2018-6/18/2025

Chromium (mg/L)
- SP-4 overall:5/30/2018-6/18/2025

Lead (mg/L)
- SP-10 overall:5/30/2018-6/18/2025

Lithium (mg/L)
- SP-11 overall:5/30/2018-6/18/2025
- SP-4 overall:5/30/2018-6/18/2025

Molybdenum (mg/L)
- SP-2 overall:5/30/2018-6/18/2025

Selenium (mg/L)
- SP-2 overall:5/30/2018-6/18/2025
- SP-5R overall:5/30/2018-6/18/2025

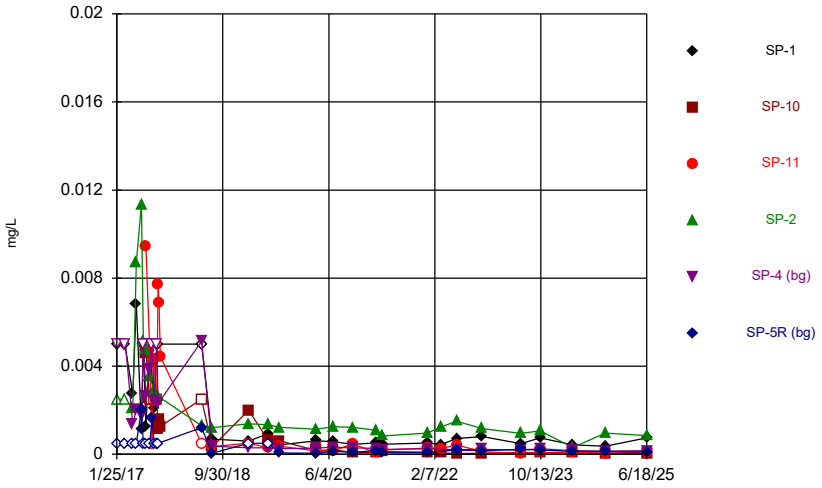
Thallium (mg/L)
- overall:5/30/2018-6/18/2025

FIGURE A

Time Series

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

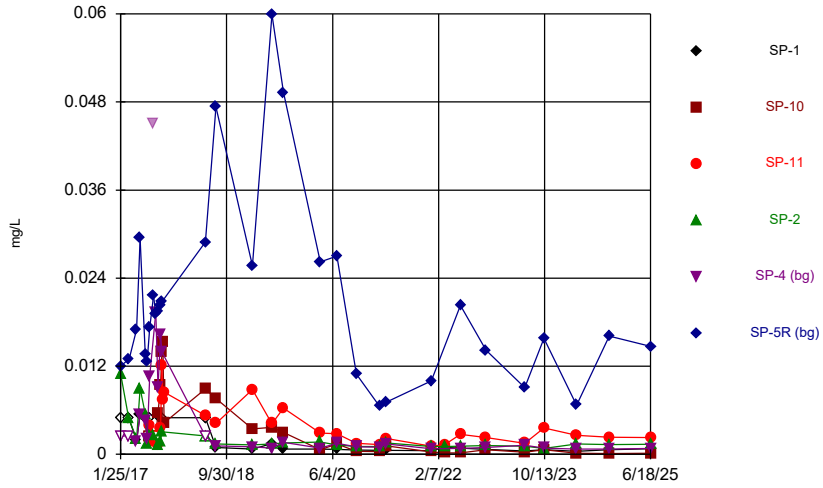
Time Series



Constituent: Antimony Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

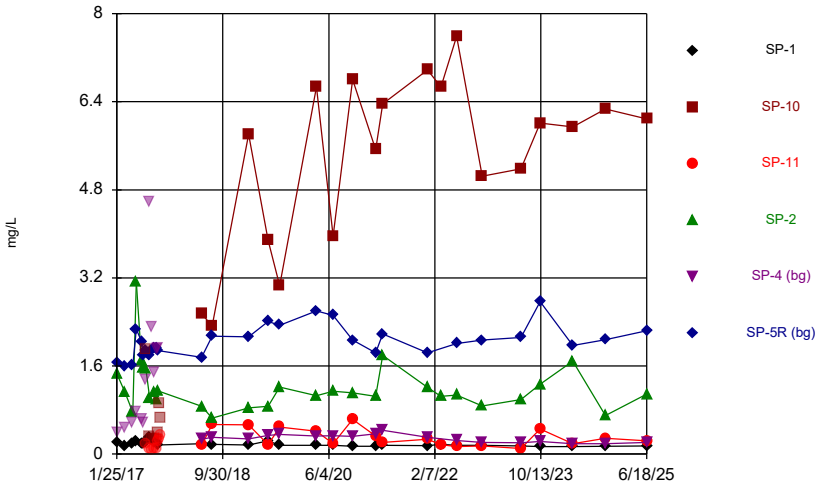
Time Series



Constituent: Arsenic Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

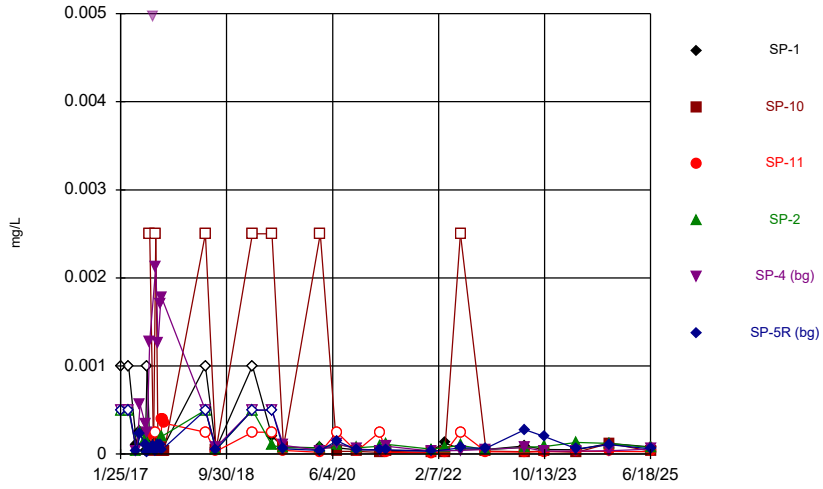
Time Series



Constituent: Barium Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

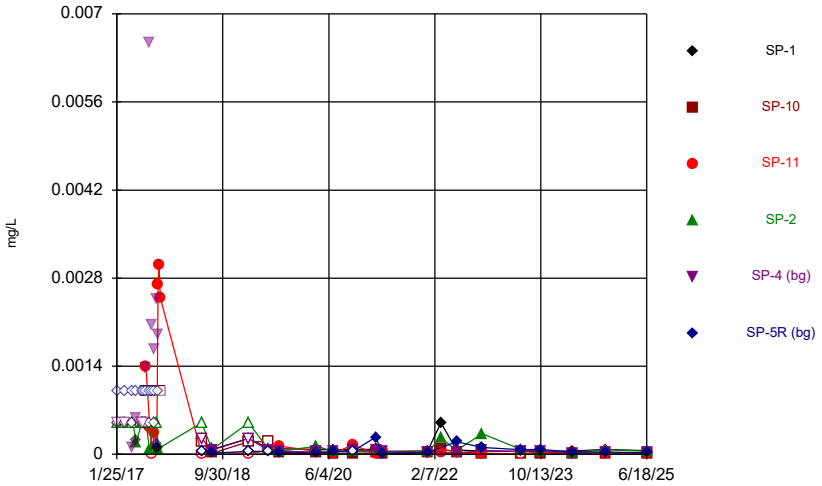
Time Series



Constituent: Beryllium Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

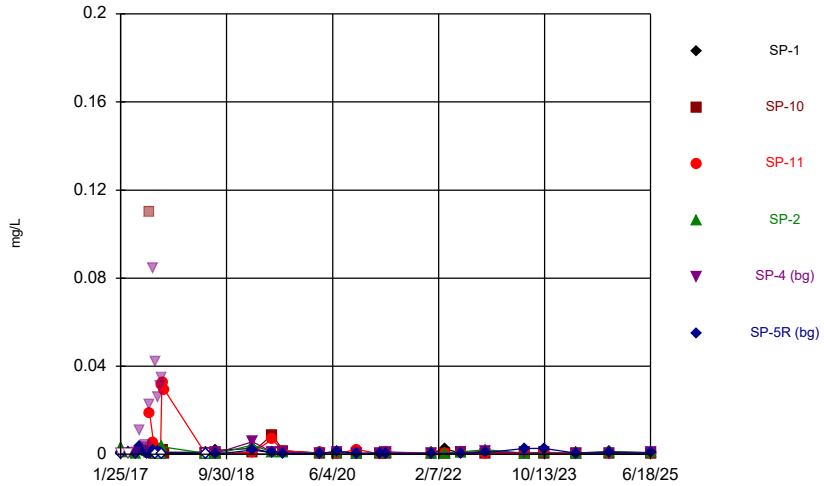
Time Series



Constituent: Cadmium Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

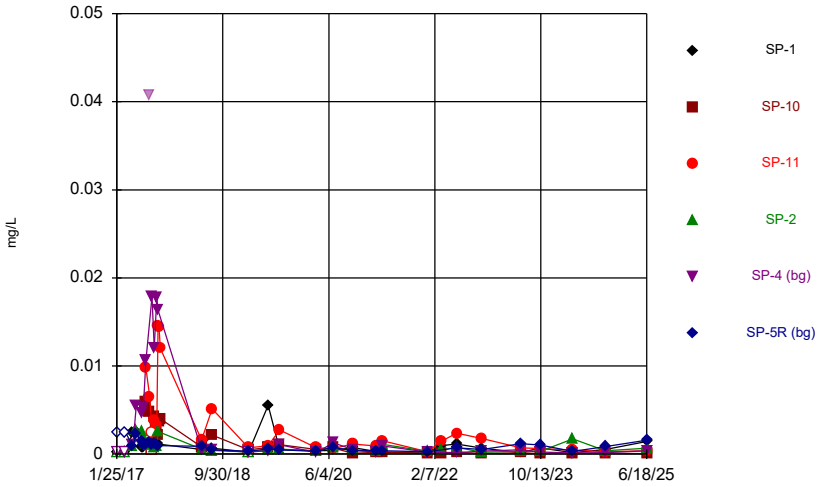
Time Series



Constituent: Chromium Analysis Run 8/29/2025 5:22 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

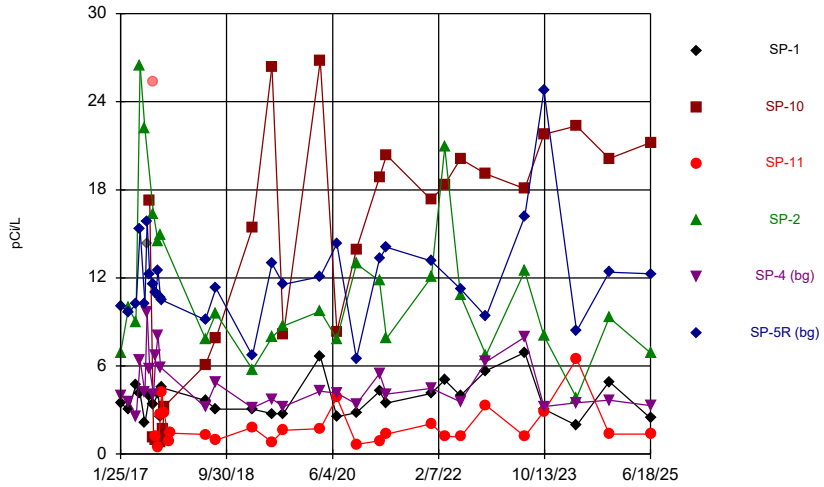
Time Series



Constituent: Cobalt Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

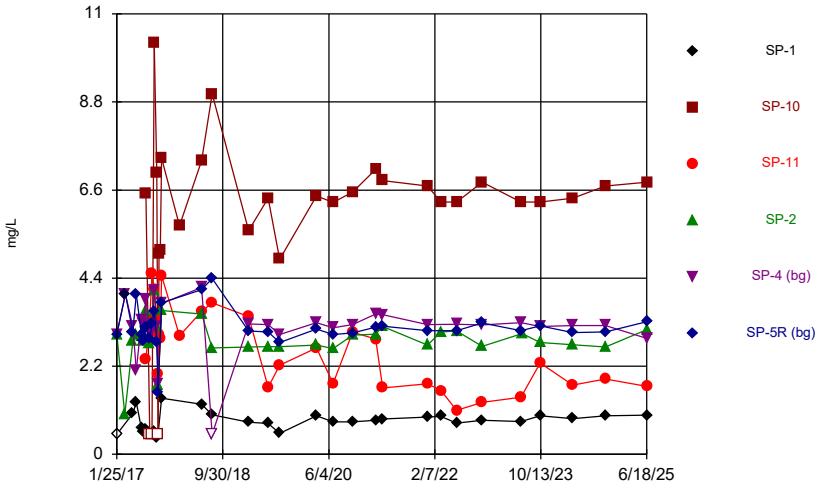
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 8/29/2025 5:22 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

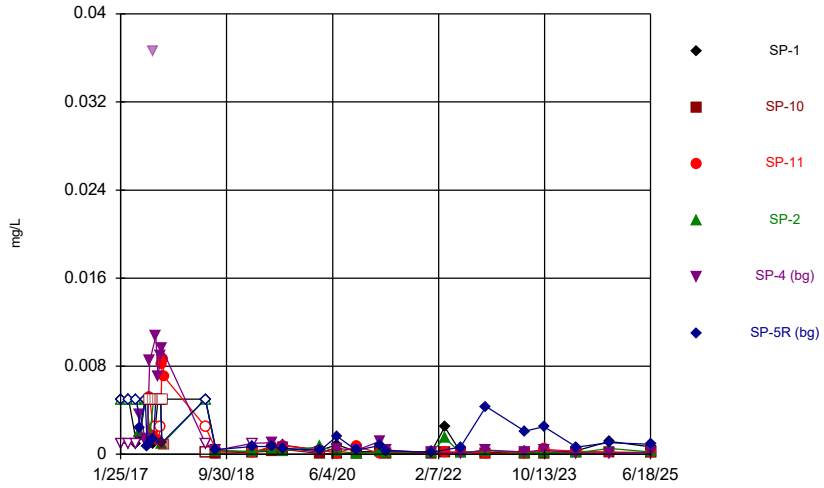
Time Series



Constituent: Fluoride Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

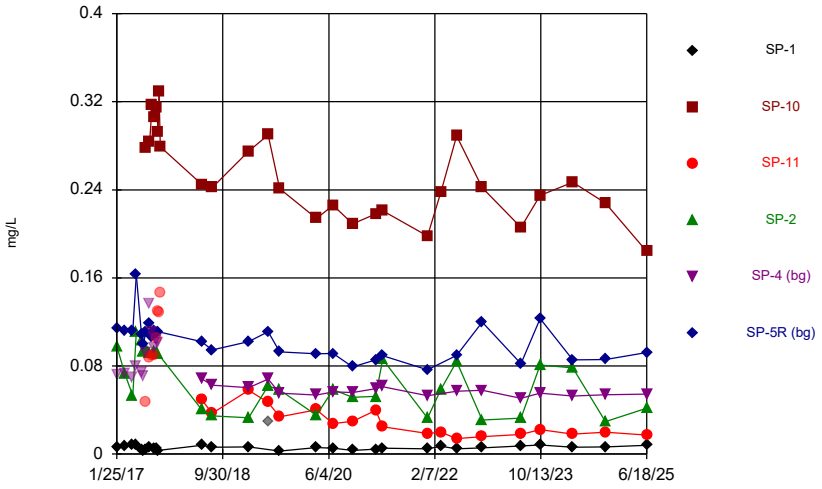
Time Series



Constituent: Lead Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

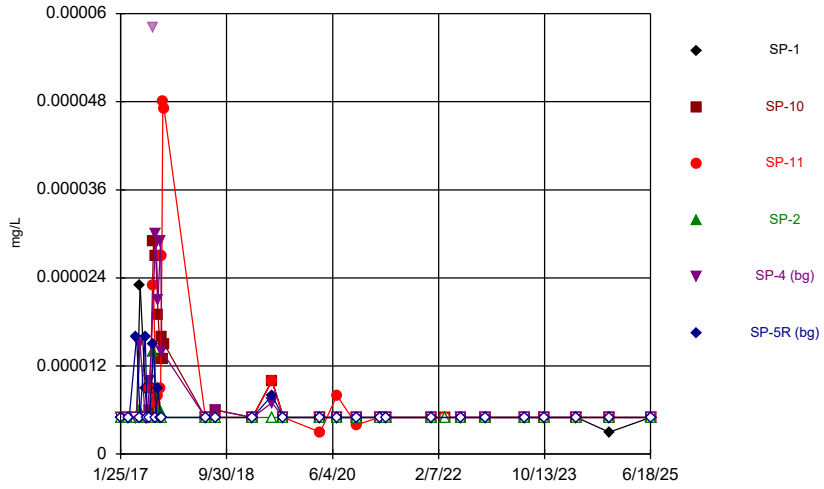
Time Series



Constituent: Lithium Analysis Run 8/29/2025 5:22 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

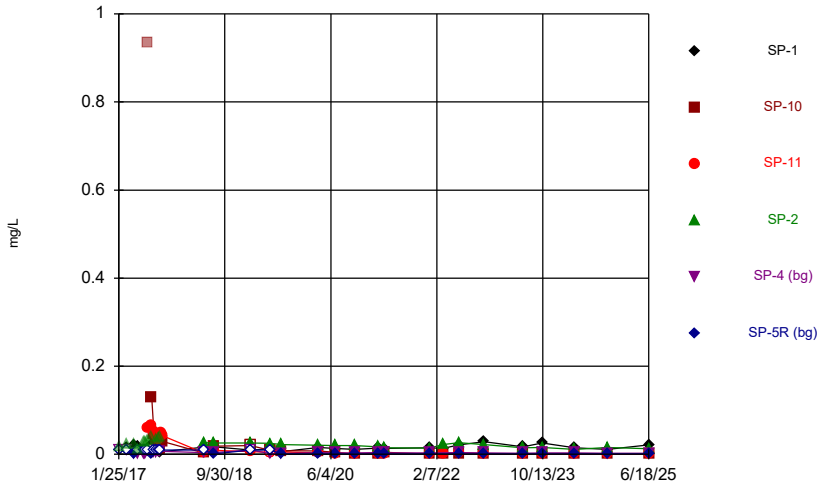
Time Series



Constituent: Mercury Analysis Run 8/29/2025 5:22 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

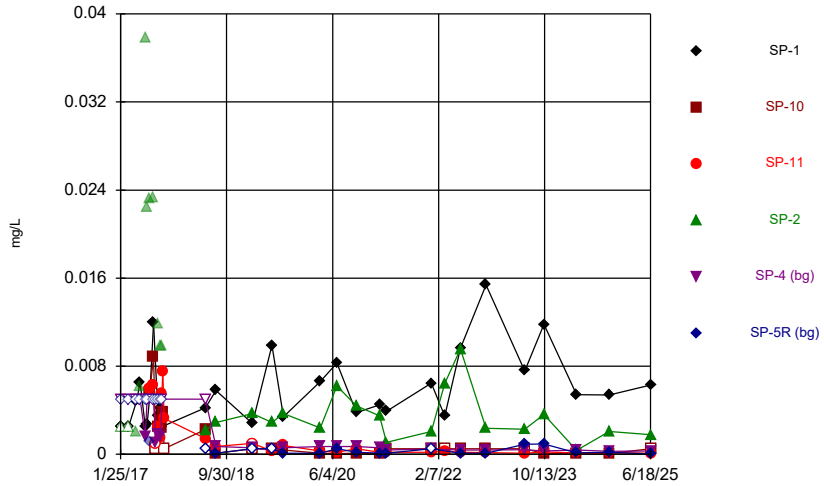
Time Series



Constituent: Molybdenum Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

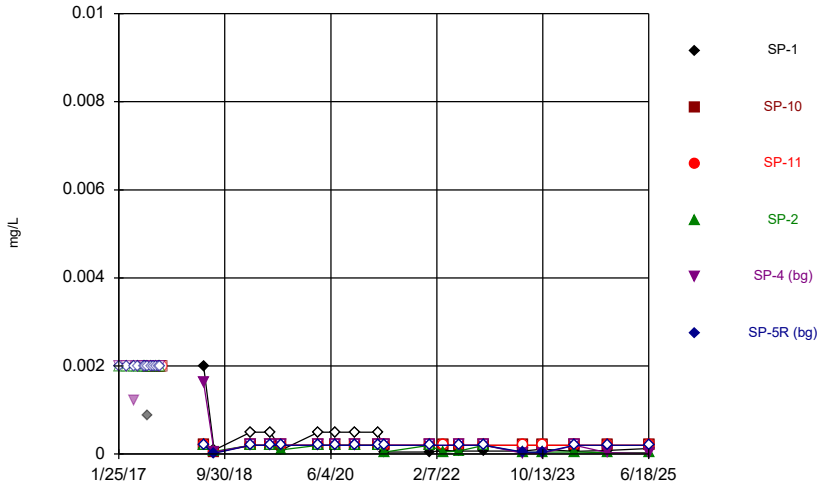
Time Series



Constituent: Selenium Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Time Series

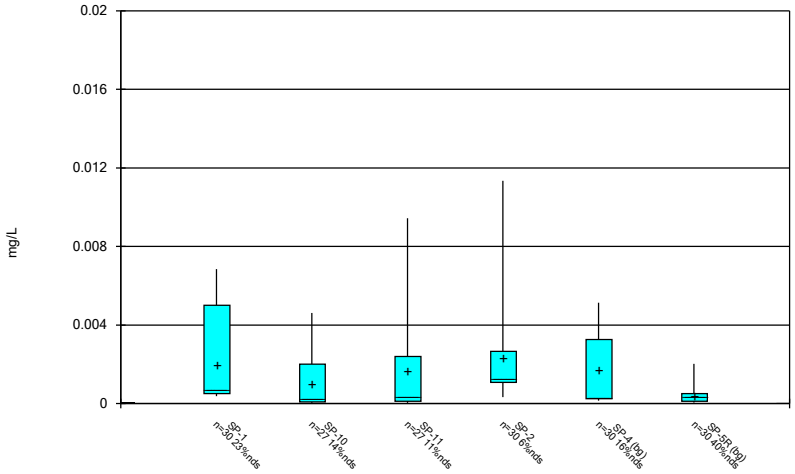


Constituent: Thallium Analysis Run 8/29/2025 5:22 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE B

Box Plots

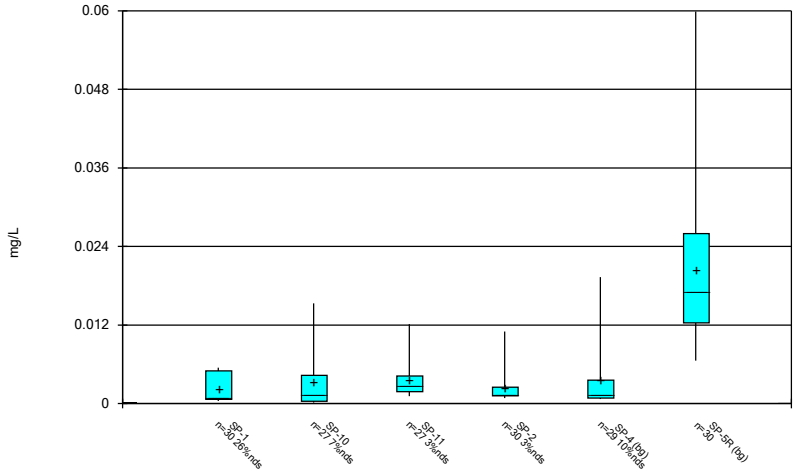
Box & Whiskers Plot



Constituent: Antimony Analysis Run 8/29/2025 5:23 PM View: Appendix B
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Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

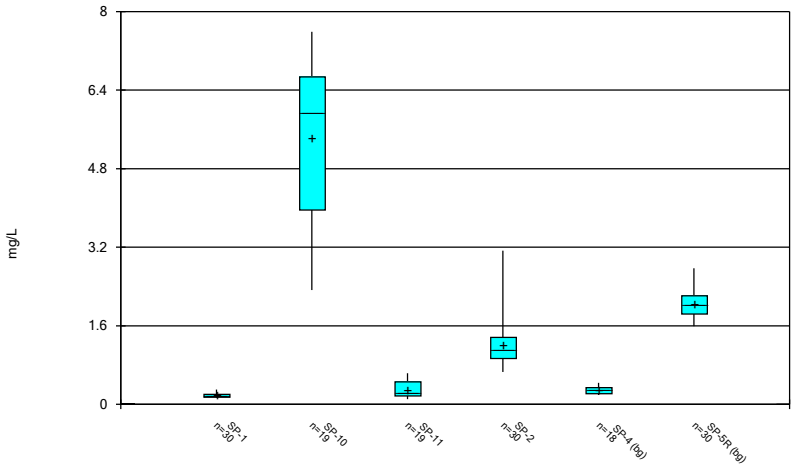
Box & Whiskers Plot



Constituent: Arsenic Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

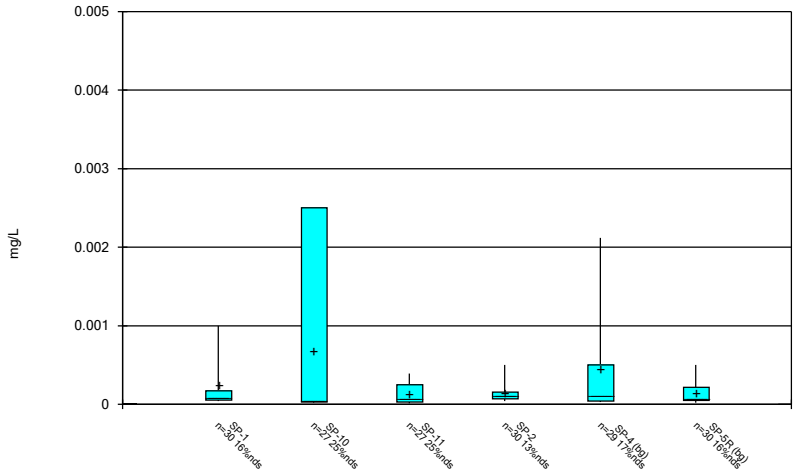
Box & Whiskers Plot



Constituent: Barium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

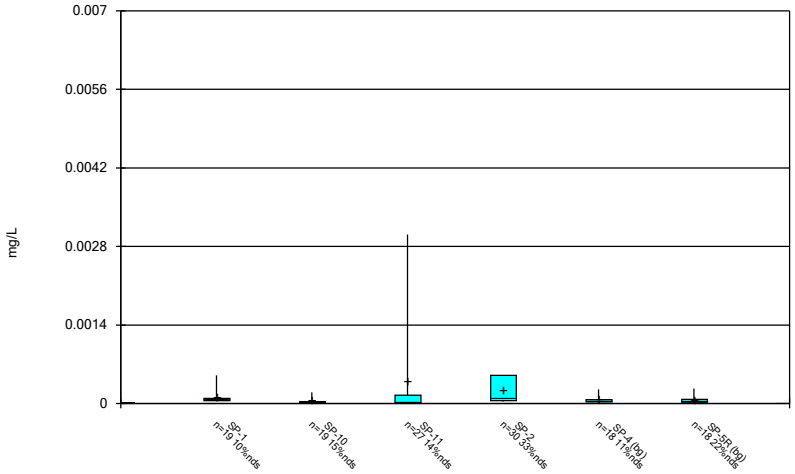
Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Beryllium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

