

# Annual Groundwater Monitoring Report

Southwestern Electric Power Company

H. W. Pirkey Power Plant

East Bottom Ash Pond CCR Unit

CN600126767; RN100214287

Registration No: CCR104

Hallsville, Texas

**January 31, 2025**

Prepared by:

American Electric Power Service Corporation

1 Riverside Plaza

Columbus, Ohio 43215



An **AEP** Company

BOUNDLESS ENERGY™

**Table of Contents**

I. Overview .....1

II. Groundwater Monitoring Well Locations and Identification Numbers .....4

III. Monitoring Wells Installed or Decommissioned .....5

IV. Groundwater Quality Data and Static Water Elevation Data, With Flow Rate and Direction and Discussion .....5

V. Groundwater Quality Data Statistical Analysis .....5

VI. Alternate Source Demonstration .....6

VII. Discussion About Transition Between Monitoring Requirements or Alternate Monitoring Frequency .....6

VIII. Other Information Required .....7

IX. Description of Any Problems Encountered in 2024 and Actions Taken .....7

X. A Projection of Key Activities for the Upcoming Year .....7

- Appendix 1-** Groundwater Data Tables and Figures
- Appendix 2-** Statistical Analyses
- Appendix 3-** Alternative Source Demonstrations
- Appendix 4-** Field Sheets
- Appendix 5-** Analytical Reports
- Appendix 6-** Well Installation/Decommissioning Logs - N/A

- Abbreviations:**
- ASD - Alternate Source Demonstration
  - CCR – Coal Combustion Residual
  - GWPS - Groundwater protection standards
  - SSI - Statistically Significant Increase
  - SSL - Statistically Significant Level
  - TCEQ – Texas Commission on Environmental Quality



## I. Overview

This *Annual Groundwater Monitoring Report* (Report) has been prepared to report the status of activities for the preceding year at the East Bottom Ash Pond (EBAP) CCR unit at Pirkey Power Plant. Southwestern Electric Power Company is wholly-owned subsidiary of American Electric Power Company (AEP). The Texas Commission on Environmental Quality's (TCEQ's) CCR rules require that the Annual Groundwater Monitoring Report be posted to the operating record for the preceding year no later than January 31, 2025.

In general, the following activities were completed:

- At the start of the current annual reporting period, the EBAP was operating under the Assessment monitoring program.
- At the end of the current annual reporting period, the EBAP was operating under the Assessment monitoring program.
- The EBAP initiated an assessment monitoring program on April 3, 2018.
- Groundwater samples were collected for AD-2, AD-4, AD-12, AD-18, AD-31, and AD-32 in February, April, and September 2024 and analyzed for Appendix III and Appendix IV constituents, as specified in 30 TAC §352.941 or §352.951 *et seq* and AEP's *Groundwater Sampling and Analysis Plan (2021)*.
- Groundwater data underwent various validation tests, including tests for completeness, valid values, transcription errors, and consistent units.
- During the 1<sup>st</sup> semi-annual sampling event held in April 2024:

The following Appendix IV parameters exceeded established groundwater protection standards:

- Lithium at AD-2, AD-31 and AD-32
- Cobalt at AD-2, AD-31, and AD-32

The following Appendix III parameters exceeded background:

- Boron at AD-2 and AD-32
- Calcium at AD-2 and AD-32
- Chloride at AD-2, AD-31, and AD-32
- Fluoride at AD-2 and AD-32
- pH at AD-32
- Sulfate at AD-2, AD-31, and AD-32
- TDS concentrations at AD-2, AD-31, and AD-32

- A successful ASD for the 1<sup>st</sup> semi-annual 2024 Appendix IV parameters that exceeded the GWPS was certified December 6, 2024, and submitted to TCEQ for approval.
- During the 2<sup>nd</sup> semi-annual sampling event held in September 2024:

The following Appendix IV parameters exceeded established groundwater protection standards:

- Lithium at AD-2, AD-31 and AD-32
- Cobalt at AD-2, AD-31, and AD-32

The following Appendix III parameters exceeded background:

- Boron at AD-2 and AD-32
- Calcium at AD-2 and AD-32
- Chloride at AD-2, AD-31, and AD-32
- Fluoride at AD-32
- pH at AD-32
- Sulfate at AD-2, AD-31, and AD-32
- TDS concentrations at AD-2, AD-31, and AD-32

- Pirkey Power Plant submitted a Notice of SSLs above the Groundwater Protection Standard (GWPS) to TCEQ December 31, 2024, which indicated an alternative source demonstration would be conducted. An alternative source demonstration report will be prepared and certified and submitted to TCEQ's Executive Director for review within 90 days of the SSL determination.
- Because an alternate source for the SSL(s) was identified, but no alternate source for the SSI(s) was identified, EBAP remained in Assessment Monitoring.
- A statistical process in accordance with 30 TAC §352.931 to evaluate groundwater data was updated, certified, and posted to AEP's CCR website in 2021 titled: AEP's *Statistical Analysis Plan* (Geosyntec 2021). The statistical process was guided by USEPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* ("Unified Guidance," USEPA, 2009).
- On April 25, 2023, EBAP ceased receipt of CCR and non-CCR wastestreams and commenced closure by removal for this CCR Unit in accordance with the certified closure plan.
- The CCR material was removed from April to June of 2023 from the EBAP. An additional 12 inches of soil was then removed, finishing in July of 2023. The last inspection for the

removal was completed on July 20, 2023. The groundwater monitoring samples for final closure were collected in August 2023.

- On October 17, 2023, the EBAP was closed by removal in accordance with 30 TAC §352.1221 (40 CFR 257.102) and the most recent Written Closure Plan. A Closure Completion Notification that was certified by a Professional engineer was submitted to TCEQ. Groundwater monitoring will continue until TCEQ's Executive Director issues a closure certification.

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

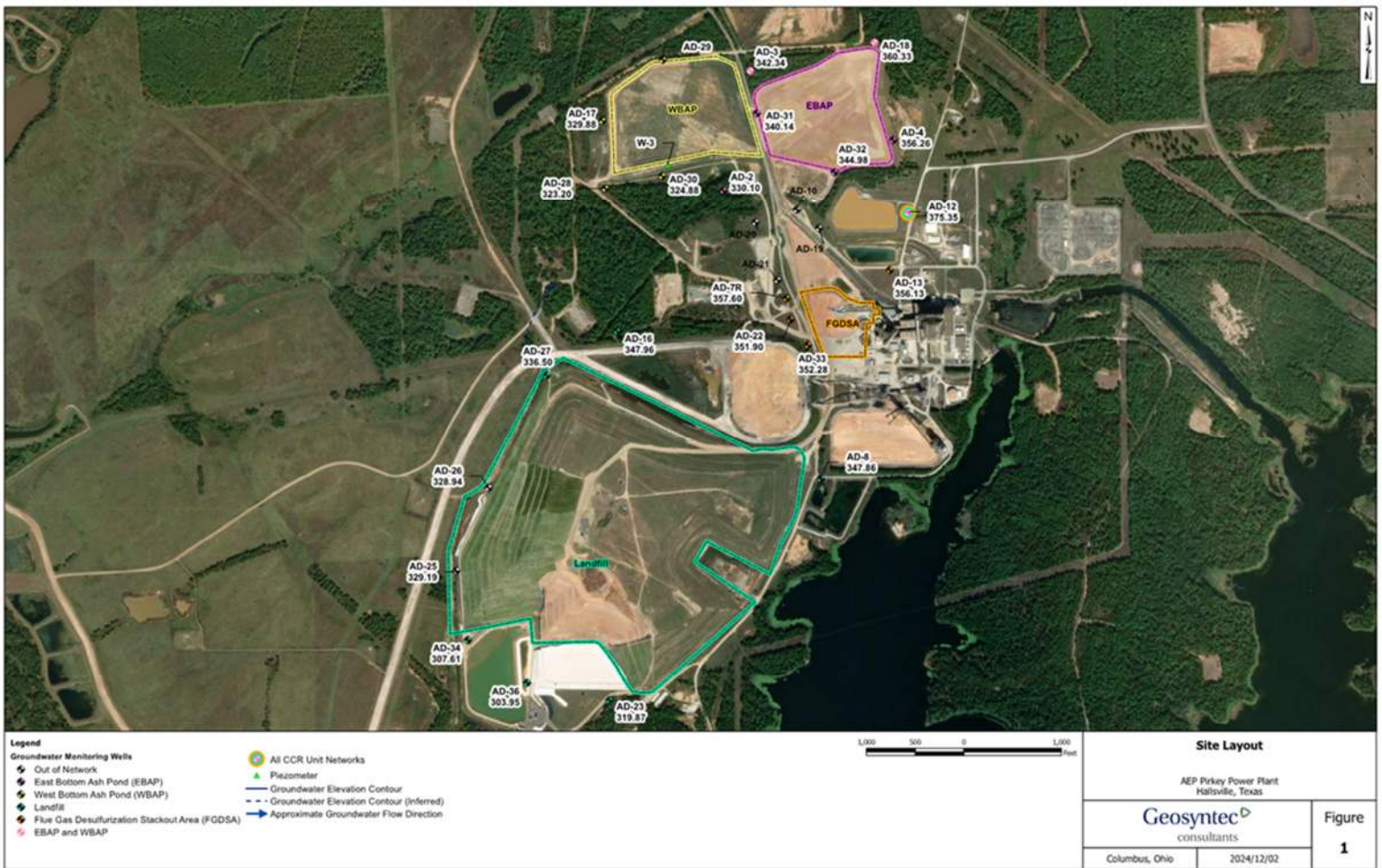
- A map, aerial photograph or a drawing showing the EBAP all groundwater monitoring wells and monitoring well identification numbers;
- All of the monitoring data collected, including the rate and direction of groundwater flow, plus a summary showing the number of samples collected per monitoring well, the dates the samples were collected and whether the sample was collected as part of detection monitoring or assessment monitoring programs (Attached as **Appendix 1**);
- Statistical comparison of monitoring data to determine if there have been SSI(s) or SSL(s) (Attached as **Appendix 2**);
- A discussion of whether any alternate source demonstrations were performed, and the conclusions (Attached as **Appendix 3**);
- 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 SSI over background concentrations (where applicable);
- Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a statement as to why that happened;
- Other information required to be included in the annual report such as field sheets, analytical reports, etc. (**Appendix 4 and 5**).

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.

EBAP Monitoring Wells	
Up Gradient	Down Gradient
AD-4	AD-2
AD-12	AD-31
AD-18	AD-32



### III. **Monitoring Wells Installed or Decommissioned**

There were no new groundwater monitoring wells installed during 2024. The network design, as summarized in the *Groundwater Monitoring Network Design Report* (May 25, 2016) and as posted at the CCR website for Pirkey Power Plant's EBAP, 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 groundwater quality data collected during the establishment of background quality, and during detection and assessment monitoring. Static water elevation data from each monitoring event also are shown in **Appendix 1**, along with the groundwater velocity calculations, groundwater flow direction and potentiometric maps developed after each sampling event.

The sampling event conducted February 2024 satisfies the requirement of 40 CFR 257.95(b)/30 TAC 352.951.

### V. **Groundwater Quality Data Statistical Analysis**

**Appendix 2** contains the statistical analysis report(s).

During the 1<sup>st</sup> semi-annual sampling event held in April 2024:

The following Appendix IV parameters exceeded established groundwater protection standards:

- Lithium at AD-2, AD-31, and AD-32
- Cobalt at AD-2, AD-31, and AD-32

The following Appendix III parameters exceeded background:

- Boron at AD-2 and AD-32
- Calcium at AD-2 and AD-32
- Chloride at AD-2, AD-31, and AD-32
- Fluoride at AD-2 and AD-32
- pH at AD-32
- Sulfate at AD-2, AD-31, and AD-32
- TDS concentrations at AD-2, AD-31, and AD-32

During the 2<sup>nd</sup> semi-annual sampling event held in September 2024:

The following Appendix IV parameters exceeded established groundwater protection standards:

- Lithium at AD-2, AD-31 and AD-32
- Cobalt at AD-2, AD-31, and AD-32

The following Appendix III parameters exceeded background:

- Boron at AD-2 and AD-32
- Calcium at AD-2 and AD-32
- Chloride at AD-2, AD-31, and AD-32
- Fluoride at AD-32
- pH at AD-32
- Sulfate at AD-2, AD-31, and AD-32
- TDS concentrations at AD-2, AD-31, and AD-32

## **VI. Alternate Source Demonstration**

A successful ASD for the 1<sup>st</sup> semi-annual 2024 Appendix IV parameters that exceeded the GWPS was certified December 6, 2024, and submitted to TCEQ for approval.

Pirkey Power Plant submitted a Notice of SSLs above the Groundwater Protection Standard (GWPS) to TCEQ December 31, 2024, which indicated an alternative source demonstration would be conducted. An alternative source demonstration report will be prepared and certified and submitted to TCEQ's Executive Director for review within 90 days of the SSL determination.

The successful ASDs are found in **Appendix 3**.

Because an alternate source for the SSL(s) was identified, but no alternate source for the SSI(s) was identified, EBAP remained in Assessment Monitoring.

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

The EBAP will remain in assessment monitoring unless all Appendix III and IV parameters are below background values for two consecutive monitoring events (return to detection monitoring) as prescribed by 30 TAC §352.951(c). If an Appendix IV parameter exceeds its respective GWPS and an ASD is determined not to be satisfactory to the executive director, an assessment of corrective measures will be undertaken as required by 30 TAC §352.961.

Regarding defining an alternate monitoring frequency, the groundwater velocity and monitoring well production are high enough at this facility that no modification to the semiannual assessment monitoring frequency is needed.

### **VIII. Other Information Required**

As required by the CCR assessment monitoring rules in 30 TAC §352.951, sampling all CCR wells for the required Appendix III and IV parameters was completed in 2024.

On April 25, 2023, EBAP ceased receipt of CCR and non-CCR wastestreams and commenced closure by removal for this CCR Unit in accordance with the certified closure plan.

The CCR material was removed from April to June of 2023 from the EBAP. An additional 12 inches of soil was then removed, finishing in July of 2023. The last inspection for the removal was completed on July 20, 2023. The groundwater monitoring samples for final closure were collected in August 2023.

On October 17, 2023, the EBAP was closed by removal in accordance with 30 TAC §352.1221 (40 CFR 257.102) and the most recent Written Closure Plan. A Closure Completion Notification certified by a Professional engineer was submitted to TCEQ. Groundwater monitoring will continue until TCEQ's Executive Director issues a closure certification.

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

No significant problems were encountered. The low flow sampling effort went smoothly, and the schedule was met to support the annual groundwater report preparation covering the year 2024 groundwater monitoring activities.

### **X. A Projection of Key Activities for the Upcoming Year**

Key activities for next year include:

- Assessment monitoring sampling will be conducted;
- Conduct the annual groundwater sampling event for all constituents listed in Appendix III and IV as required by 30 TAC 352.951;
- Perform statistical analysis on the sampling results for the Appendix III and Appendix IV parameters as required by 30 TAC 352.951;
- Conduct ASD(s) if GWPSs are exceeded;
- Responding to any new data received in light of CCR rule requirements;
- Preparation of the next annual groundwater report until TCEQ's Executive Director issues a closure certification.

## **APPENDIX 1- Groundwater Data Tables and Figures**

Figures 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.



**Table 1. Groundwater Data Summary: AD-2  
Pirkey - EBAP  
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
5/11/2016	Background	1.27	1.43	28	< 0.083 U1	4.4	68	238
7/14/2016	Background	1.34	1.38	28	< 0.083 U1	4.2	71	216
9/7/2016	Background	1.3	2.65	20	< 0.083 U1	4.2	49	216
10/13/2016	Background	1.48	1.29	31	< 0.083 U1	3.6	67	230
11/14/2016	Background	1.36	1.44	28	< 0.083 U1	3.9	72	240
1/12/2017	Background	1.48	1.6	30	< 0.083 U1	3.9	94	244
3/1/2017	Background	1.62	1.28	28	< 0.083 U1	4.1	80	262
4/11/2017	Background	1.65	1.71	50	< 0.083 U1	4.0	88	254
8/24/2017	Detection	1.46	2.06	24	< 0.083 U1	4.3	64	200
12/21/2017	Detection	1.38	2.92	24	< 0.083 U1	--	64	206
3/22/2018	Assessment	1.99	1.97	30	< 0.083 U1	4.2	105	220
8/21/2018	Assessment	2.14	1.65	46	< 0.083 U1	4.7	130	312
2/28/2019	Assessment	2.25	1.96	31.8	0.1 J1	3.5	129	384
5/22/2019	Assessment	2.17	2.19	29.6	0.1 J1	4.0	137	316
8/12/2019	Assessment	2.16	3.30	28.4	0.1 J1	4.6	128	306
3/11/2020	Assessment	2.78	2.50	29.7	0.14	4.0	178	374
6/3/2020	Assessment	2.44	2.44	29.3	0.15	4.6	174	387
11/2/2020	Assessment	2.62	1.99	29.2	0.11	3.9	158	347
3/9/2021	Assessment	2.76	2.48	30.2	0.23	4.0	209	450
5/25/2021	Assessment	2.78	2.7	29.8	0.22	3.6	215	430
11/16/2021	Assessment	2.62	2.63	29.2	0.15	3.4	200	410
3/29/2022	Assessment	3.02	3.13	31.4	0.20	3.9	241	460 L1
6/21/2022	Assessment	3.26	3.4	29.7	0.21	4.0	259	490
11/15/2022	Assessment	2.83	2.80	30.5	0.21	4.0	259	480
2/27/2023	Assessment	3.22	3.53	31.4	0.22	3.8	268	510
6/26/2023	Assessment	3.06	3.53	30.8	0.19	3.9	271	530
8/23/2023	Assessment	3.05	3.37	30.9	0.20	3.8	271	490
2/20/2024	Assessment	3.45	4.37	31.4	0.29	4.5	292	540
4/23/2024	Assessment	3.18	4.51	31.2	0.27	4.1	309	570
9/17/2024	Assessment	3.09	3.9	29.4	0.18	4.0	281	510

**Table 1. Groundwater Data Summary: AD-2  
Pirkey - EBAP  
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
5/11/2016	Background	< 0.93 U1	< 1.05 U1	38	0.514594 J1	< 0.07 U1	< 0.23 U1	10	1.446	< 0.083 U1	< 0.68 U1	< 0.00013 U1	0.098	< 0.29 U1	2.08256 J1	< 0.86 U1
7/14/2016	Background	< 0.93 U1	< 1.05 U1	38	0.46511 J1	< 0.07 U1	0.401928 J1	11	0.723	< 0.083 U1	< 0.68 U1	0.051	0.068	0.862706 J1	< 0.99 U1	< 0.86 U1
9/7/2016	Background	< 0.93 U1	< 1.05 U1	39	0.439699 J1	< 0.07 U1	0.493592 J1	10	1.489	< 0.083 U1	< 0.68 U1	0.048	0.675	< 0.29 U1	< 0.99 U1	1.26444 J1
10/13/2016	Background	< 0.93 U1	< 1.05 U1	39	0.40165 J1	< 0.07 U1	0.885421 J1	11	2.65	< 0.083 U1	< 0.68 U1	0.052	0.048	< 0.29 U1	1.3807 J1	< 0.86 U1
11/14/2016	Background	< 0.93 U1	< 1.05 U1	34	0.367353 J1	< 0.07 U1	< 0.23 U1	10	2.121	< 0.083 U1	< 0.68 U1	0.048	0.154	< 0.29 U1	1.23147 J1	< 0.86 U1
1/12/2017	Background	< 0.93 U1	< 1.05 U1	37	0.376129 J1	< 0.07 U1	< 0.23 U1	10	1.656	< 0.083 U1	< 0.68 U1	0.052	0.093	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/1/2017	Background	< 0.93 U1	< 1.05 U1	37	0.413652 J1	< 0.07 U1	< 0.23 U1	10	1.267	< 0.083 U1	< 0.68 U1	0.051	0.037	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/11/2017	Background	< 0.93 U1	< 1.05 U1	37	0.435396 J1	< 0.07 U1	0.243798 J1	11	0.807	< 0.083 U1	< 0.68 U1	0.052	0.028	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/22/2018	Assessment	< 0.93 U1	< 1.05 U1	33.28	0.45 J1	< 0.07 U1	< 0.23 U1	12.43	1.053	< 0.083 U1	< 0.68 U1	0.05379	0.042	< 0.29 U1	1.61 J1	< 0.86 U1
8/21/2018	Assessment	< 0.01 U1	0.52	29.0	0.428	0.06	0.406	13.6	1.059	< 0.083 U1	0.338	0.0479	0.02 J1	0.06 J1	1.1	0.096
2/28/2019	Assessment	0.02 J1	0.53	26.1	0.5 J1	0.06	0.1 J1	13.9	1.261	0.1 J1	0.355	0.0591	0.027	< 0.4 U1	1.5	< 0.1 U1
5/22/2019	Assessment	< 0.4 U1	< 0.6 U1	25.6	< 0.4 U1	< 0.2 U1	< 0.8 U1	15.5	0.832	0.1 J1	< 0.4 U1	0.0542	0.063	< 8 U1	0.9 J1	< 0.1 U1
8/12/2019	Assessment	< 0.02 U1	0.35	22.8	0.402	0.06	0.292	13.0	1.812	0.1 J1	0.288	0.0560	0.044	< 0.4 U1	0.8	0.1 J1
3/11/2020	Assessment	< 0.02 U1	0.52	21.9	0.499	0.08	0.247	17.7	0.1882	0.14	0.600	0.0476	0.056	4.37	1.5	0.1 J1
6/3/2020	Assessment	< 0.02 U1	0.45	19.7	0.474	0.07	0.243	16.5	1.412	0.15	0.389	0.0464	0.085	< 0.4 U1	1.5	0.1 J1
11/2/2020	Assessment	< 0.02 U1	0.41	21.5	0.463	0.07	0.254	16.9	0.961	0.11	0.435	0.0490	0.037	< 0.4 U1	1.3	0.1 J1
3/9/2021	Assessment	< 0.02 U1	0.68	19.6	0.564	0.09	0.280	20.2	0.681	0.23	0.517	0.0473	0.074	< 0.1 U1	2.3	0.1 J1
5/25/2021	Assessment	< 0.02 U1	0.55	18.9	0.541	0.094	0.38	21.7	1.16	0.22	0.46	0.0483	0.057	< 0.1 U1	1.68	0.09 J1
11/16/2021	Assessment	< 0.02 U1	0.62	19.2	0.575	0.078	0.37	21.2	1.69	0.15	0.51	0.0539	0.049	< 0.1 U1	1.75	0.11 J1
3/29/2022	Assessment	< 0.04 U1	0.82	18.2	0.75	0.102	0.90	22.7	1.76	0.20	0.5	0.0653	0.092	< 0.2 U1	2.7	0.10 J1
6/21/2022	Assessment	< 0.1 U1	2.0	17.5	0.85	0.11	0.5 J1	25.7	1.87	0.21	0.6 J1	0.0688	0.244	< 0.5 U1	2.7	0.3 J1
11/15/2022	Assessment	< 0.02 U1	0.40	16.8	0.561	0.086	0.43	19.6	1.41	0.21	0.60	0.0556	0.058	< 0.1 U1	1.28	0.11 J1
2/27/2023	Assessment	< 0.02 U1	0.90	15.9	0.787	0.128	0.52	28.9	1.03	0.22	0.68	0.0636	0.051	< 0.1 U1	2.65	0.12 J1
6/26/2023	Assessment	0.009 J1	1.14	13.5	0.744	0.119	0.49	27.3	1.36	0.19	0.60	0.0595	0.157	< 0.1 U1	4.32	0.11 J1
8/23/2023	Assessment	0.008 J1	0.78	13.8	0.715	0.116	0.48	25.8	2.49	0.20	0.64	0.0601	0.270	< 0.1 U1	2.72	0.11 J1
2/20/2024	Assessment	< 0.008 U1	1.19	17.3	1.06	0.133	0.47	31.9	1.88	0.29	0.73	0.0825	0.048	< 0.1 U1	4.61	0.13 J1
4/23/2024	Assessment	< 0.008 U1	2.05	14.8	1.03	0.135	0.54	33.0	2.18	0.27	0.65	0.0739	0.056	< 0.1 U1	6.51	0.13 J1
9/17/2024	Assessment	< 0.04 U1	0.9	14.8	1.03	0.12	0.9 J1	29.6	2.85	0.18	0.8 J1	0.0851	0.041	2.0 J1	3.5	0.1 J1

**Table 1. Groundwater Data Summary: AD-4  
Pirkey - EBAP  
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
5/11/2016	Background	0.02	1.63	4	< 0.083 U1	5.4	23	148
7/14/2016	Background	0.02	2.32	4	< 0.083 U1	4.9	20	157
9/8/2016	Background	0.02	2.37	5	< 0.083 U1	4.9	20	136
10/13/2016	Background	0.03	2.87	6	< 0.083 U1	4.1	19	164
11/15/2016	Background	0.04	2.71	5	< 0.083 U1	4.3	19	152
1/12/2017	Background	0.03	2.94	5	< 0.083 U1	4.8	18	148
3/1/2017	Background	0.03	2.86	4	< 0.083 U1	4.7	18	148
4/10/2017	Background	0.04	1.91	5	< 0.083 U1	4.4	21	140
8/24/2017	Detection	0.06229	2.04	5	< 0.083 U1	4.6	20	94
3/22/2018	Assessment	0.0331	1.41	3	< 0.083 U1	4.8	23	132
8/21/2018	Assessment	0.018	2.38	7	< 0.083 U1	4.8	21	158
2/28/2019	Assessment	0.021	1.57	3.56	0.11	4.9	22.9	192
5/23/2019	Assessment	0.021	1.71	3.31	0.15	5.0	24.6	150
8/14/2019	Assessment	< 0.02 U1	1.97	6.22	0.12	5.5	21.7	146
3/11/2020	Assessment	< 0.02 U1	1.46	3.42	0.13	5.4	24.2	166
6/3/2020	Assessment	0.02 J1	1.72	3.65	0.14	5.4	24.7	168
11/4/2020	Assessment	0.02 J1	2.33	3.66	0.05 J1	4.9	18.7	162
3/9/2021	Assessment	0.02 J1	1.72	3.63	0.12	5.2	21.5	146
5/25/2021	Assessment	0.032 J1	1.7	3.60	0.14	4.6	22.6	150
11/16/2021	Assessment	0.012 J1	2.13	3.94	< 0.02 U1	4.3	17.2	130
3/29/2022	Assessment	0.019 J1	1.84	3.80	0.08	4.9	22.2	140 L1
6/21/2022	Assessment	0.020 J1	2.51	3.92	0.05 J1	4.4	20.5	160
11/16/2022	Assessment	0.019 J1	2.25	4.14	< 0.02 U1	4.7	16.6	130
2/28/2023	Assessment	0.028 J1	2.22	4.08	0.05 J1	4.9	19.9	140
6/27/2023	Assessment	0.018 J1	2.90	3.97	0.02 J1	4.5	18.9	150
8/23/2023	Assessment	0.027 J1	2.18	3.88	0.04 J1	4.6	18.5	130
2/20/2024	Assessment	0.018 J1	3.23	4.35	< 0.02 U1	4.9	19.9	180
4/24/2024	Assessment	0.017 J1	2.26	3.97	0.07	4.6	20.3	140
9/17/2024	Assessment	0.016 J1	2.58	3.95	0.02 J1	4.9	18.4	130