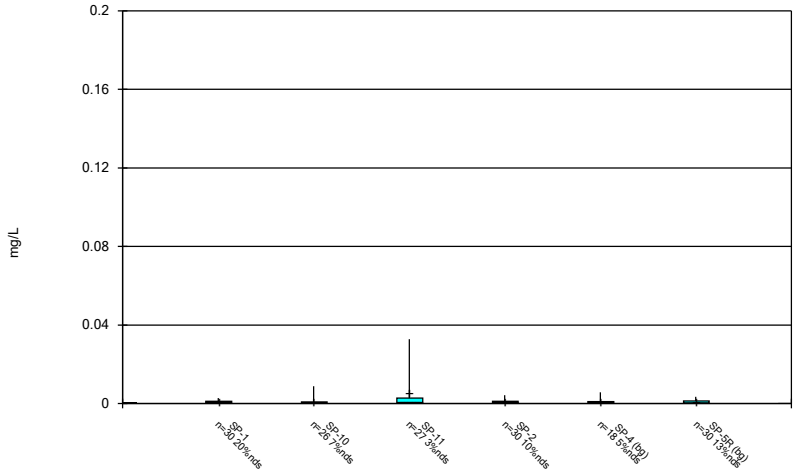
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

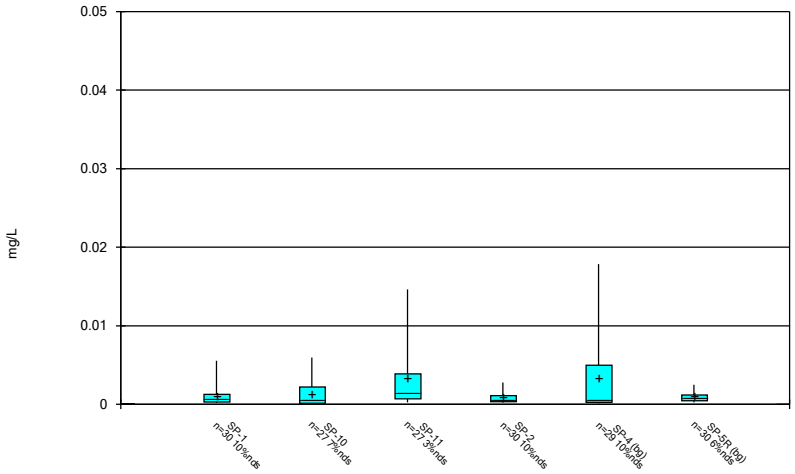
Box & Whiskers Plot



Constituent: Chromium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

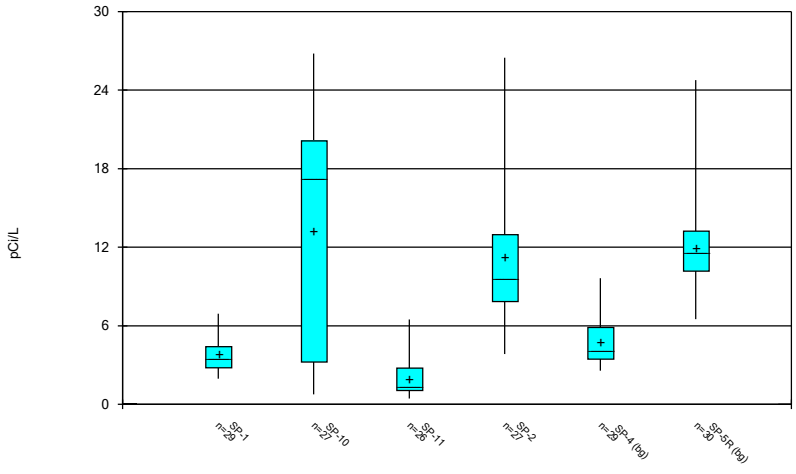
Box & Whiskers Plot



Constituent: Cobalt Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

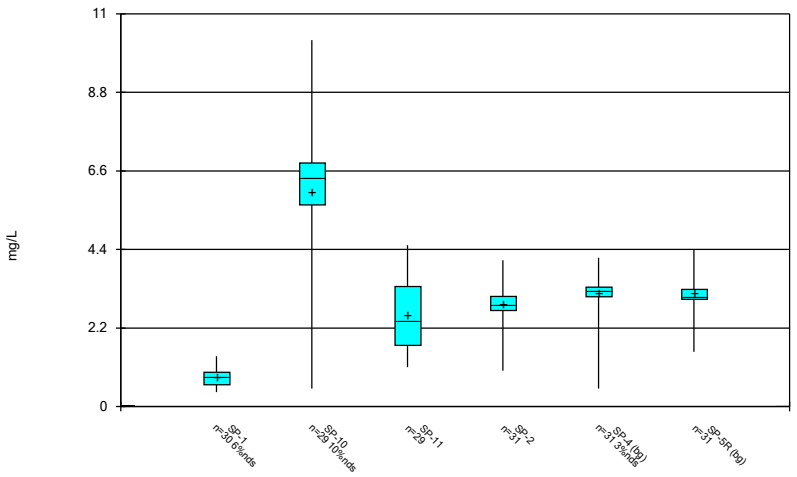
Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

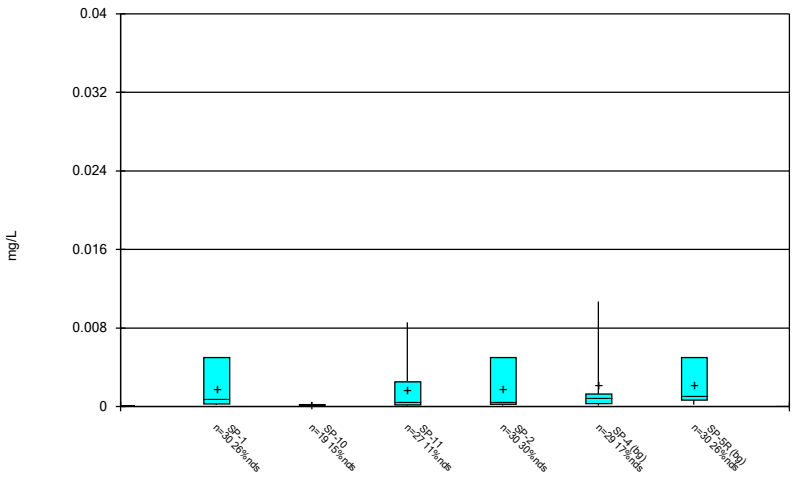
Box & Whiskers Plot



Constituent: Fluoride Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

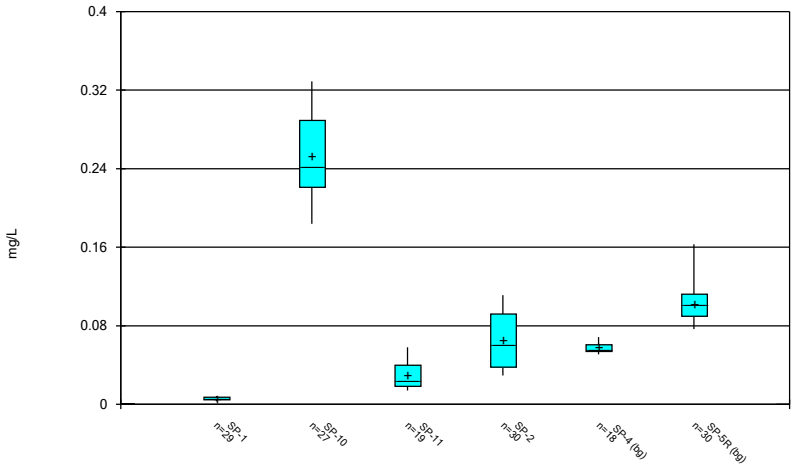
Box & Whiskers Plot



Constituent: Lead Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

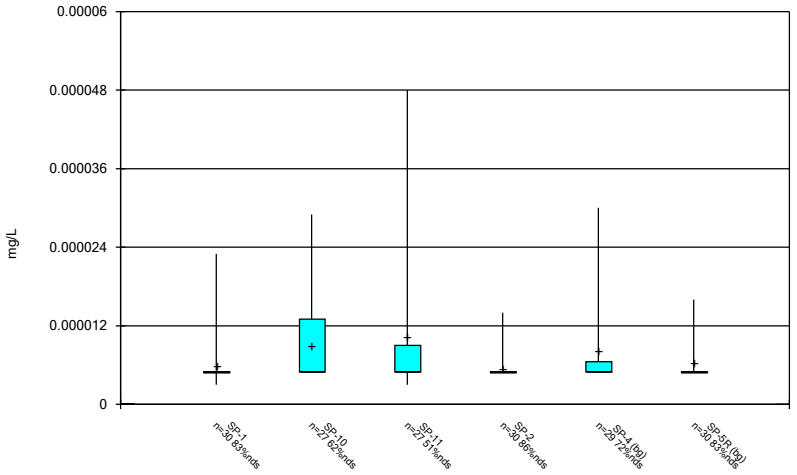
Box & Whiskers Plot



Constituent: Lithium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

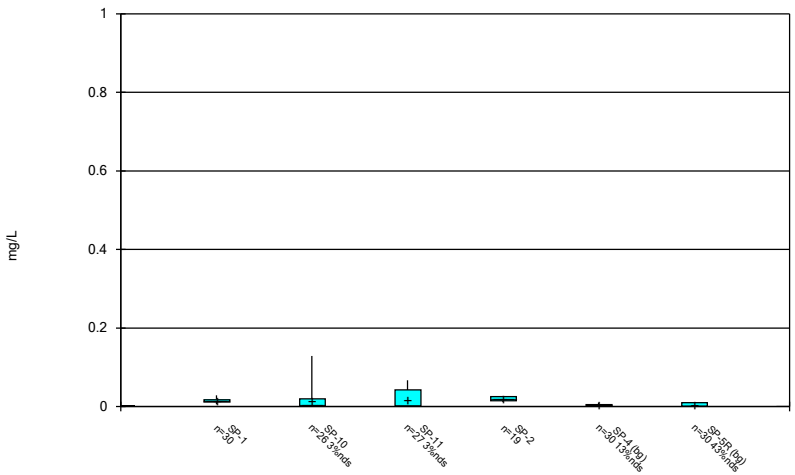
Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Mercury Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

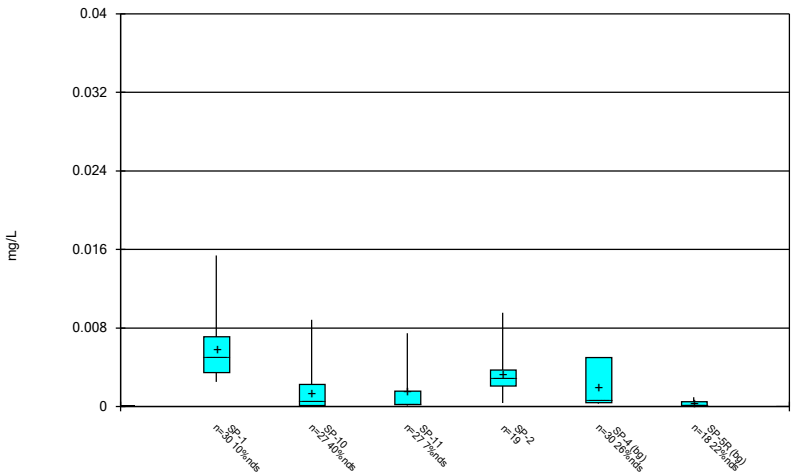
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

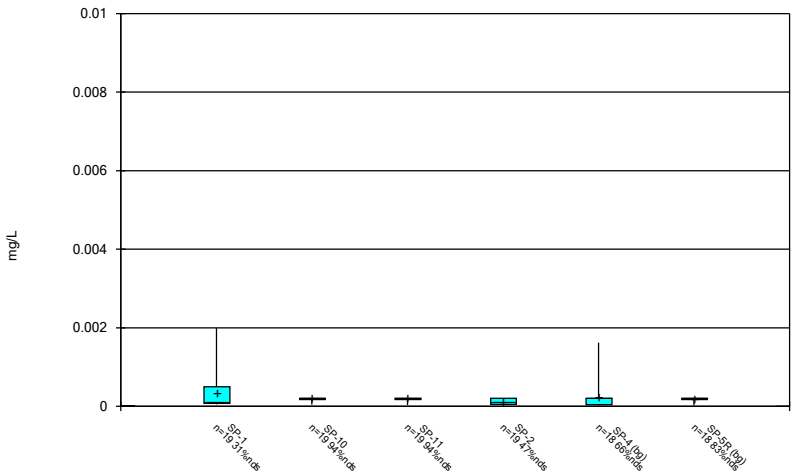
Box & Whiskers Plot



Constituent: Selenium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Thallium Analysis Run 8/29/2025 5:23 PM View: Appendix B
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE C
Outlier Summary

Outlier Summary

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 8/29/2025, 5:23 PM

	SP-4 Arsenic (mg/L)	SP-4 Beryllium (mg/L)	SP-10 Chromium (mg/L)	SP-4 Cobalt (mg/L)	SP-1 Combined Radium 226 + 228 (pCi/L)	SP-11 Combined Radium 226 + 228 (pCi/L)	SP-1 Fluoride (mg/L)	SP-4 Lead (mg/L)	SP-1 Lithium (mg/L)	SP-4 Mercury (mg/L)
3/13/2017							4 (o)			
6/27/2017					14.29 (o)					
7/13/2017			0.11 (o)							
8/4/2017	0.04498 (o)	0.00497 (o)		0.04069 (o)		25.367 (o)		0.03663 (o)		5.8E-05 (o)
6/20/2019									0.03 (J,o)	

	SP-10 Molybdenum (mg/L)
3/13/2017	
6/27/2017	
7/13/2017	0.934 (o)
8/4/2017	
6/20/2019	

FIGURE D

SP-10 Trend Test

SP-10 Trend Test - All/Significant Results

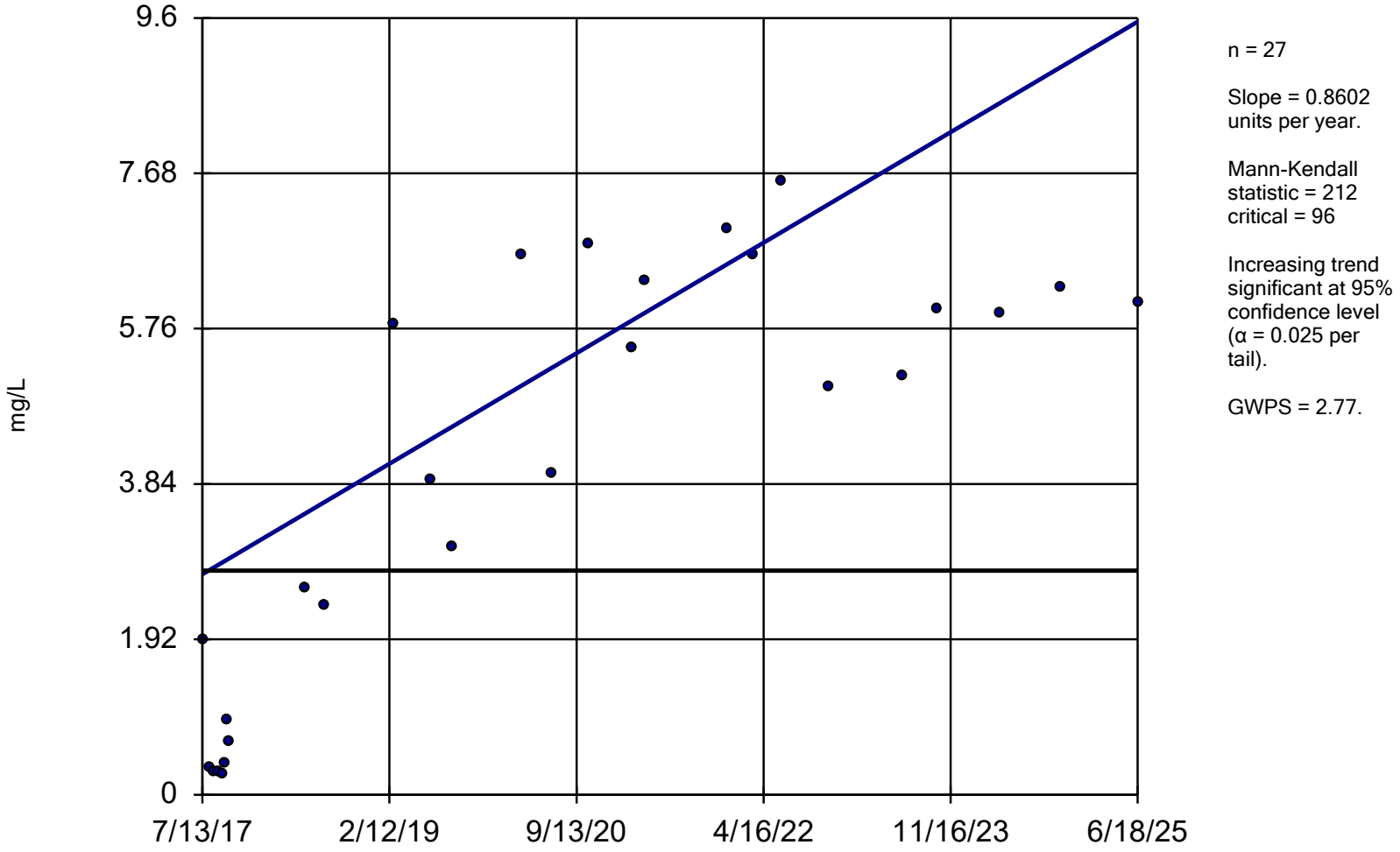
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/8/2025, 9:00 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Alpha	Method
Barium (mg/L)	**SP-10**	**0.8602**	**212**	**96**	**Yes**	**27**	**0**	**n/a**	**0.05**	**NP**

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Sen's Slope Estimator

SP-10



n = 27

Slope = 0.8602 units per year.

Mann-Kendall statistic = 212
critical = 96

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

GWPS = 2.77.

Constituent: Barium Analysis Run 9/8/2025 8:59 AM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

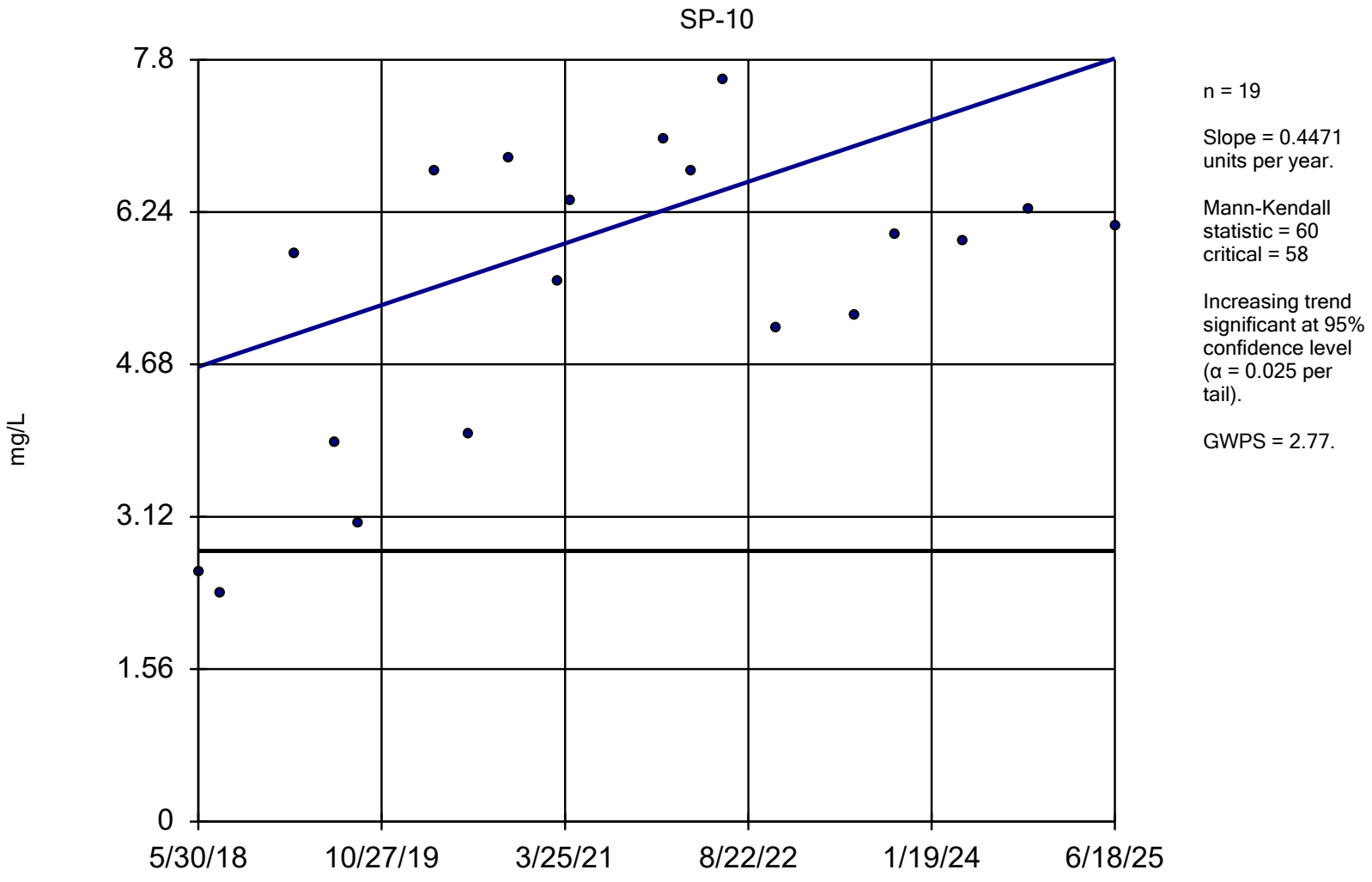
SP-10 Trend Test - Truncated Record - All/Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/8/2025, 9:02 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Alpha	Method
Barium (mg/L)	**SP-10**	**0.4471**	**60**	**58**	**Yes**	**19**	**0**	**n/a**	**0.05**	**NP**

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Sen's Slope Estimator



Constituent: Barium Analysis Run 9/8/2025 9:02 AM View: Trend Tests

Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE E

UTLs

Upper Tolerance Limits Summary Table

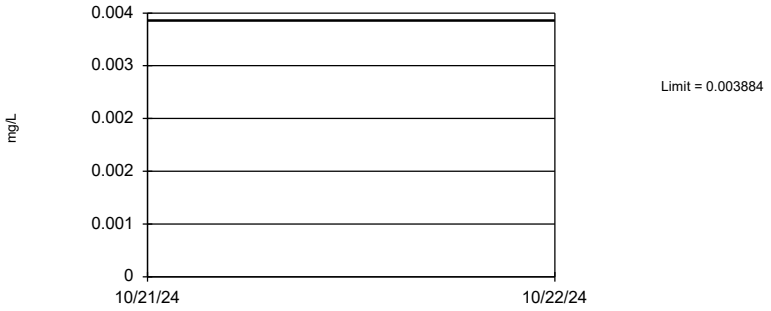
Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 1/14/2025, 2:29 PM

Constituent	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	0.003884	n/a	n/a	n/a	n/a	58	29.31	ln(x)	0.05	Inter
Arsenic (mg/L)	0.0599	n/a	n/a	n/a	n/a	57	5.263	n/a	0.05373	NP Inter(normality)
Barium (mg/L)	2.77	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Beryllium (mg/L)	0.00212	n/a	n/a	n/a	n/a	57	17.54	n/a	0.05373	NP Inter(normality)
Cadmium (mg/L)	0.000168	n/a	n/a	n/a	n/a	34	17.65	ln(x)	0.05	Inter
Chromium (mg/L)	0.00339	n/a	n/a	n/a	n/a	46	10.87	ln(x)	0.05	Inter
Cobalt (mg/L)	0.01786	n/a	n/a	n/a	n/a	57	8.772	n/a	0.05373	NP Inter(normality)
Combined Radium 226 + 228 (pCi/L)	19.05	n/a	n/a	n/a	n/a	57	0	sqrt(x)	0.05	Inter
Fluoride (mg/L)	4.39	n/a	n/a	n/a	n/a	60	1.667	n/a	0.04607	NP Inter(normality)
Lead (mg/L)	0.008571	n/a	n/a	n/a	n/a	57	22.81	ln(x)	0.05	Inter
Lithium (mg/L)	0.163	n/a	n/a	n/a	n/a	46	0	n/a	0.09447	NP Inter(normality)
Mercury (mg/L)	0.00003	n/a	n/a	n/a	n/a	57	77.19	n/a	0.05373	NP Inter(NDs)
Molybdenum (mg/L)	0.01	n/a	n/a	n/a	n/a	58	29.31	n/a	0.05105	NP Inter(normality)
Selenium (mg/L)	0.00499	n/a	n/a	n/a	n/a	46	26.09	n/a	0.09447	NP Inter(normality)
Thallium (mg/L)	0.00162	n/a	n/a	n/a	n/a	34	76.47	n/a	0.1748	NP Inter(NDs)

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Tolerance Limit

Interwell Parametric



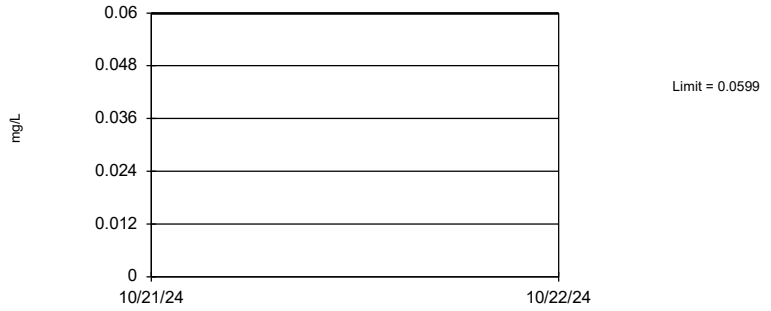
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-8.101, Std. Dev.=1.259, n=58, 29.31% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9551, critical = 0.944. Report alpha = 0.05.

Constituent: Antimony Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



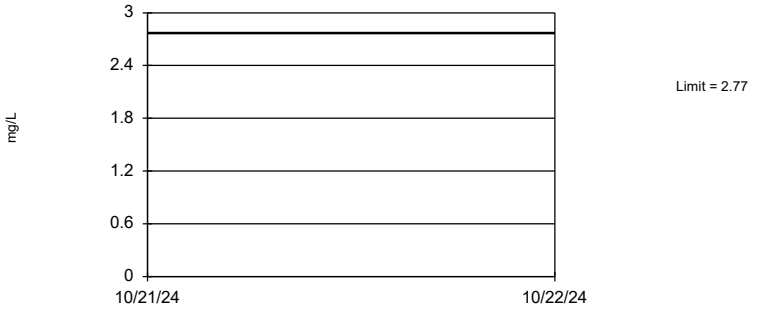
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 5.263% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Arsenic Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



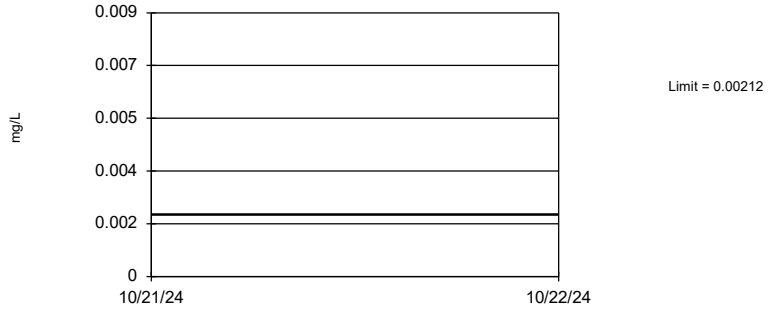
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Barium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



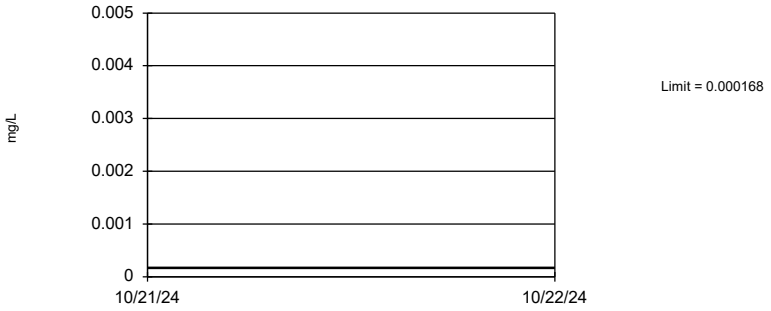
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 17.54% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Beryllium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



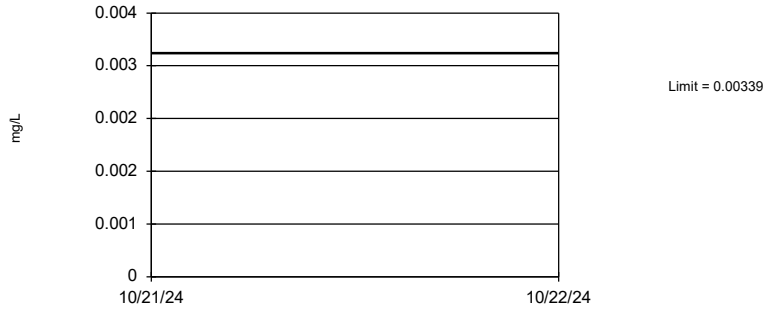
95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-10.33, Std. Dev.=0.7505, n=34, 17.65% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9488, critical = 0.908. Report alpha = 0.05.

Constituent: Cadmium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



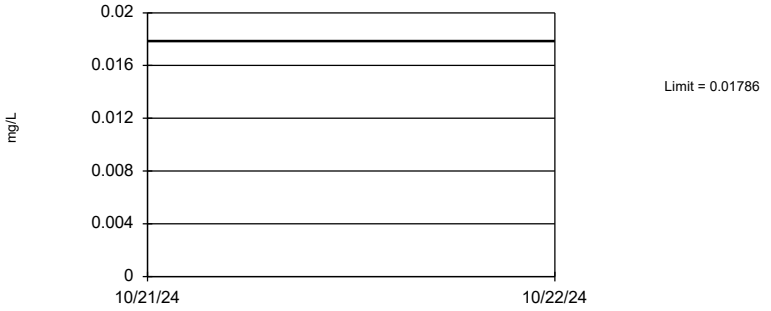
95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.303, Std. Dev.=0.7743, n=46, 10.87% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9536, critical = 0.927. Report alpha = 0.05.

Constituent: Chromium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



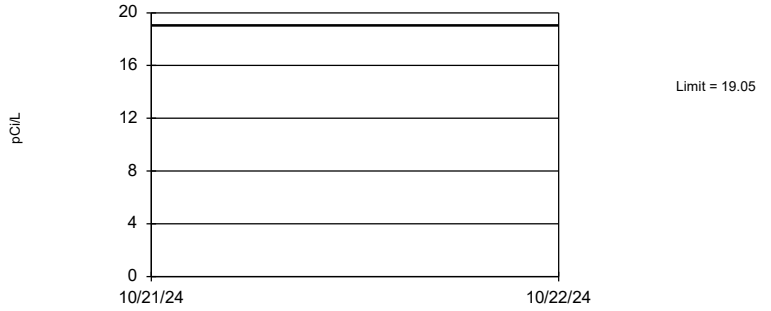
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 57 background values. 8.772% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Cobalt Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=2.801, Std. Dev.=0.7708, n=57. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.947, critical = 0.944. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



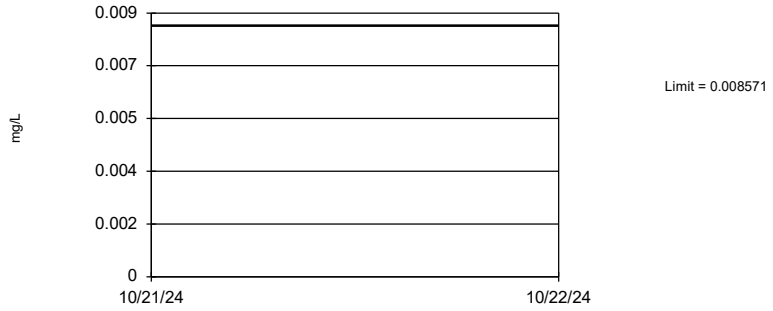
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 60 background values. 1.667% NDs. 92.77% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.04607.

Constituent: Fluoride Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-7.232, Std. Dev.=1.219, n=57, 22.81% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9454, critical = 0.944. Report alpha = 0.05.

Constituent: Lead Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



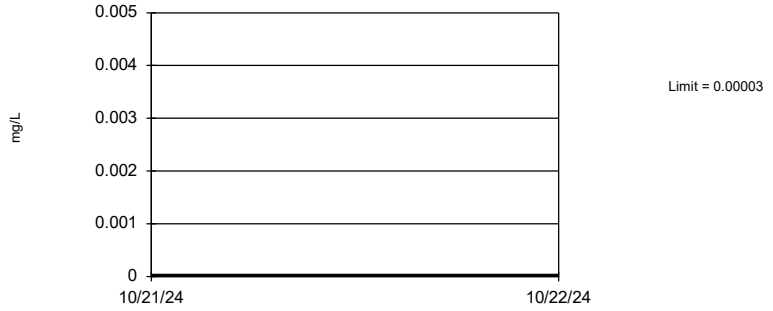
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Lithium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



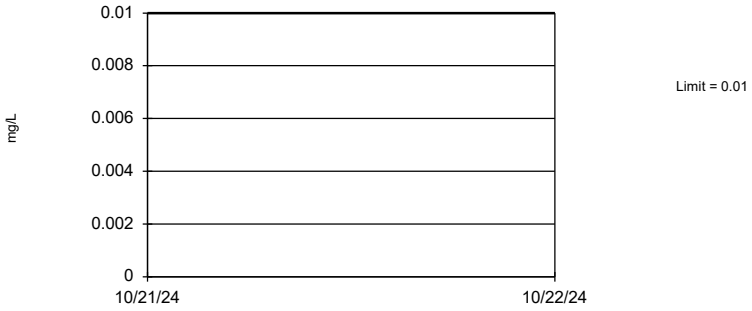
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 57 background values. 77.19% NDs. 92.38% coverage at alpha=0.01; 94.73% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05373.

Constituent: Mercury Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 58 background values. 29.31% NDs. 92.38% coverage at alpha=0.01; 95.12% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.05105.

Constituent: Molybdenum Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



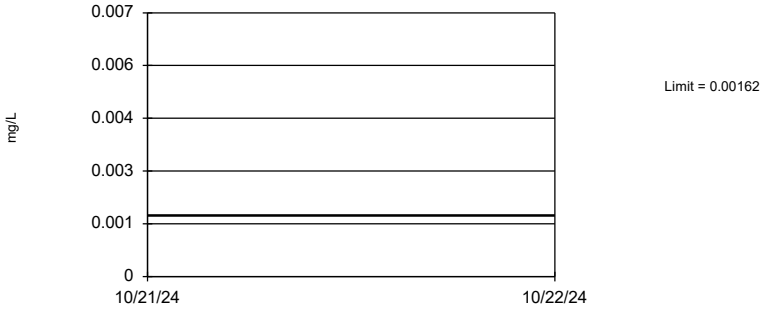
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 46 background values. 26.09% NDs. 90.43% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.63% coverage at alpha=0.5. Report alpha = 0.09447.

Constituent: Selenium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

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Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 34 background values. 76.47% NDs. 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: Thallium Analysis Run 1/14/2025 2:28 PM View: Upper Tolerance Limits
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE F

GWPS

NORTHEASTERN BAP GWPS				
Constituent Name	**MCL**	**CCR- Rule Specified Level**	**Background Limit**	**GWPS**
Antimony, Total (mg/L)	0.006		0.0039	0.006
Arsenic, Total (mg/L)	0.01		0.06	0.06
Barium, Total (mg/L)	2		2.77	2.77
Beryllium, Total (mg/L)	0.004		0.0021	0.004
Cadmium, Total (mg/L)	0.005		0.00017	0.005
Chromium, Total (mg/L)	0.1		0.0034	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.018	0.018
Combined Radium, Total (pCi/L)	5		19.05	19.05
Fluoride, Total (mg/L)	4		4.39	4.39
Lead, Total (mg/L)	n/a	0.015	0.0086	0.015
Lithium, Total (mg/L)	n/a	0.04	0.16	0.16
Mercury, Total (mg/L)	0.002		0.00003	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.0016	0.002

**Grey cell indicates Background Limit is higher than MCL*

**GWPS = Groundwater Protection Standard*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

FIGURE G
Confidence Intervals

Confidence Intervals - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 8/29/2025, 5:30 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Barium (mg/L)	**SP-10**	**6.312**	**4.501**	**2.77**	**Yes**	**19**	**5.407**	**1.547**	**0**	**None**	**No**	**0.01**	**Param.**
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**29**	**5.985**	**2.169**	**10.34**	**None**	**No**	**0.01**	**NP (normality)**
Lithium (mg/L)	**SP-10**	**0.2727**	**0.2346**	**0.16**	**Yes**	**27**	**0.2536**	**0.03997**	**0**	**None**	**No**	**0.01**	**Param.**

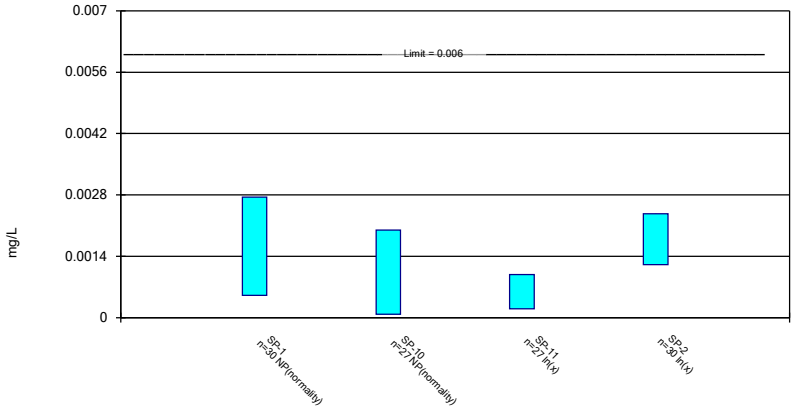
Confidence Intervals - All Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 8/29/2025, 5:30 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	SP-1	0.00275	0.00051	0.006	No	30	0.001987	0.002075	23.33	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-10	0.002	0.000076	0.006	No	27	0.0009596	0.001213	14.81	None	No	0.01	NP (normality)
Antimony (mg/L)	SP-11	0.0009831	0.0002004	0.006	No	27	0.001662	0.002699	11.11	None	ln(x)	0.01	Param.
Antimony (mg/L)	SP-2	0.002373	0.00121	0.006	No	30	0.002328	0.002402	6.667	None	ln(x)	0.01	Param.
Arsenic (mg/L)	SP-1	0.00211	0.00065	0.06	No	30	0.002118	0.001994	26.67	None	No	0.01	NP (normality)
Arsenic (mg/L)	SP-10	0.003531	0.0008343	0.06	No	27	0.003308	0.004238	7.407	None	x^(1/3)	0.01	Param.
Arsenic (mg/L)	SP-11	0.004532	0.002318	0.06	No	27	0.003722	0.002743	3.704	None	sqrt(x)	0.01	Param.
Arsenic (mg/L)	SP-2	0.00208	0.00125	0.06	No	30	0.002349	0.002358	3.333	None	No	0.01	NP (normality)
Barium (mg/L)	SP-1	0.1915	0.1598	2.77	No	30	0.1775	0.03797	0	None	x^(1/3)	0.01	Param.
Barium (mg/L)	**SP-10**	**6.312**	**4.501**	**2.77**	**Yes**	**19**	**5.407**	**1.547**	**0**	**None**	**No**	**0.01**	**Param.**
Barium (mg/L)	SP-11	0.3748	0.1964	2.77	No	19	0.2982	0.162	0	None	sqrt(x)	0.01	Param.
Barium (mg/L)	SP-2	1.315	0.9886	2.77	No	30	1.204	0.4673	0	None	ln(x)	0.01	Param.
Beryllium (mg/L)	SP-1	0.000126	0.000054	0.004	No	30	0.0002389	0.0003494	16.67	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-10	0.000121	0.00003	0.004	No	27	0.0006782	0.001099	25.93	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-11	0.00025	0.000028	0.004	No	27	0.0001355	0.0001305	25.93	None	No	0.01	NP (normality)
Beryllium (mg/L)	SP-2	0.000121	0.00007	0.004	No	30	0.0001523	0.0001462	13.33	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-1	0.0001	0.000051	0.005	No	19	0.0001094	0.0001122	10.53	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-10	0.000089	0.000009	0.005	No	19	0.00004968	0.00006939	15.79	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-11	0.00015	0.00001	0.005	No	27	0.0004129	0.0008831	14.81	None	No	0.01	NP (normality)
Cadmium (mg/L)	SP-2	0.000328	0.00006	0.005	No	30	0.0002284	0.0002051	33.33	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-1	0.001052	0.0005593	0.1	No	30	0.0009769	0.0006408	20	Kaplan-Meier	sqrt(x)	0.01	Param.
Chromium (mg/L)	SP-10	0.000837	0.0003242	0.1	No	26	0.000949	0.001694	7.692	None	ln(x)	0.01	Param.
Chromium (mg/L)	SP-11	0.00276	0.00043	0.1	No	27	0.005235	0.01004	3.704	None	No	0.01	NP (normality)
Chromium (mg/L)	SP-2	0.001281	0.0005834	0.1	No	30	0.001117	0.001036	10	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-1	0.001103	0.0004817	0.018	No	30	0.0009737	0.001062	10	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-10	0.001369	0.0002864	0.018	No	27	0.001321	0.001734	7.407	None	x^(1/3)	0.01	Param.
Cobalt (mg/L)	SP-11	0.003003	0.0009638	0.018	No	27	0.003376	0.0043	3.704	None	ln(x)	0.01	Param.
Cobalt (mg/L)	SP-2	0.0009709	0.0004717	0.018	No	30	0.0008442	0.000726	10	None	x^(1/3)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-1	4.338	3.197	19.05	No	29	3.768	1.244	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-10	20.13	3.226	19.05	No	27	13.24	8.757	0	None	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SP-11	2.332	1.221	19.05	No	26	1.912	1.356	0	None	sqrt(x)	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	SP-2	13.04	8.497	19.05	No	27	11.16	5.263	0	None	sqrt(x)	0.01	Param.
Fluoride (mg/L)	SP-1	0.9369	0.7209	4.39	No	30	0.8289	0.2403	6.667	None	No	0.01	Param.
Fluoride (mg/L)	**SP-10**	**6.8**	**5.71**	**4.39**	**Yes**	**29**	**5.985**	**2.169**	**10.34**	**None**	**No**	**0.01**	**NP (normality)**
Fluoride (mg/L)	SP-11	3.017	2.125	4.39	No	29	2.571	0.9734	0	None	No	0.01	Param.
Fluoride (mg/L)	SP-2	3.06	2.7	4.39	No	31	2.88	0.5326	0	None	No	0.01	NP (normality)
Lead (mg/L)	SP-1	0.00247	0.000259	0.015	No	30	0.001814	0.002016	26.67	None	No	0.01	NP (normality)
Lead (mg/L)	SP-10	0.0001783	0.00007778	0.015	No	19	0.0001553	0.00009929	15.79	Kaplan-Meier	sqrt(x)	0.01	Param.
Lead (mg/L)	SP-11	0.001183	0.0002857	0.015	No	27	0.001671	0.002542	11.11	None	ln(x)	0.01	Param.
Lead (mg/L)	SP-2	0.00202	0.000245	0.015	No	30	0.00185	0.002143	30	None	No	0.01	NP (normality)
Lithium (mg/L)	SP-1	0.006467	0.004989	0.16	No	29	0.005728	0.001613	0	None	No	0.01	Param.
Lithium (mg/L)	**SP-10**	**0.2727**	**0.2346**	**0.16**	**Yes**	**27**	**0.2536**	**0.03997**	**0**	**None**	**No**	**0.01**	**Param.**
Lithium (mg/L)	SP-11	0.03537	0.02103	0.16	No	19	0.02902	0.01297	0	None	sqrt(x)	0.01	Param.
Lithium (mg/L)	SP-2	0.07759	0.05414	0.16	No	30	0.06587	0.02608	0	None	No	0.01	Param.
Mercury (mg/L)	SP-1	0.000009	0.000005	0.002	No	30	0.000005967	0.000003508	83.33	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-10	0.00001	0.000005	0.002	No	27	0.000008852	0.000006882	62.96	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-11	0.000009	0.000005	0.002	No	27	0.0000103	0.00001201	51.85	None	No	0.01	NP (NDs)
Mercury (mg/L)	SP-2	0.000005	0.000005	0.002	No	30	0.000005367	0.00000165	86.67	None	No	0.01	NP (NDs)
Molybdenum (mg/L)	SP-1	0.01706	0.01204	0.1	No	30	0.01455	0.005581	0	None	No	0.01	Param.
Molybdenum (mg/L)	SP-10	0.01398	0.002109	0.1	No	26	0.01467	0.02655	3.846	None	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	SP-11	0.04214	0.0018	0.1	No	27	0.01667	0.0225	3.704	None	No	0.01	NP (normality)
Molybdenum (mg/L)	SP-2	0.02258	0.01671	0.1	No	19	0.01965	0.005013	0	None	No	0.01	Param.
Selenium (mg/L)	SP-1	0.006794	0.004191	0.05	No	30	0.005788	0.003231	10	None	sqrt(x)	0.01	Param.
Selenium (mg/L)	SP-10	0.0005561	0.00009923	0.05	No	27	0.001302	0.002046	40.74	Kaplan-Meier	ln(x)	0.01	Param.
Selenium (mg/L)	SP-11	0.00155	0.0002	0.05	No	27	0.001503	0.002188	7.407	None	No	0.01	NP (normality)
Selenium (mg/L)	SP-2	0.004295	0.002018	0.05	No	19	0.003344	0.002137	0	None	sqrt(x)	0.01	Param.
Thallium (mg/L)	SP-1	0.0005	0.00007	0.002	No	19	0.0003137	0.0004542	31.58	None	No	0.01	NP (normality)
Thallium (mg/L)	SP-10	0.0002	0.00004	0.002	No	19	0.0001916	0.00003671	94.74	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-11	0.0002	0.00003	0.002	No	19	0.0001911	0.000039	94.74	None	No	0.01	NP (NDs)
Thallium (mg/L)	SP-2	0.0002	0.00005	0.002	No	19	0.0001221	0.00007743	47.37	None	No	0.01	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

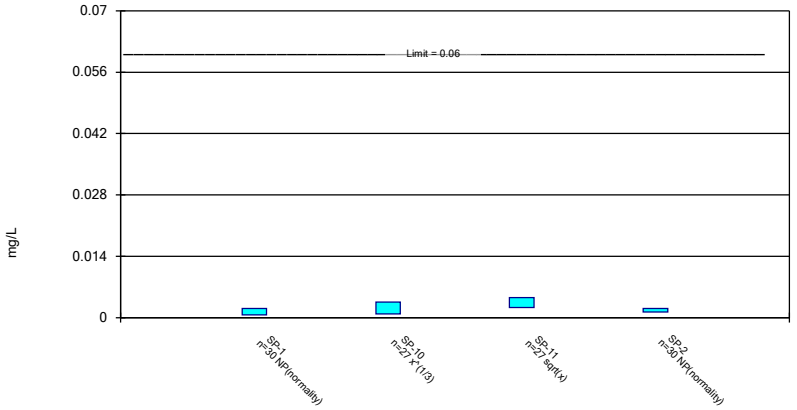
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Antimony Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

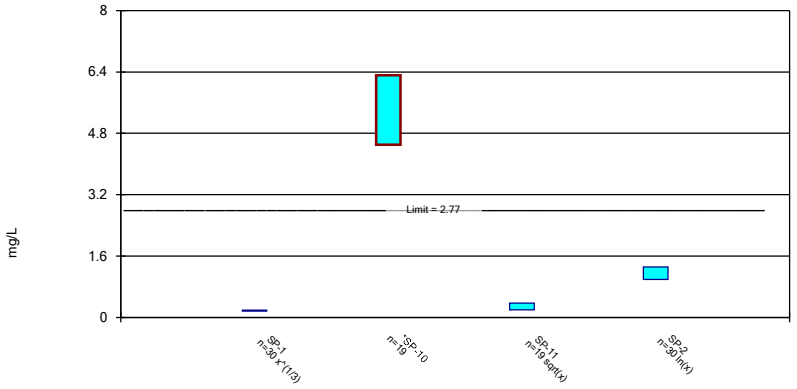
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric Confidence Interval

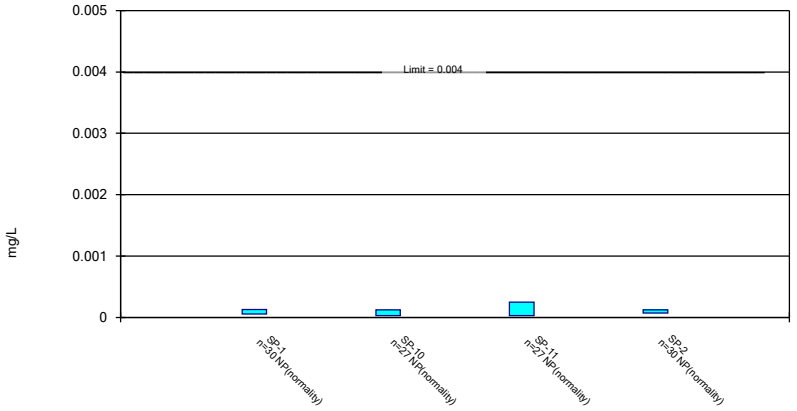
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Non-Parametric Confidence Interval

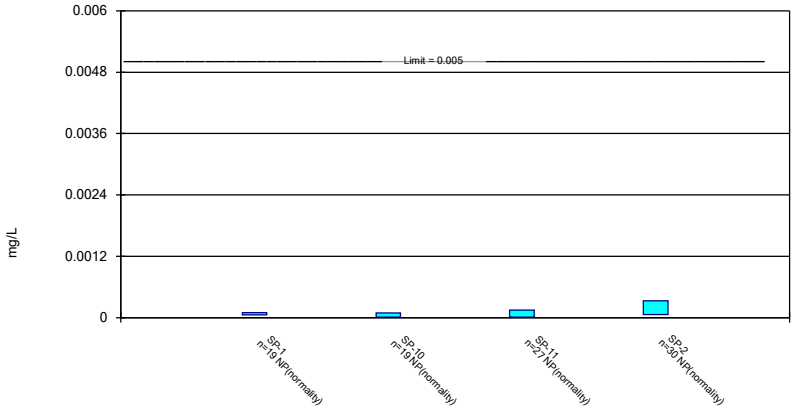
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Beryllium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Non-Parametric Confidence Interval

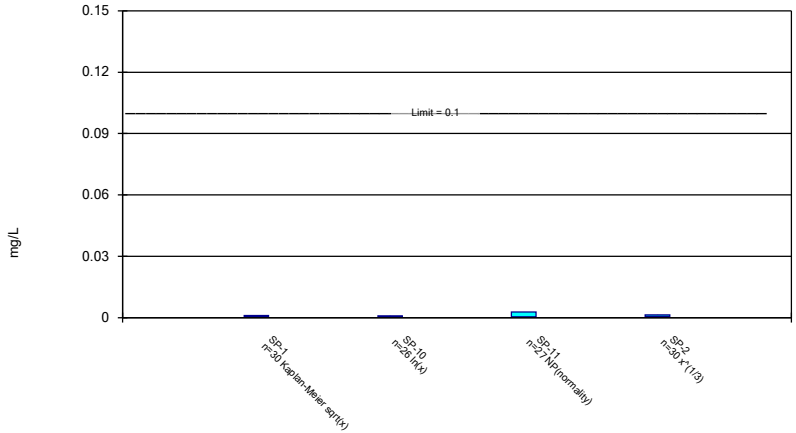
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Cadmium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