**Table 1. Groundwater Data Summary: AD-4  
Pirkey - EBAP  
Appendix IV Constituents**

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
5/11/2016	Background	< 0.93 U1	3.95918 J1	75	1	0.133362 J1	0.396808 J1	8	0.729	< 0.083 U1	< 0.68 U1	0.013	0.00891 J1	< 0.29 U1	1.79183 J1	< 0.86 U1
7/14/2016	Background	< 0.93 U1	8	127	1	< 0.07 U1	3	9	4.271	< 0.083 U1	< 0.68 U1	0.041	0.037	< 0.29 U1	1.73546 J1	1.87362 J1
9/8/2016	Background	< 0.93 U1	5	123	1	0.111076 J1	2	8	0.193	< 0.083 U1	< 0.68 U1	0.04	0.01151 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
10/13/2016	Background	< 0.93 U1	11	183	0.830588 J1	< 0.07 U1	7	7	2.381	< 0.083 U1	< 0.68 U1	0.034	0.01005 J1	< 0.29 U1	1.60451 J1	0.868603 J1
11/15/2016	Background	< 0.93 U1	< 1.05 U1	114	0.53145 J1	< 0.07 U1	0.446412 J1	6	1.072	< 0.083 U1	< 0.68 U1	0.035	0.01268 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/12/2017	Background	< 0.93 U1	< 1.05 U1	149	0.406228 J1	< 0.07 U1	0.305795 J1	4.5062 J1	2.599	< 0.083 U1	< 0.68 U1	0.03	0.01146 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/1/2017	Background	< 0.93 U1	< 1.05 U1	131	0.354085 J1	< 0.07 U1	< 0.23 U1	4.45689 J1	1.089	< 0.083 U1	< 0.68 U1	0.033	0.01224 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/10/2017	Background	< 0.93 U1	< 1.05 U1	94	0.915299 J1	0.0796 J1	0.240917 J1	8	0.684	< 0.083 U1	< 0.68 U1	0.047	0.00554 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/22/2018	Assessment	< 0.93 U1	< 1.05 U1	66.74	1.15	0.26 J1	< 0.23 U1	9.39	1.283	< 0.083 U1	< 0.68 U1	0.05374	< 0.005 U1	< 0.29 U1	1.99 J1	< 0.86 U1
8/21/2018	Assessment	< 0.01 U1	1.30	121	0.400	0.02 J1	0.198	4.43	1.331	< 0.083 U1	0.098	0.0294	0.005 J1	< 0.02 U1	0.04 J1	0.096
2/28/2019	Assessment	< 0.02 U1	0.26	70.5	0.9 J1	0.01 J1	0.1 J1	6.92	0.818	0.11	0.106	0.0513	< 0.005 U1	< 0.4 U1	0.03 J1	< 0.1 U1
5/23/2019	Assessment	< 0.4 U1	< 0.6 U1	61.7	0.5 J1	< 0.2 U1	1 J1	7.86	0.5173	0.15	< 0.4 U1	0.0516	< 0.005 U1	< 8 U1	< 0.6 U1	< 0.1 U1
8/14/2019	Assessment	< 0.02 U1	0.17	73.5	1.04	< 0.01 U1	0.08 J1	6.52	0.833	0.12	0.06 J1	0.0484	< 0.005 U1	< 0.4 U1	0.04 J1	< 0.1 U1
3/11/2020	Assessment	< 0.02 U1	1.16	69.0	0.965	< 0.01 U1	0.1 J1	7.89	0.2327	0.13	0.06 J1	0.0415	< 0.002 U1	< 0.4 U1	< 0.03 U1	< 0.1 U1
6/3/2020	Assessment	< 0.02 U1	0.52	67.9	0.527	< 0.01 U1	0.2 J1	7.15	0.87	0.14	0.06 J1	0.0380	< 0.002 U1	< 0.4 U1	< 0.03 U1	< 0.1 U1
11/4/2020	Assessment	0.03 J1	5.30	124	0.922	0.03 J1	0.433	4.40	1.45	0.05 J1	0.402	0.0274	0.008	< 0.4 U1	0.1 J1	0.1 J1
3/9/2021	Assessment	< 0.02 U1	0.30	87.9	0.679	0.01 J1	0.2 J1	6.50	0.576	0.12	< 0.05 U1	0.0331	0.002 J1	< 0.1 U1	< 0.09 U1	0.06 J1
5/25/2021	Assessment	< 0.02 U1	0.13	80.7	0.489 M1	0.012 J1	0.24	6.86	0.83	0.14	< 0.05 U1	0.0335 M1	< 0.002 U1	< 0.1 U1	< 0.09 U1	0.06 J1
11/16/2021	Assessment	< 0.02 U1	0.25	122 M1, P3	0.280	0.022	0.28	3.08	1.60	< 0.02 U1	< 0.05 U1	0.0211	0.015	< 0.1 U1	< 0.09 U1	0.08 J1
3/29/2022	Assessment	< 0.02 U1	1.10	93.2	0.641	0.010 J1	0.31	6.16	1.15	0.08	0.07 J1	0.0383	0.017	< 0.1 U1	< 0.09 U1	0.07 J1
6/21/2022	Assessment	< 0.02 U1	0.30	124	0.407	0.021	0.46	4.10	1.31	0.05 J1	< 0.05 U1	0.0220	0.004 J1	< 0.1 U1	< 0.09 U1	0.09 J1
11/16/2022	Assessment	< 0.02 U1	0.21	128	0.195	0.019 J1	0.44	3.00	0.40	< 0.02 U1	< 0.05 U1	0.0212	0.005	< 0.1 U1	< 0.09 U1	0.10 J1
2/28/2023	Assessment	< 0.02 U1	0.26	115	0.594	0.015 J1	0.41	5.60	1.90	0.05 J1	< 0.05 U1	0.0311	0.004 J1	< 0.1 U1	< 0.09 U1	0.09 J1
6/27/2023	Assessment	0.018 J1	1.23	132	0.376	0.021	0.56	3.89	1.72	0.02 J1	0.15 J1	0.0240	0.003 J1	< 0.1 U1	0.14 J1	0.09 J1
8/23/2023	Assessment	0.011 J1	0.36	117	0.246	0.021	0.40	3.63	2.24	0.04 J1	0.07 J1	0.0243	0.003 J1	< 0.1 U1	0.04 J1	0.08 J1
2/20/2024	Assessment	< 0.008 U1	0.13	148	0.33	0.027	0.34	3.44	1.78	< 0.02 U1	< 0.05 U1	0.0252	0.006	< 0.1 U1	0.06 J1	0.10 J1
4/24/2024	Assessment	0.014 J1	0.44	97.2	0.64	0.020	0.31	5.95	1.79	0.07	0.06 J1	0.0395	< 0.002 U1	< 0.1 U1	< 0.04 U1	0.07 J1
9/17/2024	Assessment	< 0.008 U1	0.46	120	0.4 J1	0.022	0.57	3.52	3.46	0.02 J1	0.07 J1	0.030	0.004 J1	< 0.1 U1	< 0.04 U1	0.10 J1

**Table 1. Groundwater Data Summary: AD-12  
Pirkey - EBAP  
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
5/11/2016	Background	0.03	0.362	5	< 0.083 U1	4.4	4	94
7/13/2016	Background	0.03	0.26	6	< 0.083 U1	3.1	4	75
9/7/2016	Background	0.04	0.343	6	< 0.083 U1	3.9	7	63
10/12/2016	Background	0.03	0.271	7	1	3.4	8	92
11/14/2016	Background	0.04	0.331	8	< 0.083 U1	2.6	6	80
1/11/2017	Background	0.03	0.315	7	< 0.083 U1	4.8	6	76
2/28/2017	Background	0.04	0.434	5	< 0.083 U1	3.6	4	50
4/11/2017	Background	0.05	0.299	6	0.2565 J1	4.7	7	72
8/23/2017	Detection	0.0495	0.245	6	0.213 J1	4.8	6	52
3/21/2018	Assessment	0.01397	0.269	5	< 0.083 U1	4.2	3	< 2 U1
8/20/2018	Assessment	0.017	0.338	10	< 0.083 U1	4.4	4	94
2/27/2019	Assessment	0.03 J1	0.4 J1	6.08	0.09	5.2	3.6	36
5/21/2019	Assessment	0.020	0.3 J1	6.30	0.09	4.1	4.0	80
8/12/2019	Assessment	< 0.02 U1	0.278	7.24	0.06 J1	4.9	2.6	90
3/10/2020	Assessment	0.02 J1	0.3 J1	6.08	0.10	4.9	3.7	62
6/2/2020	Assessment	< 0.02 U1	0.2 J1	5.63	0.10	4.0	3.9	91
11/2/2020	Assessment	0.03 J1	0.3 J1	4.65	0.08	4.3	3.3	74
3/8/2021	Assessment	0.01 J1	0.2 J1	6.46	0.11	4.1	3.8	68
5/24/2021	Assessment	0.032 J1	0.2 J1	5.54	0.12	4.2	5.46	70
11/15/2021	Assessment	0.012 J1	0.28	8.03	0.07	3.5	2.90	90
3/28/2022	Assessment	0.021 J1	0.20	6.10	0.07	3.9	3.80	60 L1
6/20/2022	Assessment	0.042 J1	0.32	7.59	0.09	4.3	4.81	80
11/15/2022	Assessment	0.013 J1	0.36	8.03	0.08	4.7	3.39	70
2/27/2023	Assessment	0.021 J1	0.34	6.51	0.07	3.8	3.90	70
6/26/2023	Assessment	0.019 J1	0.21	4.68	0.06	4.6	2.9	80
8/23/2023	Assessment	0.017 J1	0.22	4.74	0.07	3.8	3.5	75
10/17/2023	Assessment	0.015 J1	0.27	6.74	0.07	3.8	2.7	58
2/19/2024	Assessment	0.016 J1	0.27	5.87	0.11	3.2	3.1	60
4/22/2024	Assessment	0.015 J1	0.18	4.86	0.08	3.4	4.2	60
9/16/2024	Assessment	0.018 J1	0.23	4.45	0.07	3.0	3.1	60

Table 1. Groundwater Data Summary: AD-12

Pirkey - EBAP  
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
5/11/2016	Background	< 0.93 U1	< 1.05 U1	26	0.219521 J1	< 0.07 U1	0.710981 J1	1.58207 J1	0.2073	< 0.083 U1	< 0.68 U1	< 0.00013 U1	< 0.005 U1	< 0.29 U1	1.73953 J1	< 0.86 U1
7/13/2016	Background	< 0.93 U1	< 1.05 U1	23	0.190337 J1	< 0.07 U1	0.68835 J1	1.29444 J1	2.909	< 0.083 U1	< 0.68 U1	0.008	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
9/7/2016	Background	< 0.93 U1	< 1.05 U1	30	0.232192 J1	< 0.07 U1	0.353544 J1	1.66591 J1	0.881	< 0.083 U1	< 0.68 U1	0.01	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
10/12/2016	Background	< 0.93 U1	< 1.05 U1	27	0.149553 J1	< 0.07 U1	0.529033 J1	1.56632 J1	0.257	1	< 0.68 U1	0.012	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
11/14/2016	Background	< 0.93 U1	< 1.05 U1	28	0.152375 J1	< 0.07 U1	0.32826 J1	1.47282 J1	0.767	< 0.083 U1	< 0.68 U1	0.013	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/11/2017	Background	< 0.93 U1	< 1.05 U1	23	0.126621 J1	< 0.07 U1	0.650158 J1	1.09495 J1	1.536	< 0.083 U1	< 0.68 U1	0.01	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
2/28/2017	Background	< 0.93 U1	< 1.05 U1	26	0.149219 J1	< 0.07 U1	0.325811 J1	1.29984 J1	0.416	< 0.083 U1	< 0.68 U1	0.009	< 0.005 U1	< 0.29 U1	< 0.99 U1	0.994913 J1
4/11/2017	Background	< 0.93 U1	< 1.05 U1	24	0.159412 J1	< 0.07 U1	0.416007 J1	1.33344 J1	0.3895	0.2565 J1	< 0.68 U1	0.008	0.01364 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/21/2018	Assessment	< 0.93 U1	< 1.05 U1	25.82	0.16 J1	< 0.07 U1	1.05	1.49 J1	0.784	< 0.083 U1	< 0.68 U1	0.00722	< 0.005 U1	< 0.29 U1	< 0.99 U1	< 0.86 U1
8/20/2018	Assessment	< 0.01 U1	0.11	27.8	0.159	0.01 J1	0.330	1.72	1.128	< 0.083 U1	0.089	0.0143	< 0.005 U1	0.04 J1	0.1	0.04 J1
2/27/2019	Assessment	< 0.4 U1	< 0.6 U1	22.5	< 0.4 U1	< 0.2 U1	< 0.8 U1	1.37	0.225	0.09	< 0.4 U1	0.00688	< 0.005 U1	< 8 U1	< 0.6 U1	< 2 U1
5/21/2019	Assessment	< 0.4 U1	< 0.6 U1	21.7	< 0.4 U1	< 0.2 U1	< 0.8 U1	1.15	0.201	0.09	< 0.4 U1	0.00576	< 0.005 U1	< 8 U1	< 0.6 U1	< 0.1 U1
8/12/2019	Assessment	< 0.02 U1	0.07 J1	23.8	0.154	< 0.01 U1	0.204	1.30	0.237	0.06 J1	0.08 J1	0.00829	< 0.005 U1	< 0.4 U1	0.2 J1	< 0.1 U1
3/10/2020	Assessment	< 0.02 U1	0.09 J1	21.7	0.139	0.01 J1	0.2 J1	1.21	3.0706	0.10	0.09 J1	0.00547	< 0.002 U1	< 0.4 U1	0.2	< 0.1 U1
6/2/2020	Assessment	< 0.02 U1	0.09 J1	19.0	0.132	< 0.01 U1	0.208	1.02	0.799	0.10	0.09 J1	0.00505	< 0.002 U1	< 0.4 U1	0.3	< 0.1 U1
11/2/2020	Assessment	0.05 J1	0.09 J1	18.9	0.122	< 0.01 U1	0.204	1.04	0.929	0.08	0.09 J1	0.00510	< 0.002 U1	< 0.4 U1	0.3	< 0.1 U1
3/8/2021	Assessment	< 0.02 U1	0.07 J1	22.9	0.150	0.007 J1	0.2 J1	1.19	0.214	0.11	0.07 J1	0.00570	< 0.002 U1	< 0.1 U1	0.2 J1	< 0.04 U1
5/24/2021	Assessment	< 0.02 U1	0.08 J1	23.1	0.136	0.005 J1	0.24	1.19	0.60	0.12	0.07 J1	0.00500	< 0.002 U1	< 0.1 U1	0.31 J1	< 0.04 U1
11/15/2021	Assessment	< 0.02 U1	0.05 J1	26.5	0.148	0.01 J1	0.30	1.38	1.76	0.07	0.07 J1	0.0110	< 0.002 U1	< 0.1 U1	0.10 J1	< 0.04 U1
3/28/2022	Assessment	< 0.02 U1	0.09 J1	20.2	0.127	0.009 J1	0.35	1.01	0.76	0.07	0.09 J1	0.00604	< 0.002 U1	< 0.1 U1	0.33 J1	< 0.04 U1
6/20/2022	Assessment	< 0.02 U1	0.08 J1	24.2	0.135	0.008 J1	0.63	1.35	0.63	0.09	0.08 J1	0.00949	< 0.002 U1	< 0.1 U1	0.16 J1	< 0.04 U1
11/15/2022	Assessment	< 0.02 U1	0.06 J1	30.6	0.153	0.007 J1	0.45	1.59	1.46	0.08	0.08 J1	0.0119	< 0.002 U1	< 0.1 U1	0.23 J1	< 0.04 U1
2/27/2023	Assessment	< 0.02 U1	0.07 J1	27.5	0.155	0.013 J1	0.36	1.50	1.17	0.07	0.1 J1	0.00885	< 0.002 U1	< 0.1 U1	0.35 J1	< 0.04 U1
6/26/2023	Assessment	0.015 J1	0.11	16.3	0.110	0.007 J1	0.45	0.932	0.45	0.06	0.11 J1	0.00487	< 0.002 U1	0.7	0.23 J1	< 0.02 U1
8/23/2023	Assessment	0.013 J1	0.10	15.6	0.129	0.007 J1	0.45	0.855	1.34	0.07	0.11 J1	0.00494	< 0.002 U1	0.5	0.23 J1	< 0.02 U1
10/17/2023	Assessment	0.01 J1	0.06 J1	23.6	0.142	0.006 J1	0.31	1.19	1.08	0.07	0.07 J1	0.00891	< 0.002 U1	< 0.1 U1	0.21 J1	< 0.02 U1
2/19/2024	Assessment	0.010 J1	0.07 J1	21.7	0.127	0.009 J1	0.50	1.13	1.00	0.11	0.06 J1	0.00547	0.002 J1	< 0.1 U1	0.19 J1	< 0.02 U1
4/22/2024	Assessment	0.009 J1	0.09 J1	19.3	0.121	0.007 J1	0.34	1.08	2.62	0.08	0.08 J1	0.00462	< 0.002 U1	< 0.1 U1	0.31 J1	< 0.02 U1
9/16/2024	Assessment	0.011 J1	0.09 J1	16.6	< 0.4 U1	0.007 J1	0.43	1.06	2.84	0.07	0.08 J1	0.006 J1	0.002 J1	< 0.1 U1	0.19 J1	0.02 J1

**Table 1. Groundwater Data Summary: AD-18**

**Pirkey - EBAP**

**Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
5/10/2016	Background	0.01	0.548	8	< 0.083 U1	4.5	7	108
7/14/2016	Background	0.01	0.409	8	< 0.083 U1	4.7	7	116
9/8/2016	Background	0.01	0.343	8	< 0.083 U1	4.7	8	110
10/13/2016	Background	0.02	0.56	7	< 0.083 U1	4.1	10	124
11/15/2016	Background	0.02	0.59	7	< 0.083 U1	4.4	7	134
1/12/2017	Background	0.01	0.415	7	< 0.083 U1	4.7	10	128
3/1/2017	Background	0.01	0.224	6	< 0.083 U1	4.1	7	108
4/10/2017	Background	0.01	0.304	7	< 0.083 U1	4.1	8	102
8/24/2017	Detection	0.0278	0.435	8	< 0.083 U1	4.9	8	68
3/22/2018	Assessment	0.01642	0.292	6	< 0.083 U1	5.4	6	100
8/21/2018	Assessment	0.012	0.321	10	< 0.083 U1	5.1	8	118
2/28/2019	Assessment	< 0.02 U1	0.490	8.19	0.02 J1	5.0	6.1	84
5/23/2019	Assessment	0.013	0.684	8.82	0.02 J1	5.2	10.6	104
8/13/2019	Assessment	< 0.02 U1	0.647	8.49	0.01 J1	5.2	6.6	90
3/11/2020	Assessment	< 0.02 U1	0.3 J1	7.34	0.02 J1	4.4	6.1	90 J1
6/3/2020	Assessment	< 0.02 U1	0.2 J1	8.30	0.03 J1	4.5	6.3	119
11/3/2020	Assessment	--	--	--	--	4.4	--	--
11/4/2020	Assessment	< 0.02 U1	0.2 J1	6.30	0.02 J1	--	6.3	100
3/9/2021	Assessment	0.009 J1	0.2 J1	6.61	0.02 J1	4.5	6.6	113
5/25/2021	Assessment	0.021 J1	0.3	7.16	0.02 J1	4.4	7.46	100 P1
11/16/2021	Assessment	--	--	--	--	3.9	--	--
11/17/2021	Assessment	0.01 J1	0.20	5.99	< 0.02 U1	--	6.23	100
3/29/2022	Assessment	0.009 J1	0.24	5.26	< 0.02 U1	4.4	7.31	140 L1
6/21/2022	Assessment	--	--	--	--	4.6	--	--
6/22/2022	Assessment	< 0.009 U1	1.49	5.20	< 0.02 U1	--	6.47	110
11/15/2022	Assessment	--	--	--	--	4.5	--	--
11/16/2022	Assessment	0.011 J1	0.19	4.94	< 0.02 U1	--	6.55	90
2/28/2023	Assessment	< 0.009 U1	0.18	5.49	< 0.02 U1	4.4	7.52	100
6/27/2023	Assessment	0.009 J1	0.23	5.28	< 0.02 U1	4.4	8.2	110
8/23/2023	Assessment	0.012 J1	3.17	5.02	0.02 J1	4.4	6.9	88
10/18/2023	Assessment	0.011 J1	0.35	5.05	< 0.02 U1	3.9	10	98
2/19/2024	Assessment	--	--	--	--	4.5	--	--
2/20/2024	Assessment	0.013 J1	0.27	4.67	< 0.02 U1	--	8.1	110
4/23/2024	Assessment	0.008 J1	0.19	5.39	0.02 J1	4.7	7.2	90
9/17/2024	Assessment	--	--	--	--	4.2	--	--
9/18/2024	Assessment	0.010 J1	0.32	5.92	0.02 J1	--	10.2	130

Table 1. Groundwater Data Summary: AD-18

Pirkey - EBAP  
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
5/10/2016	Background	< 0.93 U1	< 1.05 U1	157	0.262755 J1	0.109247 J1	1	1.82932 J1	0.847	< 0.083 U1	< 0.68 U1	0.004	0.01536 J1	< 0.29 U1	1.71074 J1	< 0.86 U1
7/14/2016	Background	< 0.93 U1	3.77261 J1	139	0.243326 J1	< 0.07 U1	3	2.16037 J1	3.264	< 0.083 U1	< 0.68 U1	0.02	0.064	0.41347 J1	2.45009 J1	< 0.86 U1
9/8/2016	Background	< 0.93 U1	< 1.05 U1	115	0.226343 J1	< 0.07 U1	0.779959 J1	1.09947 J1	1.105	< 0.083 U1	< 0.68 U1	0.019	0.03	< 0.29 U1	< 0.99 U1	< 0.86 U1
10/13/2016	Background	< 0.93 U1	< 1.05 U1	112	0.192611 J1	< 0.07 U1	0.631027 J1	2.24885 J1	1.161	< 0.083 U1	< 0.68 U1	0.026	0.01416 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
11/15/2016	Background	< 0.93 U1	< 1.05 U1	94	0.107171 J1	< 0.07 U1	0.724569 J1	1.66054 J1	1.486	< 0.083 U1	< 0.68 U1	0.017	0.029	< 0.29 U1	< 0.99 U1	< 0.86 U1
1/12/2017	Background	< 0.93 U1	< 1.05 U1	99	0.169196 J1	< 0.07 U1	0.411433 J1	1.62881 J1	0.976	< 0.083 U1	< 0.68 U1	0.026	0.01887 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/1/2017	Background	< 0.93 U1	< 1.05 U1	99	0.105337 J1	< 0.07 U1	0.572874 J1	0.976724 J1	0.468	< 0.083 U1	< 0.68 U1	0.017	0.01086 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/10/2017	Background	< 0.93 U1	< 1.05 U1	105	0.130316 J1	< 0.07 U1	0.967681 J1	0.98157 J1	0.648	< 0.083 U1	< 0.68 U1	0.019	0.0096 J1	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/22/2018	Assessment	< 0.93 U1	< 1.05 U1	97.75	0.09 J1	< 0.07 U1	< 0.23 U1	0.97 J1	0.942	< 0.083 U1	< 0.68 U1	0.01647	0.006 J1	< 0.29 U1	1.53 J1	< 0.86 U1
8/21/2018	Assessment	0.02 J1	1.01	99.8	0.129	0.02 J1	0.809	1.18	1.108	< 0.083 U1	0.280	0.0175	0.014 J1	0.08 J1	0.2	0.060
2/28/2019	Assessment	< 0.4 U1	< 0.6 U1	106	< 0.4 U1	< 0.2 U1	< 0.8 U1	1.11	0.615	0.02 J1	0.7 J1	0.0177	0.009 J1	< 8 U1	< 0.6 U1	< 2 U1
5/23/2019	Assessment	< 0.4 U1	< 0.6 U1	131	< 0.4 U1	< 0.2 U1	< 0.8 U1	1.47	0.492	0.02 J1	< 0.4 U1	0.0209	0.009 J1	< 8 U1	< 0.6 U1	< 0.1 U1
8/13/2019	Assessment	< 0.02 U1	0.45	100	0.118	0.02 J1	0.212	1.25	0.473	0.01 J1	0.2 J1	0.0183	0.023 J1	< 0.4 U1	0.09 J1	< 0.1 U1
3/11/2020	Assessment	< 0.02 U1	0.09 J1	97.1	0.09 J1	0.01 J1	0.1 J1	0.948	4.813	0.02 J1	< 0.05 U1	0.0134	0.003 J1	< 0.4 U1	0.05 J1	< 0.1 U1
6/3/2020	Assessment	< 0.02 U1	0.22	100	0.1 J1	0.01 J1	0.2 J1	0.950	0.728	0.03 J1	0.06 J1	0.0132	0.007	< 0.4 U1	0.09 J1	< 0.1 U1
11/4/2020	Assessment	< 0.02 U1	0.29	89.3	0.08 J1	0.01 J1	0.1 J1	0.917	1.169	0.02 J1	0.06 J1	0.0128	0.028	< 0.4 U1	0.2 J1	< 0.1 U1
3/9/2021	Assessment	< 0.02 U1	0.28	88.7	0.09 J1	0.01 J1	0.271	0.827	0.331	0.02 J1	0.08 J1	0.0131	0.006	< 0.1 U1	0.1 J1	< 0.04 U1
5/25/2021	Assessment	< 0.02 U1	0.42	103	0.088	0.014 J1	0.55	0.964	0.77	0.02 J1	0.15 J1	0.0127	0.014	< 0.1 U1	0.13 J1	0.05 J1
11/17/2021	Assessment	< 0.02 U1	0.19	82.2	0.078	0.011 J1	0.31	0.801	1.91	< 0.02 U1	< 0.05 U1	0.0124	0.030	< 0.1 U1	0.11 J1	< 0.04 U1
3/29/2022	Assessment	0.02 J1	1.55	90.1	0.106	0.01 J1	1.40	0.842	2.01	< 0.02 U1	0.53	0.0137	0.021	< 0.1 U1	0.38 J1	0.05 J1
6/22/2022	Assessment	< 0.02 U1	0.30	79.3	0.073	0.012 J1	0.47	0.790	0.73	< 0.02 U1	0.11 J1	0.0108	< 0.007 U1	< 0.1 U1	0.14 J1	< 0.04 U1
11/16/2022	Assessment	< 0.02 U1	0.25	77.4	0.071	0.009 J1	0.54	0.723	1.61	< 0.02 U1	0.08 J1	0.0125	0.018	< 0.1 U1	0.12 J1	< 0.04 U1
2/28/2023	Assessment	< 0.02 U1	0.26	77.9	0.085	0.01 J1	0.38	0.750	1.10	< 0.02 U1	0.18 J1	0.0123	0.006	< 0.1 U1	< 0.09 U1	< 0.04 U1
6/27/2023	Assessment	0.009 J1	0.55	89.0	0.132	0.013 J1	0.57	0.933	2.53	< 0.02 U1	0.13 J1	0.0138	0.010	< 0.1 U1	0.15 J1	0.04 J1
8/23/2023	Assessment	0.056 J1	0.54	70.6	0.115	0.015 J1	1.15	0.731	1.27	0.02 J1	0.43	0.0119	0.005	0.1 J1	0.18 J1	0.03 J1
10/18/2023	Assessment	0.023 J1	0.43	84.0	0.127	0.018 J1	0.52	1.26	1.27	< 0.02 U1	0.12 J1	0.0186	0.084	< 0.1 U1	0.17 J1	0.05 J1
2/20/2024	Assessment	0.019 J1	1.17	83.1	0.100	0.013 J1	0.95	1.05	1.42	< 0.02 U1	0.30	0.0151	0.014	< 0.1 U1	0.23 J1	0.05 J1
4/23/2024	Assessment	< 0.008 U1	0.19	76.6	0.083	0.010 J1	0.32	0.851	0.99	0.02 J1	0.06 J1	0.0130	0.008	< 0.1 U1	0.11 J1	0.03 J1
9/18/2024	Assessment	0.016 J1	1.58	78.2	< 0.4 U1	0.013 J1	1.02	1.28	2.00	0.02 J1	0.37	0.021	0.013	< 0.1 U1	0.19 J1	0.05 J1



**Table 1. Groundwater Data Summary: AD-31  
Pirkey - EBAP  
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
5/11/2016	Background	0.08	10.4	18	< 0.083 U1	4.5	63	286
7/13/2016	Background	0.03	4.27	18	< 0.083 U1	3.5	66	245
9/7/2016	Background	0.03	3.47	18	< 0.083 U1	3.7	60	260
10/12/2016	Background	0.04	4.41	18	< 0.083 U1	4.0	62	276
11/14/2016	Background	0.04	4.7	18	< 0.083 U1	3.2	66	266
1/11/2017	Background	0.03	4.43	19	< 0.083 U1	4.4	79	252
2/28/2017	Background	0.04	3.89	14	< 0.083 U1	3.6	68	212
4/11/2017	Background	0.04	3.64	16	< 0.083 U1	3.6	69	252
8/23/2017	Detection	0.01752	2.24	18	< 0.083 U1	4.5	52	228
12/21/2017	Detection	--	--	20	< 0.083 U1	--	58	224
3/22/2018	Assessment	0.04078	3.11	16	< 0.083 U1	4.5	76	260
8/21/2018	Assessment	0.022	2.86	25	< 0.083 U1	4.9	72	274
2/28/2019	Assessment	0.03 J1	2.77	18.8	0.1 J1	5.0	74.8	74
5/23/2019	Assessment	0.021	3.29	18.7	0.13	5.1	79.9	240
8/12/2019	Assessment	< 0.02 U1	2.86	21.6	0.16	4.1	70.0	250
3/10/2020	Assessment	0.03 J1	2.80	21.7	0.14	3.5	74.6	246
6/2/2020	Assessment	0.02 J1	2.92	22.1	0.16	4.2	81.4	288
11/2/2020	Assessment	0.03 J1	2.76	21.2	0.13	3.7	77.8	268
3/8/2021	Assessment	0.02 J1	2.69	18.5	0.17	3.8	81.1	279
5/24/2021	Assessment	0.026 J1	3.0	18.1	0.17	3.6	86.4	130
11/16/2021	Assessment	0.024 J1	2.68	20.1	0.13	2.8	76.6	250
3/28/2022	Assessment	0.026 J1	2.75	21.8	0.13	3.4	80.8	260 L1
6/20/2022	Assessment	0.028 J1	2.65	23.2	0.14 J1	3.5	89.0	270
11/15/2022	Assessment	0.035 J1	2.63	24.3	0.14	4.3	79.1	250
2/27/2023	Assessment	0.017 J1	2.70	23.4	0.13	3.5	82.2	260
6/26/2023	Assessment	0.025 J1	2.69	21.2	0.10	4.2	82.1	280
8/23/2023	Assessment	0.021 J1	2.10	21.9	0.10	4.0	69.4	240
2/19/2024	Assessment	0.022 J1	2.54	17.7	0.09	3.4	70.9	250
4/22/2024	Assessment	0.022 J1	2.45	16.8	0.10	3.4	79.8	250
9/16/2024	Assessment	0.026 J1	2.38	17.7	0.09	3.0	73.2	260

Table 1. Groundwater Data Summary: AD-31

Pirkey - EBAP  
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
5/11/2016	Background	< 0.93 U1	93	712	10	0.858875 J1	212	50	7.32	< 0.083 U1	57	0.077	1.797	0.893978 J1	1.84045 J1	< 0.86 U1
7/13/2016	Background	< 0.93 U1	3.41559 J1	69	1	< 0.07 U1	10	11	3.38	< 0.083 U1	< 0.68 U1	0.096	0.32	0.316083 J1	1.11301 J1	< 0.86 U1
9/7/2016	Background	< 0.93 U1	4.34007 J1	88	2	< 0.07 U1	15	11	2.345	< 0.083 U1	< 0.68 U1	0.094	0.284	< 0.29 U1	< 0.99 U1	< 0.86 U1
10/12/2016	Background	< 0.93 U1	6	76	1	< 0.07 U1	14	11	3.88	< 0.083 U1	1.54023 J1	0.097	0.347	< 0.29 U1	< 0.99 U1	< 0.86 U1
11/14/2016	Background	< 0.93 U1	11	125	2	0.174662 J1	30	14	3.202	< 0.083 U1	3.93298 J1	0.096	0.523	0.401556 J1	1.03392 J1	< 0.86 U1
1/11/2017	Background	< 0.93 U1	3.92088 J1	77	1	< 0.07 U1	12	10	2.725	< 0.083 U1	< 0.68 U1	0.093	0.384	< 0.29 U1	< 0.99 U1	1.01921 J1
2/28/2017	Background	< 0.93 U1	< 1.05 U1	44	0.998308 J1	< 0.07 U1	3	9	2.684	< 0.083 U1	< 0.68 U1	0.09	0.138	< 0.29 U1	< 0.99 U1	< 0.86 U1
4/11/2017	Background	< 0.93 U1	3.31744 J1	73	1	0.0944 J1	12	11	3.521	< 0.083 U1	< 0.68 U1	0.097	0.333	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/22/2018	Assessment	< 0.93 U1	3.32 J1	70.83	1.24	0.12 J1	9.62	11.12	2.955	< 0.083 U1	< 0.68 U1	0.09732	1.389	< 0.29 U1	1.98 J1	< 0.86 U1
8/21/2018	Assessment	0.02 J1	1.92	57.7	0.729	0.06	2.39	9.29	4.13	< 0.083 U1	1.41	0.0556	1.112	0.24	2.5	0.113
2/28/2019	Assessment	< 0.4 U1	< 0.6 U1	33.1	1 J1	< 0.2 U1	< 0.8 U1	9.38	3.156	0.1 J1	< 0.4 U1	0.0864	0.01 J1	< 8 U1	< 0.6 U1	< 2 U1
5/23/2019	Assessment	< 0.4 U1	< 0.6 U1	37.9	0.9 J1	< 0.2 U1	< 0.8 U1	10.3	3.40	0.13	< 0.4 U1	0.0928	0.057	< 8 U1	< 0.6 U1	< 0.1 U1
8/12/2019	Assessment	< 0.02 U1	0.53	35.0	0.850	0.06	0.365	8.69	2.196	0.16	0.325	0.0875	1.027	< 0.4 U1	0.4	< 0.1 U1
3/10/2020	Assessment	< 0.02 U1	0.27	34.8	0.835	0.07	0.357	9.56	3.814	0.14	0.260	0.0669	0.183	< 0.4 U1	0.4	< 0.1 U1
6/2/2020	Assessment	< 0.02 U1	0.21	32.7	0.868	0.06	0.292	9.62	2.656	0.16	0.2 J1	0.0682	0.046	< 0.4 U1	0.4	< 0.1 U1
11/2/2020	Assessment	< 0.02 U1	0.26	34.0	1.10	0.07	0.2 J1	11.2	3.02	0.13	0.211	0.0895	0.144	< 0.4 U1	0.3	0.1 J1
3/8/2021	Assessment	< 0.02 U1	0.22	33.6	0.857	0.07	0.282	9.78	1.697	0.17	0.218	0.0664	0.095	< 0.1 U1	0.4	0.08 J1
5/24/2021	Assessment	< 0.02 U1	0.23	33.2	0.723	0.066	0.41	10.4	1.60	0.17	0.20	0.0638	0.059	0.1 J1	0.28 J1	0.09 J1
11/16/2021	Assessment	< 0.02 U1	0.26	32.1	0.801	0.063	0.39	9.18	3.39	0.13	0.34	0.0648	1.790	< 0.1 U1	0.33 J1	0.08 J1
3/28/2022	Assessment	< 0.02 U1	0.26	32.8	0.854	0.068	0.51	9.14	2.41	0.13	0.29	0.0687	0.103	< 0.1 U1	0.38 J1	0.09 J1
6/20/2022	Assessment	< 0.02 U1	0.42	34.1	1.03	0.071	0.59	9.61	4.60	0.14 J1	0.35	0.0844	0.089	< 0.1 U1	0.33 J1	0.08 J1
11/15/2022	Assessment	< 0.02 U1	0.30	35.8	0.863	0.066	0.74	9.41	3.81	0.14	0.34	0.0681	0.610	< 0.1 U1	0.38 J1	0.10 J1
2/27/2023	Assessment	< 0.02 U1	0.30	35.6	0.935	0.079	0.62	10.5	4.05	0.13	0.31	0.0737	0.130 J1	< 0.1 U1	0.27 J1	0.09 J1
6/26/2023	Assessment	0.009 J1	0.36	32.9	1.08	0.064	0.63	10.1	4.29	0.10	0.33	0.0889	0.077	< 0.1 U1	0.78	0.09 J1
8/23/2023	Assessment	< 0.008 U1	0.32	31.7	0.818	0.052	0.56	8.14	5.50	0.10	0.32	0.0644	0.890	< 0.1 U1	0.33 J1	0.08 J1
2/19/2024	Assessment	< 0.008 U1	0.40	33.3	1.26	0.069	0.56	9.47	5.73	0.09	0.30	0.0979	0.120	< 0.1 U1	0.39 J1	0.09 J1
4/22/2024	Assessment	< 0.008 U1	0.44	33.3	1.04	0.064	0.55	9.38	2.54	0.10	0.31	0.0792	0.430	< 0.1 U1	0.51	0.09 J1
9/16/2024	Assessment	0.010 J1	0.61	36.2	1.00	0.065	1.18	9.20	3.95	0.09	0.54	0.0857	0.740	< 0.1 U1	0.37 J1	0.10 J1

**Table 1. Groundwater Data Summary: AD-32  
Pirkey - EBAP  
Appendix III Constituents**

Collection Date	Monitoring Program	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
		mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
5/11/2016	Background	0.708	7.41	12	< 0.083 U1	4.3	124	206
7/13/2016	Background	5.23	33.9	32	0.67 J1	3.3	461	835
9/7/2016	Background	5.78	37.4	35	< 0.083 U1	3.1	479	884
10/12/2016	Background	4.26	27.1	29	0.8585 J1	3.3	430	720
11/14/2016	Background	5.52	35.9	34	0.7468 J1	3.0	621	922
1/11/2017	Background	5.05	40	35	< 0.083 U1	3.9	683	894
2/28/2017	Background	2.73	18.4	19	< 0.083 U1	3.1	285	490
4/11/2017	Background	1.46	11	15	0.4468 J1	3.2	200	372
8/23/2017	Detection	0.716	7.15	14	1.962	4.3	115	288
12/21/2017	Detection	2.56	17.1	22	0.5932 J1	--	324	504
3/21/2018	Assessment	0.628	6.32	15	< 0.083 U1	4.1	113	288
8/21/2018	Assessment	2.45	17.8	28	< 0.083 U1	3.9	321	548
2/28/2019	Assessment	0.679	6.62	17.5	0.40	3.2	121	222
5/21/2019	Assessment	0.555	5.35	18.6	0.31	3.2	105	292
8/12/2019	Assessment	1.77	13.3	24.9	0.67	4.0	228	448
8/16/2019	Assessment	1.92	14.6	26.1	0.83	--	273	522
3/10/2020	Assessment	0.656	6.84	20.5	0.39	3.7	117	286
6/2/2020	Assessment	0.557	5.75	24.1	0.41	3.9	93.6	327
11/2/2020	Assessment	4.04	34.3	36.2	1.40	3.4	690	1,070
3/8/2021	Assessment	2.87	34.2	33.5	1.08	3.5	714	1,020
5/24/2021	Assessment	2.11	21.7	25.4	1.25	3.3	452	340
11/15/2021	Assessment	1.70	16.8	24.3	0.78	2.8	334	580
3/28/2022	Assessment	0.773	8.05	25.2	0.44	3.1	157	330 L1
6/20/2022	Assessment	0.909	7.25	30.6	0.42	3.0	147	320
11/15/2022	Assessment	1.26	12.0	22.7	0.49	4.0	244	450
2/27/2023	Assessment	0.767	7.69	25.1	0.44	3.3	151	340
6/26/2023	Assessment	0.595	5.26	14.5	0.13	3.8	119	260
8/23/2023	Assessment	0.418	3.71	12.7	0.07	3.6	73.0	190
2/19/2024	Assessment	0.161	4.08	9.68	0.25	4.8	48.4	150
4/22/2024	Assessment	0.231	5.63	10.6	0.32	4.9	67.0	190
9/16/2024	Assessment	0.175	6.10	11.6	0.30	4.8	59.7	190

Table 1. Groundwater Data Summary: AD-32

Pirkey - EBAP  
Appendix IV Constituents

Collection Date	Monitoring Program	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Combined Radium	Fluoride	Lead	Lithium	Mercury	Molybdenum	Selenium	Thallium
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pCi/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L
5/11/2016	Background	< 0.93 U1	3.77019 J1	35	3	0.293016 J1	5	27	2.501	< 0.083 U1	< 0.68 U1	0.016	0.925	< 0.29 U1	< 0.99 U1	< 0.86 U1
7/13/2016	Background	< 0.93 U1	13	58	8	0.729634 J1	18	74	6.41	0.67 J1	< 0.68 U1	0.119	13.916	0.76212 J1	3.88793 J1	< 0.86 U1
9/7/2016	Background	< 0.93 U1	3.25886 J1	35	8	0.601583 J1	6	70	4.846	< 0.083 U1	< 0.68 U1	0.111	1.68	< 0.29 U1	< 0.99 U1	1.09263 J1
10/12/2016	Background	< 0.93 U1	10	50	7	0.589066 J1	15	65	17.32	0.8585 J1	< 0.68 U1	0.972	7.285	< 0.29 U1	1.93488 J1	< 0.86 U1
11/14/2016	Background	< 0.93 U1	6	37	9	0.78793 J1	8	75	3.731	0.7468 J1	< 0.68 U1	0.114	3.624	< 0.29 U1	< 0.99 U1	1.078 J1
1/11/2017	Background	< 0.93 U1	6	37	7	0.602157 J1	9	69	4.342	< 0.083 U1	< 0.68 U1	0.115	7.202	< 0.29 U1	< 0.99 U1	0.991051 J1
2/28/2017	Background	< 0.93 U1	4.56273 J1	30	5	0.389491 J1	5	45	4.001	< 0.083 U1	< 0.68 U1	0.095	7.927	< 0.29 U1	2.53854 J1	< 0.86 U1
4/11/2017	Background	< 0.93 U1	< 1.05 U1	26	4	0.440252 J1	3	35	4.32	0.4468 J1	< 0.68 U1	0.095	2.755	< 0.29 U1	< 0.99 U1	< 0.86 U1
3/21/2018	Assessment	< 0.93 U1	3.05 J1	41.25	3.17	0.55 J1	5.38	25.8	4.922	< 0.083 U1	< 0.68 U1	0.103	6.4	< 0.29 U1	2.18 J1	< 0.86 U1
8/21/2018	Assessment	0.01 J1	4.81	17.2	3.70	0.47	0.646	43.5	6.01	< 0.083 U1	0.714	0.0689	2.649	0.04 J1	15.0	0.238
2/28/2019	Assessment	< 0.4 U1	2 J1	28.9	3.34	0.2 J1	2 J1	25.0	4.67	0.40	< 0.4 U1	0.0919	1.135	< 8 U1	3 J1	< 2 U1
5/21/2019	Assessment	< 0.4 U1	0.8 J1	35.6	2.77	0.3 J1	1 J1	23.5	5.37	0.31	0.4 J1	0.0897	1.371	< 8 U1	1 J1	0.2 J1
8/12/2019	Assessment	< 0.02 U1	3.43	38.5	3.65	0.40	1.70	33.7	5.70	0.67	0.996	0.0964	4.127	< 0.4 U1	7.3	0.2 J1
8/16/2019	Assessment	< 0.1 U1	2.77	27.9	4.88	0.46	0.5 J1	40.4	--	0.83	0.6 J1	0.103	--	< 2 U1	7.8	< 0.5 U1
3/10/2020	Assessment	< 0.02 U1	0.88	28.7	2.51	0.30	0.379	23.9	5.741	0.39	0.343	0.0711	1.70	< 0.4 U1	2.6	0.2 J1
6/2/2020	Assessment	< 0.02 U1	0.98	31.9	2.35	0.25	0.675	20.8	4.445	0.41	0.405	0.0696	3.97	< 0.4 U1	2.3	0.2 J1
11/2/2020	Assessment	0.02 J1	6.29	22.0	8.90	0.79	1.17	74.0	8.88	1.40	1.23	0.0987	1.40	< 0.4 U1	25.3	0.4 J1
3/8/2021	Assessment	< 0.02 U1	5.54	18.5	5.78	0.66	0.754	61.9	3.701	1.08	0.970	0.0618	1.07	< 0.1 U1	22.2	0.3 J1
5/24/2021	Assessment	< 0.02 U1	2.39	16.9	3.96 M1	0.529	0.71	50.5	5.38	1.25	0.52	0.0629 M1	0.800	< 0.1 U1	9.21	0.21
11/15/2021	Assessment	< 0.02 U1	2.39	22.5	3.90	0.452	0.75	39.9	4.60	0.78	0.52	0.0698	1.400	< 0.1 U1	7.70	0.25
3/28/2022	Assessment	< 0.02 U1	1.05	30.0	2.89	0.323	0.60	25.1	5.90	0.44	0.38	0.0731	1.900	< 0.1 U1	3.42	0.17 J1
6/20/2022	Assessment	< 0.02 U1	1.81	32.3	3.28	0.318	0.68	27.2	13.87	0.42	0.43	0.0923	2.700	< 0.1 U1	2.67	0.17 J1
11/15/2022	Assessment	< 0.02 U1	1.73	24.4	3.77	0.404	0.82	34.8	5.28	0.49	0.66	0.0812	1.500	< 0.1 U1	5.95	0.24
2/27/2023	Assessment	< 0.02 U1	0.89	26.3	3.19	0.360	0.44	29.4	5.83	0.44	0.40	0.0837	2.200	< 0.1 U1	2.68	0.18 J1
6/26/2023	Assessment	0.012 J1	1.53	23.4	0.905	0.042	0.61	15.9	3.93	0.13	0.17 J1	0.0500	0.760	< 0.1 U1	1.59	0.11 J1
8/23/2023	Assessment	0.013 J1	2.19	22.7	0.921	0.071	0.83	11.3	5.16	0.07	0.26	0.0482	0.950	< 0.1 U1	1.04	0.10 J1
2/19/2024	Assessment	0.010 J1	3.94	26.2	0.182	0.014 J1	0.45	8.24	3.03	0.25	0.08 J1	0.0542	0.470	< 0.1 U1	0.13 J1	0.07 J1
4/22/2024	Assessment	< 0.008 U1	3.46	40.3	0.449	0.035	0.34	13.2	1.64	0.32	< 0.05 U1	0.0567	0.180	< 0.1 U1	0.48 J1	0.07 J1
9/16/2024	Assessment	0.015 J1	6.08	35.5	0.191	0.013 J1	0.40	14.3	1.18	0.30	0.08 J1	0.0693	0.380	< 0.1 U1	0.28 J1	0.06 J1

**Table 1. Groundwater Data Summary  
Pirkey - EBAP**

*Geosyntec Consultants, Inc.*

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.

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

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

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

pCi/L: picocuries per liter

SU: standard unit

µg/L: micrograms per liter

**Table 1. Groundwater Elevation Data Summary  
Pirkey Power Plant**

Unit	All Units	East Bottom Ash Pond					West Bottom Ash Pond				
		Upgradient		Downgradient			Upgradient		Downgradient		
Well	AD-12	AD-4	AD-18	AD-2	AD-31	AD-32	AD-3	AD-18	AD-17	AD-28	AD-30
Jan-2016	371.05	359.16	360.52	328.55	346.60	352.32	347.03	360.52	--	321.39	323.70
May-2016	372.17	360.07	359.26	328.35	348.21	352.74	348.04	359.26	329.38	321.82	324.26
Jul-2016	365.68	352.34	356.99	327.46	345.46	348.53	346.00	356.99	325.93	320.44	322.49
Jan-2017	365.11	353.27	357.06	327.65	343.78	347.44	344.19	357.06	324.70	320.27	322.23
Feb-2017	368.79	355.32	359.21	327.96	344.53	348.44	345.53	359.21	326.27	320.59	322.88
Apr-2017	372.97	356.62	358.63	329.09	344.58	349.09	345.53	358.63	326.27	320.69	322.88
Aug-2017	367.68	353.58	358.23	327.63	343.57	349.73	343.49	358.23	324.18	320.07	322.04
Mar-2018	370.57	359.04	360.00	328.36	344.10	351.42	344.56	360.00	327.13	321.79	323.29
Aug-2018	357.99	350.39	355.99	326.99	342.73	347.58	343.28	355.99	324.12	319.93	321.70
Feb-2019	372.43	360.40	354.61	329.21	348.31	352.86	348.36	354.61	331.11	321.86	324.54
May-2019	373.12	361.18	360.74	328.91	349.68	354.14	349.37	360.74	331.66	322.61	325.21
Aug-2019	361.90	354.10	357.09	327.60	346.63	353.12	346.08	357.09	326.45	320.40	322.63
Mar-2020	373.10	360.56	360.58	329.23	346.95	352.55	347.22	360.58	336.07	321.98	323.94
Jun-2020	381.55	360.25	359.98	328.06	347.95	352.87	347.76	359.98	328.04	321.28	323.40
Nov-2020	361.86	349.70	354.98	327.57	342.84	346.13	342.89	354.98	324.36	319.99	321.90
Mar-2021	373.52	359.14	359.99	329.00	346.24	350.30	346.58	359.99	329.37	322.06	324.19
May-2021	375.56	360.45	360.46	329.57	347.27	351.28	347.46	360.46	329.03	323.10	324.94
Jul-2021	--	--	--	--	--	--	--	--	--	--	--
Nov-2021	358.32	351.40	355.55	327.36	342.79	348.72	342.60	355.55	323.77	319.98	321.80
Jan-2022	--	--	--	--	--	--	--	--	--	--	--
Mar-2022	373.28	359.58	359.17	328.17	344.58	351.73	344.19	359.17	325.80	321.05	323.14
Jun-2022	360.55	351.31	356.01	327.07	342.36	349.94	342.22	356.01	323.48	320.11	321.54
Aug-2022	--	--	--	--	--	--	341.84	--	--	--	--
Nov-2022	363.46	351.15	355.11	327.52	341.97	348.00	340.85	355.11	322.61	319.73	321.81
Feb-2023	368.74	356.04	359.57	328.12	344.34	349.48	--	359.57	--	--	--
Mar-2023	--	--	--	--	--	--	--	--	--	--	--
Jun-2023	369.17	352.66	357.96	327.55	340.46	343.36	341.82	357.96	325.13	320.45	322.07
Aug-2023	362.47	347.25	354.17	326.59	337.74	341.46	--	354.17	--	--	--
Oct-2023	360.29	--	352.80	--	--	--	338.07	352.80	322.93	319.77	321.28
Feb-2024	373.17	355.11	358.88	328.15	339.09	343.76	340.74	358.88	325.69	321.50	323.96
Apr-2024	375.35	356.26	360.33	330.10	340.14	344.98	342.34	360.33	329.88	323.20	324.88
Jun-2024	--	--	--	--	--	--	--	--	--	--	--
Sep-2024	365.57	347.56	354.66	327.11	337.52	342.02	339.08	354.66	323.59	320.21	321.42
Nov-2024	--	--	--	--	--	--	--	--	--	--	--

**Table 1. Groundwater Elevation Data Summary  
Pirkey Power Plant**

Unit	FGD Stackout Area					Landfill					
	Upgradient	Downgradient			Upgradient			Downgradient			
Well	AD-13	AD-7	AD-7R	AD-22	AD-33	AD-8	AD-16	AD-27	AD-23	AD-34	AD-36
Jan-2016	354.15	349.31		350.29	351.13	347.21	347.68	--	321.23	307.61	--
May-2016	355.11	349.98		350.83	351.62	348.03	350.97	335.29	321.98	307.61	--
Jul-2016	352.31	347.54		347.55	349.88	347.10	343.32	331.47	321.97	307.61	--
Jan-2017	352.01	347.04		347.20	348.56	345.74	343.09	330.04	320.99	307.61	--
Feb-2017	352.81	347.96		348.52	349.32	346.00	344.54	331.59	321.00	307.61	--
Apr-2017	352.68	347.87		348.45	349.25	345.81	344.69	331.24	320.85	307.61	--
Aug-2017	352.62	347.40		347.37	349.31	346.31	342.71	330.05	320.77	307.61	--
Mar-2018	353.25	348.46		349.62	350.10	346.11	344.63	332.49	320.17	307.61	--
Aug-2018	349.14	344.57		344.05	347.23	345.24	340.03	328.61	320.31	306.66	--
Feb-2019	355.63	350.21		350.90	351.99	348.05	351.21	335.03	320.88	307.61	--
May-2019	355.87	350.82		351.99	352.95	348.60	351.92	336.53	320.99	307.61	--
Aug-2019	350.87	346.85		346.70	349.96	347.33	343.92	330.71	321.29	305.87	303.16
Mar-2020	355.71	350.64		351.80	352.68	--	--	--	--	307.61	303.21
Jun-2020	355.17	350.25		350.95	352.54	348.61	349.39	--	320.79	307.61	303.78
Nov-2020	350.93	346.45		346.12	348.71	346.63	343.07	329.77	320.83	307.00	302.88
Mar-2021	355.22	350.13		351.33	351.84	--	--	--	--	--	--
May-2021	356.42	350.97		352.31	352.95	348.58	350.52	337.25	320.32	307.61	302.22
Jul-2021	--	--		--	--	--	--	--	--	307.61	302.42
Nov-2021	349.43	345.08		345.25	348.40	346.48	341.99	329.69	320.49	307.20	301.66
Jan-2022	--	--		--	--	--	--	--	320.00	307.61	--
Mar-2022	353.99	348.66		349.66	350.15	--	--	--	--	307.61	--
Jun-2022	349.75	345.35		345.49	348.35	346.27	342.41	330.10	319.87	307.00	301.49
Aug-2022	--	--		--	--	--	--	--	319.81	306.84	301.35
Nov-2022	349.93	345.56		345.20	347.43	344.23	341.65	328.48	319.72	307.61	301.35
Feb-2023	353.36	348.68		349.47	350.18	--	--	--	319.56	307.61	301.51
Mar-2023	354.24	--		350.03	350.48	--	--	--	--	--	--
Jun-2023	352.47	347.83		348.29	349.81	346.88	342.44	332.67	320.13	307.61	299.99
Aug-2023	--	--		--	--	--	--	--	320.39	307.61	302.91
Oct-2023	348.85	--		344.70	346.93	345.07	339.45	328.43	320.35	307.61	300.48
Feb-2024	354.43	--	355.99	350.17	350.60	347.86	--	--	--	--	302.62
Apr-2024	356.13	--	357.60	351.90	352.28	347.98	347.96	336.50	319.87	--	303.95
Jun-2024	--	--	--	--	--	--	--	--	320.44	--	303.81
Sep-2024	351.47	--	354.12	347.55	349.73	347.02	342.00	329.87	320.82	--	303.37
Nov-2024	--	--	--	346.93	--	--	--	--	320.61	--	303.31

Notes:

1. Groundwater elevation measured in feet above mean sea level.
2. AD-7R added to the FGD Stackout Area certified monitoring network in December 2023.

**Table 1: Residence Time Calculation Summary  
Pirkey East Bottom Ash Pond**

*Geosyntec Consultants, Inc.*

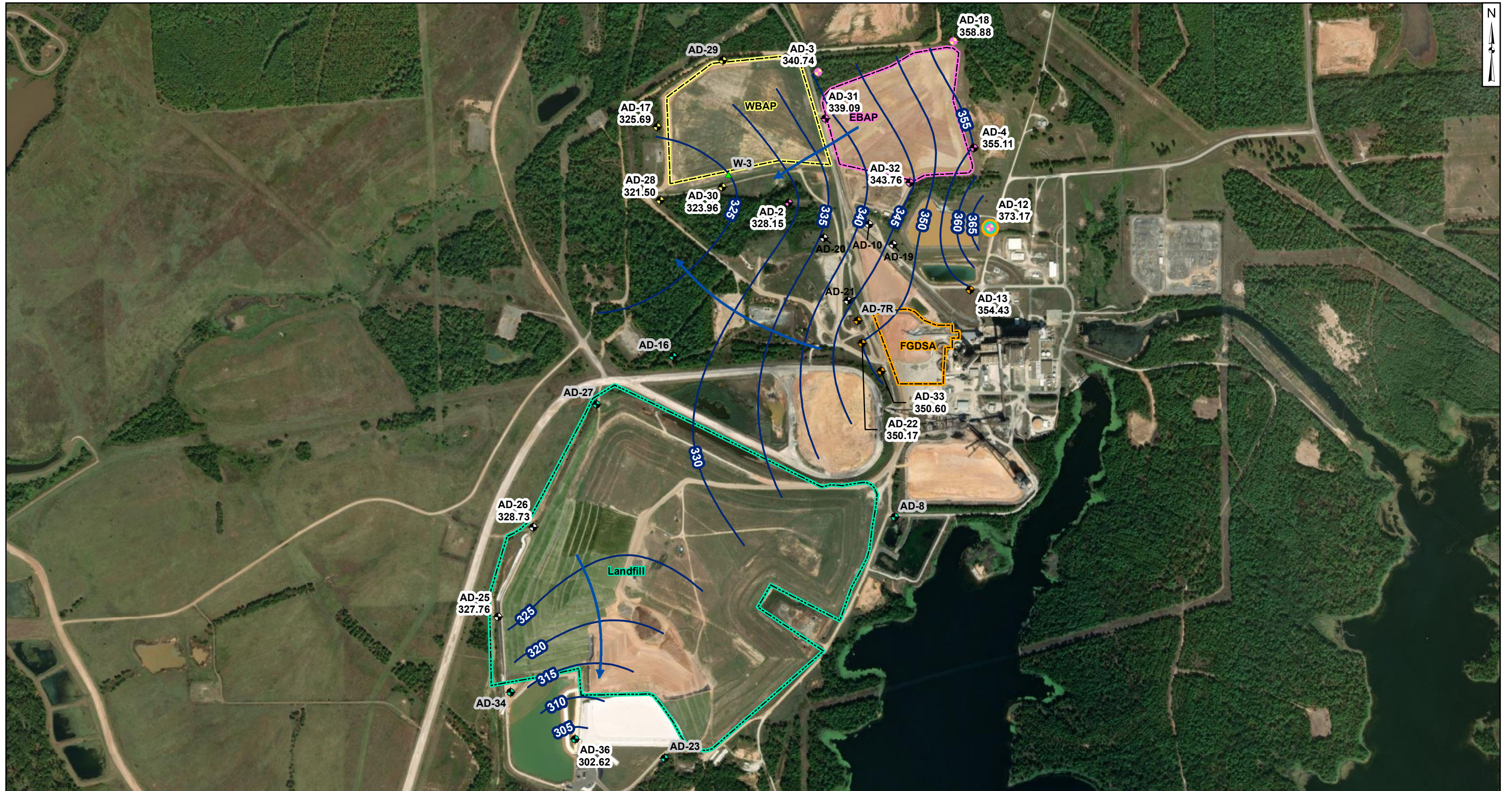
CCR Management Unit	Monitoring Well	Well Diameter (inches)	2024-02		2024-04		2024-09	
			Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)	Groundwater Velocity (ft/year)	Groundwater Residence Time (days)
East Bottom Ash Pond	AD-2 <sup>[2]</sup>	4.0	21.4	5.7	19.3	6.3	19.6	6.2
	AD-4 <sup>[1]</sup>	4.0	14.6	8.3	11.1	11.0	6.5	18.8
	AD-12 <sup>[1]</sup>	4.0	46.3	2.6	47.3	2.6	37.5	3.2
	AD-18 <sup>[1]</sup>	2.0	17.3	3.5	17.4	3.5	15.4	3.9
	AD-31 <sup>[2]</sup>	2.0	16.9	3.6	16.5	3.7	11.0	5.5
	AD-32 <sup>[2]</sup>	2.0	30.8	2.0	31.4	1.9	22.5	2.7

Notes:

[1] - Background Well

[2] - Downgradient Well





**Legend**

**Groundwater Monitoring Wells**

- ◆ Out of Network
- ◆ East Bottom Ash Pond (EBAP)
- ◆ West Bottom Ash Pond (WBAP)
- ◆ Landfill
- ◆ Flue Gas Desulfurization Stackout Area (FGDSA)
- ◆ EBAP and WBAP

- All CCR Unit Networks
- ▲ Piezometer
- Groundwater Elevation Contour
- Approximate Groundwater Flow Direction

**Notes**

1. Monitoring well coordinates and water level data (collected on February 19 and 20, 2024) provided by AEP.
2. Site features based on information available in coal combustion residual (CCR) Groundwater Monitoring Well Network Evaluation Update (Arcadis 2022) provided by AEP.
3. Groundwater elevation units are feet above mean sea level (ft msl).
4. AD-08, AD-10, AD-16, AD-19, AD-20, AD-21, AD-23, AD-27, AD-29, AD-34, and W-3 were not gauged during the February 2024 event.
5. AD-7R replaced AD-7, which was abandoned.
6. AD-7R (355.99 ft msl) was not used for contouring due to an anomalous reading.
7. Wells shaded in grey were not used for contouring.
8. AD-35 was abandoned on November 13, 2018.
9. Removal of CCR plus one foot of material for the WBAP was completed on July 26, 2022.
10. Removal of CCR plus one foot of material for the EBAP was completed on July 20, 2023.
11. Removal of CCR plus one foot of material for the FGDSA was completed on September 18, 2023.
12. Map is updated to incorporate Landfill survey data collected on May 1, 2024.
13. Aerial imagery provided by ESRI, dated September 19, 2023.