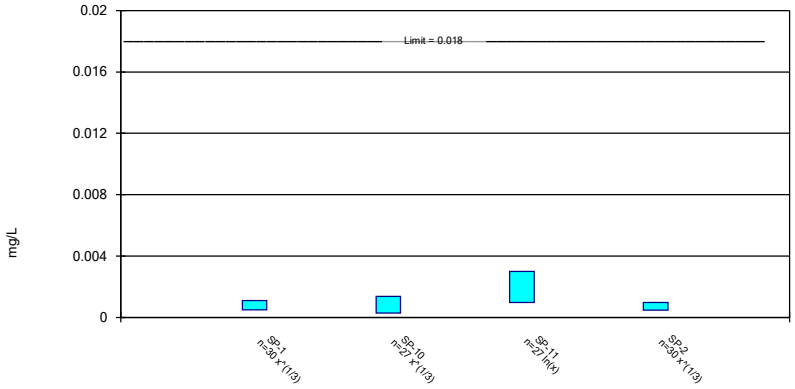
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric Confidence Interval

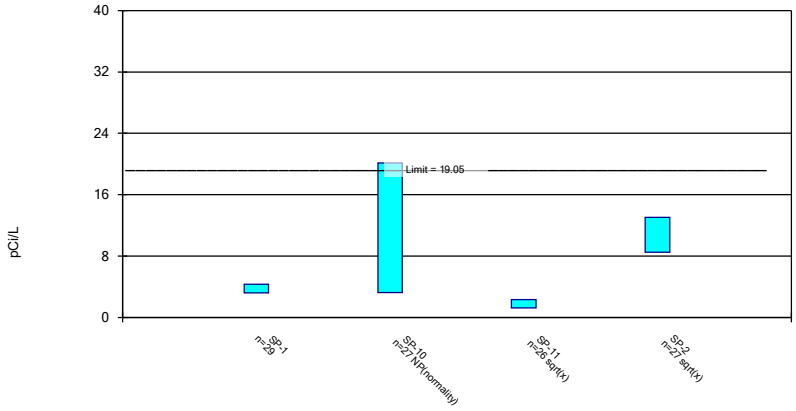
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

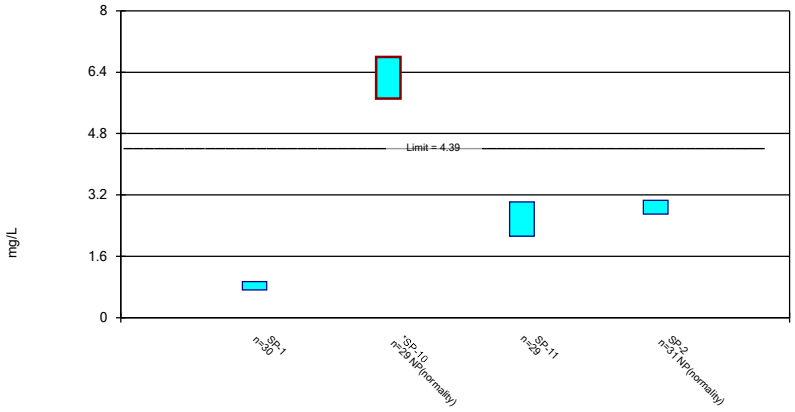
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

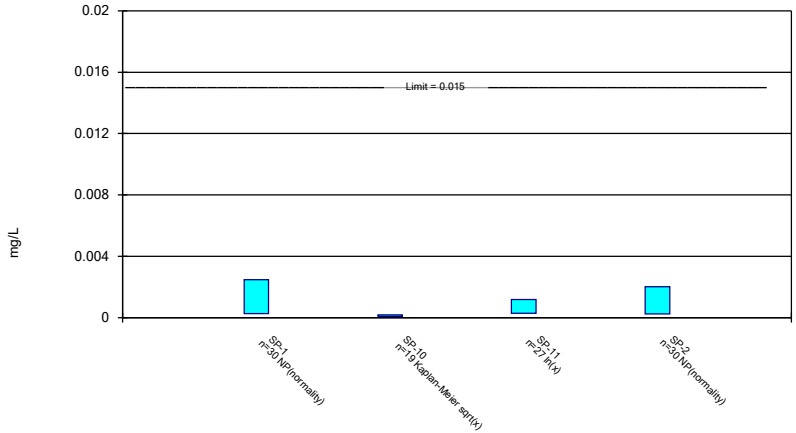
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric and Non-Parametric (NP) Confidence Interval

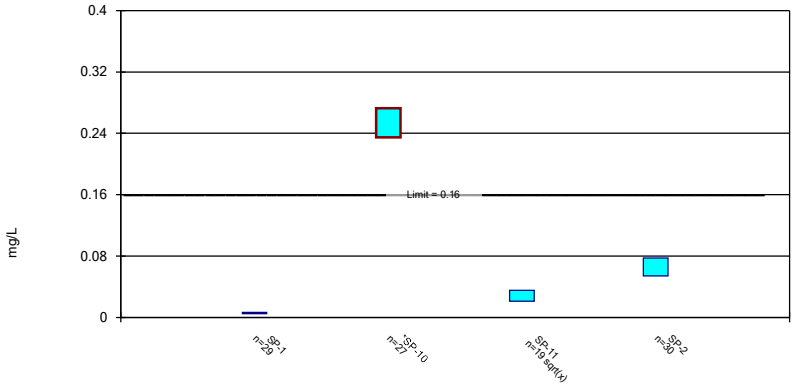
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Parametric Confidence Interval

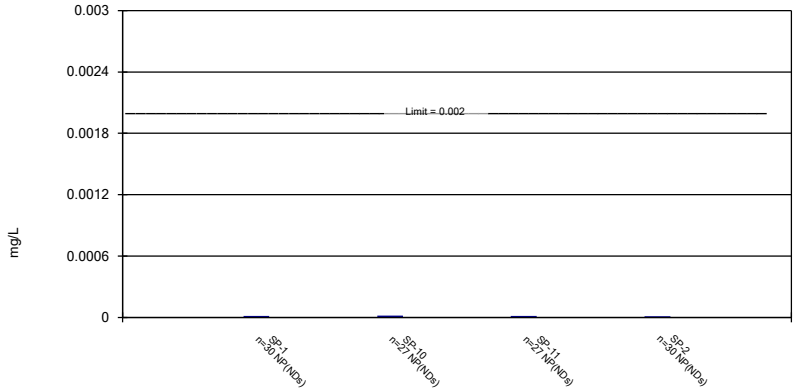
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Non-Parametric Confidence Interval

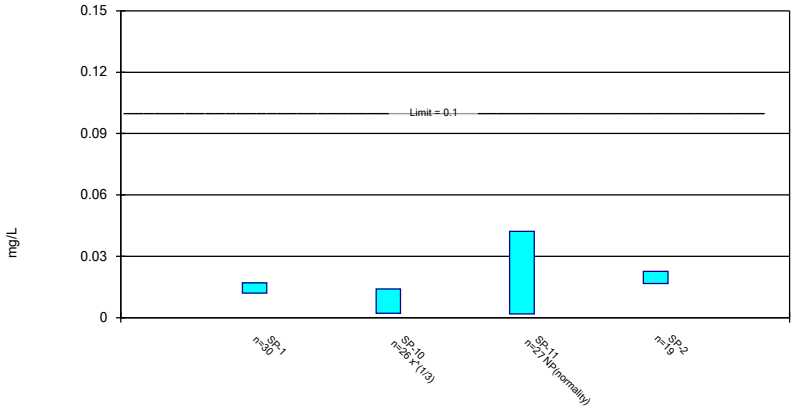
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Mercury Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern 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.

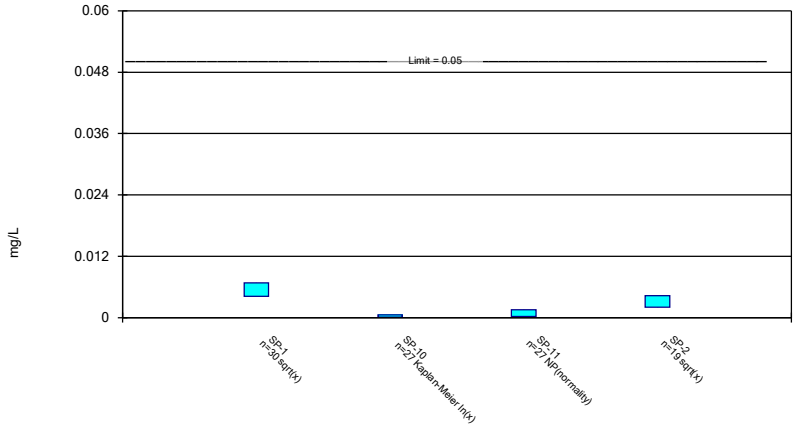


Constituent: Molybdenum Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by 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.

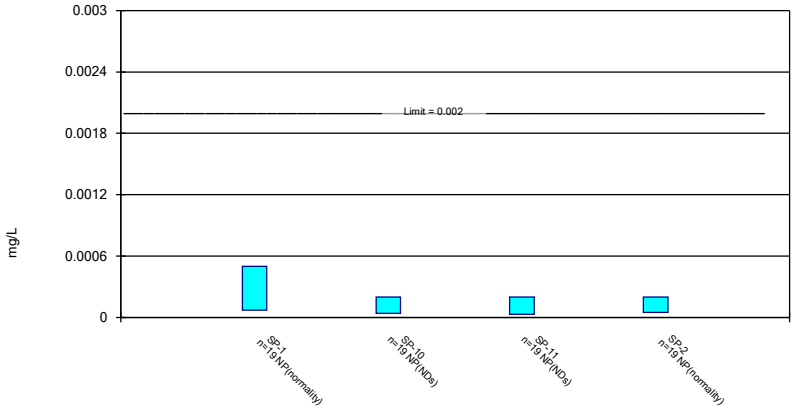


Constituent: Selenium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Non-Parametric Confidence Interval

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



Constituent: Thallium Analysis Run 8/29/2025 5:29 PM View: Appendix B Confidence Intervals
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

FIGURE H
Trend Tests – Appendix B

Appendix B Trend Tests - Significant Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/5/2025, 4:48 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.8602**	**212**	**96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01676**	**-64**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.05659**	**167**	**112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-10**	**-0.01184**	**-176**	**-96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001352**	**-72**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004347**	**-209**	**-112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**

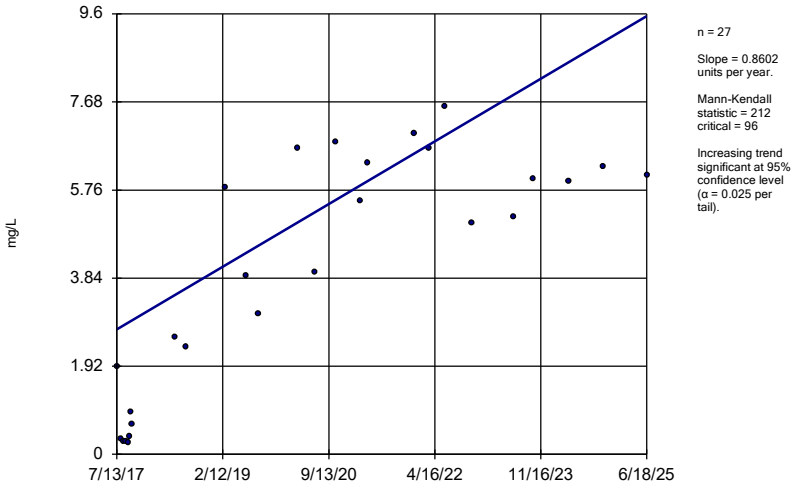
Appendix B Trend Tests - All Results

Northeastern BAP Client: Geosyntec Data: Northeastern BAP Printed 9/5/2025, 4:48 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	**SP-10**	**0.8602**	**212**	**96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-4 (bg)**	**-0.01676**	**-64**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Barium (mg/L)	**SP-5R (bg)**	**0.05659**	**167**	**112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Fluoride (mg/L)	SP-10	0.1114	66	106	No	29	10.34	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-4 (bg)	-0.003946	-26	-117	No	31	3.226	n/a	n/a	0.05	NP
Fluoride (mg/L)	SP-5R (bg)	0.005849	27	117	No	31	0	n/a	n/a	0.05	NP
Lithium (mg/L)	**SP-10**	**-0.01184**	**-176**	**-96**	**Yes**	**27**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-4 (bg)**	**-0.001352**	**-72**	**-53**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Lithium (mg/L)	**SP-5R (bg)**	**-0.004347**	**-209**	**-112**	**Yes**	**30**	**0**	**n/a**	**n/a**	**0.05**	**NP**

Sen's Slope Estimator

SP-10



n = 27

Slope = 0.8602 units per year.

Mann-Kendall statistic = 212
critical = 96

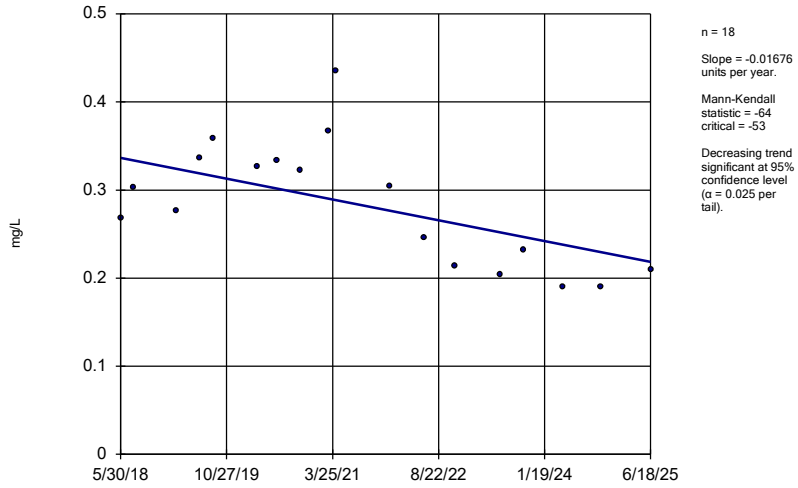
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-4 (bg)



n = 18

Slope = -0.01676 units per year.

Mann-Kendall statistic = -64
critical = -53

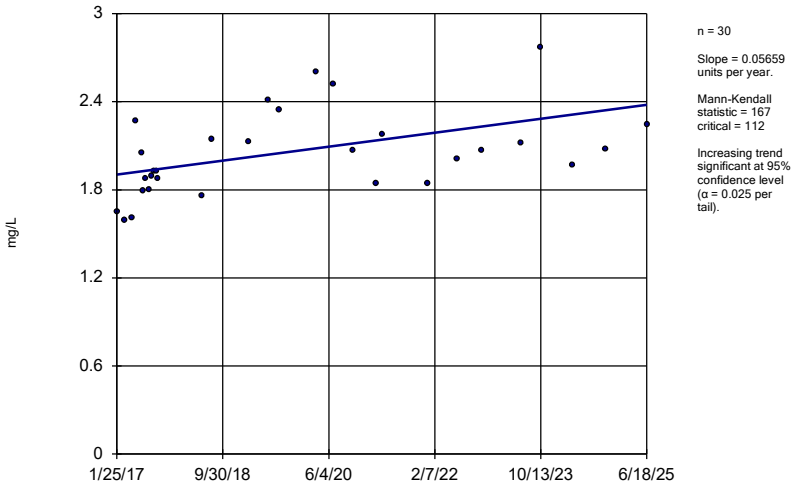
Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = 0.05659 units per year.

Mann-Kendall statistic = 167
critical = 112

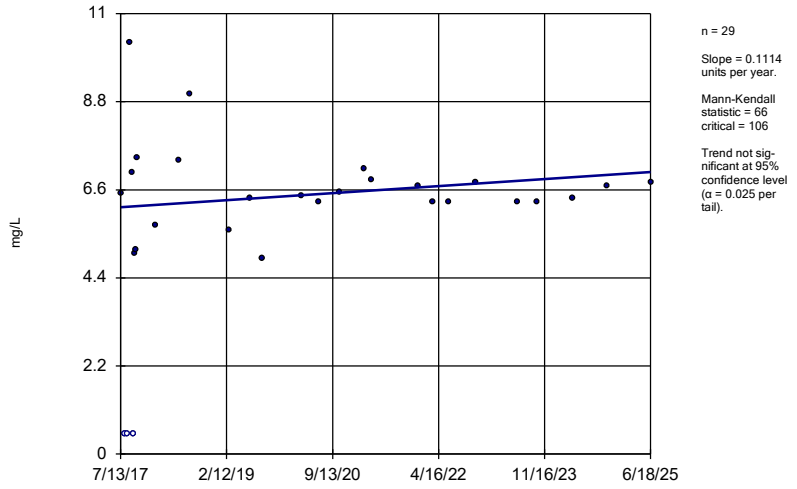
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Barium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-10



n = 29

Slope = 0.1114 units per year.

Mann-Kendall statistic = 66
critical = 106

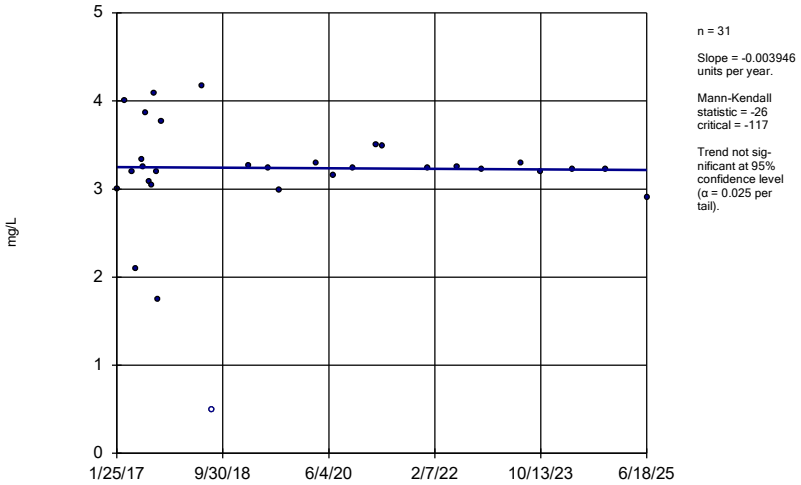
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Hollow symbols indicate censored values.

Sen's Slope Estimator

SP-4 (bg)



n = 31

Slope = -0.003946 units per year.

Mann-Kendall statistic = -26
critical = -117

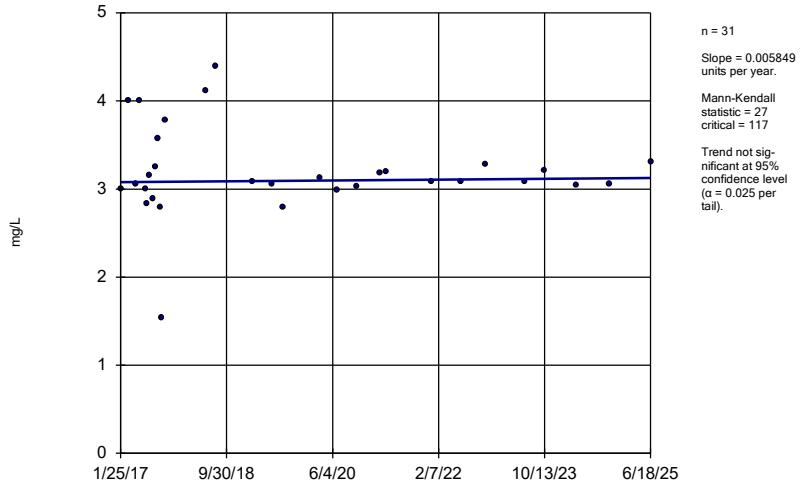
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-5R (bg)



n = 31

Slope = 0.005849 units per year.

Mann-Kendall statistic = 27
critical = 117

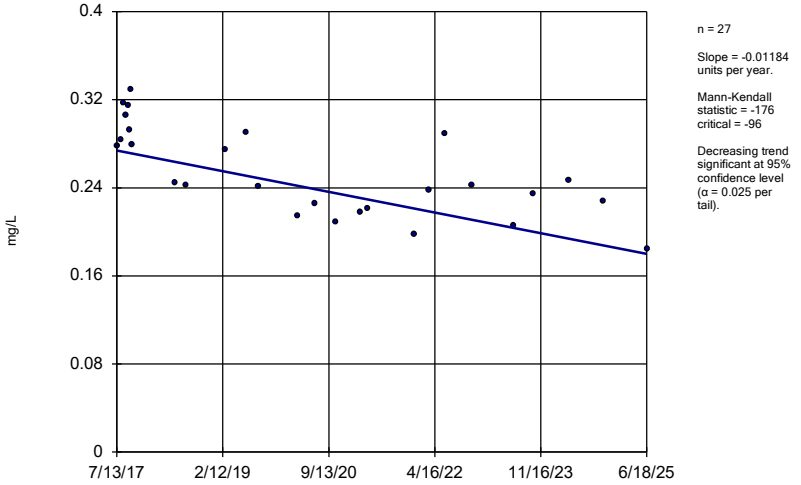
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-10



n = 27

Slope = -0.01184 units per year.

Mann-Kendall statistic = -176
critical = -96

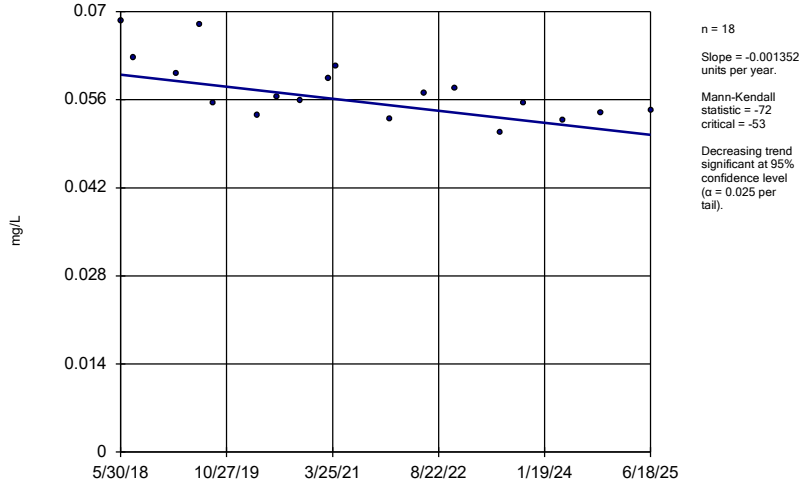
Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sanitas™ v.10.0.27 Sanitas software utilized by Groundwater Stats Consulting. UG

Sen's Slope Estimator

SP-4 (bg)



n = 18

Slope = -0.001352 units per year.

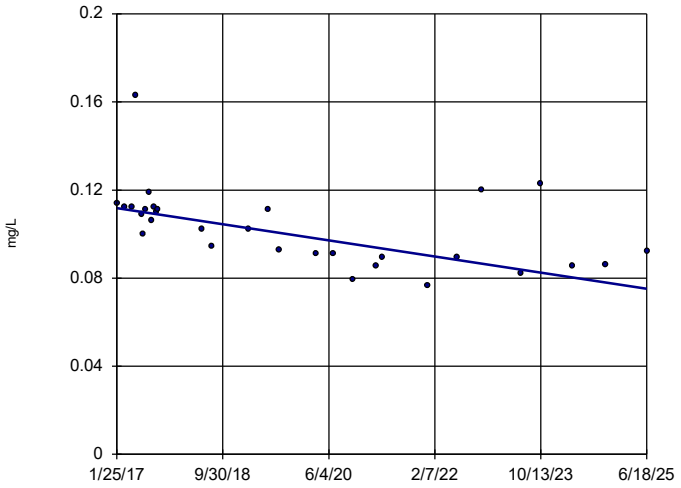
Mann-Kendall statistic = -72
critical = -53

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Sen's Slope Estimator

SP-5R (bg)



n = 30

Slope = -0.004347 units per year.

Mann-Kendall statistic = -209
critical = -112

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Lithium Analysis Run 9/5/2025 4:47 PM View: Appendix B Trend Tests
Northeastern BAP Client: Geosyntec Data: Northeastern BAP

Attachment B

Certification by Qualified Professional Engineer

CERTIFICATION BY A QUALIFIED PROFESSIONAL ENGINEER

I certify that the above described alternative source demonstration is appropriate for evaluating the groundwater monitoring data for the Bottom Ash Pond CCR management area at the Northeastern Power Station and that the requirements of OAC 252:517-9-6(g)(3)(B) have been met.



Beth Ann Gross
Printed Name of Licensed Professional Engineer

Beth Ann Gross
Signature

Geosyntec Consultants
2039 Centre Pointe Boulevard, Suite 103
Tallahassee, Florida 32308

Oklahoma Firm Certificate of
Authorization No. 1996
Exp. 6/30/2026

18167	Oklahoma	January 8, 2025
License Number	Licensing State	Date

* * * * *

APPENDIX 4

Notices for Monitoring Program Transitions

Northeastern Power Station

Notice of Establishing Assessment Monitoring Program (EAP)

Bottom Ash Pond

On January 22, 2018, it was determined that Northeastern's Bottom Ash Pond had statistically significant increases over background for Boron, Chloride, Fluoride, pH, Sulfate, and Total Dissolved Solids (TDS). An alternative source demonstration was not successful within the 90 day period as allowed for in 257.94(e)(2) and 252:517-9-5(e)(2) prompting the initiation of an assessment monitoring program, which was established on April 13, 2018. Therefore this notice is being placed in the operating record in accordance with the requirement of 257.94(e)(3) and 252:517-9-5(e)(3).

APPENDIX 5

Well Installation/Decommissioning Logs – NA

APPENDIX 6

Groundwater monitoring Field and Laboratory Reports

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** 06/18/25 .