December 11, 2024  
 Geosyntec Consultants, Inc.  
 Texas Firm Registration No. 1182

*Beth Ann Gross*

**Potentiometric Contours: Uppermost Aquifer  
 February 2024**

AEP Pirkey Power Plant  
 Hallsville, Texas

**Geosyntec**  
 consultants

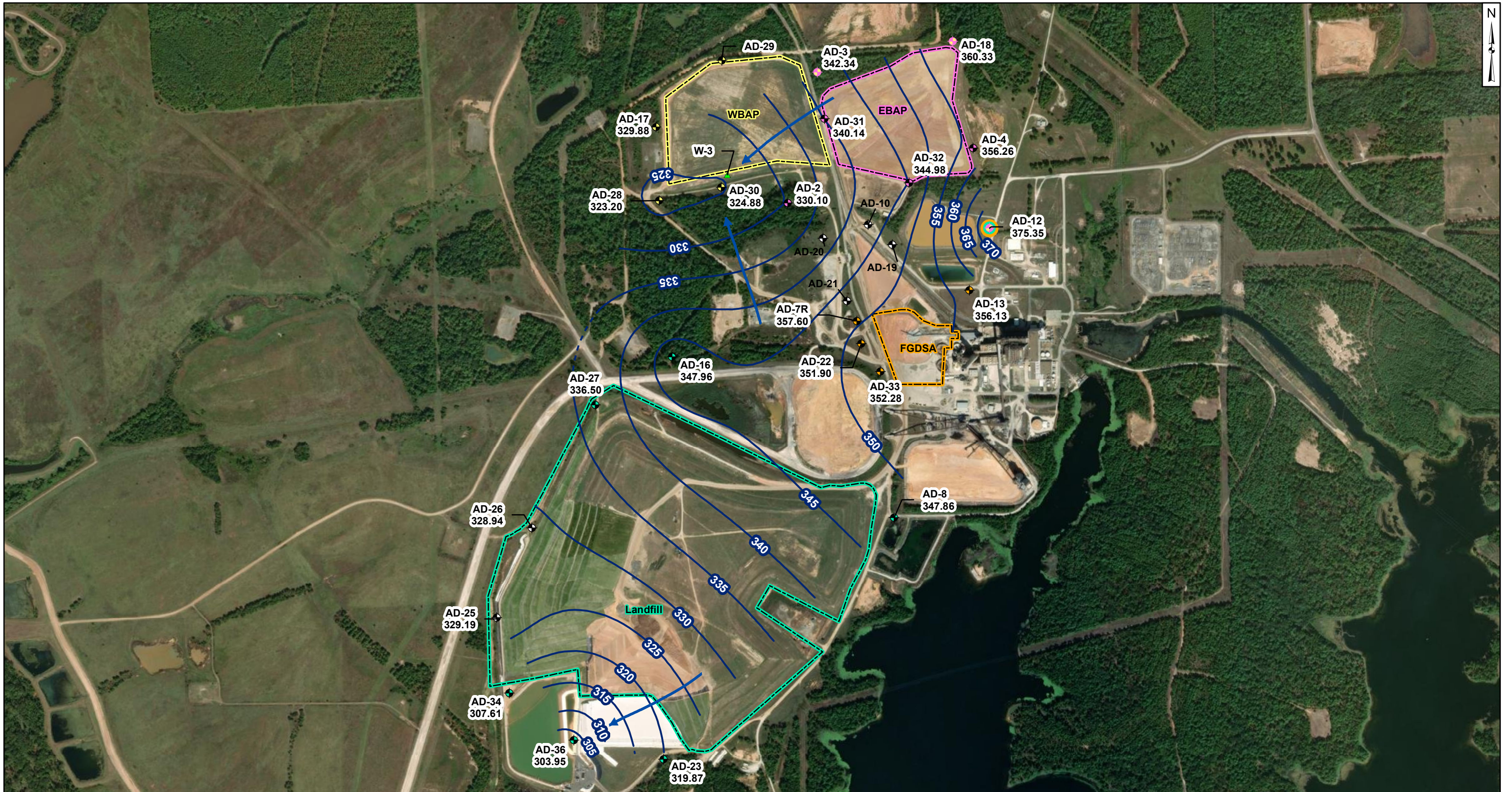
Figure

**1**

Columbus, Ohio

2024/12/02

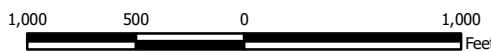




- Legend**
- Groundwater Monitoring Wells**
- ⊕ Out of Network
  - ⊕ East Bottom Ash Pond (EBAP)
  - ⊕ West Bottom Ash Pond (WBAP)
  - ⊕ Landfill
  - ⊕ Flue Gas Desulfurization Stackout Area (FGDSA)
  - ⊕ EBAP and WBAP

- ⊕ All CCR Unit Networks
- ▲ Piezometer
- Groundwater Elevation Contour
- - - Groundwater Elevation Contour (Inferred)
- Approximate Groundwater Flow Direction

- Notes**
1. Monitoring well coordinates and water level data (collected on April 22, 23 and 24, 2024) provided by AEP.
  2. Site features based on information available in coal combustion residual (CCR) Groundwater Monitoring Well Network Evaluation Update (Arcadis 2022) provided by AEP.
  3. Groundwater elevation units are feet above mean sea level (ft msl).
  4. AD-10, AD-19, AD-20, AD-21, AD-29, and W-3 were not gauged during the April 2024 event.
  5. AD-7R replaced AD-7, which was abandoned.
  6. AD-7R (357.60 ft msl) was not used for contouring due to an anomalous reading.
  7. Wells shaded in grey were not used for contouring.
  8. AD-35 was abandoned on November 13, 2018.
  9. Removal of CCR plus one foot of material for the WBAP was completed for on July 26, 2022.
  10. Removal of CCR plus one foot of material for the EBAP was completed on July 20, 2023, for the East Pond.
  11. Removal of CCR plus one foot of material was completed for the FGDSA on September 18, 2023.
  12. Map is updated to incorporate Landfill survey data collected on May 1, 2024.
  13. Aerial imagery provided by ESRI, dated September 19, 2023.



December 11, 2024  
 Geosyntec Consultants, Inc.  
 Texas Firm Registration No. 1182

*Beth Ann Gross*



**Potentiometric Contours: Uppermost Aquifer  
 April 2024**

AEP Pirkey Power Plant  
 Hallsville, Texas

**Geosyntec**  
 consultants

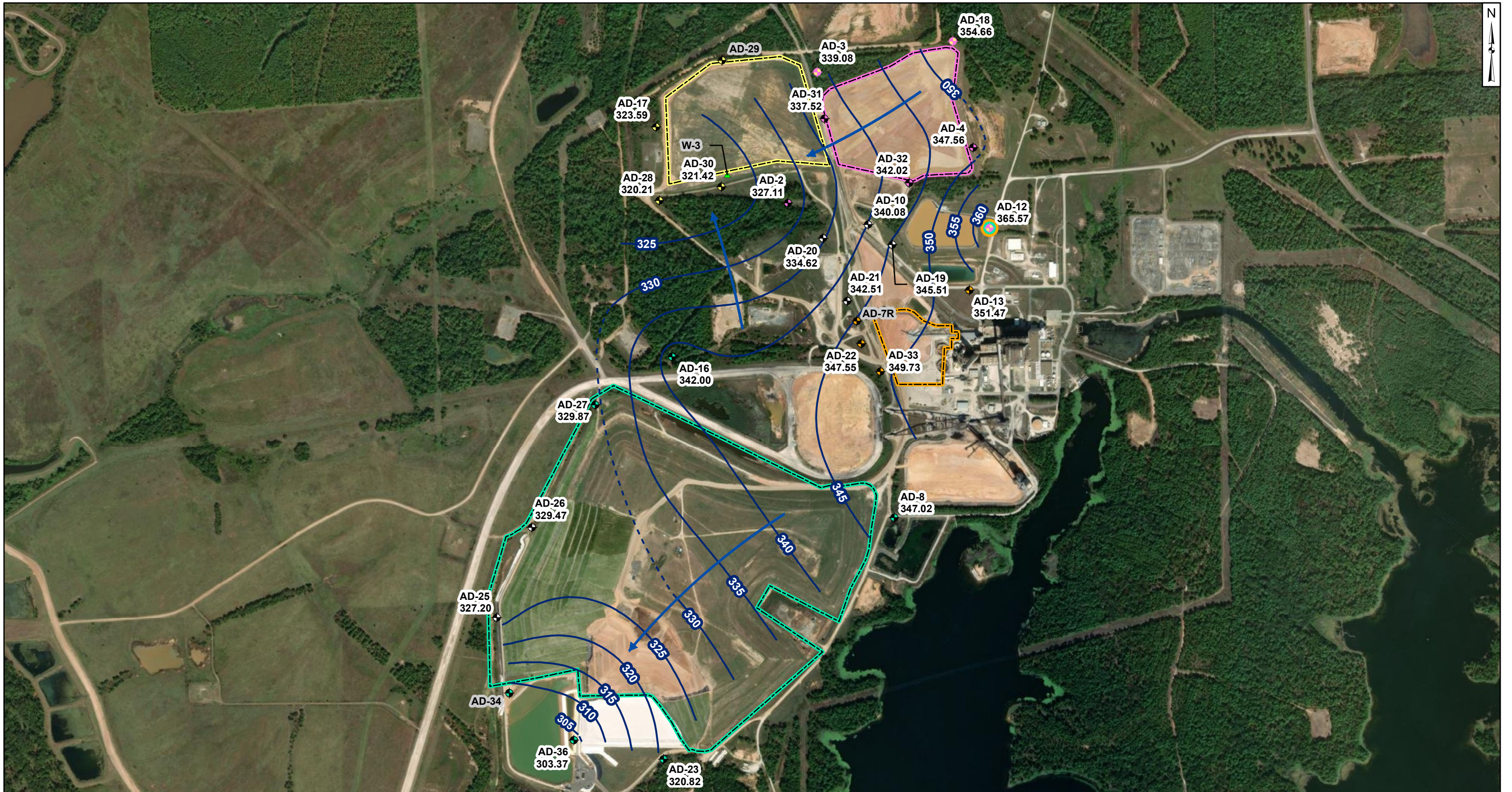
Columbus, Ohio

2024/12/02

Figure

2

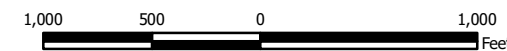




- Legend**
- Groundwater Monitoring Wells**
- Out of Network
  - East Bottom Ash Pond (EBAP)
  - West Bottom Ash Pond (WBAP)
  - Landfill
  - Flue Gas Desulfurization Stackout Area (FGDSA)
  - EBAP and WBAP

- All CCR Unit Networks
- Piezometer
- Groundwater Elevation Contour
- Groundwater Elevation Contour (Inferred)
- Approximate Groundwater Flow Direction

- Notes**
1. Monitoring well coordinates and water levels (collected on September 16, 17, and 18, 2024) provided by AEP.
  2. Site features based on information available in coal combustion residuals (CCR) Groundwater Monitoring Well Network Evaluation Update (Arcadis 2022) provided by AEP.
  3. Groundwater elevation units are feet above mean sea level (ft msl).
  4. Wells AD-29 and W-3 were not gauged during the September 2024 event.
  5. AD-7R replaced AD-7, which was abandoned on September 12, 2023.
  6. Wells shaded in gray were not used for contouring.
  7. Well AD-34 had artesian characteristics during this event and was not used for contouring.
  8. AD-35 was abandoned on November 13, 2018 and is not shown on the map.
  9. Removal of CCR plus one foot of material for the WBAP was completed for on July 26, 2022.
  10. Removal of CCR plus one foot of material for the EBAP was completed on July 20, 2023, for the East Pond.
  11. Removal of CCR plus one foot of material for the FGDSA was completed on September 18, 2023.
  12. Map is updated to incorporate Landfill survey data collected on May 1, 2024.
  13. Aerial imagery provided by ESRI, dated September 19, 2023.



*Beth Ann Gross*

January 10, 2025  
 Geosyntec Consultants, Inc.  
 Texas Firm Registration  
 No. 1182



**Potentiometric Contours: Uppermost Aquifer  
 September 2024**

AEP Pirkey Power Plant  
 Hallsville, Texas

**Geosyntec**  
 consultants

Columbus, Ohio

2024/12/24

Figure

3



## **APPENDIX 2- Statistical Analyses**

The reports summarizing the statistical evaluation follow.

# STATISTICAL ANALYSIS SUMMARY 2024 1<sup>ST</sup> SEMIANNUAL EVENT EAST BOTTOM ASH POND

**H.W. Pirkey Power Plant  
Hallsville, Texas**

*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

September 5, 2024

**TABLE OF CONTENTS**

1. INTRODUCTION .....1

2. EAST BOTTOM ASH POND EVALUATION.....2

    2.1 Data Validation and QA/QC .....2

    2.2 Statistical Analysis .....2

        2.2.1 Evaluation of Potential Appendix IV SSLs.....2

        2.2.2 Evaluation of Potential Appendix III SSIs .....3

    2.3 Conclusions .....3

3. REFERENCES .....5

**LIST OF TABLES**

Table 1: Groundwater Data Summary

Table 2: Appendix IV Groundwater Protection Standards

Table 3: Appendix III Data Summary

**LIST OF ATTACHMENTS**

Attachment A: Certification by Qualified Professional Engineer

Attachment B: Data Quality Review Memoranda

Attachment C: Statistical Analysis Output

## ACRONYMS AND ABBREVIATIONS

ASD	alternative source demonstration
CCR	coal combustion residuals
EBAP	East Bottom Ash Pond
GWPS	groundwater protection standard
LCL	lower confidence limit
mg/L	milligrams per liter
QA/QC	quality assurance and quality control
SSI	statistically significant increase
SSL	statistically significant level
SU	standard units
TCEQ	Texas Commission on Environmental Quality
TDS	total dissolved solids
UPL	upper prediction limit

## 1. INTRODUCTION

In accordance with Texas Commission on Environmental Quality (TCEQ) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Texas Administrative Code Title 30, Chapter 352), groundwater monitoring has been conducted at the East Bottom Ash Pond (EBAP), an existing CCR unit at the Pirkey Power Plant in Hallsville, Texas. Recent groundwater monitoring results were used to identify concentrations of Appendix IV 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, calcium, chloride, total dissolved solids (TDS), and sulfate at the EBAP (Geosyntec 2018). An alternative source was not identified at the time, so assessment monitoring was initiated and GWPSs were set in accordance with § 352.951(b). Two assessment monitoring events were conducted at the EBAP in February and April 2024 in accordance with § 352.951(a). The results of these annual and semiannual assessment events are documented in this report.

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

The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. Confidence intervals were calculated for Appendix IV parameters at the compliance wells to assess whether statistically significant levels (SSLs) of Appendix IV parameters were present above previously established GWPS. SSLs were identified for cobalt and lithium. Therefore, either the unit will move to an assessment of corrective measures, or an alternative source demonstration (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. EAST BOTTOM ASH POND EVALUATION

### 2.1 Data Validation and QA/QC

Samples were collected for analysis from each background and compliance well to meet the requirements of § 352.951(a) in February and April 2024. Samples from both sampling events were analyzed for all Appendix III and Appendix IV parameters. A summary of data collected during these assessment monitoring events 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.

A data quality review was completed to assess if the data met the objectives outlined in TCEQ Draft Technical Guidance No. 32 related to groundwater sampling and analysis (TCEQ 2020). The data were determined usable for supporting project objectives, as documented in the review memoranda provided in Attachment B. 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.10.0.19 statistics software. The export file was checked against the analytical data for transcription errors and completeness.

### 2.2 Statistical Analysis

Statistical analyses for the EBAP 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 C. The data obtained in February and April 2024 were screened for potential outliers. No outliers were identified for these events.

#### 2.2.1 Evaluation of Potential Appendix IV SSLs

A confidence interval was constructed for each Appendix IV parameter at each compliance well. Confidence limits were generally calculated parametrically ( $\alpha = 0.01$ ). However, nonparametric confidence limits were calculated in some cases (e.g., when the data did not appear to be normally distributed or when the nondetect frequency was too high). 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 C) were compared to the GWPSs provided in Table 2. The GWPSs were established during a previous statistical analysis as either the greater value of the background concentration or the maximum contaminant level (Geosyntec 2023).

The following SSLs were identified at the Pirkey EBAP:

- The LCL for cobalt was above the GWPS of 0.00939 milligrams per liter (mg/L) at AD-2 (0.0143 mg/L), AD-31 (0.00948 mg/L), and AD-32 (0.0287 mg/L).

- The LCL for lithium exceeded the GWPS of 0.0497 mg/L at AD-2 (0.0569 mg/L), AD-31 (0.0681 mg/L), and AD-32 (0.0723 mg/L).

As a result, the Pirkey EBAP will either move to an assessment of corrective measures or an alternative source demonstration will be conducted to evaluate if the unit can remain in assessment monitoring.

### 2.2.2 Evaluation of Potential Appendix III SSIs

While SSLs were identified, a review of the Appendix III results was also completed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the April 2024 assessment monitoring event from each compliance well were compared to previously established prediction limits to assess whether the results are above background values (Table 3). The following concentrations were above the upper prediction limits (UPLs):

- Boron concentrations were above the interwell UPL of 0.0437 mg/L at AD-2 (3.18 mg/L) and AD-32 (0.231 mg/L).
- Calcium concentrations were above the interwell UPL of 2.94 mg/L at AD-2 (4.51 mg/L) and AD-32 (5.63 mg/L).
- Chloride concentrations were above the interwell UPL of 8.84 mg/L at AD-2 (31.2 mg/L), AD-31 (16.8 mg/L), and AD-32 (10.6 mg/L).
- Fluoride concentrations were above the interwell UPL of 0.257 mg/L at AD-2 (0.27 mg/L) and AD-32 (0.32 mg/L).
- The pH value was above the intrawell UPL of 4.3 standard units (SU) at AD-32 (4.9 SU).
- Sulfate concentrations were above the interwell UPL of 24.7 mg/L at AD-2 (309 mg/L), AD-31 (79.8 mg/L), and AD-32 (67.0 mg/L).
- TDS concentrations were above the interwell UPL of 170 mg/L at AD-2 (570 mg/L), AD-31 (250 mg/L), and AD-32 (190 mg/L).

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

## 2.3 Conclusions

Annual and semiannual assessment monitoring events were conducted in accordance with the CCR Rule. The laboratory and field data were reviewed prior to statistical analysis, and no QA/QC issues that impacted data usability were identified. A review of outliers identified no potential

outliers in the February and April 2024 data. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval was above the GWPS. SSLs were identified for cobalt and lithium. Appendix III parameters were compared to calculated prediction limits, with exceedances identified for boron, calcium, chloride, fluoride, pH, sulfate, and TDS.

Based on this evaluation, the Pirkey EBAP 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. 2018. Statistical Analysis Summary – East Bottom Ash Pond, Pirkey, Hallsville, Texas. Geosyntec Consultants, Inc. January.

Geosyntec. 2021. Statistical Analysis Plan – H.W. Pirkey Power Plant. Geosyntec Consultants, Inc. November.

Geosyntec. 2023. Statistical Analysis Summary – East Bottom Ash Pond, Pirkey, Hallsville, Texas. Geosyntec Consultants, Inc. October.

TCEQ. 2020. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action Draft Technical Guidance No. 32. May.

# TABLES

**Table 1. Groundwater Data Summary  
Statistical Analysis Summary  
Pirkey Plant – East Bottom Ash Pond**

Parameter	Unit	AD-2		AD-4		AD-12	
		2/20/2024	4/23/2024	2/20/2024	4/24/2024	2/19/2024	4/22/2024
Antimony	µg/L	0.1 U1	0.1 U1	0.1 U1	0.014 J1	0.010 J1	0.009 J1
Arsenic	µg/L	1.19	2.05	0.13	0.44	0.07 J1	0.09 J1
Barium	µg/L	17.3	14.8	148	97.2	21.7	19.3
Beryllium	µg/L	1.06	1.03	0.33	0.64	0.127	0.121
Boron	mg/L	3.45	3.18	0.018 J1	0.017 J1	0.016 J1	0.015 J1
Cadmium	µg/L	0.133	0.135	0.027	0.020	0.009 J1	0.007 J1
Calcium	mg/L	4.37	4.51	3.23	2.26	0.27	0.18
Chloride	mg/L	31.4	31.2	4.35	3.97	5.87	4.86
Chromium	µg/L	0.47	0.54	0.34	0.31	0.50	0.34
Cobalt	µg/L	31.9	33.0	3.44	5.95	1.13	1.08
Combined Radium	pCi/L	1.88	2.18	1.78	1.79	1	2.62
Fluoride	mg/L	0.29	0.27	0.06 U1	0.07	0.11	0.08
Lead	µg/L	0.73	0.65	0.2 U1	0.06 J1	0.06 J1	0.08 J1
Lithium	mg/L	0.0825	0.0739	0.0252	0.0395	0.00547	0.00462
Mercury	µg/L	0.048	0.056	0.006	0.005 U1	0.002 J1	0.005 U1
Molybdenum	µg/L	0.5 U1	0.5 U1	0.5 U1	0.5 U1	0.5 U1	0.5 U1
Selenium	µg/L	4.61	6.51	0.06 J1	0.5 U1	0.19 J1	0.31 J1
Sulfate	mg/L	292	309	19.9	20.3	3.1	4.2
Thallium	µg/L	0.13 J1	0.13 J1	0.10 J1	0.07 J1	0.2 U1	0.2 U1
Total Dissolved Solids	mg/L	540	570	180	140	60	60
pH	SU	4.5	4.1	4.9	4.6	3.2	3.4

Notes:

\*: pH value collected on 2/19/2024. Well purged dry and sampled on 2/20/2024.

J1: Estimated value. Parameter was detected in concentrations below the reporting limit.

mg/L: milligrams per liter

pCi/L: picocuries per liter

SU: standard unit

U1: Non-detect value. For statistical analysis, parameters which were not detected were replaced with the reporting limit.

µg/L: micrograms per liter

**Table 1. Groundwater Data Summary  
Statistical Analysis Summary  
Pirkey Plant – East Bottom Ash Pond**

Parameter	Unit	AD-18		AD-31		AD-32	
		*2/20/2024	4/23/2024	2/19/2024	4/22/2024	2/19/2024	4/22/2024
Antimony	µg/L	0.019 J1	0.1 U1	0.1 U1	0.1 U1	0.010 J1	0.1 U1
Arsenic	µg/L	1.17	0.19	0.40	0.44	3.94	3.46
Barium	µg/L	83.1	76.6	33.3	33.3	26.2	40.3
Beryllium	µg/L	0.100	0.083	1.26	1.04	0.182	0.449
Boron	mg/L	0.013 J1	0.008 J1	0.022 J1	0.022 J1	0.161	0.231
Cadmium	µg/L	0.013 J1	0.010 J1	0.069	0.064	0.014 J1	0.035
Calcium	mg/L	0.27	0.19	2.54	2.45	4.08	5.63
Chloride	mg/L	4.67	5.39	17.7	16.8	9.68	10.6
Chromium	µg/L	0.95	0.32	0.56	0.55	0.45	0.34
Cobalt	µg/L	1.05	0.851	9.47	9.38	8.24	13.2
Combined Radium	pCi/L	1.42	0.99	5.73	2.54	3.03	1.64
Fluoride	mg/L	0.06 U1	0.02 J1	0.09	0.10	0.25	0.32
Lead	µg/L	0.30	0.06 J1	0.30	0.31	0.08 J1	0.2 U1
Lithium	mg/L	0.0151	0.0130	0.0979	0.0792	0.0542	0.0567
Mercury	µg/L	0.014	0.008	0.120	0.430	0.470	0.180
Molybdenum	µg/L	0.5 U1	0.5 U1	0.5 U1	0.5 U1	0.5 U1	0.5 U1
Selenium	µg/L	0.23 J1	0.11 J1	0.39 J1	0.51	0.13 J1	0.48 J1
Sulfate	mg/L	8.1	7.2	70.9	79.8	48.4	67.0
Thallium	µg/L	0.05 J1	0.03 J1	0.09 J1	0.09 J1	0.07 J1	0.07 J1
Total Dissolved Solids	mg/L	110	90	250	250	150	190
pH	SU	4.5	4.7	3.4	3.4	4.8	4.9

Notes:

\*: pH value collected on 2/19/2024. Well purged dry and sampled on 2/20/2024.

J1: Estimated value. Parameter was detected in concentrations below the reporting limit.

mg/L: milligrams per liter

pCi/L: picocuries per liter

SU: standard unit

U1: Non-detect value. For statistical analysis, parameters which were not detected were replaced with the reporting limit.

µg/L: micrograms per liter

**Table 2. Appendix IV Groundwater Protection Standards  
Statistical Analysis Summary  
Pirkey Plant – East Bottom Ash Pond**

Constituent Name	MCL	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600	0.000100	0.00600
Arsenic, Total (mg/L)	0.0100	0.0110	0.0110
Barium, Total (mg/L)	2.00	0.183	2.00
Beryllium, Total (mg/L)	0.00400	0.00115	0.00400
Cadmium, Total (mg/L)	0.00500	0.000260	0.00500
Chromium, Total (mg/L)	0.100	0.00288	0.100
Cobalt, Total (mg/L)	n/a	0.00939	0.00939
Combined Radium, Total (pCi/L)	5.00	3.23	5.00
Fluoride, Total (mg/L)	4.00	0.257	4.00
Lead, Total (mg/L)	n/a	0.00070	0.00070
Lithium, Total (mg/L)	n/a	0.0497	0.0497
Mercury, Total (mg/L)	0.00200	0.0000640	0.00200
Molybdenum, Total (mg/L)	n/a	0.00070	0.00070
Selenium, Total (mg/L)	0.0500	0.00245	0.0500
Thallium, Total (mg/L)	0.00200	0.00187	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. Either the UTL is higher than the MCL or an MCL does not exist.

GWPS: groundwater protection standard

MCL: maximum contaminant level

mg/L: milligrams per liter

n/a: not applicable

pCi/L: picocuries per liter



**Table 3. Appendix III Data Summary  
Statistical Analysis Summary  
Pirkey Plant – East Bottom Ash Pond**

Analyte	Unit	Description	AD-2	AD-31	AD-32
			4/23/2024	4/22/2024	4/22/2024
Boron	mg/L	Interwell Background Value (UPL)	0.0437		
		Analytical Result	<b>3.18</b>	0.022	<b>0.231</b>
Calcium	mg/L	Interwell Background Value (UPL)	2.94		
		Analytical Result	<b>4.51</b>	2.45	<b>5.63</b>
Chloride	mg/L	Interwell Background Value (UPL)	8.84		
		Analytical Result	<b>31.2</b>	<b>16.8</b>	<b>10.6</b>
Fluoride	mg/L	Interwell Background Value (UPL)	0.257		
		Analytical Result	<b>0.27</b>	0.10	<b>0.32</b>
pH	SU	Intrawell Background Value (UPL)	4.7	5.1	4.3
		Intrawell Background Value (LPL)	3.4	2.8	2.6
		Analytical Result	4.1	3.4	<b>4.9</b>
Sulfate	mg/L	Interwell Background Value (UPL)	24.7		
		Analytical Result	<b>309</b>	<b>79.8</b>	<b>67.0</b>
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	170		
		Analytical Result	<b>570</b>	<b>250</b>	<b>190</b>

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 Pirkey East Bottom Ash Pond CCR management area and that the requirements of § 352.931(a) have been met.

David Anthony Miller

Printed Name of Licensed Professional Engineer

*David Anthony Miller*

Signature



112498

License Number

Texas

Licensing State

09.09.2024

Date

# **ATTACHMENT B**

## **Data Quality Review Memoranda**

## Memorandum

Date: August 12, 2024  
To: David Miller (AEP)  
Copies to: Leslie Fuerschbach (AEP)  
From: Allison Kreinberg (Geosyntec)  
Subject: Data Quality Review – Pirkey Power Plant  
February 2024 Sampling Event

---

This memorandum summarizes the findings of a data quality review for groundwater samples collected at the Pirkey Power Plant, located in Hallsville, Texas in February 2024. The groundwater samples were collected to comply with the Texas Commission on Environmental Quality’s (TCEQ’s) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, “CCR Rule”). 40 CFR 257 Appendix III and IV constituents were analyzed.

The following sample data groups (SDGs) were associated with the groundwater samples collected during the February 2024 sampling event and are reviewed in this memorandum:

- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 240640
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 240666

The data included in these SDGs were reviewed to assess if they met the objectives outlined in TCEQ Draft Technical Guideline No. 32<sup>1</sup> prior to submittal of this data to TCEQ.

The following data quality issues were identified:

- The results for the “Field Blank” sample associated with laboratory number 240666-017 were marked as dissolved on the laboratory analytical report, but the chain of custody

---

<sup>1</sup> TCEQ. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action: Technical Guidance No. 32. May 2020.

denoted that the sample was submitted to the laboratory unfiltered. SDG 240666 was reissued to correct the sample preparation for “Field Blank” from dissolved to total.

- As reported in SDG 240640, chloride and total dissolved solids (TDS) were detected in the field blank sample “Field Blank” collected on 2/20/24. The estimated detected TDS concentration in the field blank (40 mg/L) was more than 10% of the detected values for TDS in samples AD-3 (140 mg/L), AD-4 (180 mg/L), AD-7R (210 mg/L), AD-12 (60 mg/L), AD-13 (210 mg/L), AD-17 (50 mg/L), AD-18 (110 mg/L), AD-28 (90 mg/L), AD-30 (250 mg/L), AD-31 (250 mg/L), AD-32 (150 mg/L), AD-33 (160 mg/L), and “Duplicate” (170 mg/L), which could result in high bias in the TDS results for these samples.
- As reported in SDG 240666, chromium and cobalt were detected in the field blank sample “Field Blank” collected on 2/20/24. The estimated detected chromium concentration in the field blank (0.27 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias in the chromium results for all groundwater samples.
- As reported in SDG 240666, chromium and cobalt were detected in the equipment blank sample “Equipment Blank” collected on 2/19/24. The estimated detected chromium concentration in the equipment blank (0.25 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias in the chromium results for all groundwater samples.
- As reported in SDG 240666, the relative percent difference for the laboratory duplicate for radium-226 was above the acceptable limit of 25. The associated sample (AD-33) was flagged P1 for radium-226: the precision between duplicate results was above the acceptance limits. The AD-33 radium-226 result should be considered estimated.

Based on these findings, the majority of the data reported in these SDGs are considered accurate and complete. Although the QC failures mentioned above will result in some limitations of data use since the affected results are considered estimated or have elevated reporting limits, the data are considered usable for supporting project objectives.

## Memorandum

Date: September 5, 2024  
To: David Miller (AEP)  
Copies to: Leslie Fuerschbach (AEP)  
From: Allison Kreinberg (Geosyntec)  
Subject: Data Quality Review – Pirkey Power Plant  
April 2024 Sampling Event

---

This memorandum summarizes the findings of a data quality review for groundwater samples collected at the Pirkey Power Plant in Hallsville, Texas in April 2024. The groundwater samples were collected to comply with the Texas Commission on Environmental Quality’s (TCEQ’s) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, “CCR Rule”). 40 CFR 257 Appendix III and IV constituents were analyzed.

The following sample data groups (SDGs) were associated with the groundwater samples collected during the June 2023 sampling event and are reviewed in this memorandum:

- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 241393
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 241410

The data included in these SDGs were reviewed to assess if they met the objectives outlined in TCEQ Draft Technical Guideline No. 32<sup>1</sup> prior to submittal of this data to TCEQ.

The following data quality issues were identified:

- As reported in SDG 241410, barium, chromium, and cobalt were detected in the field blank sample “Field Blank” collected on 4/23/24. The detected chromium concentration in the field blank (0.26 µg/L) was more than 10% of the detected values for chromium in all

---

<sup>1</sup> TCEQ. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action: Technical Guidance No. 32. May 2020.

groundwater samples, which could result in high bias in the chromium results for all groundwater samples.

- As reported in SDG 241410, chromium and cobalt were detected in the equipment blank sample “Equipment Blank” collected on 4/23/24. The detected chromium concentration in the equipment blank (0.23 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias in the chromium results for all groundwater samples.
- As reported in SDG 241410, the relative percent difference (RPD) for lithium concentrations from parent sample “AD-7R” and duplicate sample “Duplicate 1” was 21%. The AD-7R result for lithium should be considered estimated.
- As reported in SDG 241410, matrix spike duplicate (MSD) recovery for beryllium (69%), cobalt (13.2%), and lithium (72.4%) were below the acceptable limit of 75%. The low percent recovery of cobalt was likely due to the high concentration in the original sample. The associated sample (AD-22) was flagged M1: the associated matrix spike (MS) or MSD recovery was outside acceptance limits. The AD-22 beryllium, cobalt, and lithium results should be considered estimated.
- The RPD for radium-228 in the laboratory control spike duplicate (LCSD) sample “PB24050222” (31) was above the acceptable limit of 25. Samples associated with that QC batch on SDG 241410 were flagged P2: the precision on the LCSD was above acceptance limits. Additional bottles for radium duplicates were not provided. Samples associated with this QC batch on SDG 241410 were flagged O2: client did not provide additional bottles; therefore, the MS and duplicate are missing in this batch. The associated results should be considered estimated.

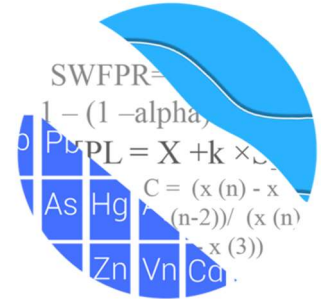
Based on these findings, the majority of the data reported in these SDGs are considered accurate and complete. Although the QC failures mentioned above will result in some limitations of data use since the affected results are considered estimated or have elevated reporting limits, the data are considered usable for supporting project objectives.



# ATTACHMENT C

## Statistical Analysis Output

## GROUNDWATER STATS CONSULTING



September 6, 2024

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

Re: Pirkey East Bottom Ash Pond  
Assessment Monitoring Event – February & April 2024

Dear Ms. Kreinberg,

Groundwater Stats Consulting (GSC), formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the evaluation of groundwater data from the February and April 2024 sample events for American Electric Power Company's Pirkey East Bottom Ash Pond (EBAP). The analysis complies with the Texas Commission of Environmental Quality rule 30 TAC 352 as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling at each of the wells below began at Pirkey EBAP for the Coal Combustion Residual (CCR) program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** AD-4, AD-12, and AD-18
- **Downgradient wells:** AD-2, AD-31, and AD-32

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 Andrew Collins, Project Manager of Groundwater Stats Consulting.

The CCR program consists of the following Assessment monitoring constituents:

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

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

### **Summary of Statistical Methods**

Assessment monitoring for Appendix IV parameters involves the comparison of a confidence interval for each parameter at downgradient wells against the corresponding Groundwater Protection Standard (GWPS). The GWPS is determined for each parameter as the highest limit of the Maximum Contaminant Levels (MCLs) or background limits determined from tolerance limits constructed from pooled upgradient well data.

Prior to computing tolerance limits on upgradient well data or confidence intervals on downgradient well data, 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 tolerance limits and confidence intervals as appropriate, based on the following criteria.

- 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 practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect adjustment is applied to the background data for parametric limits. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.

- Nonparametric tolerance limits are used on data containing greater than 50% non-detects.

## **Summary of Background Update – Conducted in October 2023**

### Outlier Analysis

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

Tukey's outlier test on pooled upgradient well data through August 2023 identified outliers for fluoride; however, these low-level measurements were similar to remaining concentrations among upgradient wells; therefore, these values were not flagged as outliers. No additional values were flagged as outliers as they were similar to concentrations at neighboring upgradient wells or were below the MCL.

### Interwell Upper Tolerance Limits

Interwell upper tolerance limits were used to calculate background limits from all available pooled upgradient well data through August 2023 for Appendix IV parameters to determine the background limit for each constituent (Figure D). For parametric limits a target of 95% confidence and 95% coverage is used. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

### Groundwater Protection Standards

Background limits were compared to the MCLs in the GWPS table following this letter to determine the highest limit for use as the GWPS in the Confidence Interval comparisons (Figure E).

## **Evaluation of Appendix IV Parameters – February & April 2024**

Time series plots were used to visually identify potential outliers in downgradient wells through the February and April 2024 sample events. When suspected outliers are identified, Tukey's outlier test is used to formally test whether measurements are statistically significant. High outliers are 'cautiously' flagged in the downgradient wells

when measurements are clearly much different from remaining data within a given well. This is intended to be a regulatory conservative approach in that it will reduce the variance and thus reduce the width of parametric confidence intervals; although it will also reduce the mean and thus lower the entire interval. The intent is to better represent the actual downgradient mean. No additional suspected outliers were identified. A summary of flagged measurements follows this letter (Figure C).

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

Only when the entire confidence interval is above the GWPS is the well/constituent pair considered to exceed its respective standard. A change in reported concentrations of more recent data was noted for lithium relative to historical concentrations in well AD-2. In order to construct confidence intervals that represent current groundwater quality conditions and eliminate the influence of the trend, earlier concentrations were truncated from the records. A list of well/constituent pairs using truncated records follows this report.

Both a tabular summary and graphical presentation of the confidence interval results follow this letter. Exceedances were noted for the following well/constituent pairs:

- Cobalt: AD-2, AD-31, and AD-32
- Lithium: AD-2, AD-31, and AD-32

#### Trend Test Evaluation – Appendix IV

When confidence interval exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable at the 95% confidence level (Figure G). Utilizing the 95% confidence level for trend tests readily identifies

significant trends and is more sensitive than the 99% confidence level without drastically increasing the false negative rate. Upgradient wells are included in the trend analyses for all parameters found to exceed their confidence interval in downgradient wells. When similar patterns exist upgradient of the site, it is an indication of variability in groundwater which may be unrelated to practices at the site. Statistically significant trends were identified for the following well/constituent pairs:

Increasing:

- Cobalt: AD-2
- Lithium: AD-2

Decreasing:

- Cobalt: AD-4, AD-12, AD-18 (all upgradient), AD-31, and AD-32
- Lithium: AD-12, AD-18 (both upgradient), AD-31, and AD-32

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

For Groundwater Stats Consulting,



Abdul Diane  
Groundwater Analyst



Andrew T. Collins  
Project Manager

# Date Ranges

Date: 7/1/2024 2:45 PM

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

---

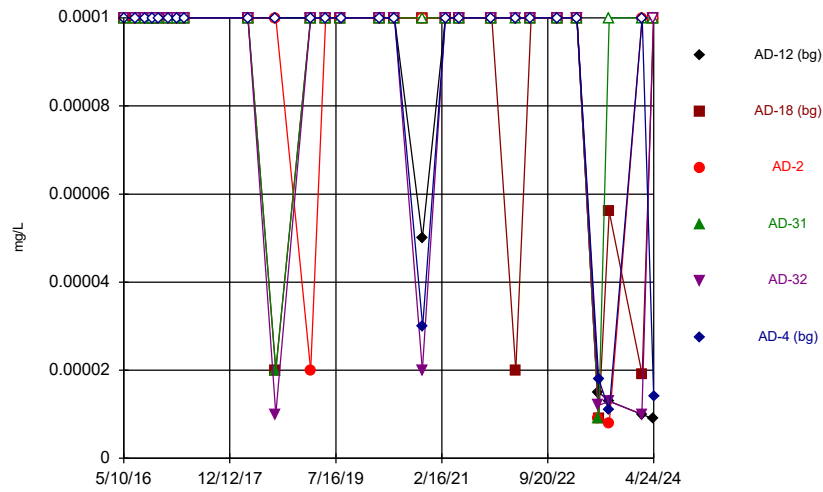
Lithium, total (mg/L)

AD-2 overall:3/29/2022-4/23/2024

FIGURE A  
Time Series

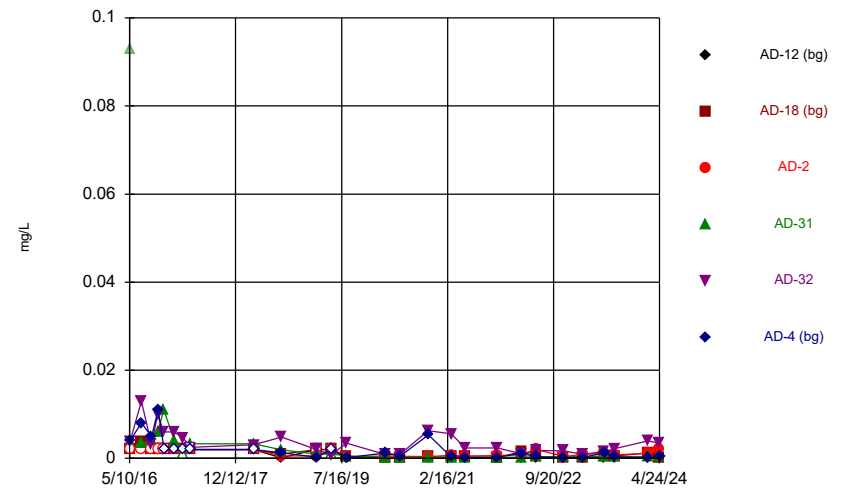


### Time Series



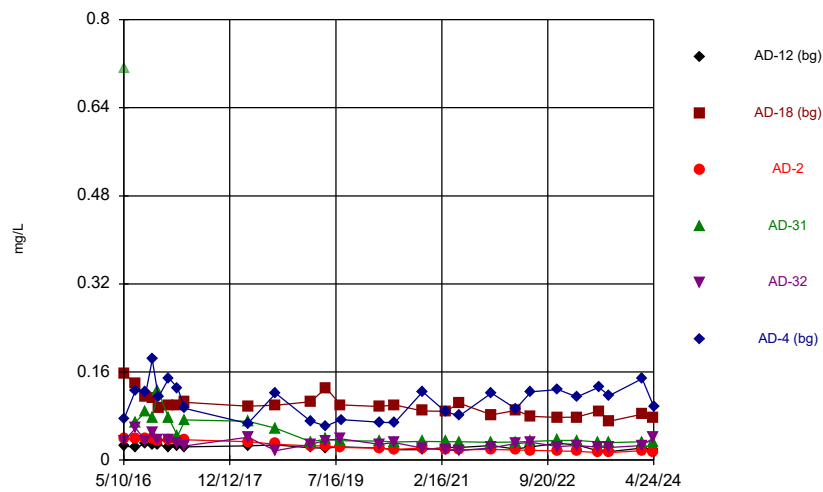
Constituent: Antimony, total Analysis Run 6/26/2024 12:15 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



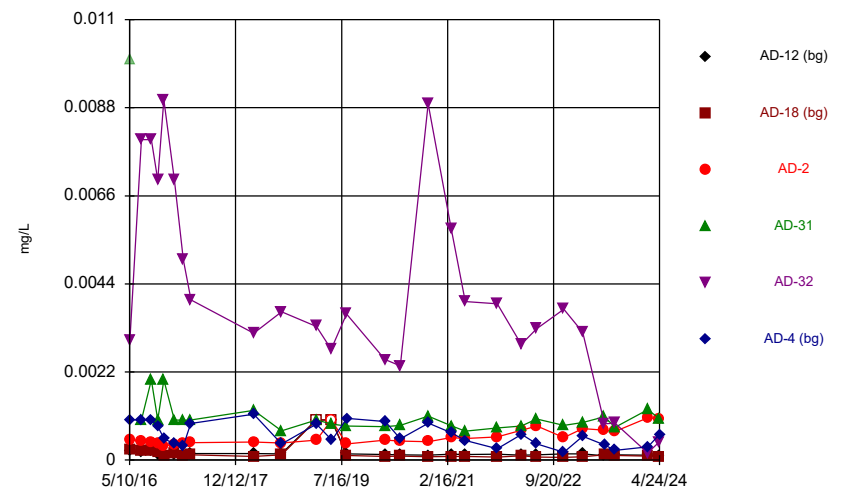
Constituent: Arsenic, total Analysis Run 6/26/2024 12:15 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



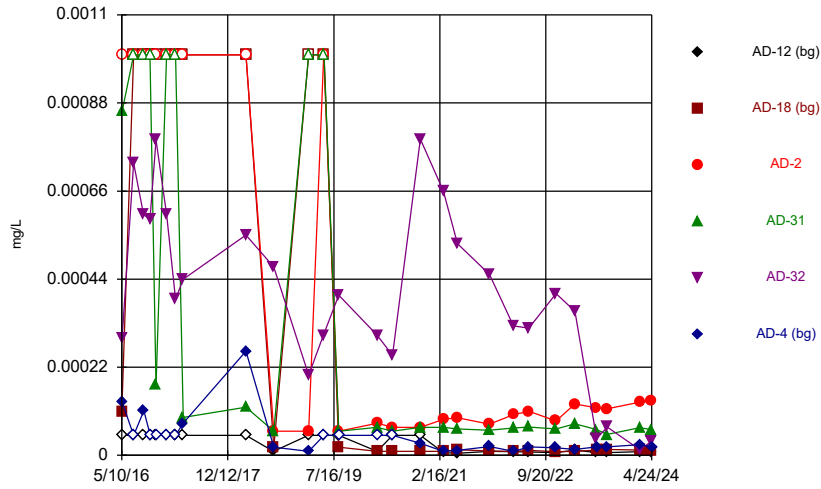
Constituent: Barium, total Analysis Run 6/26/2024 12:15 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



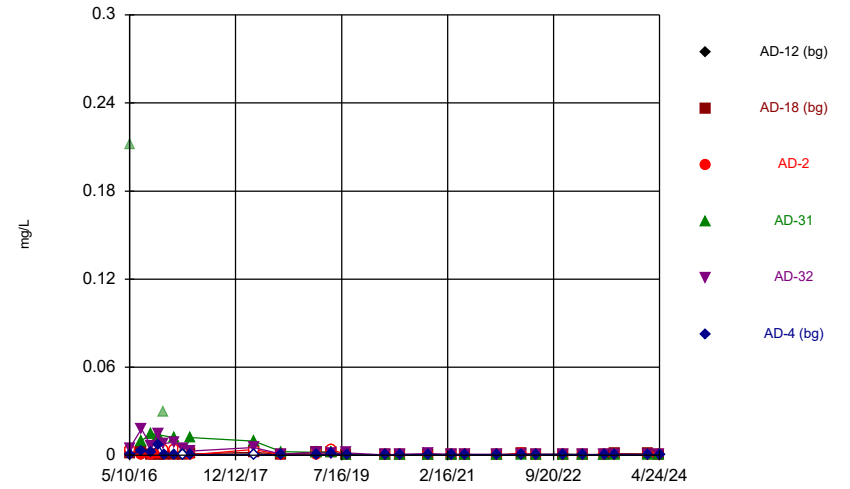
Constituent: Beryllium, total Analysis Run 6/26/2024 12:15 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



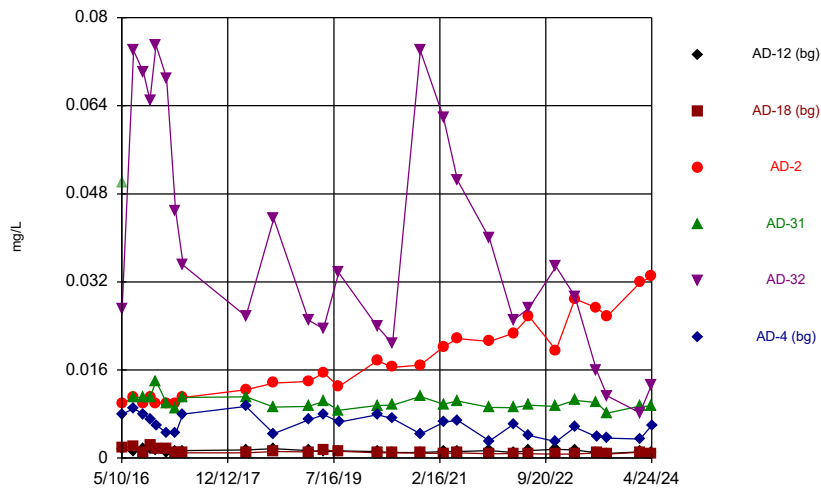
Constituent: Cadmium, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



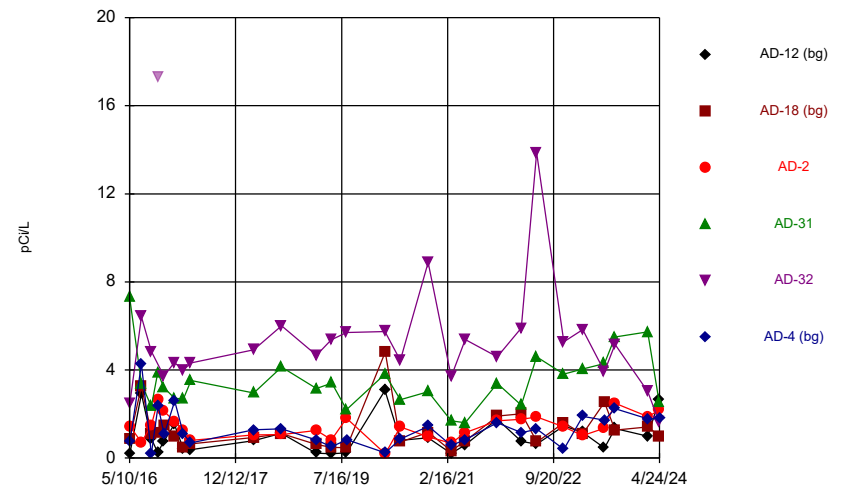
Constituent: Chromium, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



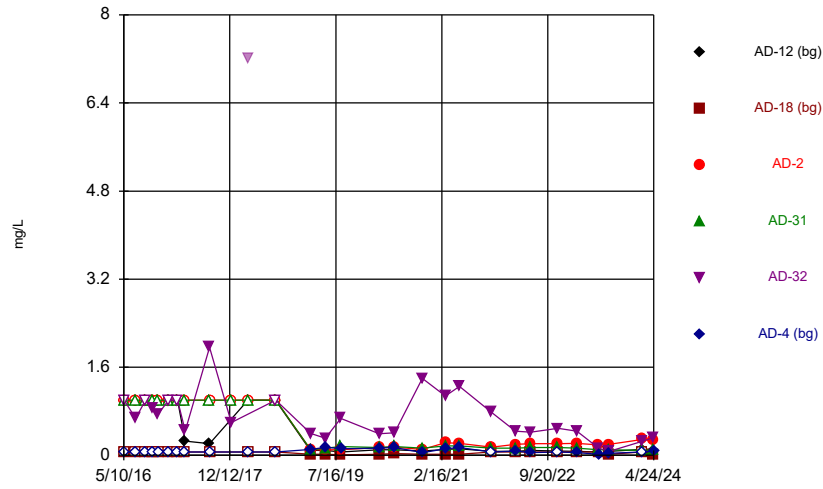
Constituent: Cobalt, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



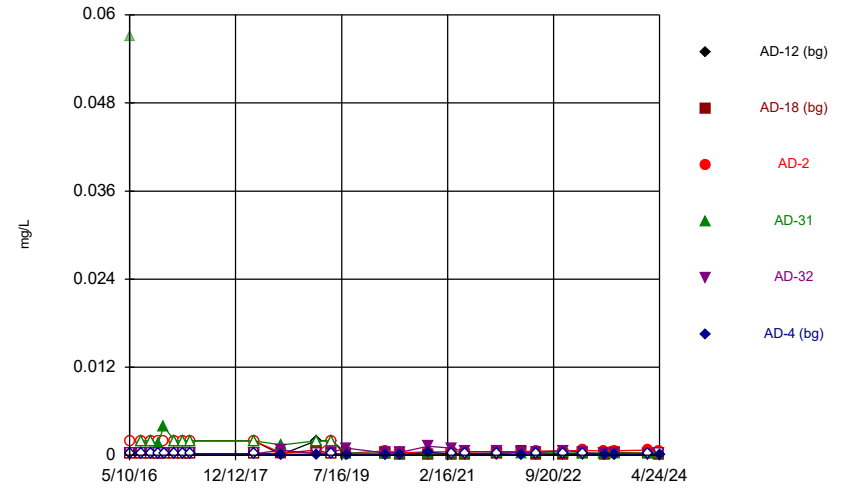
Constituent: Combined Radium 226 + 228 Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



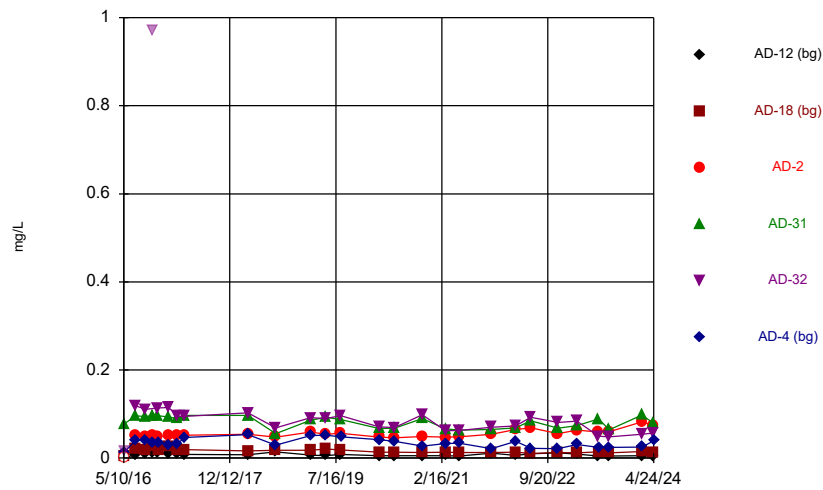
Constituent: Fluoride, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



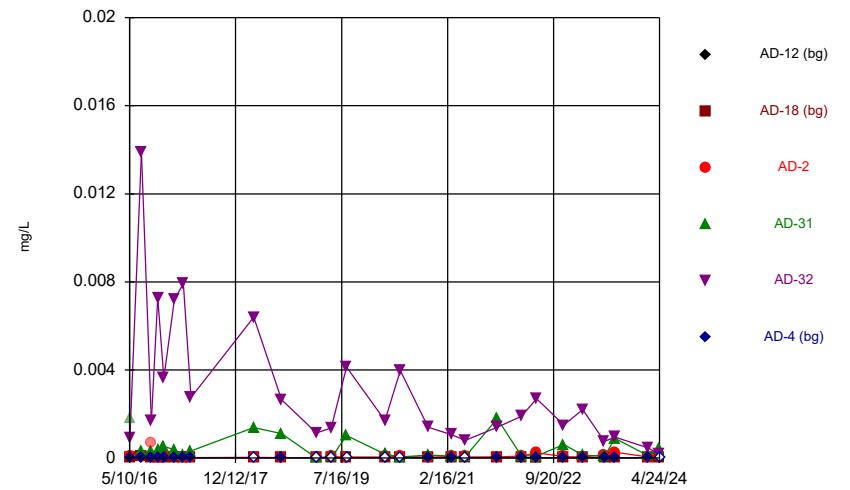
Constituent: Lead, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



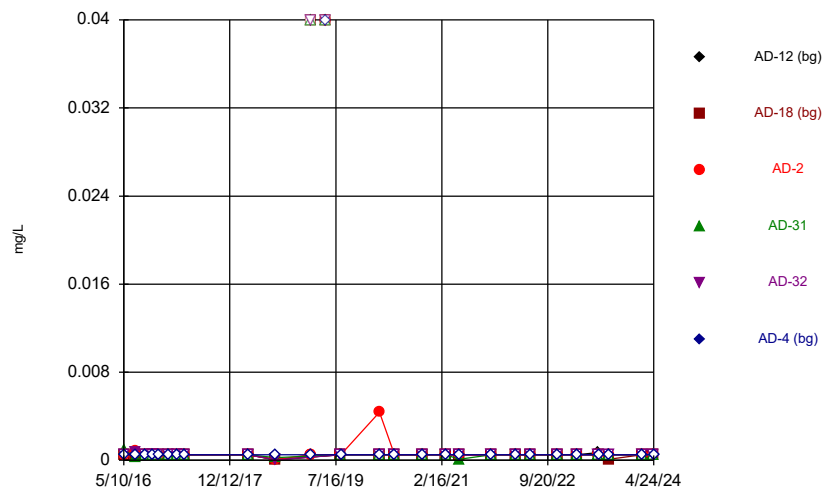
Constituent: Lithium, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



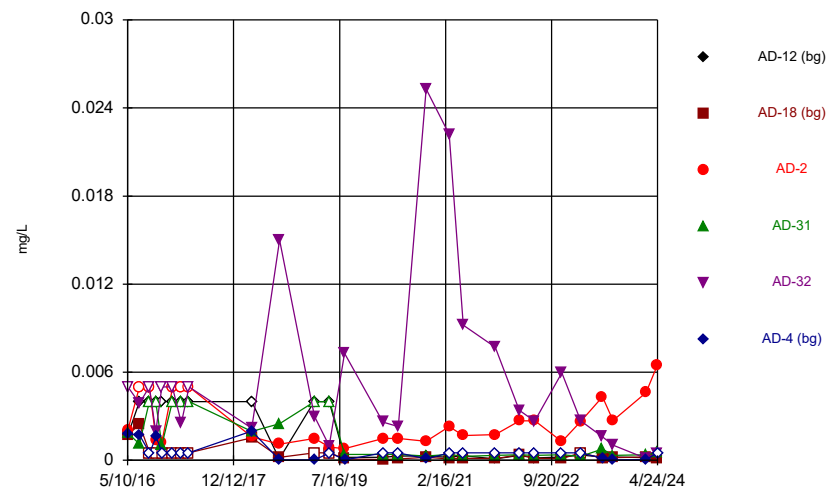
Constituent: Mercury, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