Well Identification Number	MW-1D	MW-10D	MW-17			
Activities	Gauge	Gauge	Gauge			
Samples	Landfill	Landfill	Landfill			
Depth to Water (ft)	55.62	68.88	54.12			
Measured Depth Total Depth of Well (ft.)	58.25	71.33	58.41			
Height of Water Column (ft.)	2.63	2.45	4.29			
Well Size (I.D.) (inches)	2	2	2			
Volume of Water in Well (gallons)	0.43	0.40	0.70			
Water Removed From Well (gallons)	0.25	0.25	0.50			
Method of Removal	Pump	Pump	Pump			
Was Well Purged Dry?	Yes	Yes	Yes			
pH (standard units)	----	----	----			
Temperature (°C)	----	----	----			
Conductivity (µmhos/cc)	----	----	----			
Turbidity (NTU)	----	----	----			
Appearance	----	----	----			
Odor	----	----	----			
Containers	3 x 1L HNO3 1 L Cool 0-6C	3 x 1L HNO3 1 L Cool 0-6C	3 x 1L HNO3 1 L Cool 0-6C			
Sample Time	----	----	----			
Sample Date	----	----	----			

For 2" well multiply by	0.163
For 4" well multiply by	0.653

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** 06/18/25 .

Well Identification Number	SP-1	SP-2	SP-4	SP-5R	SP-10	SP-11
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	Gauge
Samples	BAP	BAP	BAP	BAP	BAP++	BAP
Depth to Water (ft)	14.55	18.37	12.13	3.83	12.29	7.89
Measured Depth Total Depth of Well (ft.)	37.99	38.19	38.30	78.00	54.10	34.51
Height of Water Column (ft.)	23.44	19.82	26.17	74.17	41.81	26.62
Well Size (I.D.) (inches)	2	2	2	2	2	2
Volume of Water in Well (gallons)	3.82	3.23	4.27	12.09	6.82	4.34
Water Removed From Well (gallons)	12.00	12.00	10.50	28.00	18.75	9.00
Method of Removal	Pump	Pump	Pump	Pump	Pump	Pump
Was Well Purged Dry?	No	No	Yes	Yes	Yes	Yes
pH (standard units)	7.51	7.61	7.53	7.71	7.80	7.62
Temperature (°C)	20.18	18.96	20.41	20.47	18.94	19.06
Conductivity (µmhos/cc)	926	3,590	2,000	2,880	6,140	1,500
Turbidity (NTU)	16.9	7.9	20.6	17.4	13.8	32.6
Appearance	Clear	Clear	Clear	Clear	Clear	Clear
Odor	None	None	None	None	Sulphur	None
Containers	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C
Sample Time	1249	1223	1400	1454	1138	1157
Sample Date	6/18/2025	6/18/2025	6/18/2025	6/18/2025	6/18/2025	6/18/2025

For 2" well multiply by	0.163
For 4" well multiply by	0.653

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** 06/18/25 .

Well Identification Number	SP-3	SP-6	SP-7	SP-8	SP-9	
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	
Samples	NA	NA	NA	NA	NA	
Depth to Water (ft)	18.17	17.94	23.06	3.25	35.50	
Measured Depth Total Depth of Well (ft.)	37.90	73.93	84.02	74.06	78.82	
Height of Water Column (ft.)	19.73	55.99	60.96	70.81	43.32	
Well Size (I.D.) (inches)	2	2	2	2	2	
Volume of Water in Well (gallons)	3.22	9.13	9.94	11.54	7.06	
Water Removed From Well (gallons)	----	----	----	----	----	
Method of Removal	----	----	----	----	----	
Was Well Purged Dry?	----	----	----	----	----	
pH (standard units)	----	----	----	----	----	
Temperature (°C)	----	----	----	----	----	
Conductivity (µmhos/cc)	----	----	----	----	----	
Turbidity (NTU)	----	----	----	----	----	
Appearance	----	----	----	----	----	
Odor	----	----	----	----	----	
Containers	----	----	----	----	----	
Sample Time	----	----	----	----	----	
Sample Date	----	----	----	----	----	

For 2" well multiply by	0.163
For 4" well multiply by	0.653

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** .

Well Identification Number	MW-1D	MW-1S	MW-2D	MW-2S	MW-3D	MW-3S
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	Gauge
Samples	Landfill	NA	Landfill	Slurry Wall	Landfill	Slurry Wall
Depth to Water (ft)	55.00	18.34	52.28	32.83	37.49	21.26
Measured Depth Total Depth of Well (ft.)	58.25	37.76	61.80	36.75	62.95	27.21
Height of Water Column (ft.)	3.25		9.52	3.92	25.46	5.95
Well Size (I.D.) (inches)	2	2	2	2	2	2
Volume of Water in Well (gallons)	0.53		1.55	0.64	4.15	0.97
Water Removed From Well (gallons)	0.25	----	5.0	3.0	13.0	1.0
Method of Removal	Pump	----	Pump	Pump	Pump	Pump
Was Well Purged Dry?	YES	----	NO	NO	NO	YES
pH (standard units)	—	----	11.24	8.01	7.79	7.55
Temperature (°C)	—	----	17.51	18.23	19.06	18.98
Conductivity (µmhos/cc)	—	----	1800	4060	912	3840
Turbidity (NTU)	—	----	42.6	46.3	12.6	60.1
Appearance	—	----	CLEAR	CLEAR	CLEAR	CLEAR WITH FLOATERS
Odor	—	----	NONE	NONE	NONE	NONE
Containers	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	----	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 250 mL HCL 1 L Cool.0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 250 mL HCL 1 L Cool 0-6C
Sample Time	—	----	1609	1556	0857	0918
Sample Date	—	----	10/28/25	10/28/25	10/28/25	10/28/25

For 2" well multiply by	0.163
For 4" well multiply by	0.653

METALS + Hg ONLY

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

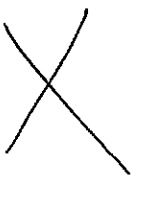
SAMPLED BY: Kenny McDonald . **DATE:** .

Well Identification Number	MW-4D	MW-4S	MW-5D	MW-5S	MW-6D	MW-6S
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	Gauge
Samples	Landfill	NA	Landfill	NA	Landfill	Slurry Wall
Depth to Water (ft)	43.75	Dry	24.88	20.27	37.85	Dry
Measured Depth Total Depth of Well (ft.)	53.86	32.94	58.42	33.15	58.51	28.20
Height of Water Column (ft.)	10.11	—	33.54	—	20.66	—
Well Size (I.D.) (inches)	2	2	2	2	2	2
Volume of Water in Well (gallons)	1.65	—	5.47	—	3.37	—
Water Removed From Well (gallons)	8.0	----	18.0	----	12.0	—
Method of Removal	Pump	----	Pump	----	Pump	----
Was Well Purged Dry?	No	----	No	----	No	—
pH (standard units)	7.44	----	7.86	----	7.62	—
Temperature (°C)	17.90	----	17.38	----	19.05	—
Conductivity (µmhos/cc)	1130	----	864	----	1146	—
Turbidity (NTU)	25.3	----	18.6	----	216	—
Appearance	Clear	----	Clear	----	Turbid	—
Odor	None	----		----	None	—
Containers	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	----	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	----	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 250 mL HCL 1 L Cool 0-6C
Sample Time	0821	----	1647	----	0949	—
Sample Date	10/28/25	----	10/28/25	----	10/28/25	—

Landfill Duplicate 0821

For 2" well multiply by	0.163
For 4" well multiply by	0.653





NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** .

Well Identification Number	MW-7D	MW-7S	MW-8D	MW-8S	MW-9D	MW-9S
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	Gauge
Samples	NA	NA	NA	NA	Landfill	Slurry Wall
Depth to Water (ft)	10.49	9.43	24.92	7.89	44.14	25.15
Measured Depth Total Depth of Well (ft.)	58.70	33.54	64.50	43.30	63.10	36.71
Height of Water Column (ft.)					18.96	11.56
Well Size (I.D.) (inches)	2	2	2	2	2	2
Volume of Water in Well (gallons)					3.09	1.88
Water Removed From Well (gallons)	----	----	----	----	9.50	6.0
Method of Removal	----	----	----	----	Pump	Pump
Was Well Purged Dry?	----	----	----	----	NO	NO
pH (standard units)	----	----	----	----	8.97	11.96
Temperature (°C)	----	----	----	----	17.04	17.78
Conductivity (µmhos/cc)	----	----	----	----	1360	3270
Turbidity (NTU)	----	----	----	----	171	102
Appearance	----	----	----	----	TURBID	YELLOW TINT
Odor	----	----	----	----	NONE	NONE
Containers	----	----	----	----	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 250 mL HCL 1 L Cool 0-6C
Sample Time	----	----	----	----	1206	1013
Sample Date	----	----	----	----	10/28/25	10/28/25

For 2" well multiply by	0.163
For 4" well multiply by	0.653

SLURRY WALL DUP 1013

X

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** .

Well Identification Number	MW-10D	MW-10S	MW-11D	MW-11S	MW-12D	MW-12S
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	Gauge
Samples	Landfill	NA	Landfill	NA	Landfill	Slurry Wall
Depth to Water (ft)	68.37	16.45	47.96	11.46	15.12	12.58
Measured Depth Total Depth of Well (ft.)	71.33	36.22	50.34	31.02	44.92	22.94
Height of Water Column (ft.)	2.96	—	—	—	29.80	10.36
Well Size (I.D.) (inches)	2	2	2	2	2	2
Volume of Water in Well (gallons)	0.48	—	—	—	4.86	1.69
Water Removed From Well (gallons)	0.25	----	—	----	11.75	2.5
Method of Removal	Pump	----	Pump	----	Pump	Pump
Was Well Purged Dry?	YES	----	—	----	YES	YES
pH (standard units)	—	----	—	----	9.14	6.99
Temperature (°C)	—	----	—	----	17.13	18.98
Conductivity (µmhos/cc)	—	----	—	----	1080	1290
Turbidity (NTU)	—	----	—	----	124	42.3
Appearance	—	----	—	----	SLIGHTLY TURBID	CLEAR
Odor	—	----	—	----	NONE	NONE
Containers	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	----	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	----	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 250 mL HCL 1 L Cool 0-6C
Sample Time	—	----	—	----	1506	1517
Sample Date	—	----	—	----	10/28/25	10/28/25

For 2" well multiply by	0.163
For 4" well multiply by	0.653

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** .

Well Identification Number	MW-13D	MW-13S	MW-14	MW-15	MW-16	MW-17
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	Gauge
Samples	Landfill	Slurry Wall	Landfill	Landfill	Landfill	Landfill
Depth to Water (ft)	38.02	16.36	69.87	53.56	61.75	54.04
Measured Depth Total Depth of Well (ft.)	47.56	18.12	78.96	74.21	64.15	58.41
Height of Water Column (ft.)	9.54	1.76	9.09	20.95	2.40	4.37
Well Size (I.D.) (inches)	2	2	2	2	2	2
Volume of Water in Well (gallons)	1.56	0.28	1.48	3.41	0.39	0.71
Water Removed From Well (gallons)	5.0	0.25	[illegible]	7.75	0.25	0.5
Method of Removal	Pump	----	Pump	Pump	---	Pump
Was Well Purged Dry?	No	Yes	Yes	Yes	Yes	Yes
pH (standard units)	8.08	—	7.90	8.82	—	—
Temperature (°C)	17.04	—	18.78	18.85	—	—
Conductivity (µmhos/cc)	1320	—	7660	1320	—	—
Turbidity (NTU)	144	—	216	47.3	—	—
Appearance	SLIGHTLY TURBID	—	TURBID	CLEAR	—	—
Odor	NONE	—	NONE	NONE	—	—
Containers	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 250 mL HCL 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C
Sample Time	1434	—	0752	1112	—	—
Sample Date	10/28/25	—	10/28/25	10/28/25	—	—

MEANS Hg + 3rd party

For 2" well multiply by	0.163
For 4" well multiply by	0.653

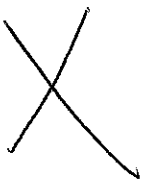
NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** .

Well Identification Number	MW-18	MW-19				
Activities	Gauge	Gauge				
Samples	Landfill	Landfill				
Depth to Water (ft)	26.43	18.66				
Measured Depth Total Depth of Well (ft.)	93.78	93.80				
Height of Water Column (ft.)	67.35	75.14				
Well Size (I.D.) (inches)	2	2				
Volume of Water in Well (gallons)	10.98	12.25				
Water Removed From Well (gallons)	19.75	29.25				
Method of Removal	Pump	Pump				
Was Well Purged Dry?	Yes	Yes				
pH (standard units)	7.12	7.68				
Temperature (°C)	18.10	17.79				
Conductivity (µmhos/cc)	32400	38000				
Turbidity (NTU)	0.0	19.2				
Appearance	BLACK TINT	CLEAR - BLACK TINT				
Odor	MINT	SULPHUR				
Containers	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C				
Sample Time	0734	1753				
Sample Date	10/28/25	10/27/25				

For 2" well multiply by	0.163
For 4" well multiply by	0.653





NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** _____.

Well Identification Number	SP-1	SP-2	SP-4	SP-5R	SP-10	SP-11
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	Gauge
Samples	BAP	BAP	BAP	BAP	BAP	BAP
Depth to Water (ft)	15.77	22.69	18.06	4.20	TOC	11.79
Measured Depth Total Depth of Well (ft.)	37.99	38.19	38.30	78.00	54.10	34.51
Height of Water Column (ft.)	22.22	15.50	20.24	~~73.80~~	54.10	22.72
Well Size (I.D.) (inches)	2	2	2	2	2	2
Volume of Water in Well (gallons)	3.62	2.53	3.30	12.03	8.82	3.70
Water Removed From Well (gallons)	12.5	10.0	8.25	26.75	20.5	7.75
Method of Removal	Pump	Pump	Pump	Pump	Pump	Pump
Was Well Purged Dry?	NO	NO	YES	YES	YES	YES
pH (standard units)	7.87	7.74	8.04	8.14	7.88	7.91
Temperature (°C)	18.53	17.88	18.23	18.73	19.98	20.13
Conductivity (µmhos/cc)	1140	3510	1930	2610	5750	1400
Turbidity (NTU)	21.4	11.9	21.8	33.9	2.5	18.6
Appearance	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
Odor	NONE	NONE	NONE	NONE	SULFUR	NONE
Containers	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C	250 mL HNO3 125 mL HCL 3 x 1L HNO3 1 L Cool 0-6C
Sample Time	1611	1330	1725	1809	1427	1502
Sample Date	10/27/25	10/27/25	10/28/25	10/28/25	10/27/25	10/27/25

BAP DUP 1611

For 2" well multiply by	0.163
For 4" well multiply by	0.653

NORTHEASTERN POWER PLANT
GROUNDWATER SAMPLING DATA FORM

SAMPLED BY: Kenny McDonald . **DATE:** _____.

Well Identification Number	SP-3	SP-6	SP-7	SP-8	SP-9	
Activities	Gauge	Gauge	Gauge	Gauge	Gauge	
Samples	NA	NA	NA	NA	NA	
Depth to Water (ft)	0.36	18.17	22.50	5.56	33.29	
Measured Depth Total Depth of Well (ft.)	37.90	73.93	84.02	74.06	78.82	
Height of Water Column (ft.)						
Well Size (I.D.) (inches)	2	2	2	2	2	
Volume of Water in Well (gallons)						
Water Removed From Well (gallons)	----	----	----	----	----	
Method of Removal	----	----	----	----	----	
Was Well Purged Dry?	----	----	----	----	----	
pH (standard units)	----	----	----	----	----	
Temperature (°C)	----	----	----	----	----	
Conductivity (µmhos/cc)	----	----	----	----	----	
Turbidity (NTU)	----	----	----	----	----	
Appearance	----	----	----	----	----	
Odor	----	----	----	----	----	
Containers	----	----	----	----	----	
Sample Time	----	----	----	----	----	
Sample Date	----	----	----	----	----	

For 2" well multiply by	0.163
For 4" well multiply by	0.653

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-1
Lab Number: 251610-001
Date Collected: 06/18/2025 13:49 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.754	µg/L	1	0.100	0.008		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Arsenic	0.75	µg/L	1	0.10	0.03		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Barium	146	µg/L	1	0.20	0.05		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Beryllium	0.081	µg/L	1	0.050	0.007		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Boron	0.240	mg/L	1	0.050	0.007		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Cadmium	0.058	µg/L	1	0.020	0.004		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Calcium	113	mg/L	1	0.05	0.02		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Chromium	0.76	µg/L	1	0.30	0.07		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Cobalt	1.45	µg/L	1	0.020	0.005		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Lead	0.67	µg/L	1	0.20	0.05		GES	07/16/2025 21:55	EPA 200.8-1994, Rev. 5.4
Lithium	0.00801	mg/L	1	0.00030	0.00006		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Magnesium	32.0	mg/L	1	0.100	0.009		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	21.3	µg/L	1	0.5	0.1		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Potassium	1.06	mg/L	1	0.10	0.01		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Selenium	6.28	µg/L	1	0.50	0.04		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Sodium	52.9	mg/L	1	0.20	0.02		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Thallium	0.13	µg/L	1	0.20	0.02	J1	GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.94	pCi/L	0.13	0.16		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	107	%						
Radium-228	1.51	pCi/L	0.19	0.58		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	80.7	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-2
Lab Number: 251610-002
Date Collected: 06/18/2025 13:23 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.855	µg/L	1	0.100	0.008		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Arsenic	1.36	µg/L	1	0.10	0.03		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Barium	1090	µg/L	1	0.20	0.05		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Beryllium	0.075	µg/L	1	0.050	0.007		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Boron	0.129	mg/L	1	0.050	0.007		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Cadmium	0.050	µg/L	1	0.020	0.004		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Calcium	99.7	mg/L	1	0.05	0.02		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Chromium	0.66	µg/L	1	0.30	0.07		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Cobalt	0.676	µg/L	1	0.020	0.005		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Lead	0.23	µg/L	1	0.20	0.05		GES	07/02/2025 12:32	EPA 200.8-1994, Rev. 5.4
Lithium	0.0416	mg/L	1	0.00030	0.00006		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Magnesium	61.2	mg/L	1	0.100	0.009		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	13.0	µg/L	1	0.5	0.1		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Potassium	2.14	mg/L	1	0.10	0.01		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Selenium	1.78	µg/L	1	0.50	0.04		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Sodium	267	mg/L	5	1.0	0.1		GES	06/26/2025 16:27	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	2.80	pCi/L	0.23	0.12		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	111	%						
Radium-228	4.09	pCi/L	0.16	0.36		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	108	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-4
Lab Number: 251610-003
Date Collected: 06/18/2025 15:00 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.166	µg/L	1	0.100	0.008		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Arsenic	0.80	µg/L	1	0.10	0.03		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Barium	210	µg/L	5	1.0	0.3		GES	06/26/2025 17:43	EPA 200.8-1994, Rev. 5.4
Beryllium	0.057	µg/L	1	0.050	0.007		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Boron	0.356	mg/L	1	0.050	0.007		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Cadmium	0.026	µg/L	1	0.020	0.004		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Calcium	87.3	mg/L	1	0.05	0.02		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Chromium	0.56	µg/L	1	0.30	0.07		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Cobalt	0.369	µg/L	1	0.020	0.005		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Lead	0.17	µg/L	1	0.20	0.05	J1	GES	07/02/2025 13:32	EPA 200.8-1994, Rev. 5.4
Lithium	0.0544	mg/L	1	0.00030	0.00006		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Magnesium	41.1	mg/L	1	0.100	0.009		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	2.4	µg/L	1	0.5	0.1		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Potassium	2.37	mg/L	1	0.10	0.01		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Selenium	0.30	µg/L	1	0.50	0.04	J1	GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Sodium	303	mg/L	5	1.0	0.1		GES	06/26/2025 17:43	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.76	pCi/L	0.13	0.16		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	86.1	%						
Radium-228	2.53	pCi/L	0.17	0.46		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	88.8	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-5R
Customer Description:
Lab Number: 251610-004
Preparation:
Date Collected: 06/18/2025 15:54 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.102	µg/L	1	0.100	0.008		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Arsenic	14.7	µg/L	1	0.10	0.03		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Barium	2240	µg/L	5	1.0	0.3		GES	06/26/2025 17:54	EPA 200.8-1994, Rev. 5.4
Beryllium	0.059	µg/L	1	0.050	0.007		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Boron	0.226	mg/L	1	0.050	0.007		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Cadmium	0.022	µg/L	1	0.020	0.004		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Calcium	73.8	mg/L	1	0.05	0.02		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Chromium	0.57	µg/L	1	0.30	0.07		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Cobalt	1.56	µg/L	1	0.020	0.005		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Lead	0.91	µg/L	1	0.20	0.05		GES	07/02/2025 13:37	EPA 200.8-1994, Rev. 5.4
Lithium	0.0922	mg/L	1	0.00030	0.00006		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Magnesium	34.3	mg/L	1	0.100	0.009		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	0.7	µg/L	1	0.5	0.1		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Potassium	2.94	mg/L	1	0.10	0.01		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Selenium	0.05	µg/L	1	0.50	0.04	J1	GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Sodium	479	mg/L	5	1.0	0.1		GES	06/26/2025 17:54	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	6.99	pCi/L	0.39	0.15		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	115	%						
Radium-228	5.28	pCi/L	0.16	0.33		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	107	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-10
Lab Number: 251610-005
Date Collected: 06/18/2025 12:38 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.034	µg/L	1	0.100	0.008	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Arsenic	0.16	µg/L	1	0.10	0.03		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Barium	6090	µg/L	10	2.0	0.5		GES	06/26/2025 18:05	EPA 200.8-1994, Rev. 5.4
Beryllium	0.035	µg/L	1	0.050	0.007	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Boron	0.965	mg/L	1	0.050	0.007		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Cadmium	0.005	µg/L	1	0.020	0.004	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Calcium	82.5	mg/L	1	0.05	0.02		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Cobalt	0.035	µg/L	1	0.020	0.005		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	07/02/2025 13:43	EPA 200.8-1994, Rev. 5.4
Lithium	0.184	mg/L	1	0.00030	0.00006		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Magnesium	45.2	mg/L	1	0.100	0.009		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	0.3	µg/L	1	0.5	0.1	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Potassium	5.88	mg/L	1	0.10	0.01		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Sodium	1120	mg/L	10	2.0	0.2		GES	06/26/2025 18:05	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	19.50	pCi/L	0.79	0.09	R2	ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	132	%						
Radium-228	1.72	pCi/L	0.12	0.33		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	121	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

AMERICAN ELECTRIC POWER

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Water Analysis Report

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-11
Lab Number: 251610-006
Date Collected: 06/18/2025 12:57 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.092	µg/L	1	0.100	0.008	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Arsenic	2.28	µg/L	1	0.10	0.03		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Barium	243	µg/L	1	0.20	0.05		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Beryllium	0.028	µg/L	1	0.050	0.007	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Boron	0.549	mg/L	1	0.050	0.007		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Cadmium	0.007	µg/L	1	0.020	0.004	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Calcium	78.5	mg/L	1	0.05	0.02		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Chromium	0.43	µg/L	1	0.30	0.07		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Cobalt	0.369	µg/L	1	0.020	0.005		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Lead	0.16	µg/L	1	0.20	0.05	J1	GES	07/02/2025 13:48	EPA 200.8-1994, Rev. 5.4
Lithium	0.0172	mg/L	1	0.00030	0.00006		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Magnesium	14.0	mg/L	1	0.100	0.009		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	1.2	µg/L	1	0.5	0.1		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Potassium	3.24	mg/L	1	0.10	0.01		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Selenium	0.11	µg/L	1	0.50	0.04	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Sodium	232	mg/L	5	1.0	0.1		GES	06/26/2025 18:16	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.49	pCi/L	0.10	0.15		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	87.2	%						
Radium-228	0.87	pCi/L	0.15	0.47		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	93.8	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: BAP DUPLICATE
Customer Description:
Lab Number: 251610-007
Preparation:
Date Collected: 06/18/2025 13:52 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.556	µg/L	1	0.100	0.008		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Arsenic	0.83	µg/L	1	0.10	0.03		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Barium	143	µg/L	1	0.20	0.05		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Beryllium	0.092	µg/L	1	0.050	0.007		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Boron	0.205	mg/L	1	0.050	0.007		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Cadmium	0.070	µg/L	1	0.020	0.004		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Calcium	110	mg/L	1	0.05	0.02		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Chromium	0.79	µg/L	1	0.30	0.07		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Cobalt	1.08	µg/L	1	0.020	0.005		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Lead	0.45	µg/L	1	0.20	0.05		GES	07/02/2025 13:54	EPA 200.8-1994, Rev. 5.4
Lithium	0.00813	mg/L	1	0.00030	0.00006		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Magnesium	29.8	mg/L	1	0.100	0.009		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	17.2	µg/L	1	0.5	0.1		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Potassium	1.07	mg/L	1	0.10	0.01		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Selenium	6.39	µg/L	1	0.50	0.04		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Sodium	50.5	mg/L	1	0.20	0.02		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Thallium	0.14	µg/L	1	0.20	0.02	J1	GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: BAP EQUIPMENT BLANK
Customer Description:
Lab Number: 251610-008
Preparation:
Date Collected: 06/18/2025 14:00 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.076	µg/L	1	0.100	0.008	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Barium	0.18	µg/L	1	0.20	0.05	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Cadmium	0.017	µg/L	1	0.020	0.004	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Calcium	0.92	mg/L	1	0.05	0.02		GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Chromium	0.34	µg/L	1	0.30	0.07		GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Cobalt	0.007	µg/L	1	0.020	0.005	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	07/02/2025 13:59	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Magnesium	0.550	mg/L	1	0.100	0.009		GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Potassium	0.01	mg/L	1	0.10	0.01	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Sodium	0.06	mg/L	1	0.20	0.02	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

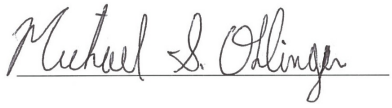
Customer Sample ID: FIELD BLANK
Customer Description:
Lab Number: 251610-009
Preparation:
Date Collected: 06/18/2025 15:15 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.077	µg/L	1	0.100	0.008	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Calcium	0.03	mg/L	1	0.05	0.02	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Chromium	0.37	µg/L	1	0.30	0.07		GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Cobalt	0.006	µg/L	1	0.020	0.005	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	07/02/2025 14:05	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Sodium	0.03	mg/L	1	0.20	0.02	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Data Qualifer Legend

U1 - Not detected at or below method detection limit (MDL).

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

R2 - Carrier recovery was outside acceptance limits.

Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Dolan Chemical Laboratory (DCL)
4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Project Name: NE PS BAP Semi-Annual CCR sampling

Contact Name: Pryce Warren

Contact Phone: 325-310-6668

Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days): Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 251610

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3: As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, Tl	1 L bottle, Cool, 0-6°C: TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3: Ra-226, Ra-228	250 mL Glass or 125/250 mL PTFE lined bottle, HCL**, pH<2: Hg	Field-filter 600 mL bottle, then pH<2, HNO_3: dissolved Fe and Mn		Sample Specific Notes:
SP-1	6/18/2025	1249	G	GW	8		X		X	X			
SP-2	6/18/2025	1223	G	GW	5		X		X	X			
SP-4	6/18/2025	1400	G	GW	5		X		X	X			
SP-5R	6/18/2025	1454	G	GW	5		X		X	X			
SP-10	6/18/2025	1138	G	GW	5		X		X	X			
SP-11	6/18/2025	1157	G	GW	5		X		X	X			
BAP DUPLICATE	6/18/2025	1252	G	GW	2		X			X			
BAP EQUIPMENT BLANK	6/18/2025	1300	G	W	2		X			X			
FIELD BLANK	6/18/2025	1415	G	W	2		X			X			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

Relinquished by: [signature]	Company: EAGLE	Date/Time: 06/20/25 1400	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Date/Time: 06/24/25 1055

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type: (Cooler) Box Bag Envelope

Delivery Type: UPS (FedEX) USPS Other _____

Plant/Customer Northeastern **Total # of Containers RECEIVED in Job:** 39

Opened By WCG

Date/Time 06/24/25 1055

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? Y / N or (N/A)

Initial/Date: _____ on ice / (no ice)

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093386, *Expir.* 01/31/26)

Was container in good condition? (Y) / N Comments _____

Was Chain of Custody received? (Y) / N Comments _____

Requested turnaround: Routine If **RUSH**, who was notified? _____

pH (15 min) Cr^{+6} (pres) (24 hr) NO_2 or NO_3 (48 hr) *ortho*-PO_4 (48 hr) Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: WCG 6/24/25

pH paper: mfr Lab Rat Supplies, PN LRS-4801, LOT# X000RWDG21, EXPIR DATE 09/30/2026

*** Note changes to pH paper in comments below*

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: _____ (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments _____ (See Prep Book)

Was COC filled out properly? (Y) / N Comments _____

Were samples labeled properly? (Y) / N Comments _____

Were correct containers used? (Y) / N Comments _____

Was the customer contacted? If Yes: Person Contacted: _____

Lab ID# 751610 Initial & Date & Time : _____

Logged by WCG Comments: _____

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 39

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 251610 **Initial/ Date:** [illegible] 06/24/25 **Peer Review Initial/ Date:** WCL 6/24/25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
20	251610 -001		20
↓	-002		↓
	-003		
	-004		
	-005		
	-006		
18	-007		18
18	-008		18
18	-009		18

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: SP-1 Customer Description:
Lab Number: 251592-001 Preparation:
Date Collected: 06/18/2025 13:49 EDT Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	49.3	mg/L	5	0.15	0.05		MGK	06/24/2025 12:31	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.98	mg/L	5	0.15	0.05		MGK	06/24/2025 12:31	EPA 300.1 -1997, Rev. 1.0
Sulfate	83.9	mg/L	5	1.5	0.3		MGK	06/24/2025 12:31	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	500	mg/L	2	100	40	S7	SDW	06/23/2025 09:08	SM 2540C-2020

Customer Sample ID: SP-2 Customer Description:
Lab Number: 251592-002 Preparation:
Date Collected: 06/18/2025 13:23 EDT Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	956	mg/L	50	1.5	0.5		MGK	06/24/2025 13:40	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.11	mg/L	5	0.15	0.05		MGK	06/24/2025 14:03	EPA 300.1 -1997, Rev. 1.0
Sulfate	10.5	mg/L	5	1.5	0.3		MGK	06/24/2025 14:03	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1870	mg/L	2	100	40		SDW	06/23/2025 09:15	SM 2540C-2020

Customer Sample ID: SP-4 Customer Description:
Lab Number: 251592-003 Preparation:
Date Collected: 06/18/2025 15:00 EDT Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	439	mg/L	50	1.5	0.5		MGK	06/24/2025 14:48	EPA 300.1 -1997, Rev. 1.0
Fluoride	2.9	mg/L	50	1.5	0.5		MGK	06/24/2025 14:48	EPA 300.1 -1997, Rev. 1.0
Sulfate	79	mg/L	50	15	3		MGK	06/24/2025 14:48	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1190	mg/L	2	100	40		SDW	06/23/2025 09:15	SM 2540C-2020

AMERICAN ELECTRIC POWER

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Water Analysis Report

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: SP-5R
Lab Number: 251592-004
Date Collected: 06/18/2025 15:54 EDT

Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	797	mg/L	50	1.5	0.5		MGK	06/24/2025 15:34	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.31	mg/L	5	0.15	0.05		MGK	06/24/2025 15:57	EPA 300.1 -1997, Rev. 1.0
Sulfate	2.8	mg/L	5	1.5	0.3		MGK	06/24/2025 15:57	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1590	mg/L	2	100	40		SDW	06/23/2025 09:15	SM 2540C-2020

Customer Sample ID: SP-10
Lab Number: 251592-005
Date Collected: 06/18/2025 12:38 EDT

Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	1750	mg/L	250	8	3		MGK	06/24/2025 16:43	EPA 300.1 -1997, Rev. 1.0
Fluoride	6.8	mg/L	10	0.3	0.1		MGK	06/24/2025 17:06	EPA 300.1 -1997, Rev. 1.0
Sulfate	14.3	mg/L	10	3.0	0.6		MGK	06/24/2025 17:06	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	476	mg/L	1	20	5		MGK	06/20/2025 14:59	SM 2320B-2021
Bicarbonate Alkalinity	474	mg/L	1	20	5	Q14	MGK	06/20/2025 14:59	SM 4500 CO2D-2011
TDS, Filterable Residue	3480	mg/L	2	100	40		SDW	06/23/2025 09:21	SM 2540C-2020

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: SP-11
Lab Number: 251592-006
Date Collected: 06/18/2025 12:57 EDT
Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	106	mg/L	10	0.3	0.1		MGK	06/24/2025 17:29	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.7	mg/L	10	0.3	0.1		MGK	06/24/2025 17:29	EPA 300.1 -1997, Rev. 1.0
Sulfate	231	mg/L	10	3.0	0.6		MGK	06/24/2025 17:29	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	960	mg/L	2	100	40		SDW	06/23/2025 10:17	SM 2540C-2020

Customer Sample ID: BAP DUPLICATE
Lab Number: 251592-007
Date Collected: 06/18/2025 13:52 EDT
Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	55.2	mg/L	5	0.15	0.05		MGK	06/24/2025 19:24	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.05	mg/L	5	0.15	0.05		MGK	06/24/2025 19:24	EPA 300.1 -1997, Rev. 1.0
Sulfate	88.1	mg/L	5	1.5	0.3		MGK	06/24/2025 19:24	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	650	mg/L	1	50	20		SDW	06/23/2025 09:21	SM 2540C-2020

Customer Sample ID: BAP Equipment Blank
Lab Number: 251592-008
Date Collected: 06/18/2025 14:00 EDT
Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	0.05	mg/L	2	0.06	0.02	J1	MGK	06/24/2025 20:32	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	MGK	06/24/2025 20:32	EPA 300.1 -1997, Rev. 1.0
Sulfate	0.1	mg/L	2	0.6	0.1	J1	MGK	06/24/2025 20:32	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	<40	mg/L	2	100	40	U1	SDW	06/23/2025 09:21	SM 2540C-2020

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: Field Blank
Lab Number: 251592-009
Date Collected: 06/18/2025 15:15 EDT

Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

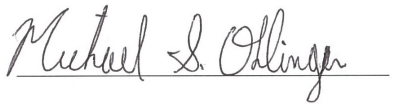
Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	<0.02	mg/L	2	0.06	0.02	U1	MGK	06/24/2025 20:55	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	MGK	06/24/2025 20:55	EPA 300.1 -1997, Rev. 1.0
Sulfate	<0.1	mg/L	2	0.6	0.1	U1	MGK	06/24/2025 20:55	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	<20	mg/L	1	50	20	U1	SDW	06/23/2025 10:17	SM 2540C-2020

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

S7 - Sample did not achieve constant weight.
Q14 - This analyte and method are not included on the primary Laboratory Scope of TNI Accreditation.
J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
U1 - Not detected at or below method detection limit (MDL).

Chain of Custody Record

4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Program: Coal Combustion Residuals (CCR)

Project Name: NE PS BAP Semi-Annual CCR sampling
Contact Name: Pryce Warren
Contact Phone: 325-310-6668
Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days)
Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 751592

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3: As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, TL	1 L bottle, Cool, 0-6°C: TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3: Ra-226, Ra-228	250 mL Glass bottle, HCL**, pH<2: Hg	Field-filter 250 mL bottle, pH<2, HNO_3: dissolved Fe and Mn	1 L bottle Cool, 0-6°C: TDS, F, CL, SO4, TOTAL ALKALINITY, BICARBONATE ALKALINITY	Sample Specific Notes:
SP-1	6/18/2025	1249	G	GW	1			X					
SP-2	6/18/2025	1223	G	GW	1			X					
SP-4	6/18/2025	1400	G	GW	1			X					
SP-5R	6/18/2025	1454	G	GW	1			X					
SP-10	6/18/2025	1138	G	GW	1							X	
SP-11	6/18/2025	1157	G	GW	1			X					
BAP DUPLICATE	6/18/2025	1252	G	GW	1			X					
BAP Equipment Blank	6/18/2025	1300	G	GW	1			X					
Field Blank	6/18/2025	1415	G	GW	1			X					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
[signature]	EAGLE	06/19/25 1100		
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Date/Time: 06/20/25 0955

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type	Delivery Type
(Cooler) Box Bag Envelope	UPS (FedEX) USPS
	Other _____

Plant/Customer Northeastern **Total # of Containers RECEIVED in Job:** 9

Opened By KMD

Date/Time 06/20/25 0955

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? (Y) / N or N/A

Initial/Date: KMD 06/20/25 on ice / no ice

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093386, *Expir.* 01/31/26)

Was container in good condition? (Y) / N Comments _____

Was Chain of Custody received? (Y) / N Comments _____

Requested turnaround: Routine If **RUSH**, who was notified? _____

pH (15 min) Cr^{+6} (pres) (24 hr) NO_2 or NO_3 (48 hr) *ortho*-PO_4 (48 hr) Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: mbc 06/20/2025

***pH paper:** mfr Lab Rat Supplies, PN LRS-4801, LOT# X000RWDG21, EXPIR DATE 09/30/2026

*** Note changes to pH paper in comments below*

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: _____ (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments _____ (See Prep Book)

Was COC filled out properly? (Y) / N Comments _____

Were samples labeled properly? (Y) / N Comments _____

Were correct containers used? (Y) / N Comments _____

Was the customer contacted? If Yes: Person Contacted: _____

Lab ID# 251592 Initial & Date & Time : _____

Logged by KMD Comments: _____

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 9

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01.03.25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 251592 **Initial/ Date:** [illegible] 06/20/25 **Peer Review Initial/ Date:** MSD 6/20/25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
4	251592-001		4
↓	-002		4
↓	-003		4
↓	-004		4
6	-005		6
4	-006		4
↓	-007		4
↓	-008		4
↓	-009		4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-1
Lab Number: 251610-001
Date Collected: 06/18/2025 13:49 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.754	µg/L	1	0.100	0.008		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Arsenic	0.75	µg/L	1	0.10	0.03		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Barium	146	µg/L	1	0.20	0.05		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Beryllium	0.081	µg/L	1	0.050	0.007		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Boron	0.240	mg/L	1	0.050	0.007		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Cadmium	0.058	µg/L	1	0.020	0.004		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Calcium	113	mg/L	1	0.05	0.02		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Chromium	0.76	µg/L	1	0.30	0.07		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Cobalt	1.45	µg/L	1	0.020	0.005		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Lead	0.67	µg/L	1	0.20	0.05		GES	07/16/2025 21:55	EPA 200.8-1994, Rev. 5.4
Lithium	0.00801	mg/L	1	0.00030	0.00006		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Magnesium	32.0	mg/L	1	0.100	0.009		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	21.3	µg/L	1	0.5	0.1		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Potassium	1.06	mg/L	1	0.10	0.01		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Selenium	6.28	µg/L	1	0.50	0.04		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Sodium	52.9	mg/L	1	0.20	0.02		GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4
Thallium	0.13	µg/L	1	0.20	0.02	J1	GES	06/26/2025 16:10	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.94	pCi/L	0.13	0.16		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	107	%						
Radium-228	1.51	pCi/L	0.19	0.58		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	80.7	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-2
Lab Number: 251610-002
Date Collected: 06/18/2025 13:23 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.855	µg/L	1	0.100	0.008		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Arsenic	1.36	µg/L	1	0.10	0.03		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Barium	1090	µg/L	1	0.20	0.05		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Beryllium	0.075	µg/L	1	0.050	0.007		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Boron	0.129	mg/L	1	0.050	0.007		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Cadmium	0.050	µg/L	1	0.020	0.004		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Calcium	99.7	mg/L	1	0.05	0.02		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Chromium	0.66	µg/L	1	0.30	0.07		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Cobalt	0.676	µg/L	1	0.020	0.005		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Lead	0.23	µg/L	1	0.20	0.05		GES	07/02/2025 12:32	EPA 200.8-1994, Rev. 5.4
Lithium	0.0416	mg/L	1	0.00030	0.00006		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Magnesium	61.2	mg/L	1	0.100	0.009		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	13.0	µg/L	1	0.5	0.1		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Potassium	2.14	mg/L	1	0.10	0.01		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Selenium	1.78	µg/L	1	0.50	0.04		GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4
Sodium	267	mg/L	5	1.0	0.1		GES	06/26/2025 16:27	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	06/26/2025 16:21	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	2.80	pCi/L	0.23	0.12		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	111	%						
Radium-228	4.09	pCi/L	0.16	0.36		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	108	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-4
Lab Number: 251610-003
Date Collected: 06/18/2025 15:00 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.166	µg/L	1	0.100	0.008		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Arsenic	0.80	µg/L	1	0.10	0.03		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Barium	210	µg/L	5	1.0	0.3		GES	06/26/2025 17:43	EPA 200.8-1994, Rev. 5.4
Beryllium	0.057	µg/L	1	0.050	0.007		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Boron	0.356	mg/L	1	0.050	0.007		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Cadmium	0.026	µg/L	1	0.020	0.004		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Calcium	87.3	mg/L	1	0.05	0.02		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Chromium	0.56	µg/L	1	0.30	0.07		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Cobalt	0.369	µg/L	1	0.020	0.005		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Lead	0.17	µg/L	1	0.20	0.05	J1	GES	07/02/2025 13:32	EPA 200.8-1994, Rev. 5.4
Lithium	0.0544	mg/L	1	0.00030	0.00006		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Magnesium	41.1	mg/L	1	0.100	0.009		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	2.4	µg/L	1	0.5	0.1		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Potassium	2.37	mg/L	1	0.10	0.01		GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Selenium	0.30	µg/L	1	0.50	0.04	J1	GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4
Sodium	303	mg/L	5	1.0	0.1		GES	06/26/2025 17:43	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	06/26/2025 17:38	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.76	pCi/L	0.13	0.16		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	86.1	%						
Radium-228	2.53	pCi/L	0.17	0.46		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	88.8	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-5R
Customer Description:
Lab Number: 251610-004
Preparation:
Date Collected: 06/18/2025 15:54 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.102	µg/L	1	0.100	0.008		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Arsenic	14.7	µg/L	1	0.10	0.03		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Barium	2240	µg/L	5	1.0	0.3		GES	06/26/2025 17:54	EPA 200.8-1994, Rev. 5.4
Beryllium	0.059	µg/L	1	0.050	0.007		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Boron	0.226	mg/L	1	0.050	0.007		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Cadmium	0.022	µg/L	1	0.020	0.004		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Calcium	73.8	mg/L	1	0.05	0.02		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Chromium	0.57	µg/L	1	0.30	0.07		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Cobalt	1.56	µg/L	1	0.020	0.005		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Lead	0.91	µg/L	1	0.20	0.05		GES	07/02/2025 13:37	EPA 200.8-1994, Rev. 5.4
Lithium	0.0922	mg/L	1	0.00030	0.00006		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Magnesium	34.3	mg/L	1	0.100	0.009		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	0.7	µg/L	1	0.5	0.1		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Potassium	2.94	mg/L	1	0.10	0.01		GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Selenium	0.05	µg/L	1	0.50	0.04	J1	GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4
Sodium	479	mg/L	5	1.0	0.1		GES	06/26/2025 17:54	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 17:49	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	6.99	pCi/L	0.39	0.15		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	115	%						
Radium-228	5.28	pCi/L	0.16	0.33		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	107	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-10
Lab Number: 251610-005
Date Collected: 06/18/2025 12:38 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.034	µg/L	1	0.100	0.008	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Arsenic	0.16	µg/L	1	0.10	0.03		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Barium	6090	µg/L	10	2.0	0.5		GES	06/26/2025 18:05	EPA 200.8-1994, Rev. 5.4
Beryllium	0.035	µg/L	1	0.050	0.007	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Boron	0.965	mg/L	1	0.050	0.007		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Cadmium	0.005	µg/L	1	0.020	0.004	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Calcium	82.5	mg/L	1	0.05	0.02		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Cobalt	0.035	µg/L	1	0.020	0.005		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	07/02/2025 13:43	EPA 200.8-1994, Rev. 5.4
Lithium	0.184	mg/L	1	0.00030	0.00006		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Magnesium	45.2	mg/L	1	0.100	0.009		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	0.3	µg/L	1	0.5	0.1	J1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Potassium	5.88	mg/L	1	0.10	0.01		GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4
Sodium	1120	mg/L	10	2.0	0.2		GES	06/26/2025 18:05	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 17:59	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	19.50	pCi/L	0.79	0.09	R2	ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	132	%						
Radium-228	1.72	pCi/L	0.12	0.33		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	121	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

AMERICAN ELECTRIC POWER

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Water Analysis Report

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: SP-11
Lab Number: 251610-006
Date Collected: 06/18/2025 12:57 EDT

Customer Description:
Preparation:
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.092	µg/L	1	0.100	0.008	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Arsenic	2.28	µg/L	1	0.10	0.03		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Barium	243	µg/L	1	0.20	0.05		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Beryllium	0.028	µg/L	1	0.050	0.007	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Boron	0.549	mg/L	1	0.050	0.007		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Cadmium	0.007	µg/L	1	0.020	0.004	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Calcium	78.5	mg/L	1	0.05	0.02		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Chromium	0.43	µg/L	1	0.30	0.07		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Cobalt	0.369	µg/L	1	0.020	0.005		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Lead	0.16	µg/L	1	0.20	0.05	J1	GES	07/02/2025 13:48	EPA 200.8-1994, Rev. 5.4
Lithium	0.0172	mg/L	1	0.00030	0.00006		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Magnesium	14.0	mg/L	1	0.100	0.009		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	1.2	µg/L	1	0.5	0.1		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Potassium	3.24	mg/L	1	0.10	0.01		GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Selenium	0.11	µg/L	1	0.50	0.04	J1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4
Sodium	232	mg/L	5	1.0	0.1		GES	06/26/2025 18:16	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 18:10	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.49	pCi/L	0.10	0.15		ST	07/18/2025 09:00	SW-846 9315-1986, Rev. 0
Carrier Recovery	87.2	%						
Radium-228	0.87	pCi/L	0.15	0.47		TTP	07/08/2025 17:51	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	93.8	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: BAP DUPLICATE
Customer Description:
Lab Number: 251610-007
Preparation:
Date Collected: 06/18/2025 13:52 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.556	µg/L	1	0.100	0.008		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Arsenic	0.83	µg/L	1	0.10	0.03		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Barium	143	µg/L	1	0.20	0.05		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Beryllium	0.092	µg/L	1	0.050	0.007		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Boron	0.205	mg/L	1	0.050	0.007		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Cadmium	0.070	µg/L	1	0.020	0.004		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Calcium	110	mg/L	1	0.05	0.02		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Chromium	0.79	µg/L	1	0.30	0.07		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Cobalt	1.08	µg/L	1	0.020	0.005		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Lead	0.45	µg/L	1	0.20	0.05		GES	07/02/2025 13:54	EPA 200.8-1994, Rev. 5.4
Lithium	0.00813	mg/L	1	0.00030	0.00006		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Magnesium	29.8	mg/L	1	0.100	0.009		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	17.2	µg/L	1	0.5	0.1		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Potassium	1.07	mg/L	1	0.10	0.01		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Selenium	6.39	µg/L	1	0.50	0.04		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Sodium	50.5	mg/L	1	0.20	0.02		GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4
Thallium	0.14	µg/L	1	0.20	0.02	J1	GES	06/26/2025 18:21	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Customer Sample ID: BAP EQUIPMENT BLANK
Customer Description:
Lab Number: 251610-008
Preparation:
Date Collected: 06/18/2025 14:00 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.076	µg/L	1	0.100	0.008	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Barium	0.18	µg/L	1	0.20	0.05	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Cadmium	0.017	µg/L	1	0.020	0.004	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Calcium	0.92	mg/L	1	0.05	0.02		GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Chromium	0.34	µg/L	1	0.30	0.07		GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Cobalt	0.007	µg/L	1	0.020	0.005	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	07/02/2025 13:59	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Magnesium	0.550	mg/L	1	0.100	0.009		GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Potassium	0.01	mg/L	1	0.10	0.01	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Sodium	0.06	mg/L	1	0.20	0.02	J1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 18:32	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

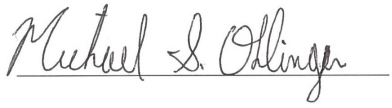
Customer Sample ID: FIELD BLANK
Customer Description:
Lab Number: 251610-009
Preparation:
Date Collected: 06/18/2025 15:15 EDT
Date Received: 06/24/2025 10:55 EDT

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.077	µg/L	1	0.100	0.008	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Calcium	0.03	mg/L	1	0.05	0.02	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Chromium	0.37	µg/L	1	0.30	0.07		GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Cobalt	0.006	µg/L	1	0.020	0.005	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	07/02/2025 14:05	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	06/25/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Sodium	0.03	mg/L	1	0.20	0.02	J1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	06/26/2025 18:38	EPA 200.8-1994, Rev. 5.4

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251610 **Customer: Northeastern 3&4 Power Station** **Date Reported: 07/21/2025**

Data Qualifer Legend

U1 - Not detected at or below method detection limit (MDL).

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

R2 - Carrier recovery was outside acceptance limits.

Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Dolan Chemical Laboratory (DCL)
4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Project Name: NE PS BAP Semi-Annual CCR sampling

Contact Name: Pryce Warren

Contact Phone: 325-310-6668

Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days): Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 251610

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3: As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, Tl	1 L bottle, Cool, 0-6°C: TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3: Ra-226, Ra-228	250 mL Glass or 125/250 mL PTFE lined bottle, HCL**, pH<2: Hg	Field-filter 600 mL bottle, then pH<2, HNO_3: dissolved Fe and Mn		Sample Specific Notes:
SP-1	6/18/2025	1249	G	GW	8		X		X	X			
SP-2	6/18/2025	1223	G	GW	5		X		X	X			
SP-4	6/18/2025	1400	G	GW	5		X		X	X			
SP-5R	6/18/2025	1454	G	GW	5		X		X	X			
SP-10	6/18/2025	1138	G	GW	5		X		X	X			
SP-11	6/18/2025	1157	G	GW	5		X		X	X			
BAP DUPLICATE	6/18/2025	1252	G	GW	2		X			X			
BAP EQUIPMENT BLANK	6/18/2025	1300	G	W	2		X			X			
FIELD BLANK	6/18/2025	1415	G	W	2		X			X			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

Relinquished by: [signature]	Company: EAGLE	Date/Time: 06/20/25 1400	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Date/Time: 06/24/25 1055

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type: (Cooler) Box Bag Envelope

Delivery Type: UPS (FedEX) USPS Other _____

Plant/Customer Northeastern **Total # of Containers RECEIVED in Job:** 39

Opened By WCG

Date/Time 06/24/25 1055

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? Y / N or (N/A)

Initial/Date: _____ on ice / (no ice)

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093386, *Expir.* 01/31/26)

Was container in good condition? (Y) / N Comments _____

Was Chain of Custody received? (Y) / N Comments _____

Requested turnaround: Routine If **RUSH**, who was notified? _____

pH (15 min) Cr^{+6} (pres) (24 hr) NO_2 or NO_3 (48 hr) *ortho*-PO_4 (48 hr) Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: WCG 6/24/25

pH paper: mfr Lab Rat Supplies, PN LRS-4801, LOT# X000RWDG21, EXPIR DATE 09/30/2026

*** Note changes to pH paper in comments below*

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: _____ (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments _____ (See Prep Book)

Was COC filled out properly? (Y) / N Comments _____

Were samples labeled properly? (Y) / N Comments _____

Were correct containers used? (Y) / N Comments _____

Was the customer contacted? If Yes: Person Contacted: _____

Lab ID# 751610 Initial & Date & Time : _____

Logged by WCG Comments: _____

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 39

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 251610 **Initial/ Date:** [illegible] 06/24/25 **Peer Review Initial/ Date:** WCL 6/24/25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
20	251610 -001		20
↓	-002		↓
	-003		
	-004		
	-005		
	-006		
18	-007		18
18	-008		18
18	-009		18

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: SP-1 Customer Description:
Lab Number: 251592-001 Preparation:
Date Collected: 06/18/2025 13:49 EDT Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	49.3	mg/L	5	0.15	0.05		MGK	06/24/2025 12:31	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.98	mg/L	5	0.15	0.05		MGK	06/24/2025 12:31	EPA 300.1 -1997, Rev. 1.0
Sulfate	83.9	mg/L	5	1.5	0.3		MGK	06/24/2025 12:31	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	500	mg/L	2	100	40	S7	SDW	06/23/2025 09:08	SM 2540C-2020

Customer Sample ID: SP-2 Customer Description:
Lab Number: 251592-002 Preparation:
Date Collected: 06/18/2025 13:23 EDT Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	956	mg/L	50	1.5	0.5		MGK	06/24/2025 13:40	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.11	mg/L	5	0.15	0.05		MGK	06/24/2025 14:03	EPA 300.1 -1997, Rev. 1.0
Sulfate	10.5	mg/L	5	1.5	0.3		MGK	06/24/2025 14:03	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1870	mg/L	2	100	40		SDW	06/23/2025 09:15	SM 2540C-2020