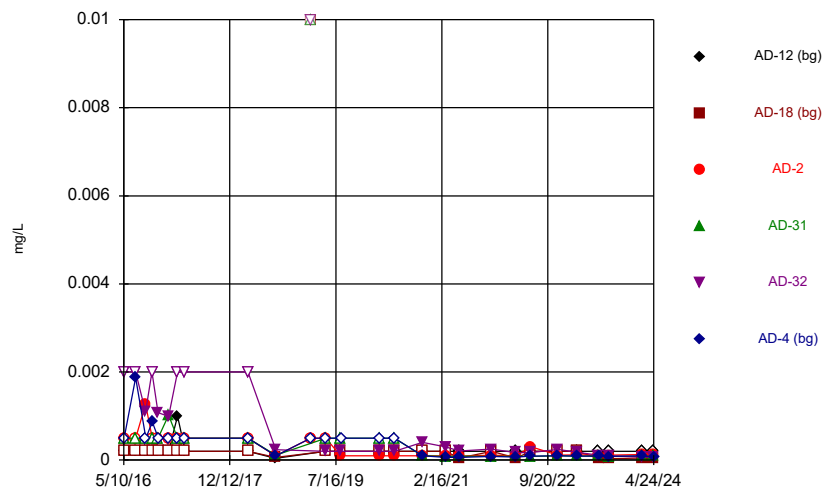
Constituent: Molybdenum, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



Constituent: Selenium, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

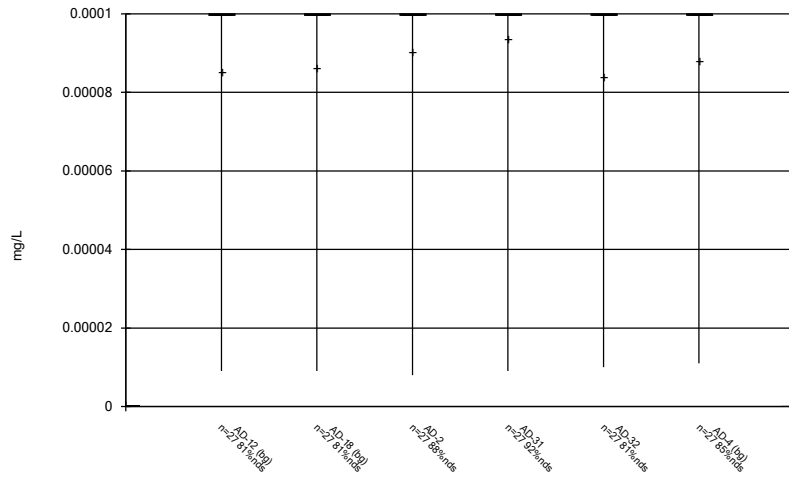
### Time Series



Constituent: Thallium, total Analysis Run 6/26/2024 12:16 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

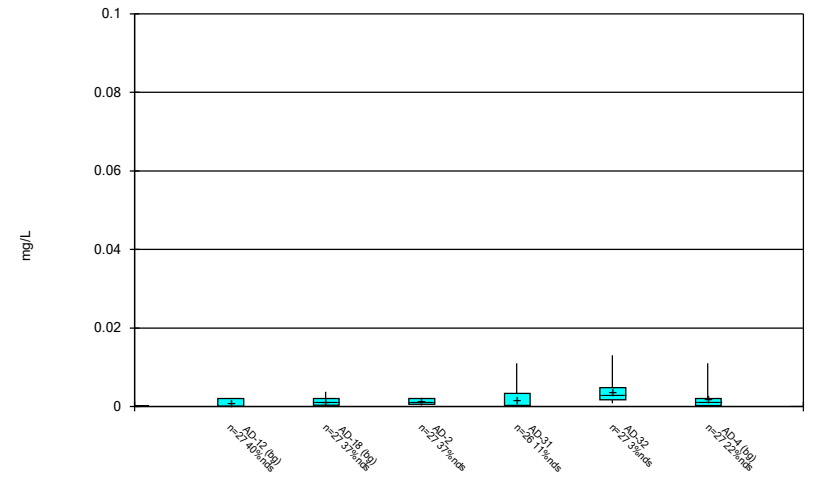
FIGURE B  
Box Plots

Box & Whiskers Plot



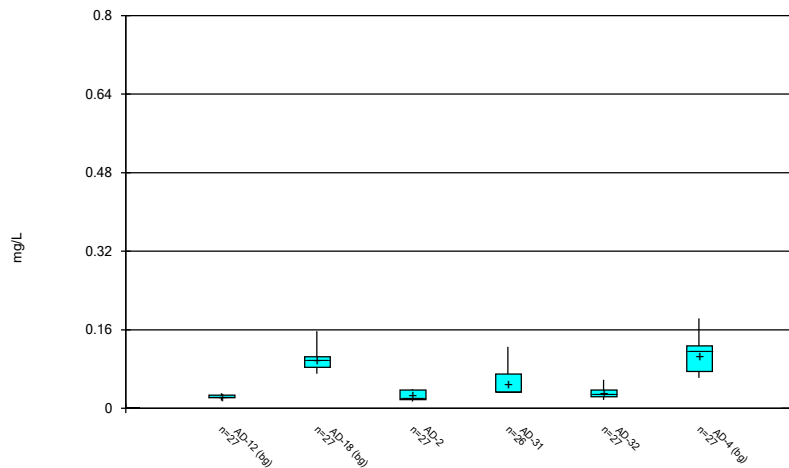
Constituent: Antimony, total Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



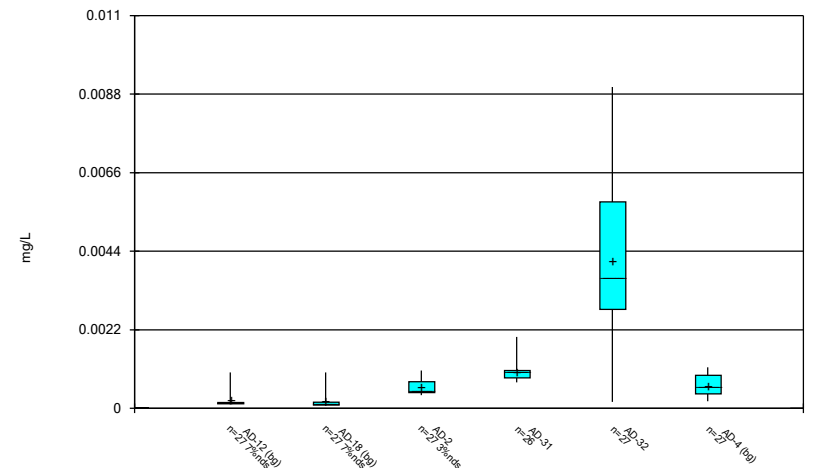
Constituent: Arsenic, total Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



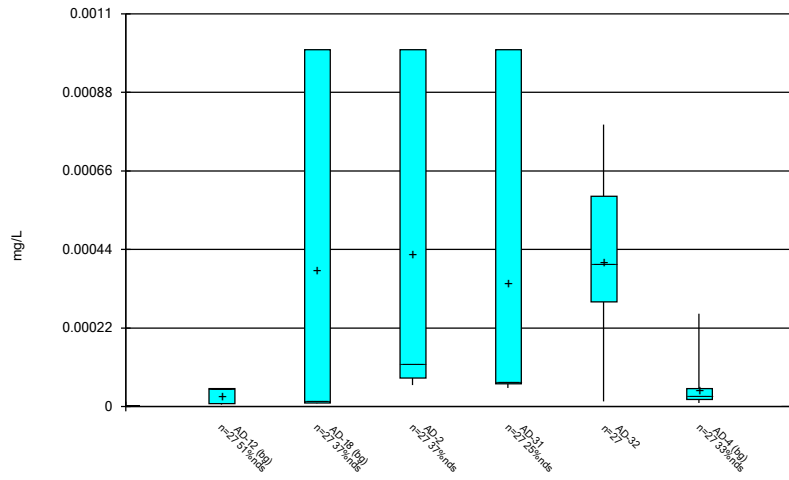
Constituent: Barium, total Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



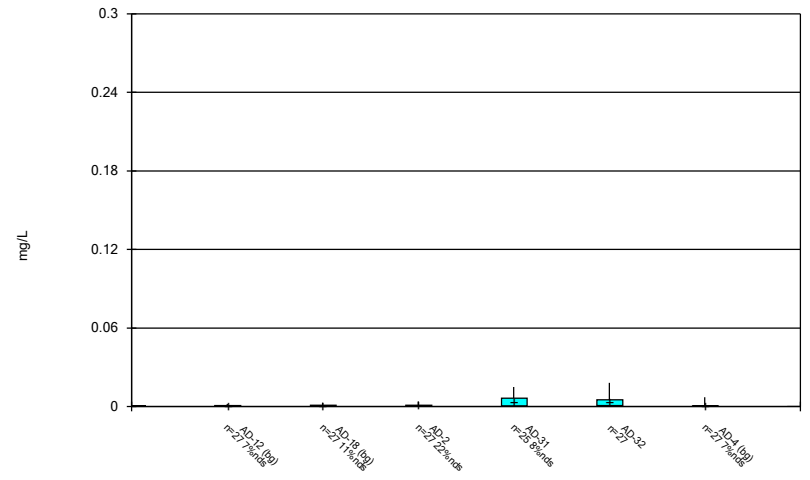
Constituent: Beryllium, total Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



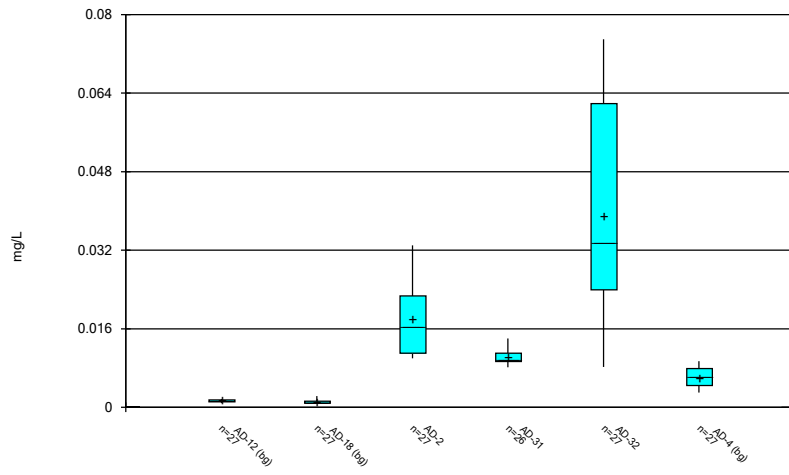
Constituent: Cadmium, total Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



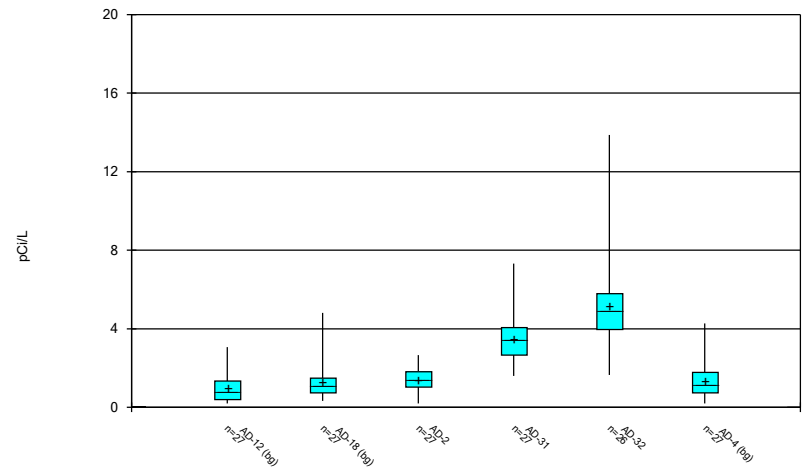
Constituent: Chromium, total Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



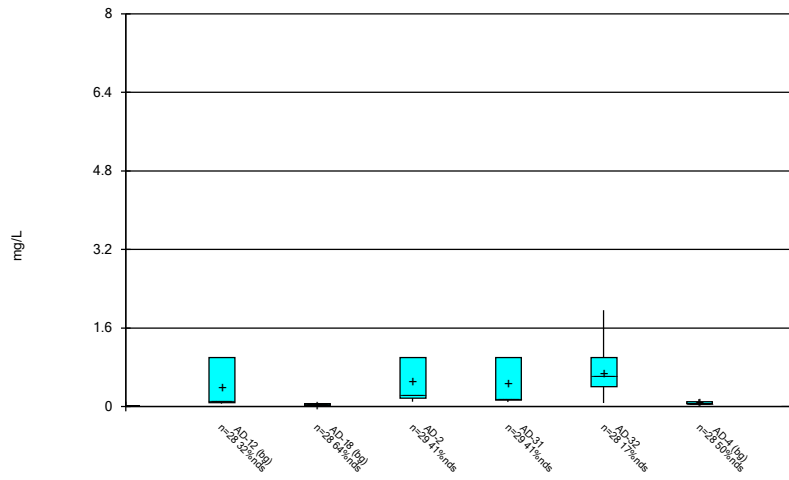
Constituent: Cobalt, total Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



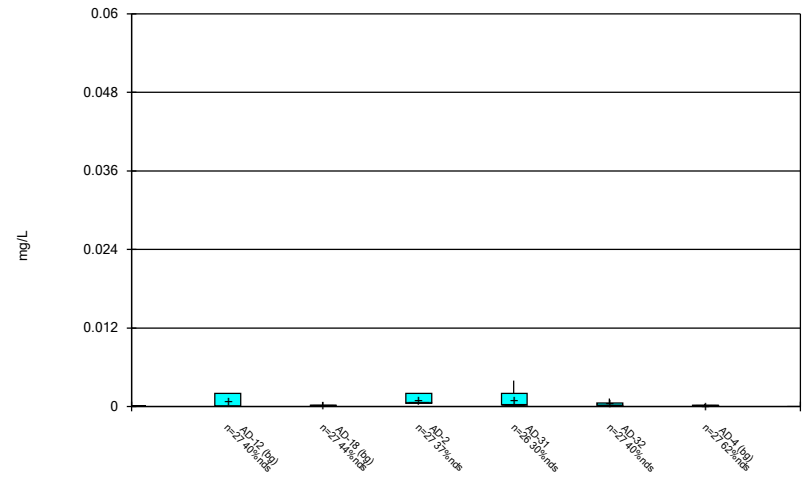
Constituent: Combined Radium 226 + 228 Analysis Run 6/26/2024 12:19 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



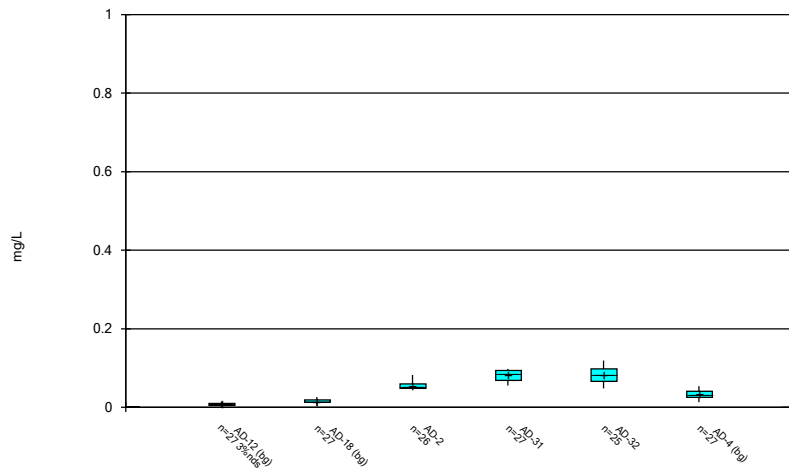
Constituent: Fluoride, total Analysis Run 6/26/2024 12:20 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



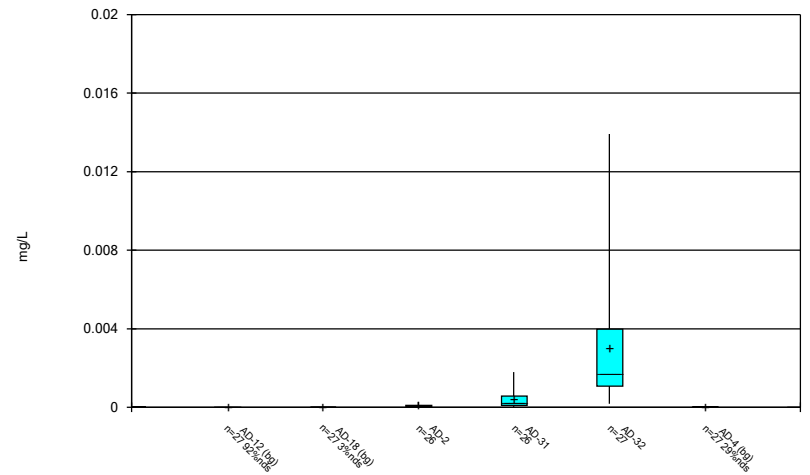
Constituent: Lead, total Analysis Run 6/26/2024 12:20 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



Constituent: Lithium, total Analysis Run 6/26/2024 12:20 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

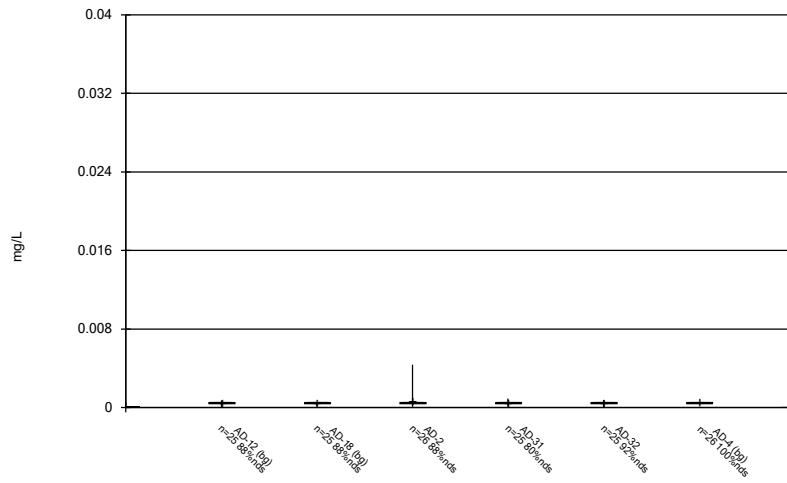
Box & Whiskers Plot



Constituent: Mercury, total Analysis Run 6/26/2024 12:20 PM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

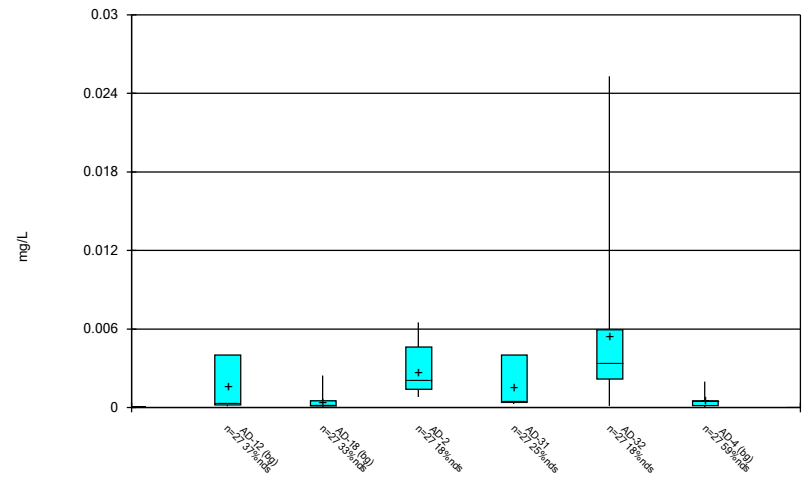


Box & Whiskers Plot



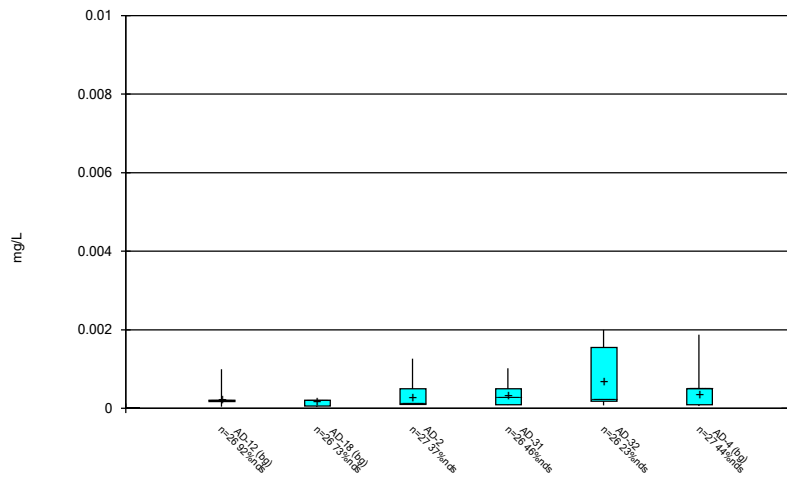
Constituent: Molybdenum, total Analysis Run 6/26/2024 12:20 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



Constituent: Selenium, total Analysis Run 6/26/2024 12:20 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 6/26/2024 12:20 PM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

FIGURE C  
Outlier Summary

# Outlier Summary

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 6/27/2024, 10:57 AM

Date	AD-31 Arsenic, total (mg/L)	AD-31 Barium, total (mg/L)	AD-31 Beryllium, total (mg/L)	AD-31 Chromium, total (mg/L)	AD-31 Cobalt, total (mg/L)	AD-32 Combined Radium 226 + 228 (pCi/L)	AD-32 Fluoride, total (mg/L)	AD-31 Lead, total (mg/L)	AD-2 Lithium, total (mg/L)	AD-32 Lithium, total (mg/L)
5/11/2016	0.093 (o)	0.712 (o)	0.01 (o)	0.212 (o)	0.05 (o)			0.057 (o)	<0.001 (o)	0.016 (o)
9/7/2016										
10/12/2016						17.32 (o)				0.972 (o)
11/14/2016				0.03 (o)						
3/21/2018							7.2 (o)			
2/27/2019										
2/28/2019										
5/21/2019										
5/22/2019										
5/23/2019										

Date	AD-2 Mercury, total (mg/L)	AD-31 Mercury, total (mg/L)	AD-12 Molybdenum, total (mg/L)	AD-18 Molybdenum, total (mg/L)	AD-2 Molybdenum, total (mg/L)	AD-31 Molybdenum, total (mg/L)	AD-32 Molybdenum, total (mg/L)	AD-4 Molybdenum, total (mg/L)	AD-12 Thallium, total (mg/L)	AD-18 Thallium, total (mg/L)
5/11/2016		0.001797 (o)								
9/7/2016	0.000675 (o)									
10/12/2016										
11/14/2016										
3/21/2018										
2/27/2019			<0.04 (o)						<0.01 (o)	
2/28/2019				<0.04 (o)	<0.04 (o)	<0.04 (o)	<0.04 (o)			<0.01 (o)
5/21/2019			<0.04 (o)				<0.04 (o)			
5/22/2019					<0.04 (o)					
5/23/2019				<0.04 (o)	<0.04 (o)			<0.04 (o)		

Date	AD-31 Thallium, total (mg/L)	AD-32 Thallium, total (mg/L)
5/11/2016		
9/7/2016		
10/12/2016		
11/14/2016		
3/21/2018		
2/27/2019		
2/28/2019	<0.01 (o)	<0.01 (o)
5/21/2019		
5/22/2019		
5/23/2019		

FIGURE D

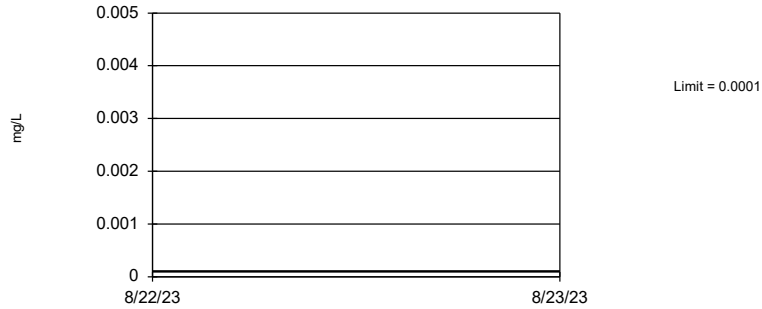
UTLs

# Upper Tolerance Limits Summary Table

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 12/11/2023, 10:12 AM

<u>Constituent</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>Bg Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony, total (mg/L)	0.0001	n/a	n/a	n/a	75	n/a	n/a	86.67	n/a	n/a	0.02134	NP Inter(NDs)
Arsenic, total (mg/L)	0.011	n/a	n/a	n/a	75	n/a	n/a	36	n/a	n/a	0.02134	NP Inter(normality)
Barium, total (mg/L)	0.183	n/a	n/a	n/a	75	n/a	n/a	0	n/a	n/a	0.02134	NP Inter(normality)
Beryllium, total (mg/L)	0.00115	n/a	n/a	n/a	75	n/a	n/a	5.333	n/a	n/a	0.02134	NP Inter(normality)
Cadmium, total (mg/L)	0.00026	n/a	n/a	n/a	75	n/a	n/a	44	n/a	n/a	0.02134	NP Inter(normality)
Chromium, total (mg/L)	0.002876	n/a	n/a	n/a	75	-7.625	0.8997	9.333	None	ln(x)	0.05	Inter
Cobalt, total (mg/L)	0.00939	n/a	n/a	n/a	75	n/a	n/a	0	n/a	n/a	0.02134	NP Inter(normality)
Combined Radium 226 + 228 (pCi/L)	3.23	n/a	n/a	n/a	75	0.9956	0.2447	0	None	x^(1/3)	0.05	Inter
Fluoride, total (mg/L)	0.2565	n/a	n/a	n/a	78	n/a	n/a	50	n/a	n/a	0.0183	NP Inter(normality)
Lead, total (mg/L)	0.0007	n/a	n/a	n/a	75	n/a	n/a	52	n/a	n/a	0.02134	NP Inter(NDs)
Lithium, total (mg/L)	0.04972	n/a	n/a	n/a	75	0.1312	0.04656	1.333	None	sqrt(x)	0.05	Inter
Mercury, total (mg/L)	0.000064	n/a	n/a	n/a	75	n/a	n/a	42.67	n/a	n/a	0.02134	NP Inter(normality)
Molybdenum, total (mg/L)	0.0007	n/a	n/a	n/a	70	n/a	n/a	91.43	n/a	n/a	0.02758	NP Inter(NDs)
Selenium, total (mg/L)	0.00245	n/a	n/a	n/a	75	n/a	n/a	45.33	n/a	n/a	0.02134	NP Inter(normality)
Thallium, total (mg/L)	0.001874	n/a	n/a	n/a	73	n/a	n/a	72.6	n/a	n/a	0.02365	NP Inter(NDs)

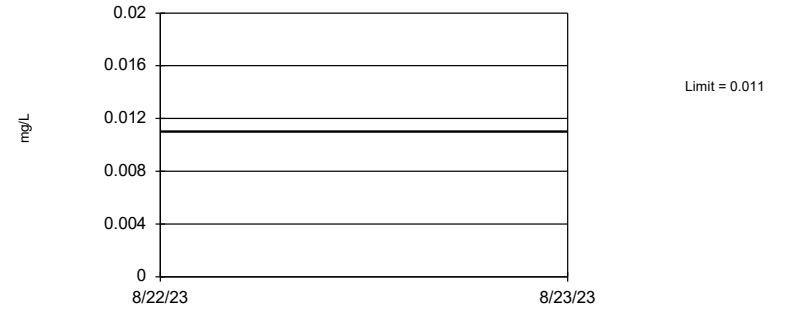
### Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 75 background values. 86.67% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Antimony, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### 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 75 background values. 36% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Arsenic, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

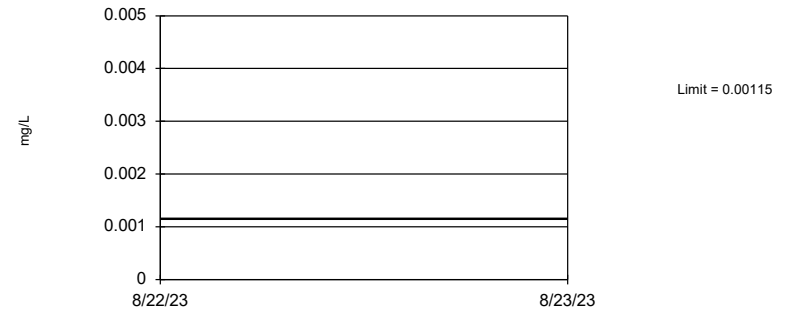
### Tolerance Limit Interwell Non-parametric



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 75 background values. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Barium, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

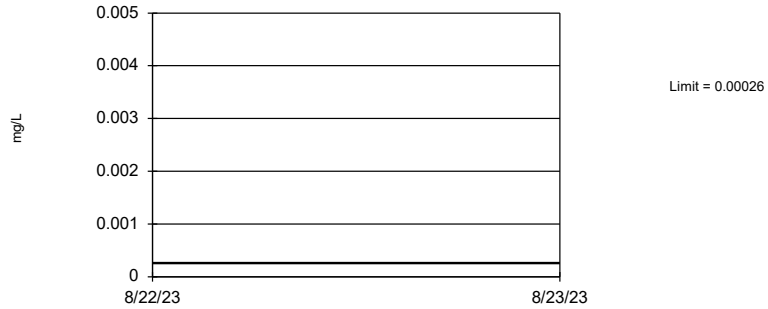
### Tolerance Limit Interwell Non-parametric



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 75 background values. 5.333% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Beryllium, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

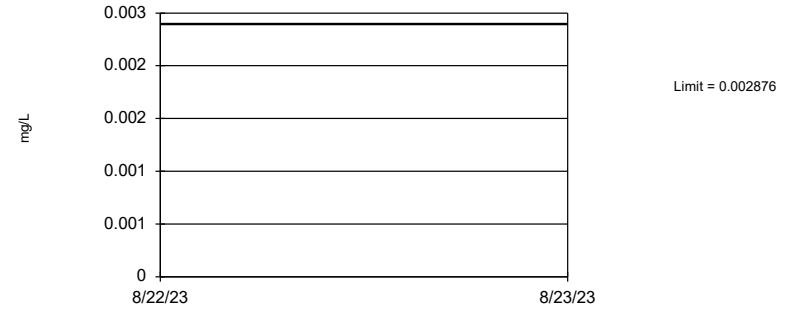
Tolerance Limit  
Interwell Non-parametric



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 75 background values. 44% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Cadmium, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Tolerance Limit  
Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.625, Std. Dev.=0.8997, n=75, 9.333% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.963, critical = 0.956. Report alpha = 0.05.

Constituent: Chromium, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

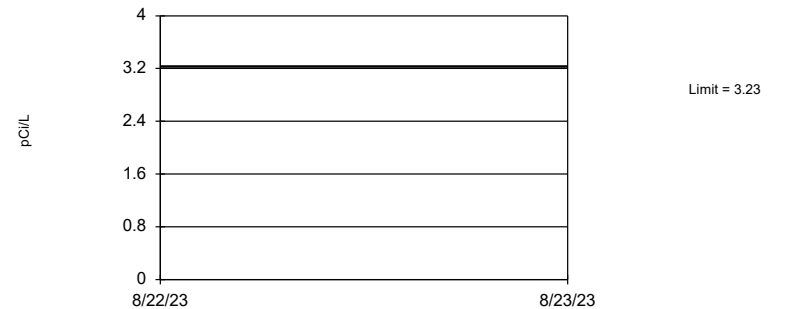
Tolerance Limit  
Interwell Non-parametric



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 75 background values. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Cobalt, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

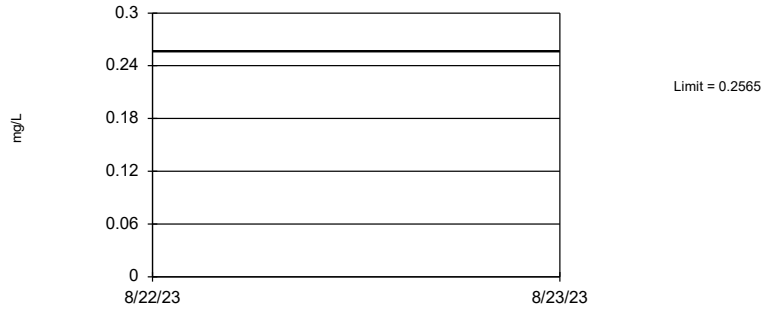
Tolerance Limit  
Interwell Parametric



95% coverage. Background Data Summary (based on cube root transformation): Mean=0.9956, Std. Dev.=0.2447, n=75. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9762, critical = 0.956. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Lim  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

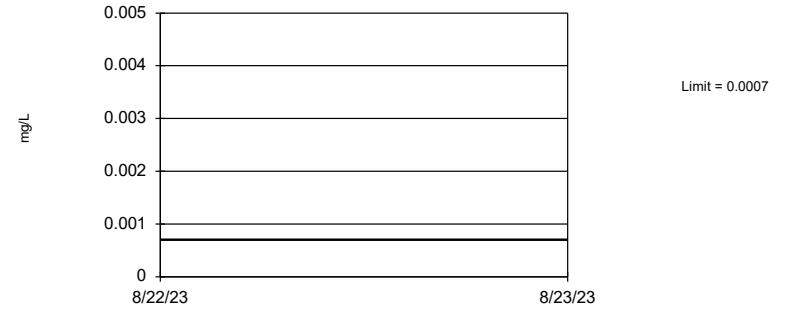
Tolerance Limit  
Interwell Non-parametric



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 78 background values. 50% NDs. 94.34% coverage at alpha=0.01; 96.29% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.0183.

Constituent: Fluoride, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Tolerance Limit  
Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 75 background values. 52% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Lead, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

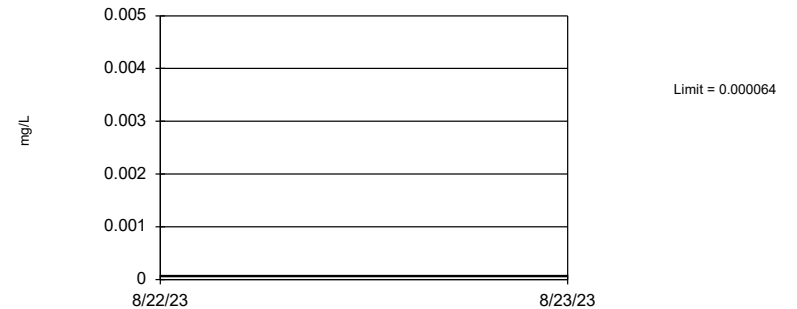
Tolerance Limit  
Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=0.1312, Std. Dev.=0.04656, n=75, 1.333% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9714, critical = 0.956. Report alpha = 0.05.

Constituent: Lithium, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Tolerance Limit  
Interwell Non-parametric

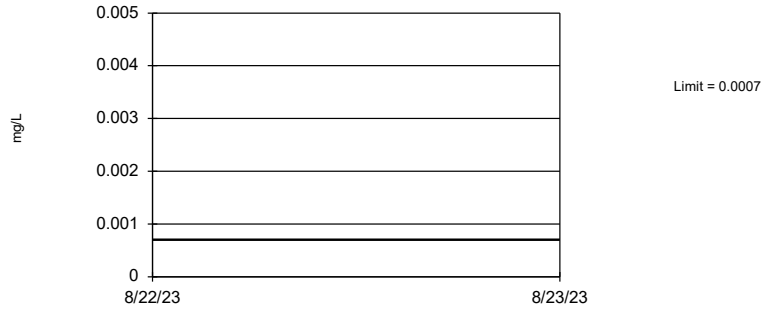


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 75 background values. 42.67% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Mercury, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP



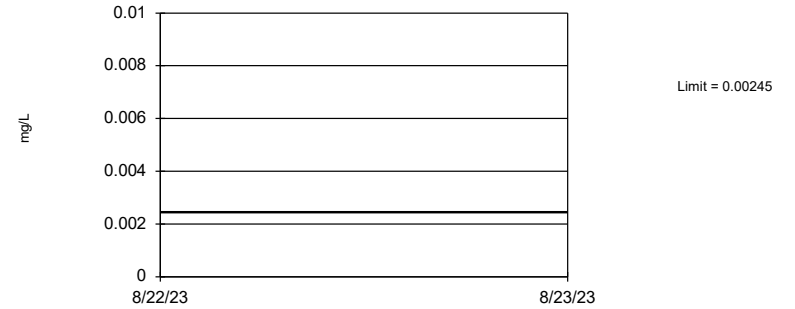
### Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 70 background values. 91.43% NDs. 93.55% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02758.

Constituent: Molybdenum, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

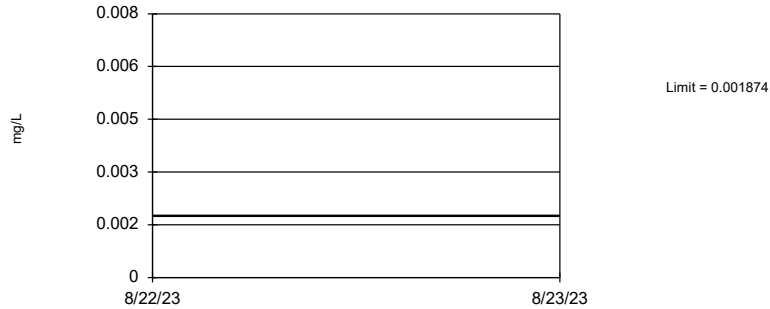
### Tolerance Limit Interwell Non-parametric



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 75 background values. 45.33% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02134.

Constituent: Selenium, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 73 background values. 72.6% NDs. 93.95% coverage at alpha=0.01; 95.9% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.02365.

Constituent: Thallium, total Analysis Run 12/11/2023 10:08 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

FIGURE E  
GWPS

<b>PIRKEY EBAP GWPS</b>			
<b>Constituent Name</b>	<b>MCL</b>	<b>Background Limit</b>	<b>GWPS</b>
Antimony, Total (mg/L)	0.006	0.0001	0.006
Arsenic, Total (mg/L)	0.01	0.011	0.011
Barium, Total (mg/L)	2	0.18	2
Beryllium, Total (mg/L)	0.004	0.0012	0.004
Cadmium, Total (mg/L)	0.005	0.00026	0.005
Chromium, Total (mg/L)	0.1	0.0029	0.1
Cobalt, Total (mg/L)	n/a	0.0094	0.0094
Combined Radium, Total (pCi/L)	5	3.2	5
Fluoride, Total (mg/L)	4	0.26	4
Lead, Total (mg/L)	n/a	0.0007	0.0007
Lithium, Total (mg/L)	n/a	0.05	0.05
Mercury, Total (mg/L)	0.002	0.000064	0.002
Molybdenum, Total (mg/L)	n/a	0.0007	0.0007
Selenium, Total (mg/L)	0.05	0.0025	0.05
Thallium, Total (mg/L)	0.002	0.0019	0.002

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

*\*MCL = Maximum Contaminant Level*

*\*GWPS = Groundwater Protection Standard*

FIGURE F  
Confidence Intervals

# Confidence Intervals Summary Table - Significant Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 7/1/2024, 1:26 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig. N</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt, total (mg/L)	AD-2	0.02125	0.01434	0.0094	Yes 27	0.007246	0	None	No	0.01	Param.
Cobalt, total (mg/L)	AD-31	0.01057	0.009483	0.0094	Yes 26	0.001151	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	AD-32	0.04892	0.02868	0.0094	Yes 27	0.02122	0	None	No	0.01	Param.
Lithium, total (mg/L)	AD-2	0.07542	0.05691	0.05	Yes 8	0.008732	0	None	No	0.01	Param.
Lithium, total (mg/L)	AD-31	0.094	0.0681	0.05	Yes 27	0.01344	0	None	No	0.01	NP (normality)
Lithium, total (mg/L)	AD-32	0.09349	0.07229	0.05	Yes 25	0.02127	0	None	No	0.01	Param.

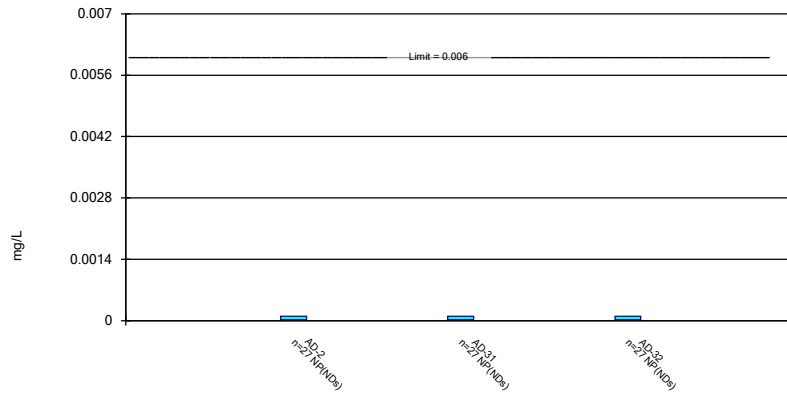
# Confidence Intervals Summary Table - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 7/1/2024, 1:26 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	AD-2	0.0001	0.00002	0.006	No	27	0.00002814	88.89	None	No	0.01	NP (NDs)
Antimony, total (mg/L)	AD-31	0.0001	0.00002	0.006	No	27	0.00002287	92.59	None	No	0.01	NP (NDs)
Antimony, total (mg/L)	AD-32	0.0001	0.00002	0.006	No	27	0.00003448	81.48	None	No	0.01	NP (NDs)
Arsenic, total (mg/L)	AD-2	0.002	0.00053	0.011	No	27	0.0007083	37.04	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	AD-31	0.003317	0.00027	0.011	No	26	0.002492	11.54	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	AD-32	0.004456	0.002153	0.011	No	27	0.002845	3.704	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	AD-2	0.02829	0.02004	2	No	27	0.009103	0	None	ln(x)	0.01	Param.
Barium, total (mg/L)	AD-31	0.069	0.0332	2	No	26	0.0239	0	None	No	0.01	NP (normality)
Barium, total (mg/L)	AD-32	0.03555	0.02635	2	No	27	0.009642	0	None	No	0.01	Param.
Beryllium, total (mg/L)	AD-2	0.0006469	0.000477	0.004	No	27	0.000207	3.704	None	ln(x)	0.01	Param.
Beryllium, total (mg/L)	AD-31	0.00104	0.000854	0.004	No	26	0.0003153	0	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	AD-32	0.005282	0.002912	0.004	No	27	0.002484	0	None	No	0.01	Param.
Cadmium, total (mg/L)	AD-2	0.001	0.00008	0.005	No	27	0.0004465	37.04	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	AD-31	0.0008589	0.000064	0.005	No	27	0.0004233	25.93	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	AD-32	0.0005092	0.0002983	0.005	No	27	0.0002211	0	None	No	0.01	Param.
Chromium, total (mg/L)	AD-2	0.0009	0.000292	0.1	No	27	0.001524	22.22	None	No	0.01	NP (normality)
Chromium, total (mg/L)	AD-31	0.003	0.00041	0.1	No	25	0.005044	8	None	No	0.01	NP (normality)
Chromium, total (mg/L)	AD-32	0.005	0.000646	0.1	No	27	0.004557	0	None	No	0.01	NP (normality)
<b>Cobalt, total (mg/L)</b>	<b>AD-2</b>	<b>0.02125</b>	<b>0.01434</b>	<b>0.0094</b>	<b>Yes</b>	<b>27</b>	<b>0.007246</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Cobalt, total (mg/L)</b>	<b>AD-31</b>	<b>0.01057</b>	<b>0.009483</b>	<b>0.0094</b>	<b>Yes</b>	<b>26</b>	<b>0.001151</b>	<b>0</b>	<b>None</b>	<b>sqrt(x)</b>	<b>0.01</b>	<b>Param.</b>
<b>Cobalt, total (mg/L)</b>	<b>AD-32</b>	<b>0.04892</b>	<b>0.02868</b>	<b>0.0094</b>	<b>Yes</b>	<b>27</b>	<b>0.02122</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Combined Radium 226 + 228 (pCi/L)	AD-2	1.69	1.143	5	No	27	0.5739	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	AD-31	4.082	2.882	5	No	27	1.258	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	AD-32	5.916	4.021	5	No	26	2.257	0	None	x^(1/3)	0.01	Param.
Fluoride, total (mg/L)	AD-2	1	0.19	4	No	29	0.4126	41.38	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	AD-31	1	0.13	4	No	29	0.4362	41.38	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	AD-32	0.7747	0.388	4	No	28	0.4234	17.86	Kaplan-Meier	No	0.01	Param.
Lead, total (mg/L)	AD-2	0.002	0.0005	0.0007	No	27	0.0007339	37.04	None	No	0.01	NP (normality)
Lead, total (mg/L)	AD-31	0.002	0.0003	0.0007	No	26	0.0009935	30.77	None	No	0.01	NP (normality)
Lead, total (mg/L)	AD-32	0.0005385	0.0002579	0.0007	No	27	0.0002898	40.74	Kaplan-Meier	ln(x)	0.01	Param.
<b>Lithium, total (mg/L)</b>	<b>AD-2</b>	<b>0.07542</b>	<b>0.05691</b>	<b>0.05</b>	<b>Yes</b>	<b>8</b>	<b>0.008732</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Lithium, total (mg/L)</b>	<b>AD-31</b>	<b>0.094</b>	<b>0.0681</b>	<b>0.05</b>	<b>Yes</b>	<b>27</b>	<b>0.01344</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>NP (normality)</b>
<b>Lithium, total (mg/L)</b>	<b>AD-32</b>	<b>0.09349</b>	<b>0.07229</b>	<b>0.05</b>	<b>Yes</b>	<b>25</b>	<b>0.02127</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Mercury, total (mg/L)	AD-2	0.00009331	0.00004799	0.002	No	26	0.00006231	0	None	x^(1/3)	0.01	Param.
Mercury, total (mg/L)	AD-31	0.0005108	0.000158	0.002	No	26	0.000463	0	None	sqrt(x)	0.01	Param.
Mercury, total (mg/L)	AD-32	0.003755	0.001457	0.002	No	27	0.003095	0	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	AD-2	0.0008627	0.0005	0.0007	No	26	0.0007681	88.46	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	AD-31	0.0005	0.0004016	0.0007	No	25	0.0001314	80	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	AD-32	0.0007621	0.00004	0.0007	No	25	0.0001078	92	None	No	0.01	NP (NDs)
Selenium, total (mg/L)	AD-2	0.002396	0.001398	0.05	No	27	0.00167	18.52	Kaplan-Meier	x^(1/3)	0.01	Param.
Selenium, total (mg/L)	AD-31	0.0025	0.00038	0.05	No	27	0.001568	25.93	None	No	0.01	NP (normality)
Selenium, total (mg/L)	AD-32	0.006082	0.001967	0.05	No	27	0.006121	18.52	Kaplan-Meier	sqrt(x)	0.01	Param.
Thallium, total (mg/L)	AD-2	0.0005	0.0001	0.002	No	27	0.0002696	37.04	None	No	0.01	NP (normality)
Thallium, total (mg/L)	AD-31	0.0005	0.00009	0.002	No	26	0.0002502	46.15	None	No	0.01	NP (normality)
Thallium, total (mg/L)	AD-32	0.001093	0.00018	0.002	No	26	0.0007738	23.08	None	No	0.01	NP (normality)

### Non-Parametric Confidence Interval

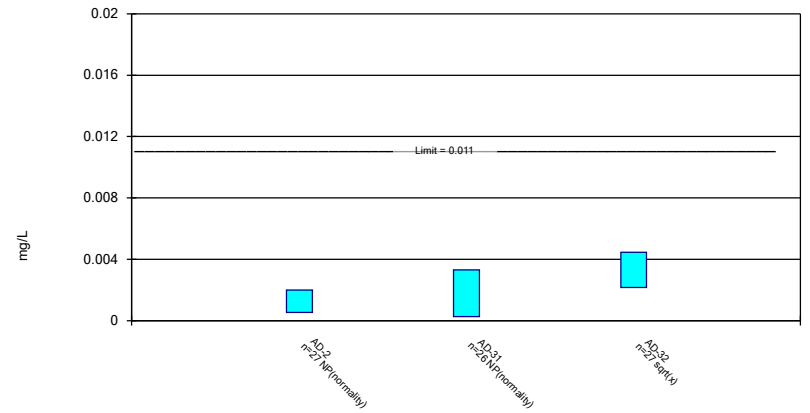
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Antimony, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

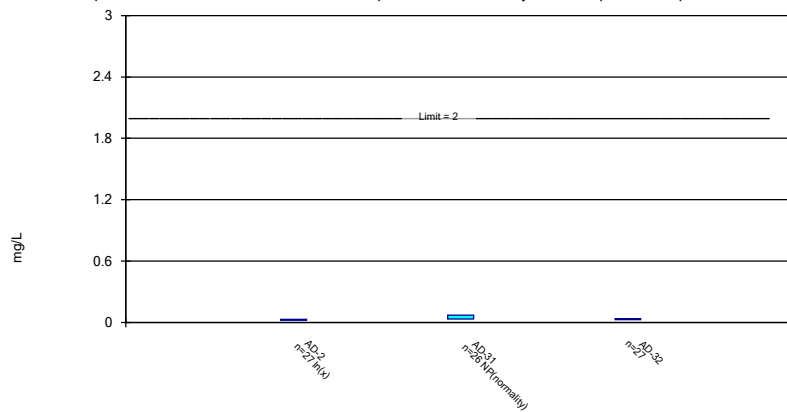
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

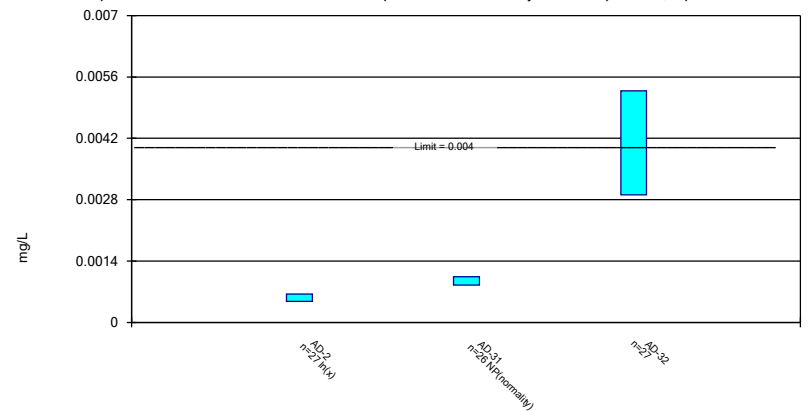
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

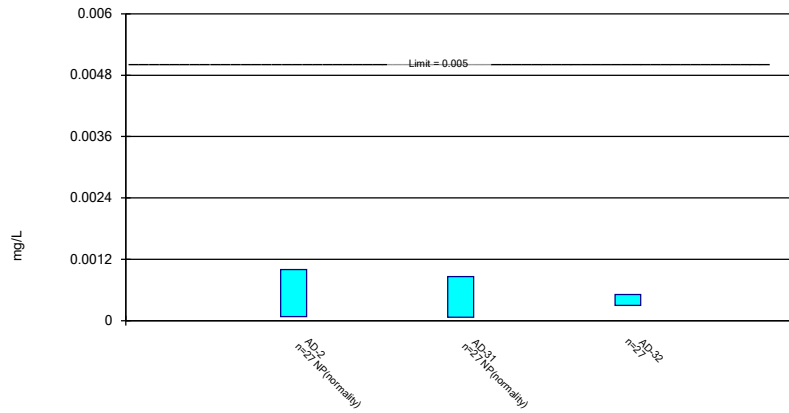
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

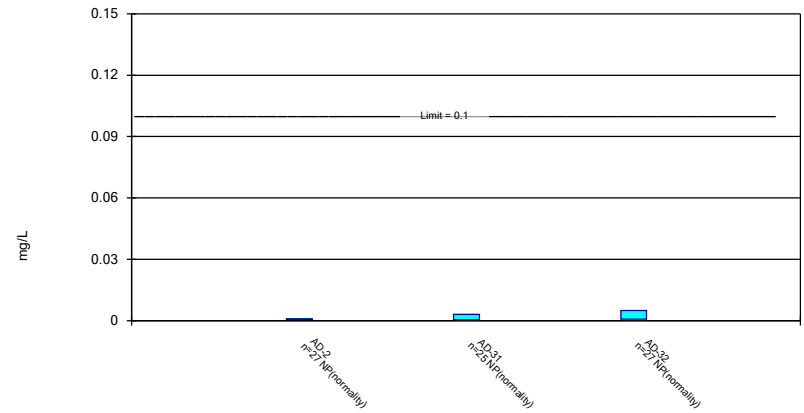
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Non-Parametric Confidence Interval

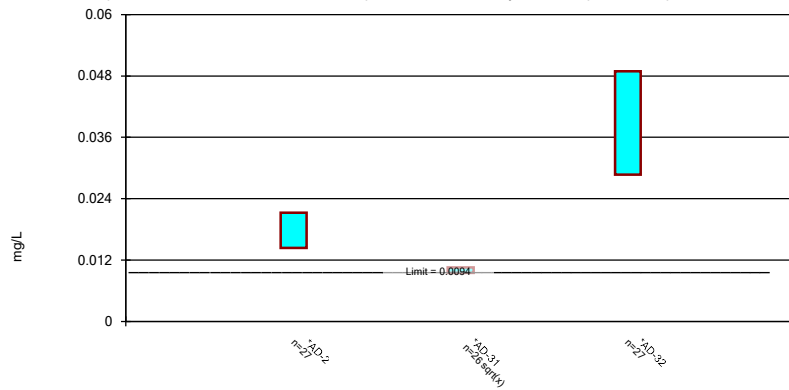
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Chromium, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric Confidence Interval

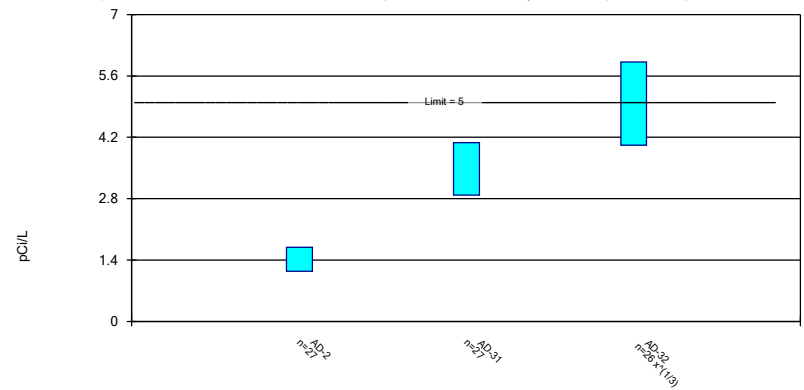
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric Confidence Interval

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

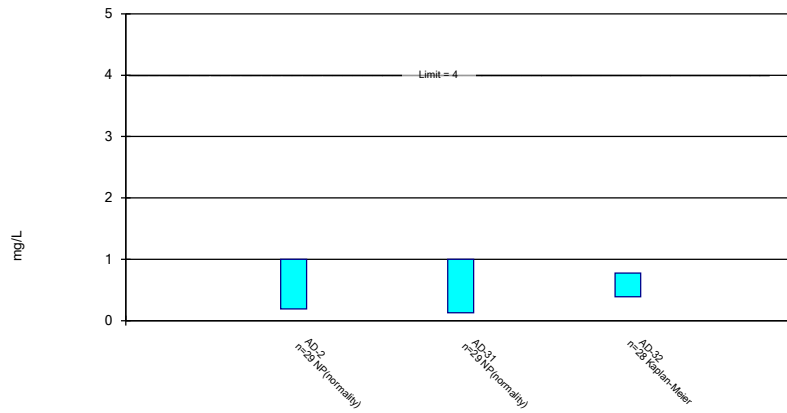


Constituent: Combined Radium 226 + 228 Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP



### Parametric and Non-Parametric (NP) Confidence Interval

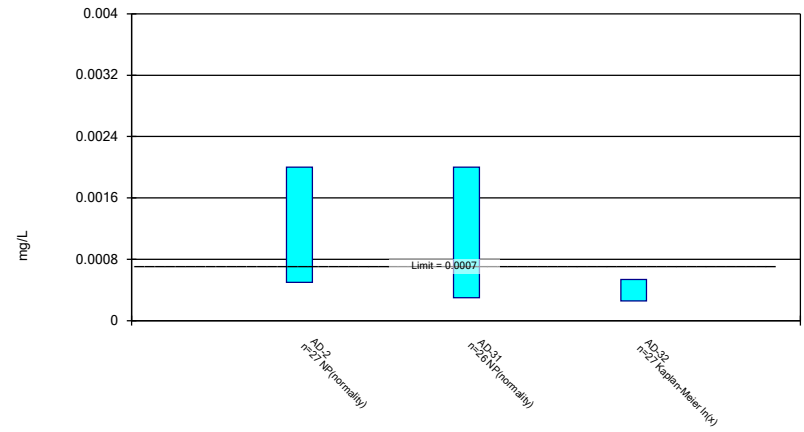
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

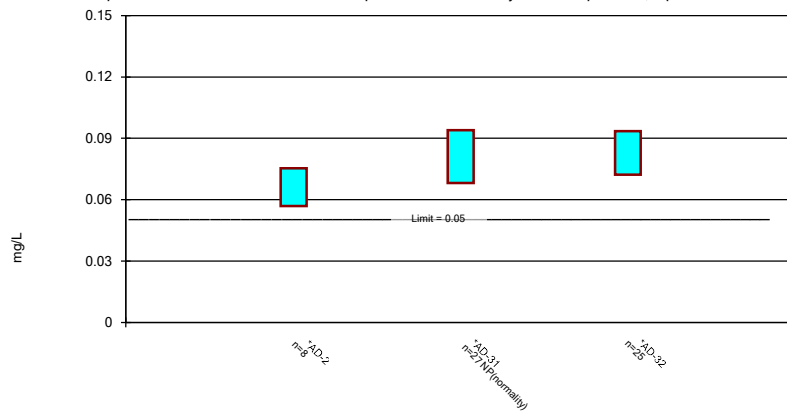
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

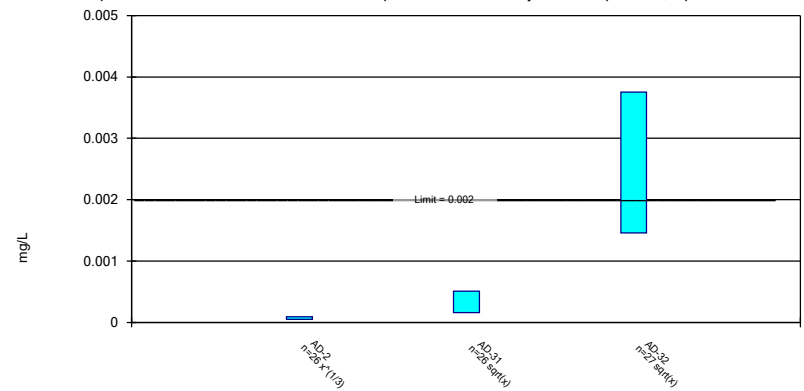
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric Confidence Interval