Customer Sample ID: SP-4 Customer Description:
Lab Number: 251592-003 Preparation:
Date Collected: 06/18/2025 15:00 EDT Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	439	mg/L	50	1.5	0.5		MGK	06/24/2025 14:48	EPA 300.1 -1997, Rev. 1.0
Fluoride	2.9	mg/L	50	1.5	0.5		MGK	06/24/2025 14:48	EPA 300.1 -1997, Rev. 1.0
Sulfate	79	mg/L	50	15	3		MGK	06/24/2025 14:48	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1190	mg/L	2	100	40		SDW	06/23/2025 09:15	SM 2540C-2020

AMERICAN ELECTRIC POWER

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Water Analysis Report

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: SP-5R
Lab Number: 251592-004
Date Collected: 06/18/2025 15:54 EDT

Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	797	mg/L	50	1.5	0.5		MGK	06/24/2025 15:34	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.31	mg/L	5	0.15	0.05		MGK	06/24/2025 15:57	EPA 300.1 -1997, Rev. 1.0
Sulfate	2.8	mg/L	5	1.5	0.3		MGK	06/24/2025 15:57	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1590	mg/L	2	100	40		SDW	06/23/2025 09:15	SM 2540C-2020

Customer Sample ID: SP-10
Lab Number: 251592-005
Date Collected: 06/18/2025 12:38 EDT

Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	1750	mg/L	250	8	3		MGK	06/24/2025 16:43	EPA 300.1 -1997, Rev. 1.0
Fluoride	6.8	mg/L	10	0.3	0.1		MGK	06/24/2025 17:06	EPA 300.1 -1997, Rev. 1.0
Sulfate	14.3	mg/L	10	3.0	0.6		MGK	06/24/2025 17:06	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	476	mg/L	1	20	5		MGK	06/20/2025 14:59	SM 2320B-2021
Bicarbonate Alkalinity	474	mg/L	1	20	5	Q14	MGK	06/20/2025 14:59	SM 4500 CO2D-2011
TDS, Filterable Residue	3480	mg/L	2	100	40		SDW	06/23/2025 09:21	SM 2540C-2020

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: SP-11
Lab Number: 251592-006
Date Collected: 06/18/2025 12:57 EDT
Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	106	mg/L	10	0.3	0.1		MGK	06/24/2025 17:29	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.7	mg/L	10	0.3	0.1		MGK	06/24/2025 17:29	EPA 300.1 -1997, Rev. 1.0
Sulfate	231	mg/L	10	3.0	0.6		MGK	06/24/2025 17:29	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	960	mg/L	2	100	40		SDW	06/23/2025 10:17	SM 2540C-2020

Customer Sample ID: BAP DUPLICATE
Lab Number: 251592-007
Date Collected: 06/18/2025 13:52 EDT
Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	55.2	mg/L	5	0.15	0.05		MGK	06/24/2025 19:24	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.05	mg/L	5	0.15	0.05		MGK	06/24/2025 19:24	EPA 300.1 -1997, Rev. 1.0
Sulfate	88.1	mg/L	5	1.5	0.3		MGK	06/24/2025 19:24	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	650	mg/L	1	50	20		SDW	06/23/2025 09:21	SM 2540C-2020

Customer Sample ID: BAP Equipment Blank
Lab Number: 251592-008
Date Collected: 06/18/2025 14:00 EDT
Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	0.05	mg/L	2	0.06	0.02	J1	MGK	06/24/2025 20:32	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	MGK	06/24/2025 20:32	EPA 300.1 -1997, Rev. 1.0
Sulfate	0.1	mg/L	2	0.6	0.1	J1	MGK	06/24/2025 20:32	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	<40	mg/L	2	100	40	U1	SDW	06/23/2025 09:21	SM 2540C-2020

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 251592 **Customer: Northeastern 3&4 Power Station** **Date Reported: 06/30/2025**

Customer Sample ID: Field Blank
Lab Number: 251592-009
Date Collected: 06/18/2025 15:15 EDT

Customer Description:
Preparation:
Date Received: 06/20/2025 09:55 EDT

Ion Chromatography

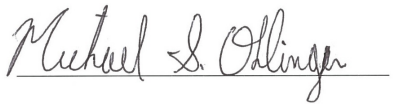
Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	<0.02	mg/L	2	0.06	0.02	U1	MGK	06/24/2025 20:55	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	MGK	06/24/2025 20:55	EPA 300.1 -1997, Rev. 1.0
Sulfate	<0.1	mg/L	2	0.6	0.1	U1	MGK	06/24/2025 20:55	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	<20	mg/L	1	50	20	U1	SDW	06/23/2025 10:17	SM 2540C-2020

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

S7 - Sample did not achieve constant weight.
Q14 - This analyte and method are not included on the primary Laboratory Scope of TNI Accreditation.
J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
U1 - Not detected at or below method detection limit (MDL).

Chain of Custody Record

4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Program: Coal Combustion Residuals (CCR)

Project Name: NE PS BAP Semi-Annual CCR sampling
Contact Name: Pryce Warren
Contact Phone: 325-310-6668
Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days)
Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 751592

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3: As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, TL	1 L bottle, Cool, 0-6°C: TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3: Ra-226, Ra-228	250 mL Glass bottle, HCL**, pH<2: Hg	Field-filter 250 mL bottle, pH<2, HNO_3: dissolved Fe and Mn	1 L bottle Cool, 0-6°C: TDS, F, CL, SO4, TOTAL ALKALINITY, BICARBONATE ALKALINITY	Sample Specific Notes:
SP-1	6/18/2025	1249	G	GW	1			X					
SP-2	6/18/2025	1223	G	GW	1			X					
SP-4	6/18/2025	1400	G	GW	1			X					
SP-5R	6/18/2025	1454	G	GW	1			X					
SP-10	6/18/2025	1138	G	GW	1							X	
SP-11	6/18/2025	1157	G	GW	1			X					
BAP DUPLICATE	6/18/2025	1252	G	GW	1			X					
BAP Equipment Blank	6/18/2025	1300	G	GW	1			X					
Field Blank	6/18/2025	1415	G	GW	1			X					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
[signature]	EAGLE	06/19/25 1100		
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Date/Time: 06/20/25 0955

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type	Delivery Type
(Cooler) Box Bag Envelope	UPS (FedEX) USPS
	Other _____

Plant/Customer Northeastern **Total # of Containers RECEIVED in Job:** 9

Opened By KMD

Date/Time 06/20/25 0955

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? (Y) / N or N/A

Initial/Date: KMD 06/20/25 on ice / no ice

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093386, *Expir.* 01/31/26)

Was container in good condition? (Y) / N Comments _____

Was Chain of Custody received? (Y) / N Comments _____

Requested turnaround: Routine If **RUSH**, who was notified? _____

pH (15 min) Cr^{+6} (pres) (24 hr) NO_2 or NO_3 (48 hr) *ortho*-PO_4 (48 hr) Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: mbc 06/20/2025

***pH paper:** mfr Lab Rat Supplies, PN LRS-4801, LOT# X000RWDG21, EXPIR DATE 09/30/2026

*** Note changes to pH paper in comments below*

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: _____ (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments _____ (See Prep Book)

Was COC filled out properly? (Y) / N Comments _____

Were samples labeled properly? (Y) / N Comments _____

Were correct containers used? (Y) / N Comments _____

Was the customer contacted? If Yes: Person Contacted: _____

Lab ID# 251592 Initial & Date & Time : _____

Logged by KMD Comments: _____

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 9

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01.03.25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 251592 **Initial/ Date:** [illegible] 06/20/25 **Peer Review Initial/ Date:** MSD 6/20/25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
4	251592-001		4
↓	-002		4
↓	-003		4
↓	-004		4
6	-005		6
4	-006		4
↓	-007		4
↓	-008		4
↓	-009		4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-1
Lab Number: 252839-001
Date Collected: 10/27/2025 17:11 EDT

Customer Description:
Preparation:
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.3	µg/L	5	0.5	0.1	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Arsenic	0.5	µg/L	5	0.5	0.2		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Barium	117	µg/L	5	1.0	0.3		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 15:37	EPA 200.8-1994, Rev. 5.4
Boron	0.20	mg/L	5	0.25	0.03	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Cadmium	0.04	µg/L	5	0.10	0.02	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Calcium	107	mg/L	5	0.5	0.1		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Chromium	0.6	µg/L	5	1.5	0.4	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Cobalt	0.38	µg/L	5	0.15	0.05		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Lead	0.3	µg/L	5	1.0	0.3	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Lithium	0.0051	mg/L	5	0.0015	0.0004		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Magnesium	29.1	mg/L	5	0.50	0.05		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Mercury	38	ng/L	1	5	2		JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	11.0	µg/L	5	2.5	0.3		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Potassium	0.8	mg/L	5	0.5	0.1		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Selenium	3.1	µg/L	5	2.5	0.2		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Sodium	35.7	mg/L	5	1.0	0.1		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Strontium	2.56	mg/L	5	0.0100	0.0003		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.62	pCi/L	0.13	0.22		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	80.5	%						
Radium-228	3.78	pCi/L	0.22	0.60		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	65.4	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-2
Customer Description:
Lab Number: 252839-002
Preparation:
Date Collected: 10/27/2025 14:30 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.8	µg/L	5	0.5	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Arsenic	1.5	µg/L	5	0.5	0.2		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Barium	1120	µg/L	5	1.0	0.3		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Beryllium	0.1	µg/L	5	0.3	0.1	J1	GES	11/11/2025 15:53	EPA 200.8-1994, Rev. 5.4
Boron	0.14	mg/L	5	0.25	0.03	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Cadmium	0.05	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Calcium	121	mg/L	5	0.5	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Chromium	0.8	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Cobalt	0.71	µg/L	5	0.15	0.05		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Lead	0.6	µg/L	5	1.0	0.3	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Lithium	0.0474	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Magnesium	61.6	mg/L	5	0.50	0.05		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	11.0	µg/L	5	2.5	0.3		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Potassium	2.3	mg/L	5	0.5	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Selenium	2.7	µg/L	5	2.5	0.2		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Sodium	287	mg/L	5	1.0	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Strontium	10.2	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.96	pCi/L	0.19	0.11		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	116	%						
Radium-228	3.71	pCi/L	0.17	0.44		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	100	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-4
Customer Description:
Lab Number: 252839-003
Preparation:
Date Collected: 10/28/2025 18:25 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.3	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Arsenic	1.6	µg/L	5	0.5	0.2		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Barium	205	µg/L	5	1.0	0.3		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Beryllium	0.2	µg/L	5	0.3	0.1	J1	GES	11/11/2025 16:09	EPA 200.8-1994, Rev. 5.4
Boron	0.38	mg/L	5	0.25	0.03		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Cadmium	0.06	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Calcium	105	mg/L	5	0.5	0.1		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Chromium	1.1	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Cobalt	0.75	µg/L	5	0.15	0.05		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Lead	0.7	µg/L	5	1.0	0.3	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Lithium	0.0585	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Magnesium	43.0	mg/L	5	0.50	0.05		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	2.9	µg/L	5	2.5	0.3		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Potassium	2.5	mg/L	5	0.5	0.1		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Selenium	0.9	µg/L	5	2.5	0.2	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Sodium	311	mg/L	5	1.0	0.1		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Strontium	7.28	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.59	pCi/L	0.10	0.12		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	112	%						
Radium-228	2.54	pCi/L	0.16	0.44		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	95.3	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-5R
Customer Description:
Lab Number: 252839-004
Preparation:
Date Collected: 10/28/2025 19:09 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.1	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Arsenic	20.7	µg/L	5	0.5	0.2		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Barium	2200	µg/L	5	1.0	0.3		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 16:15	EPA 200.8-1994, Rev. 5.4
Boron	0.23	mg/L	5	0.25	0.03	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.02	µg/L	5	0.10	0.02	U1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Calcium	85.6	mg/L	5	0.5	0.1		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Chromium	1.0	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Cobalt	0.61	µg/L	5	0.15	0.05		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Lead	1.7	µg/L	5	1.0	0.3		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Lithium	0.0962	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Magnesium	34.2	mg/L	5	0.50	0.05		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	0.7	µg/L	5	2.5	0.3	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Potassium	2.7	mg/L	5	0.5	0.1		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Selenium	0.2	µg/L	5	2.5	0.2	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Sodium	481	mg/L	5	1.0	0.1		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Strontium	6.55	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Thallium	<0.1	µg/L	5	1.0	0.1	U1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	6.10	pCi/L	0.36	0.11		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	121	%						
Radium-228	5.29	pCi/L	0.19	0.47		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	101	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-10
Lab Number: 252839-005
Date Collected: 10/27/2025 15:27 EDT

Customer Description:
Preparation:
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.2	µg/L	10	1.0	0.2	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.3	µg/L	10	1.0	0.3	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Barium	6620	µg/L	10	2.0	0.5		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.2	µg/L	10	0.5	0.2	U1	GES	11/11/2025 16:20	EPA 200.8-1994, Rev. 5.4
Boron	1.01	mg/L	10	0.50	0.06		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.04	µg/L	10	0.20	0.04	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Calcium	137	mg/L	10	1.0	0.2		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Chromium	<0.7	µg/L	10	3.0	0.7	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Cobalt	<0.1	µg/L	10	0.3	0.1	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Lead	0.6	µg/L	10	2.0	0.5	J1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Lithium	0.225	mg/L	10	0.0030	0.0007		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Magnesium	49.0	mg/L	10	1.0	0.1		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.5	µg/L	10	5.0	0.5	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Potassium	6.0	mg/L	10	1.0	0.2		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Selenium	<0.4	µg/L	10	5.0	0.4	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Sodium	1250	mg/L	10	2.0	0.2		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Strontium	16.3	mg/L	10	0.0200	0.0006		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Thallium	<0.2	µg/L	10	2.0	0.2	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	19.20	pCi/L	0.77	0.13	R2	TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	144	%						
Radium-228	0.50	pCi/L	0.13	0.44	R2	TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	122	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-11
Customer Description:
Lab Number: 252839-006
Preparation:
Date Collected: 10/27/2025 16:02 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.2	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Arsenic	2.4	µg/L	5	0.5	0.2		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Barium	807	µg/L	5	1.0	0.3		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 16:26	EPA 200.8-1994, Rev. 5.4
Boron	0.25	mg/L	5	0.25	0.03		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Cadmium	0.05	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Calcium	71.6	mg/L	5	0.5	0.1		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Chromium	1.4	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Cobalt	0.83	µg/L	5	0.15	0.05		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Lead	1.3	µg/L	5	1.0	0.3		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Lithium	0.0268	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Magnesium	16.0	mg/L	5	0.50	0.05		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Mercury	<20	ng/L	10	50	20	U1	RLP	11/05/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	1.0	µg/L	5	2.5	0.3	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Potassium	2.0	mg/L	5	0.5	0.1		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Selenium	0.3	µg/L	5	2.5	0.2	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Sodium	192	mg/L	5	1.0	0.1		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Strontium	4.17	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Thallium	<0.1	µg/L	5	1.0	0.1	U1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.48	pCi/L	0.09	0.10		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	106	%						
Radium-228	0.69	pCi/L	0.18	0.59		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	82.0	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: BAP Duplicate
Customer Description:
Lab Number: 252839-007
Preparation:
Date Collected: 10/27/2025 17:11 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.3	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Arsenic	0.5	µg/L	5	0.5	0.2		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Barium	119	µg/L	5	1.0	0.3		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 16:31	EPA 200.8-1994, Rev. 5.4
Boron	0.19	mg/L	5	0.25	0.03	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Cadmium	0.05	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Calcium	107	mg/L	5	0.5	0.1		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Chromium	0.7	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Cobalt	0.46	µg/L	5	0.15	0.05		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Lead	<0.3	µg/L	5	1.0	0.3	U1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Lithium	0.0052	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Magnesium	29.7	mg/L	5	0.50	0.05		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	11.4	µg/L	5	2.5	0.3		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Potassium	0.8	mg/L	5	0.5	0.1		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Selenium	3.2	µg/L	5	2.5	0.2		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Sodium	35.6	mg/L	5	1.0	0.1		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Strontium	2.58	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Thallium	<0.1	µg/L	5	1.0	0.1	U1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: BAP Equipment Blank
Lab Number: 252839-008
Date Collected: 10/27/2025 14:20 EDT

Customer Description:
Preparation:
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.08	µg/L	1	0.10	0.02	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.02	µg/L	1	0.05	0.02	U1	GES	11/11/2025 16:37	EPA 200.8-1994, Rev. 5.4
Boron	<0.006	mg/L	1	0.050	0.006	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Calcium	0.03	mg/L	1	0.10	0.02	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Cobalt	0.02	µg/L	1	0.03	0.01	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.01	mg/L	1	0.10	0.01	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.05	µg/L	1	0.50	0.05	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Potassium	<0.02	mg/L	1	0.10	0.02	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Strontium	0.00049	mg/L	1	0.00200	0.00006	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

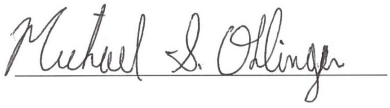
Customer Sample ID: Field Blank
Customer Description:
Lab Number: 252839-009
Preparation:
Date Collected: 10/27/2025 14:15 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.08	µg/L	1	0.10	0.02	J1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.02	µg/L	1	0.05	0.02	U1	GES	11/11/2025 17:48	EPA 200.8-1994, Rev. 5.4
Boron	<0.006	mg/L	1	0.050	0.006	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.10	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Chromium	0.24	µg/L	1	0.30	0.07	J1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Cobalt	0.02	µg/L	1	0.03	0.01	J1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.01	mg/L	1	0.10	0.01	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Molybdenum	<0.05	µg/L	1	0.50	0.05	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Potassium	<0.02	mg/L	1	0.10	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00006	mg/L	1	0.00200	0.00006	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Data Qualifer Legend

J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
U1 - Not detected at or below method detection limit (MDL).
R2 - Carrier recovery was outside acceptance limits.

Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Dolan Chemical Laboratory (DCL)
4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Project Name: NE PS BAP Semi-Annual CCR sampling

Contact Name: Pryce Warren

Contact Phone: 325-310-6668

Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days)
Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 252839 1/1

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3 As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, Sr, Tl	1 L bottle, Cool, 0-6°C TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3 Ra-226, Ra-228	250 mL Glass or 125/250 mL PTFE lined bottle, HCL**, pH<2 Hg	Field-filter 500 mL bottle, then pH<2, HNO_3 dissolved Fe and Mn		Sample Specific Notes:
SP-1	10/27/2025	1611	G	GW	8		X		X	X			
SP-2	10/27/2025	1330	G	GW	5		X		X	X			
SP-4	10/28/2025	1725	G	GW	5		X		X	X			
SP-5R	10/28/2025	1809	G	GW	5		X		X	X			
SP-10	10/27/2025	1427	G	GW	5		X		X	X			
SP-11	10/27/2025	1502	G	GW	5		X		X	X			
BAP DUPLICATE	10/27/2025	1611	G	GW	2		X			X			
BAP EQUIPMENT BLANK	10/27/2025	1320	G	W	2		X			X			
FIELD BLANK	10/27/2025	1315	G	W	1		X						
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

* Note: added Strontium to list of metals

Relinquished by:	Company: EAGLE	Date/Time: 10/30/25 1700	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Date/Time: 10 11·3·25 1110

AMA 11·3·25

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type	Delivery Type
(Cooler) Box Bag Envelope	UPS (FedEX) USPS
	Other _____

Plant/Customer Northeastern **Total # of Containers RECEIVED in Job:** 38

Opened By AMR | KJH

Date/Time 11·3·25 1110

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? Y / N or (N/A)

Initial/Date: NA on ice / (no ice) (IR Gun Ser# 240093386, *Expir.* 01/31/2026)

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093379, *Expir.* 01/31/2026)

Was container in good condition? (Y) / N Comments NA

Was Chain of Custody received? (Y) / N Comments NA

Requested turnaround: Routine If **RUSH**, who was notified? NA

pH (15 min) | Cr^{+6} (pres) (24 hr) | NO_2 or NO_3 (48 hr) | *ortho*-PO_4 (48 hr) | Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: AMR 11·3·25

***pH paper:* mfr LabRat ,PN LRS-4801 ,LOT# X000RWDG21 ,EXPIR DATE 09/30/2026

***** Note changes to pH paper in comments below***

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: NA (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments NA (See Prep Book)

Was COC filled out properly? (Y) / N Comments _____

Were samples labeled properly? (Y) / N Comments _____

Were correct containers used? (Y) / N Comments _____

Was the customer contacted? If Yes: Person Contacted: _____

Lab ID# 252839 Initial & Date & Time : NA

Logged by AMR Comments: _____

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 38

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 252839 **Initial/ Date:** AMB 11.3.25 **Peer Review Initial/ Date:** KBH 11/04/25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
21	252839 -001		21
	-002		
	-003		
	-004		
	-005		
	-006		
19	-007		19
19	-008		19
18	-009		18

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Customer Sample ID: SP-1 **Customer Description:**
Lab Number: 252803-001 **Preparation:**
Date Collected: 10/27/2025 17:11 EDT **Date Received: 11/03/2025 13:30 EST**

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	47.2	mg/L	5	0.15	0.05		JCF	11/06/2025 21:04	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.09	mg/L	5	0.15	0.05		JCF	11/06/2025 21:04	EPA 300.1 -1997, Rev. 1.0
Sulfate	83.1	mg/L	5	1.5	0.1		JCF	11/06/2025 21:04	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	490	mg/L	2	100	40		LM	11/03/2025 14:24	SM 2540C-2020

Customer Sample ID: SP-2 **Customer Description:**
Lab Number: 252803-002 **Preparation:**
Date Collected: 10/27/2025 14:30 EDT **Date Received: 11/03/2025 13:30 EST**

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	883	mg/L	50	1.5	0.5		JCF	11/06/2025 16:53	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.23	mg/L	5	0.15	0.05		JCF	11/06/2025 19:33	EPA 300.1 -1997, Rev. 1.0
Sulfate	11.3	mg/L	5	1.5	0.1		JCF	11/06/2025 19:33	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1820	mg/L	2	100	40		LM	11/03/2025 14:09	SM 2540C-2020

Customer Sample ID: SP-4 **Customer Description:**
Lab Number: 252803-003 **Preparation:**
Date Collected: 10/28/2025 18:25 EDT **Date Received: 11/03/2025 13:30 EST**

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	432	mg/L	50	1.5	0.5		JCF	11/06/2025 17:16	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.43	mg/L	5	0.15	0.05		JCF	11/06/2025 19:55	EPA 300.1 -1997, Rev. 1.0
Sulfate	92.9	mg/L	5	1.5	0.1		JCF	11/06/2025 19:55	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1120	mg/L	2	100	40		BLB	11/04/2025 07:57	SM 2540C-2020

AMERICAN ELECTRIC POWER

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Water Analysis Report

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Customer Sample ID: SP-5R
Lab Number: 252803-004
Date Collected: 10/28/2025 19:09 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	739	mg/L	50	1.5	0.5		JCF	11/06/2025 18:01	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.36	mg/L	5	0.15	0.05		JCF	11/06/2025 20:18	EPA 300.1 -1997, Rev. 1.0
Sulfate	2.0	mg/L	5	1.5	0.1		JCF	11/06/2025 20:18	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1460	mg/L	2	100	40		BLB	11/04/2025 07:57	SM 2540C-2020

Customer Sample ID: SP-10
Lab Number: 252803-005
Date Collected: 10/27/2025 15:27 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	1860	mg/L	250	8	3		JCF	11/06/2025 16:30	EPA 300.1 -1997, Rev. 1.0
Fluoride	7.1	mg/L	10	0.3	0.1		JCF	11/06/2025 18:24	EPA 300.1 -1997, Rev. 1.0
Sulfate	19.0	mg/L	10	3.0	0.2		JCF	11/06/2025 18:24	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	459	mg/L	1	20	5		GES	11/06/2025 17:37	SM 2320B-2021
Bicarbonate Alkalinity	458	mg/L	1	20	5	Q14	GES	11/06/2025 17:37	SM 4500 CO2D-2011
TDS, Filterable Residue	3440	mg/L	2	100	40		LM	11/03/2025 14:30	SM 2540C-2020

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Customer Sample ID: SP-11
Lab Number: 252803-006
Date Collected: 10/27/2025 16:02 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	73.5	mg/L	10	0.3	0.1		JCF	11/06/2025 18:47	EPA 300.1 -1997, Rev. 1.0
Fluoride	2.87	mg/L	2	0.06	0.02		JCF	11/06/2025 23:43	EPA 300.1 -1997, Rev. 1.0
Sulfate	53.6	mg/L	2	0.60	0.04		JCF	11/06/2025 23:43	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	660	mg/L	2	100	40		LM	11/03/2025 14:30	SM 2540C-2020

Customer Sample ID: BAP DUPLICATE
Lab Number: 252803-007
Date Collected: 10/28/2025 17:11 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	25.3	mg/L	5	0.15	0.05		JCF	11/07/2025 00:06	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.01	mg/L	5	0.15	0.05		JCF	11/07/2025 00:06	EPA 300.1 -1997, Rev. 1.0
Sulfate	79.1	mg/L	5	1.5	0.1		JCF	11/07/2025 00:06	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	510	mg/L	2	100	40	S7	BLB	11/04/2025 07:57	SM 2540C-2020

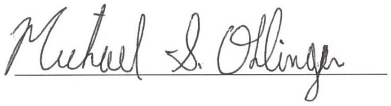
Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

Q14 - This analyte and method are not included on the primary Laboratory Scope of TNI Accreditation.
S7 - Sample did not achieve constant weight.

Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Dolan Chemical Laboratory (DCL)
4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Project Name: NE PS BAP Semi-Annual CCR sampling
Contact Name: Pryce Warren
Contact Phone: 325-310-6668
Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days)
Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 752803

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3 As, B, Ba, Be, Ca,Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, TL	1 L bottle, Cool, 0-6°C TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3 Ra-226, Ra-228	250 mL Glass bottle, HCL**, pH<2 Hg	Field-filter 250 mL bottle, pH<2, HNO_3 dissolved Fe and Mn	1 L bottle Cool, 0-6°C TDS, F, CL, SO4, TOTAL ALKALINITY, BICARBONATE ALKALINITY	Sample Specific Notes:
SP-1	10/27/2025	1611	G	GW	1			X					
SP-2	10/27/2025	1330	G	GW	1			X					
SP-4	10/28/2025	1725	G	GW	1			X					
SP-5R	10/28/2025	1809	G	GW	1			X					
SP-10	10/27/2025	1427	G	GW	1							X	
SP-11	10/27/2025	1502	G	GW	1			X					
BAP DUPLICATE	10/27/2025	1611	G	GW	1			X					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Kurt Mud	EA&E	10/29/25 1500		
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Date/Time: 11/03/25 1335

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type: (Cooler) Box Bag Envelope

Delivery Type: UPS (FedEX) USPS Other _____

Plant/Customer Northwestern **Total # of Containers RECEIVED in Job:** 7

Opened By KBH | AML

Date/Time 11/03/25 1330

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? (Y) / N or N/A

Initial/Date: AMP 11·3·25 (on ice) / no ice (IR Gun Ser# 240093386, *Expir.* 01/31/2026)

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093379, *Expir.* 01/31/2026)

Was container in good condition? (Y) / N Comments _____

Was Chain of Custody received? (Y) / N Comments N/A

Requested turnaround: Routine If **RUSH**, who was notified? TOS

pH (15 min) Cr^{+6} (pres) (24 hr) NO_2 or NO_3 (48 hr) *ortho*-PO_4 (48 hr) Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: AMP 11·3·25

***pH paper:* mfr LabRat ,PN LRS-4801 ,LOT# X000RWDG21 ,EXPIR DATE 09/30/2026

*** Note changes to pH paper in comments below***

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: n/a (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments n/a (See Prep Book)

Was COC filled out properly? (Y) / N Comments n/a

Were samples labeled properly? Y / (N) Comments SP-2 @ 1530 per Bryce Warren

Were correct containers used? (Y) / N Comments n/a

Was the customer contacted? If Yes: Person Contacted: Bryce Warren

Lab ID# 752803 Initial & Date & Time : KBH 11/03/25 1345

Logged by KBH Comments: n/a

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 7

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 757803 **Initial/ Date:** 11/03/25 **Peer Review Initial/ Date:** AMS 11·3·25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
4	757803-001		4
↓	-002		4
	-003		4
	-004		4
6	-005	NA	6
4	-006		4
4	-007		4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-1
Lab Number: 252839-001
Date Collected: 10/27/2025 17:11 EDT

Customer Description:
Preparation:
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.3	µg/L	5	0.5	0.1	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Arsenic	0.5	µg/L	5	0.5	0.2		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Barium	117	µg/L	5	1.0	0.3		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 15:37	EPA 200.8-1994, Rev. 5.4
Boron	0.20	mg/L	5	0.25	0.03	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Cadmium	0.04	µg/L	5	0.10	0.02	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Calcium	107	mg/L	5	0.5	0.1		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Chromium	0.6	µg/L	5	1.5	0.4	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Cobalt	0.38	µg/L	5	0.15	0.05		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Lead	0.3	µg/L	5	1.0	0.3	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Lithium	0.0051	mg/L	5	0.0015	0.0004		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Magnesium	29.1	mg/L	5	0.50	0.05		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Mercury	38	ng/L	1	5	2		JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	11.0	µg/L	5	2.5	0.3		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Potassium	0.8	mg/L	5	0.5	0.1		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Selenium	3.1	µg/L	5	2.5	0.2		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Sodium	35.7	mg/L	5	1.0	0.1		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Strontium	2.56	mg/L	5	0.0100	0.0003		GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	GES	11/05/2025 16:52	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.62	pCi/L	0.13	0.22		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	80.5	%						
Radium-228	3.78	pCi/L	0.22	0.60		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	65.4	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-2
Customer Description:
Lab Number: 252839-002
Preparation:
Date Collected: 10/27/2025 14:30 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.8	µg/L	5	0.5	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Arsenic	1.5	µg/L	5	0.5	0.2		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Barium	1120	µg/L	5	1.0	0.3		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Beryllium	0.1	µg/L	5	0.3	0.1	J1	GES	11/11/2025 15:53	EPA 200.8-1994, Rev. 5.4
Boron	0.14	mg/L	5	0.25	0.03	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Cadmium	0.05	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Calcium	121	mg/L	5	0.5	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Chromium	0.8	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Cobalt	0.71	µg/L	5	0.15	0.05		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Lead	0.6	µg/L	5	1.0	0.3	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Lithium	0.0474	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Magnesium	61.6	mg/L	5	0.50	0.05		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	11.0	µg/L	5	2.5	0.3		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Potassium	2.3	mg/L	5	0.5	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Selenium	2.7	µg/L	5	2.5	0.2		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Sodium	287	mg/L	5	1.0	0.1		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Strontium	10.2	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	GES	11/05/2025 17:08	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.96	pCi/L	0.19	0.11		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	116	%						
Radium-228	3.71	pCi/L	0.17	0.44		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	100	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-4
Customer Description:
Lab Number: 252839-003
Preparation:
Date Collected: 10/28/2025 18:25 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.3	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Arsenic	1.6	µg/L	5	0.5	0.2		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Barium	205	µg/L	5	1.0	0.3		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Beryllium	0.2	µg/L	5	0.3	0.1	J1	GES	11/11/2025 16:09	EPA 200.8-1994, Rev. 5.4
Boron	0.38	mg/L	5	0.25	0.03		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Cadmium	0.06	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Calcium	105	mg/L	5	0.5	0.1		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Chromium	1.1	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Cobalt	0.75	µg/L	5	0.15	0.05		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Lead	0.7	µg/L	5	1.0	0.3	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Lithium	0.0585	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Magnesium	43.0	mg/L	5	0.50	0.05		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	2.9	µg/L	5	2.5	0.3		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Potassium	2.5	mg/L	5	0.5	0.1		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Selenium	0.9	µg/L	5	2.5	0.2	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Sodium	311	mg/L	5	1.0	0.1		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Strontium	7.28	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	GES	11/05/2025 17:24	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.59	pCi/L	0.10	0.12		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	112	%						
Radium-228	2.54	pCi/L	0.16	0.44		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	95.3	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-5R
Customer Description:
Lab Number: 252839-004
Preparation:
Date Collected: 10/28/2025 19:09 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.1	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Arsenic	20.7	µg/L	5	0.5	0.2		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Barium	2200	µg/L	5	1.0	0.3		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 16:15	EPA 200.8-1994, Rev. 5.4
Boron	0.23	mg/L	5	0.25	0.03	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.02	µg/L	5	0.10	0.02	U1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Calcium	85.6	mg/L	5	0.5	0.1		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Chromium	1.0	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Cobalt	0.61	µg/L	5	0.15	0.05		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Lead	1.7	µg/L	5	1.0	0.3		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Lithium	0.0962	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Magnesium	34.2	mg/L	5	0.50	0.05		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	0.7	µg/L	5	2.5	0.3	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Potassium	2.7	mg/L	5	0.5	0.1		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Selenium	0.2	µg/L	5	2.5	0.2	J1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Sodium	481	mg/L	5	1.0	0.1		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Strontium	6.55	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4
Thallium	<0.1	µg/L	5	1.0	0.1	U1	GES	11/05/2025 17:30	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	6.10	pCi/L	0.36	0.11		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	121	%						
Radium-228	5.29	pCi/L	0.19	0.47		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	101	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-10
Lab Number: 252839-005
Date Collected: 10/27/2025 15:27 EDT

Customer Description:
Preparation:
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.2	µg/L	10	1.0	0.2	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.3	µg/L	10	1.0	0.3	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Barium	6620	µg/L	10	2.0	0.5		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.2	µg/L	10	0.5	0.2	U1	GES	11/11/2025 16:20	EPA 200.8-1994, Rev. 5.4
Boron	1.01	mg/L	10	0.50	0.06		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.04	µg/L	10	0.20	0.04	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Calcium	137	mg/L	10	1.0	0.2		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Chromium	<0.7	µg/L	10	3.0	0.7	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Cobalt	<0.1	µg/L	10	0.3	0.1	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Lead	0.6	µg/L	10	2.0	0.5	J1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Lithium	0.225	mg/L	10	0.0030	0.0007		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Magnesium	49.0	mg/L	10	1.0	0.1		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.5	µg/L	10	5.0	0.5	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Potassium	6.0	mg/L	10	1.0	0.2		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Selenium	<0.4	µg/L	10	5.0	0.4	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Sodium	1250	mg/L	10	2.0	0.2		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Strontium	16.3	mg/L	10	0.0200	0.0006		GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4
Thallium	<0.2	µg/L	10	2.0	0.2	U1	GES	11/05/2025 17:35	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	19.20	pCi/L	0.77	0.13	R2	TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	144	%						
Radium-228	0.50	pCi/L	0.13	0.44	R2	TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	122	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: SP-11
Customer Description:
Lab Number: 252839-006
Preparation:
Date Collected: 10/27/2025 16:02 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.2	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Arsenic	2.4	µg/L	5	0.5	0.2		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Barium	807	µg/L	5	1.0	0.3		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 16:26	EPA 200.8-1994, Rev. 5.4
Boron	0.25	mg/L	5	0.25	0.03		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Cadmium	0.05	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Calcium	71.6	mg/L	5	0.5	0.1		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Chromium	1.4	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Cobalt	0.83	µg/L	5	0.15	0.05		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Lead	1.3	µg/L	5	1.0	0.3		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Lithium	0.0268	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Magnesium	16.0	mg/L	5	0.50	0.05		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Mercury	<20	ng/L	10	50	20	U1	RLP	11/05/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	1.0	µg/L	5	2.5	0.3	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Potassium	2.0	mg/L	5	0.5	0.1		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Selenium	0.3	µg/L	5	2.5	0.2	J1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Sodium	192	mg/L	5	1.0	0.1		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Strontium	4.17	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4
Thallium	<0.1	µg/L	5	1.0	0.1	U1	GES	11/05/2025 17:41	EPA 200.8-1994, Rev. 5.4

Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.48	pCi/L	0.09	0.10		TTP	11/24/2025 12:48	SW-846 9315-1986, Rev. 0
Carrier Recovery	106	%						
Radium-228	0.69	pCi/L	0.18	0.59		TTP	11/14/2025 16:30	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	82.0	%						

* The Required Detection Limit (RDL) is equivalent to the RL and for Radium-226 and Radium-228, the RDL is calculated to be 1.0 pCi/L. The Minimal Detectable Activity (MDA) listed with these results is sample specific and empirical. The combined standard uncertainty (UNC) is a counting uncertainty representing "one-sigma" which has the same units of measurement as the result.

Water Analysis Report

Dolan Chemical Laboratory
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Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: BAP Duplicate
Customer Description:
Lab Number: 252839-007
Preparation:
Date Collected: 10/27/2025 17:11 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.3	µg/L	5	0.5	0.1	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Arsenic	0.5	µg/L	5	0.5	0.2		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Barium	119	µg/L	5	1.0	0.3		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.1	µg/L	5	0.3	0.1	U1	GES	11/11/2025 16:31	EPA 200.8-1994, Rev. 5.4
Boron	0.19	mg/L	5	0.25	0.03	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Cadmium	0.05	µg/L	5	0.10	0.02	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Calcium	107	mg/L	5	0.5	0.1		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Chromium	0.7	µg/L	5	1.5	0.4	J1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Cobalt	0.46	µg/L	5	0.15	0.05		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Lead	<0.3	µg/L	5	1.0	0.3	U1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Lithium	0.0052	mg/L	5	0.0015	0.0004		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Magnesium	29.7	mg/L	5	0.50	0.05		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	11.4	µg/L	5	2.5	0.3		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Potassium	0.8	mg/L	5	0.5	0.1		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Selenium	3.2	µg/L	5	2.5	0.2		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Sodium	35.6	mg/L	5	1.0	0.1		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Strontium	2.58	mg/L	5	0.0100	0.0003		GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4
Thallium	<0.1	µg/L	5	1.0	0.1	U1	GES	11/05/2025 17:46	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Customer Sample ID: BAP Equipment Blank
Lab Number: 252839-008
Date Collected: 10/27/2025 14:20 EDT

Customer Description:
Preparation:
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.08	µg/L	1	0.10	0.02	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.02	µg/L	1	0.05	0.02	U1	GES	11/11/2025 16:37	EPA 200.8-1994, Rev. 5.4
Boron	<0.006	mg/L	1	0.050	0.006	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Calcium	0.03	mg/L	1	0.10	0.02	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Cobalt	0.02	µg/L	1	0.03	0.01	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.01	mg/L	1	0.10	0.01	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	JLD	11/04/2025 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.05	µg/L	1	0.50	0.05	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Potassium	<0.02	mg/L	1	0.10	0.02	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Strontium	0.00049	mg/L	1	0.00200	0.00006	J1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	11/05/2025 17:52	EPA 200.8-1994, Rev. 5.4

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

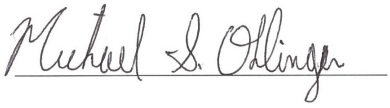
Customer Sample ID: Field Blank
Customer Description:
Lab Number: 252839-009
Preparation:
Date Collected: 10/27/2025 14:15 EDT
Date Received: 11/03/2025 11:10 EST

Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.08	µg/L	1	0.10	0.02	J1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.02	µg/L	1	0.05	0.02	U1	GES	11/11/2025 17:48	EPA 200.8-1994, Rev. 5.4
Boron	<0.006	mg/L	1	0.050	0.006	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.10	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Chromium	0.24	µg/L	1	0.30	0.07	J1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Cobalt	0.02	µg/L	1	0.03	0.01	J1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.01	mg/L	1	0.10	0.01	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Molybdenum	<0.05	µg/L	1	0.50	0.05	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Potassium	<0.02	mg/L	1	0.10	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00006	mg/L	1	0.00200	0.00006	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	11/05/2025 18:57	EPA 200.8-1994, Rev. 5.4

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252839 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/26/2025**

Data Qualifer Legend

J1 - Concentration estimated. Analyte was detected between the method detection limit and the reporting limit.
U1 - Not detected at or below method detection limit (MDL).
R2 - Carrier recovery was outside acceptance limits.

Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Dolan Chemical Laboratory (DCL)
4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Project Name: NE PS BAP Semi-Annual CCR sampling

Contact Name: Pryce Warren

Contact Phone: 325-310-6668

Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days)
Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 252839 1/1

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3 As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, Sr, Tl	1 L bottle, Cool, 0-6°C TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3 Ra-226, Ra-228	250 mL Glass or 125/250 mL PTFE lined bottle, HCL**, pH<2 Hg	Field-filter 500 mL bottle, then pH<2, HNO_3 dissolved Fe and Mn		Sample Specific Notes:
SP-1	10/27/2025	1611	G	GW	8		X		X	X			
SP-2	10/27/2025	1330	G	GW	5		X		X	X			
SP-4	10/28/2025	1725	G	GW	5		X		X	X			
SP-5R	10/28/2025	1809	G	GW	5		X		X	X			
SP-10	10/27/2025	1427	G	GW	5		X		X	X			
SP-11	10/27/2025	1502	G	GW	5		X		X	X			
BAP DUPLICATE	10/27/2025	1611	G	GW	2		X			X			
BAP EQUIPMENT BLANK	10/27/2025	1320	G	W	2		X			X			
FIELD BLANK	10/27/2025	1315	G	W	1		X						
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

* Note: added Strontium to list of metals

Relinquished by:	Company: EAGLE	Date/Time: 10/30/25 1700	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Date/Time: 10 11·3·25 1110

AMA 11·3·25

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type	Delivery Type
(Cooler) Box Bag Envelope	UPS (FedEX) USPS
	Other _____

Plant/Customer Northeastern **Total # of Containers RECEIVED in Job:** 38

Opened By AMR | KJH

Date/Time 11·3·25 1110

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? Y / N or (N/A)

Initial/Date: NA on ice / (no ice) (IR Gun Ser# 240093386, *Expir.* 01/31/2026)

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093379, *Expir.* 01/31/2026)

Was container in good condition? (Y) / N Comments NA

Was Chain of Custody received? (Y) / N Comments NA

Requested turnaround: Routine If **RUSH**, who was notified? NA

pH (15 min) | Cr^{+6} (pres) (24 hr) | NO_2 or NO_3 (48 hr) | *ortho*-PO_4 (48 hr) | Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: AMR 11·3·25

***pH paper:* mfr LabRat ,PN LRS-4801 ,LOT# X000RWDG21 ,EXPIR DATE 09/30/2026

***** Note changes to pH paper in comments below***

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: NA (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments NA (See Prep Book)

Was COC filled out properly? (Y) / N Comments _____

Were samples labeled properly? (Y) / N Comments _____

Were correct containers used? (Y) / N Comments _____

Was the customer contacted? If Yes: Person Contacted: _____

Lab ID# 252839 Initial & Date & Time : NA

Logged by AMR Comments: _____

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 38

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 252839 **Initial/ Date:** AMB 11.3.25 **Peer Review Initial/ Date:** KBH 11/04/25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
21	252839 -001		21
	-002		
	-003		
	-004		
	-005		
	-006		
19	-007		19
19	-008		19
18	-009		18

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Customer Sample ID: SP-1 **Customer Description:**
Lab Number: 252803-001 **Preparation:**
Date Collected: 10/27/2025 17:11 EDT **Date Received: 11/03/2025 13:30 EST**

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	47.2	mg/L	5	0.15	0.05		JCF	11/06/2025 21:04	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.09	mg/L	5	0.15	0.05		JCF	11/06/2025 21:04	EPA 300.1 -1997, Rev. 1.0
Sulfate	83.1	mg/L	5	1.5	0.1		JCF	11/06/2025 21:04	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	490	mg/L	2	100	40		LM	11/03/2025 14:24	SM 2540C-2020

Customer Sample ID: SP-2 **Customer Description:**
Lab Number: 252803-002 **Preparation:**
Date Collected: 10/27/2025 14:30 EDT **Date Received: 11/03/2025 13:30 EST**

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	883	mg/L	50	1.5	0.5		JCF	11/06/2025 16:53	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.23	mg/L	5	0.15	0.05		JCF	11/06/2025 19:33	EPA 300.1 -1997, Rev. 1.0
Sulfate	11.3	mg/L	5	1.5	0.1		JCF	11/06/2025 19:33	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1820	mg/L	2	100	40		LM	11/03/2025 14:09	SM 2540C-2020

Customer Sample ID: SP-4 **Customer Description:**
Lab Number: 252803-003 **Preparation:**
Date Collected: 10/28/2025 18:25 EDT **Date Received: 11/03/2025 13:30 EST**

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	432	mg/L	50	1.5	0.5		JCF	11/06/2025 17:16	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.43	mg/L	5	0.15	0.05		JCF	11/06/2025 19:55	EPA 300.1 -1997, Rev. 1.0
Sulfate	92.9	mg/L	5	1.5	0.1		JCF	11/06/2025 19:55	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1120	mg/L	2	100	40		BLB	11/04/2025 07:57	SM 2540C-2020

AMERICAN ELECTRIC POWER

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Water Analysis Report

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Customer Sample ID: SP-5R
Lab Number: 252803-004
Date Collected: 10/28/2025 19:09 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	739	mg/L	50	1.5	0.5		JCF	11/06/2025 18:01	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.36	mg/L	5	0.15	0.05		JCF	11/06/2025 20:18	EPA 300.1 -1997, Rev. 1.0
Sulfate	2.0	mg/L	5	1.5	0.1		JCF	11/06/2025 20:18	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	1460	mg/L	2	100	40		BLB	11/04/2025 07:57	SM 2540C-2020

Customer Sample ID: SP-10
Lab Number: 252803-005
Date Collected: 10/27/2025 15:27 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	1860	mg/L	250	8	3		JCF	11/06/2025 16:30	EPA 300.1 -1997, Rev. 1.0
Fluoride	7.1	mg/L	10	0.3	0.1		JCF	11/06/2025 18:24	EPA 300.1 -1997, Rev. 1.0
Sulfate	19.0	mg/L	10	3.0	0.2		JCF	11/06/2025 18:24	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	459	mg/L	1	20	5		GES	11/06/2025 17:37	SM 2320B-2021
Bicarbonate Alkalinity	458	mg/L	1	20	5	Q14	GES	11/06/2025 17:37	SM 4500 CO2D-2011
TDS, Filterable Residue	3440	mg/L	2	100	40		LM	11/03/2025 14:30	SM 2540C-2020

Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Customer Sample ID: SP-11
Lab Number: 252803-006
Date Collected: 10/27/2025 16:02 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	73.5	mg/L	10	0.3	0.1		JCF	11/06/2025 18:47	EPA 300.1 -1997, Rev. 1.0
Fluoride	2.87	mg/L	2	0.06	0.02		JCF	11/06/2025 23:43	EPA 300.1 -1997, Rev. 1.0
Sulfate	53.6	mg/L	2	0.60	0.04		JCF	11/06/2025 23:43	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	660	mg/L	2	100	40		LM	11/03/2025 14:30	SM 2540C-2020

Customer Sample ID: BAP DUPLICATE
Lab Number: 252803-007
Date Collected: 10/28/2025 17:11 EDT
Customer Description:
Preparation:
Date Received: 11/03/2025 13:30 EST

Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Chloride	25.3	mg/L	5	0.15	0.05		JCF	11/07/2025 00:06	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.01	mg/L	5	0.15	0.05		JCF	11/07/2025 00:06	EPA 300.1 -1997, Rev. 1.0
Sulfate	79.1	mg/L	5	1.5	0.1		JCF	11/07/2025 00:06	EPA 300.1 -1997, Rev. 1.0

Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
TDS, Filterable Residue	510	mg/L	2	100	40	S7	BLB	11/04/2025 07:57	SM 2540C-2020

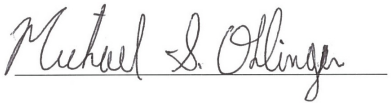
Water Analysis Report

Dolan Chemical Laboratory
4001 Bixby Road
Groveport, OH 43125
Phone: 614-836-4221
Audinet: 210-4221

Job ID: 252803 **Customer: Northeastern 3&4 Power Station** **Date Reported: 11/13/2025**

Report Verification

This report and the above data have been confirmed by the following analyst.



Michael Ohlinger, Chemist
Email: msohlinger@aep.com
Phone: 614-836-4184
Audinet: 8-210-4184

THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED AND SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF THE LABORATORY. ALL TEST RESULTS MEET ALL OF THE REQUIREMENTS OF THE ACCREDITING AUTHORITY, UNLESS OTHERWISE NOTED. ALL TIMES LISTED ARE IN THE EASTERN TIME ZONE.

Data Qualifer Legend

Q14 - This analyte and method are not included on the primary Laboratory Scope of TNI Accreditation.
S7 - Sample did not achieve constant weight.

Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Dolan Chemical Laboratory (DCL)
4001 Bixby Road
Groveport, Ohio 43125
Contacts: Jonathan Barnhill (318-673-3803)
Michael Ohlinger (614-836-4184)

Project Name: NE PS BAP Semi-Annual CCR sampling
Contact Name: Pryce Warren
Contact Phone: 325-310-6668
Sampler(s): Kenny McDonald

Analysis Turnaround Time (in Calendar Days)
Routine (28 days for Monitoring Wells)

Site Contact:

Date:

For Lab Use Only:
COC/Order #: 752803

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO_3 As, B, Ba, Be, Ca,Cd, Cr, Co, K, Li, Na, Pb, Mg, Mo, Sb, Se, TL	1 L bottle, Cool, 0-6°C TDS, F, Cl, SO_4	Three (six every 10th*) 1 L bottles, pH<2, HNO_3 Ra-226, Ra-228	250 mL Glass bottle, HCL**, pH<2 Hg	Field-filter 250 mL bottle, pH<2, HNO_3 dissolved Fe and Mn	1 L bottle Cool, 0-6°C TDS, F, CL, SO4, TOTAL ALKALINITY, BICARBONATE ALKALINITY	Sample Specific Notes:
SP-1	10/27/2025	1611	G	GW	1			X					
SP-2	10/27/2025	1330	G	GW	1			X					
SP-4	10/28/2025	1725	G	GW	1			X					
SP-5R	10/28/2025	1809	G	GW	1			X					
SP-10	10/27/2025	1427	G	GW	1							X	
SP-11	10/27/2025	1502	G	GW	1			X					
BAP DUPLICATE	10/27/2025	1611	G	GW	1			X					
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field							4	1	4				

* *Six 1L Bottles must be collected for Radium for every 10th sample.*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Kurt Mud	EA&E	10/29/25 1500		
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Date/Time: 11/03/25 1335

WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

Package Type: (Cooler) Box Bag Envelope

Delivery Type: UPS (FedEX) USPS Other _____

Plant/Customer Northwestern **Total # of Containers RECEIVED in Job:** 7

Opened By KBH | AML

Date/Time 11/03/25 1330

Were all required temperatures, per BN-water-900, T≤6°C *w/o sample freezing*? (Y) / N or N/A

Initial/Date: AMP 11·3·25 (on ice) / no ice (IR Gun Ser# 240093386, *Expir.* 01/31/2026)

If No, specify each deviation(s) on back of form. (IR Gun Ser# 240093379, *Expir.* 01/31/2026)

Was container in good condition? (Y) / N Comments _____

Was Chain of Custody received? (Y) / N Comments N/A

Requested turnaround: Routine If **RUSH**, who was notified? TOS

pH (15 min) Cr^{+6} (pres) (24 hr) NO_2 or NO_3 (48 hr) *ortho*-PO_4 (48 hr) Hg-diss (pres) (48 hr)

Were pH requirements met for required samples, per BN-water-900? (Y) / N or N/A

Initial/Date: AMP 11·3·25

***pH paper:* mfr LabRat ,PN LRS-4801 ,LOT# X000RWDG21 ,EXPIR DATE 09/30/2026

*** Note changes to pH paper in comments below***

Was Add'l Preservative needed? Y / (N) If Yes: By whom & when: n/a (See Prep Book)

(Dissolved) Is sample filtration requested? Y / (N) Comments n/a (See Prep Book)

Was COC filled out properly? (Y) / N Comments n/a

Were samples labeled properly? Y / (N) Comments SP-2 @ 1530 per Bryce Warren

Were correct containers used? (Y) / N Comments n/a

Was the customer contacted? If Yes: Person Contacted: Bryce Warren

Lab ID# 752803 Initial & Date & Time : KBH 11/03/25 1345

Logged by KBH Comments: n/a

(Record Test Count on back of form)

Total # of Containers LISTED on COC: 7

WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102 Sample Receipt Form Rev.10, 01/03/25

REMINDER: Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the Sample or Job "Comments" field in the LIMS. **Comments below**:
i.e. Mark "LF" if needs Lab filtered, Temperature or Preservative deviation, Preserved upon arrival , etc.

JOB # : 757803 **Initial/ Date:** 11/03/25 **Peer Review Initial/ Date:** AMS 11·3·25

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
4	757803-001		4
↓	-002		4
	-003		4
	-004		4
6	-005	NA	6
4	-006		4
4	-007		4