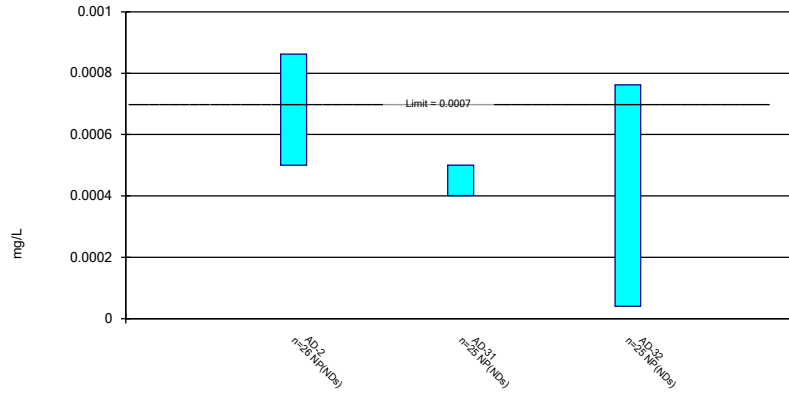
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Mercury, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Non-Parametric Confidence Interval

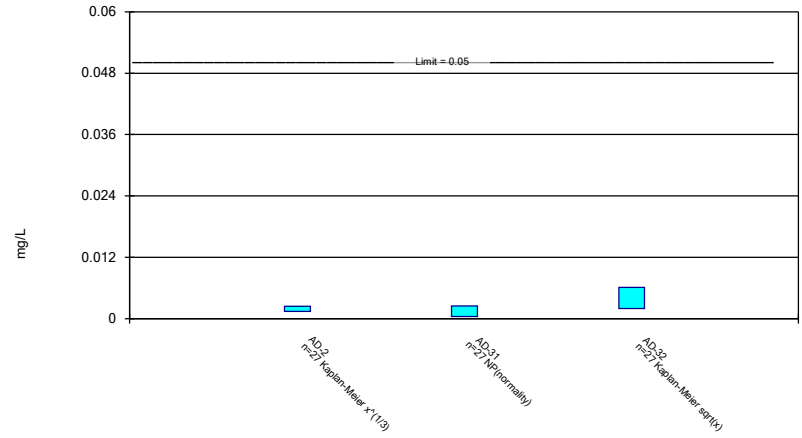
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Molybdenum, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

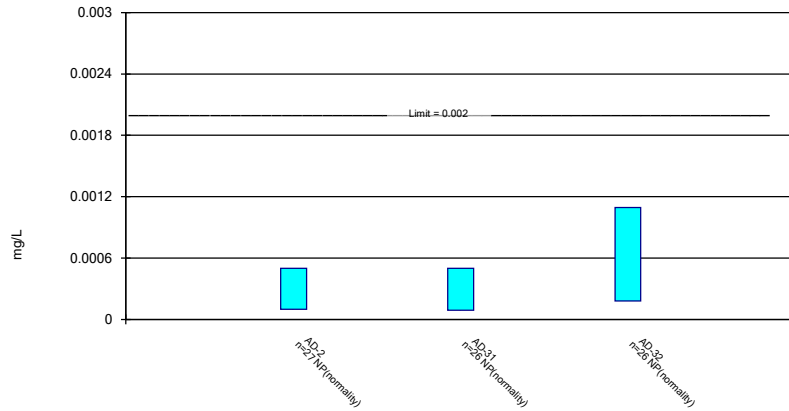
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Non-Parametric Confidence Interval

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



Constituent: Thallium, total Analysis Run 7/1/2024 1:25 PM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

FIGURE G  
Trend Tests

# Trend Test - Significant Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 7/1/2024, 1:35 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Cobalt, total (mg/L)	AD-12 (bg)	-0.00005046	-122	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-18 (bg)	-0.00008965	-221	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-2	0.002437	296	96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-31	-0.000165	-94	-90	Yes	26	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-32	-0.005268	-170	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-4 (bg)	-0.0004008	-178	-96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-12 (bg)	-0.0004385	-110	-96	Yes	27	3.704	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-18 (bg)	-0.0009038	-162	-96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-2	0.001901	142	90	Yes	26	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-31	-0.002159	-103	-96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-32	-0.007208	-175	-85	Yes	25	0	n/a	n/a	0.05	NP

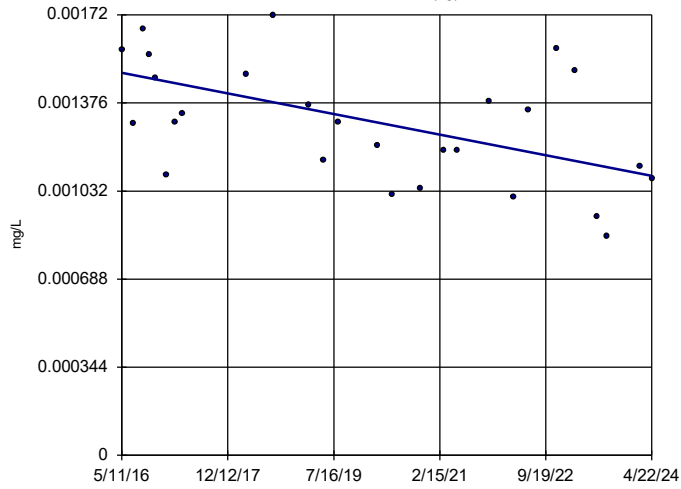
# Trend Test - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 7/1/2024, 1:35 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt, total (mg/L)	AD-12 (bg)	-0.00005046	-122	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-18 (bg)	-0.00008965	-221	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-2	0.002437	296	96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-31	-0.000165	-94	-90	Yes	26	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-32	-0.005268	-170	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-4 (bg)	-0.0004008	-178	-96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-12 (bg)	-0.0004385	-110	-96	Yes	27	3.704	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-18 (bg)	-0.0009038	-162	-96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-2	0.001901	142	90	Yes	26	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-31	-0.002159	-103	-96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-32	-0.007208	-175	-85	Yes	25	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-4 (bg)	-0.001521	-83	-96	No	27	0	n/a	n/a	0.05	NP

### Sen's Slope Estimator

AD-12 (bg)

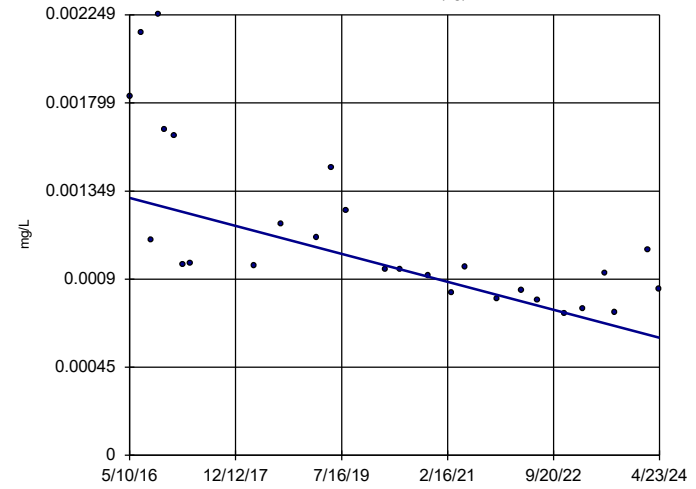


n = 27  
 Slope = -0.00005046 units per year.  
 Mann-Kendall statistic = -122  
 critical = -96  
 Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Cobalt, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

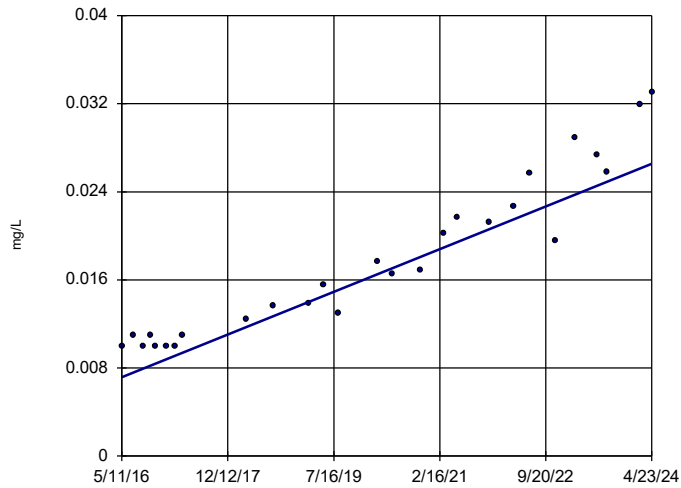


n = 27  
 Slope = -0.00008965 units per year.  
 Mann-Kendall statistic = -221  
 critical = -96  
 Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Cobalt, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-2

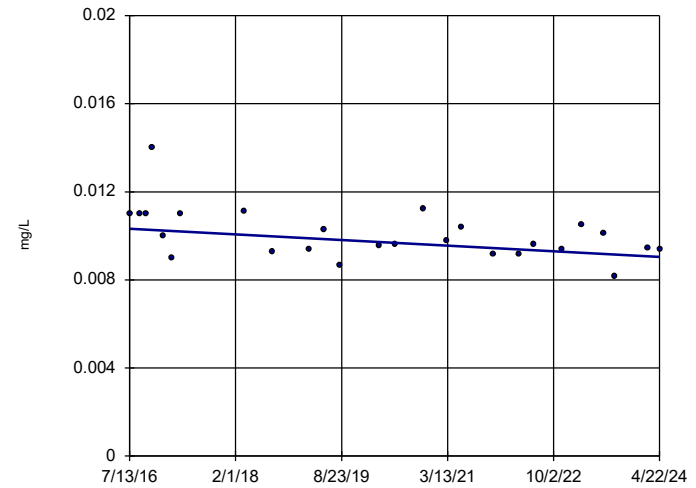


n = 27  
 Slope = 0.002437 units per year.  
 Mann-Kendall statistic = 296  
 critical = 96  
 Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Cobalt, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-31

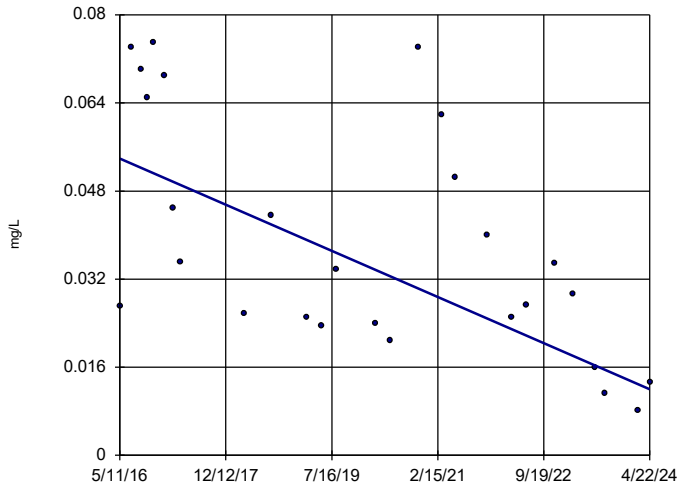


n = 26  
 Slope = -0.000165 units per year.  
 Mann-Kendall statistic = -94  
 critical = -90  
 Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Cobalt, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-32

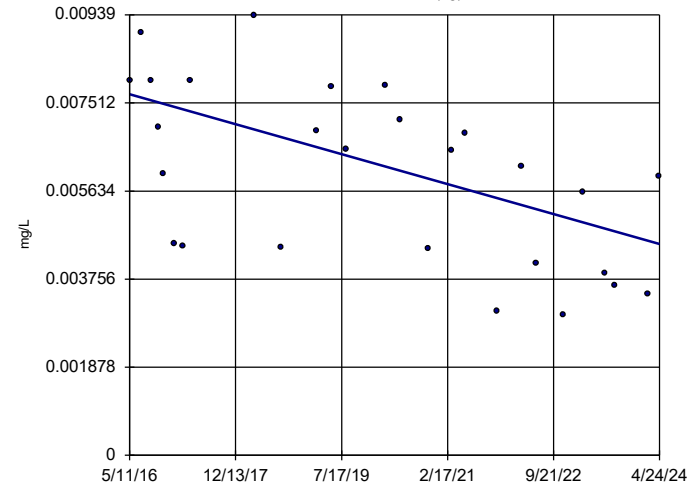


n = 27  
 Slope = -0.005268  
 units per year.  
 Mann-Kendall  
 statistic = -170  
 critical = -96  
 Decreasing trend  
 significant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Cobalt, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)

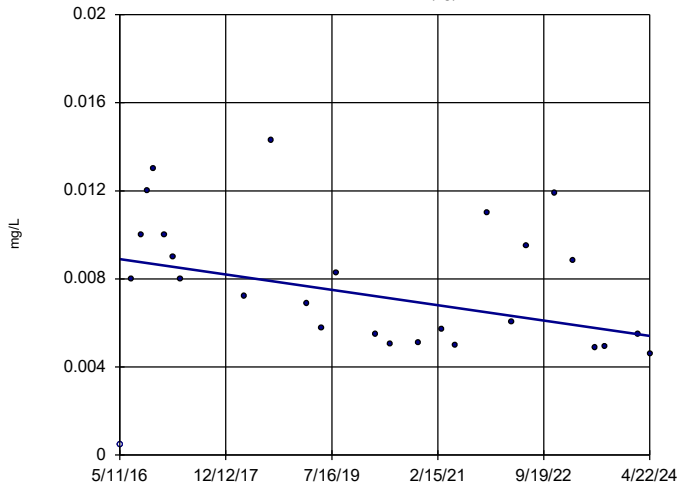


n = 27  
 Slope = -0.0004008  
 units per year.  
 Mann-Kendall  
 statistic = -178  
 critical = -96  
 Decreasing trend  
 significant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Cobalt, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-12 (bg)

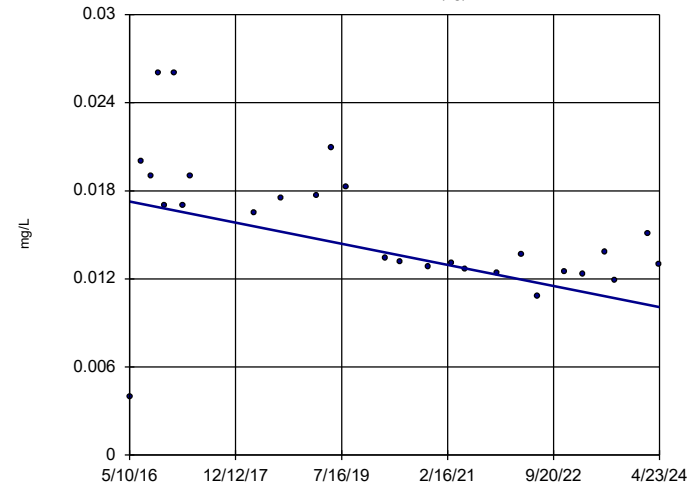


n = 27  
 Slope = -0.0004385  
 units per year.  
 Mann-Kendall  
 statistic = -110  
 critical = -96  
 Decreasing trend  
 significant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Lithium, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

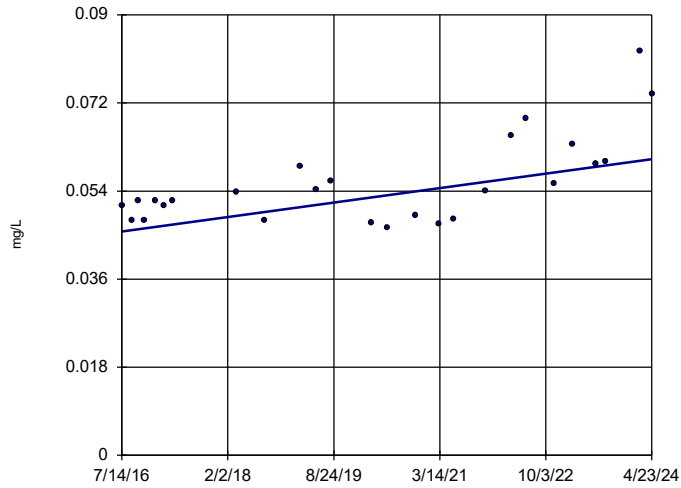


n = 27  
 Slope = -0.0009038  
 units per year.  
 Mann-Kendall  
 statistic = -162  
 critical = -96  
 Decreasing trend  
 significant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Lithium, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-2

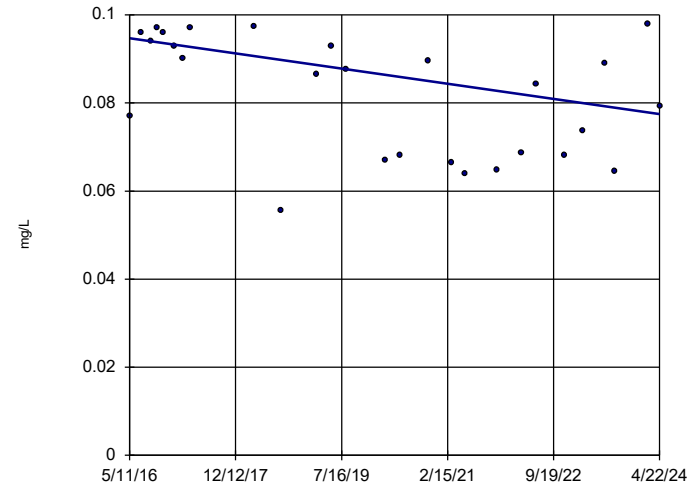


n = 26  
 Slope = 0.001901  
 units per year.  
 Mann-Kendall  
 statistic = 142  
 critical = 90  
 Increasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Lithium, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-31

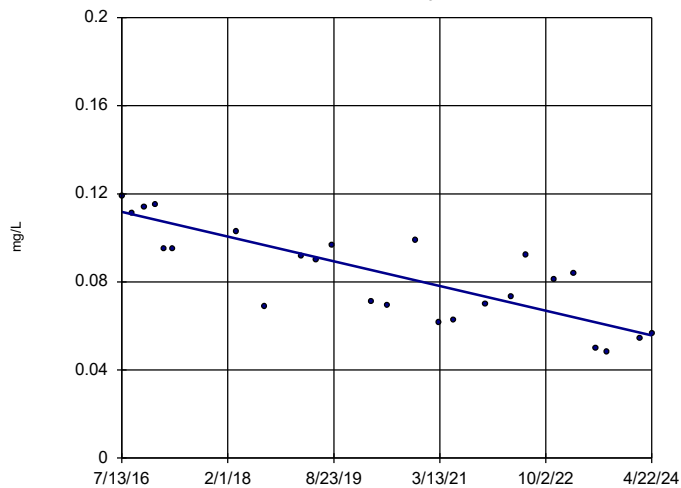


n = 27  
 Slope = -0.002159  
 units per year.  
 Mann-Kendall  
 statistic = -103  
 critical = -96  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Lithium, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-32

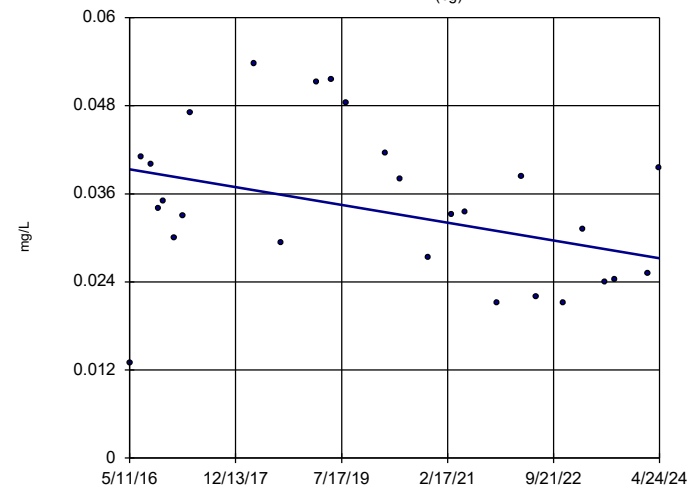


n = 25  
 Slope = -0.007208  
 units per year.  
 Mann-Kendall  
 statistic = -175  
 critical = -85  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Lithium, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)



n = 27  
 Slope = -0.001521  
 units per year.  
 Mann-Kendall  
 statistic = -83  
 critical = -96  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Lithium, total Analysis Run 7/1/2024 1:27 PM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP



# STATISTICAL ANALYSIS SUMMARY 2024 2<sup>ND</sup> SEMIANNUAL EVENT EAST BOTTOM ASH POND

**H.W. Pirkey Power Plant**  
**Hallsville, Texas**

*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

December 2024

**TABLE OF CONTENTS**

1. INTRODUCTION .....1

2. EAST BOTTOM ASH POND EVALUATION.....2

    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 IV SSLs.....3

        2.2.3 Establishment of Appendix III Prediction Limits .....3

        2.2.4 Evaluation of Potential Appendix III SSIs .....4

    2.3 Conclusions .....5

3. REFERENCES .....6

**LIST OF TABLES**

Table 1: Groundwater Data Summary

Table 2: Appendix IV Groundwater Protection Standards

Table 3: Appendix III Data Summary

**LIST OF ATTACHMENTS**

Attachment A: Certification by Qualified Professional Engineer

Attachment B: Data Quality Review Memorandum

Attachment C: Statistical Analysis Output

## ACRONYMS AND ABBREVIATIONS

ASD	alternative source demonstration
CCR	coal combustion residuals
EBAP	East Bottom Ash Pond
GWPS	groundwater protection standard
LCL	lower confidence limit
LPL	lower prediction limit
mg/L	milligrams per liter
PQL	practical quantitation limit
QA/QC	quality assurance and quality control
SSI	statistically significant increase
SSL	statistically significant level
SU	standard units
TCEQ	Texas Commission on Environmental Quality
TDS	total dissolved solids
UPL	upper prediction limit

## 1. INTRODUCTION

In accordance with Texas Commission on Environmental Quality (TCEQ) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Texas Administrative Code Title 30, Chapter 352), groundwater monitoring has been conducted at the East Bottom Ash Pond (EBAP), an existing CCR unit at the Pirkey Power Plant in Hallsville, Texas. Recent groundwater monitoring results were used to identify concentrations of Appendix IV 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, calcium, chloride, total dissolved solids (TDS), and sulfate at the EBAP (Geosyntec 2018). An alternative source was not identified at the time, so assessment monitoring was initiated and GWPSs were set in accordance with § 352.951(b). One assessment monitoring event was conducted at the EBAP in September 2024 in accordance with § 352.951(a). The results of the September 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 IV parameters. Confidence intervals were calculated for Appendix IV parameters at the compliance wells to assess whether statistically significant levels (SSLs) of Appendix IV parameters were present above the GWPS. SSLs were identified for cobalt and lithium. Therefore, either the unit will move to an assessment of corrective measures, or an alternative source demonstration (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. EAST BOTTOM ASH POND EVALUATION

### 2.1 Data Validation and QA/QC

One set of samples was collected for analysis from each background and compliance well to meet the requirements of § 352.951(a) in September 2024. Samples from the September 2024 sampling event were analyzed for all Appendix III and Appendix IV 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.

A data quality review was completed to assess if the data met the objectives outlined in TCEQ Draft Technical Guidance No. 32 related to groundwater sampling and analysis (TCEQ 2020). The data were determined usable for supporting project objectives, as documented in the review memorandum provided in Attachment B. The analytical data were imported into a Microsoft Access database, where checks were completed to assess the accuracy of sample location identification and analyte identification. Where necessary, unit conversions were applied to standardize reported units across all sampling events. Exported data files were created for use with the Sanitas™ v.10.0.23a statistics software. The export file was checked against the analytical data for transcription errors and completeness.

### 2.2 Statistical Analysis

Statistical analyses for the EBAP 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 C. The data obtained in September 2024 were screened for potential outliers. Two outliers were identified for fluoride in upgradient wells AD-4 and AD-18; however, the fluoride values were not flagged as they were estimated (J-flagged) with reported concentrations below the maximum contaminant level. No outliers were removed for this event.

#### 2.2.1 Establishment of GWPSs

A GWPS was established for each Appendix IV 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 IV parameter. To determine background concentrations, an upper tolerance limit was calculated using data that were pooled from the background wells collected during the background monitoring and assessment monitoring events. Tolerance limits were calculated parametrically with 95% coverage and 95% confidence for chromium, combined radium, and lithium. Nonparametric tolerance limits were calculated for arsenic, barium, beryllium, cadmium, cobalt, fluoride, lead, mercury, and selenium due to apparent nonnormal distributions, and for antimony, molybdenum, and thallium due to a high nondetect frequency. Upper tolerance limits and the final GWPSs are summarized in Table 2.

### 2.2.2 Evaluation of Potential Appendix IV SSLs

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

The following SSLs were identified at the Pirkey EBAP:

- The LCL for cobalt was above the GWPS of 0.00939 milligrams per liter (mg/L) at AD-2 (0.0230 mg/L), AD-31 (0.00947 mg/L), and AD-32 (0.0280 mg/L).
- The LCL for lithium exceeded the GWPS of 0.0489 mg/L at AD-2 (0.0583 mg/L), AD-31 (0.0767 mg/L) and AD-32 (0.0721 mg/L).

As a result, the Pirkey EBAP 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.

### 2.2.3 Establishment of Appendix III Prediction Limits

Upper prediction limits (UPLs) were previously established for all Appendix III parameters following the background monitoring period (Geosyntec 2018). Intrawell tests were used to evaluate potential SSIs for pH. Interwell tests were used to evaluate potential SSIs for boron, calcium, chloride, fluoride, sulfate, and TDS. 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 EBAP. Because the interwell Appendix III limits and the Appendix IV 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 III tests only. Mann-Whitney tests were used to compare the medians of historical data (May 2016 – June 2022) to the new compliance samples (November 2022 – April 2024) for pH. Results were evaluated to determine if the medians of the two groups were statistically different at the 99% confidence level. Where no statistically significant difference was found, the new compliance data were added to the background dataset. Where a statistically significant difference was found between the medians of the two groups, the data were reviewed to evaluate the cause of the difference and to determine if adding newer data to the background dataset, truncating historical data and using only the newer data, or continuing to use the existing background dataset was most appropriate. If the differences appeared to have been caused by a release, then the previous background dataset would have continued to be used.

The complete Mann-Whitney test results and a summary of the findings can be found in Attachment C. No statistically significant differences were found.

Prediction limits for the interwell tests were calculated using data collected through the September 2024 assessment monitoring event. 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 C. The boron, calcium, chloride, fluoride, sulfate, and TDS prediction limits were calculated using a one-of-two retesting procedure, as during detection monitoring.

After the revised background set was established, a parametric or nonparametric analysis was selected based on the distribution of the data and the frequency of nondetect data. Estimated results under the reporting limit (i.e., practical quantitation limit [PQL]) but above the method detection limit (i.e., "J-flagged" data) were considered detections and the estimated results were used in the statistical analyses. Nonparametric analyses were selected for 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-Francia 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 C.

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

#### **2.2.4 Evaluation of Potential Appendix III SSIs**

While SSLs were identified, a review of the Appendix III results were also completed to assess whether concentrations of Appendix III parameters at the compliance wells were above background concentrations. Data collected during the September 2024 assessment monitoring event from each compliance well were compared to updated 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 0.0409 mg/L at AD-2 (3.09 mg/L) and AD-32 (0.175 mg/L).
- Calcium concentrations were above the interwell UPL of 3.23 mg/L at AD-2 (3.9 mg/L) and AD-32 (6.10 mg/L).
- Chloride concentrations were above the interwell UPL of 8.45 mg/L at AD-2 (29.4 mg/L), AD-31 (17.7 mg/L), and AD-32 (11.6 mg/L).
- Fluoride concentrations were above the interwell UPL of 0.257 mg/L at AD-32 (0.30 mg/L).

- pH values were above the intrawell UPL of 4.6 standard units (SU) at AD-32 (4.8 SU).
- Sulfate concentrations were above the interwell UPL of 24.7 mg/L at AD-2 (281 mg/L), AD-31 (73.2 mg/L), and AD-32 (59.7 mg/L).
- TDS concentrations were above the interwell UPL of 168 mg/L at AD-2 (510 mg/L), AD-31 (260 mg/L), and AD-32 (190 mg/L).

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

## 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 two potential outliers in the September 2024 data; however, no outliers were flagged and removed. GWPSs were reestablished for the Appendix IV parameters. A confidence interval was constructed at each compliance well for each Appendix IV parameter; SSLs were concluded if the entire confidence interval was above the GWPS. SSLs were identified for cobalt and lithium. Appendix III parameters were compared to calculated prediction limits, with exceedances identified for boron, calcium, chloride, fluoride, pH, sulfate, and TDS.

Based on this evaluation, the Pirkey EBAP 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. 2018. Statistical Analysis Summary – East Bottom Ash Pond, Pirkey, Hallsville, Texas. Geosyntec Consultants, Inc. January.

Geosyntec. 2021. Statistical Analysis Plan – H.W. Pirkey Power Plant. Geosyntec Consultants, Inc. November.

TCEQ. 2020. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action Draft Technical Guidance No. 32. May.

# TABLES

**Table 1. Groundwater Data Summary  
Statistical Analysis Summary  
Pirkey Plant – East Bottom Ash Pond**

Parameter	Unit	AD-2	AD-4	AD-12	AD-18	AD-31	AD-32
		Compliance	Background	Background	Background	Compliance	Compliance
		9/17/2024	9/17/2024	9/16/2024	9/18/2024	9/16/2024	9/16/2024
Antimony	µg/L	0.5 U1	0.1 U1	0.011 J1	0.016 J1	0.010 J1	0.015 J1
Arsenic	µg/L	0.9	0.46	0.09 J1	1.58	0.61	6.08
Barium	µg/L	14.8	120	16.6	78.2	36.2	35.5
Beryllium	µg/L	1.03	0.4 J1	2.5 U1	2.5 U1	1.00	0.191
Boron	mg/L	3.09	0.016 J1	0.018 J1	0.010 J1	0.026 J1	0.175
Cadmium	µg/L	0.12	0.022	0.007 J1	0.013 J1	0.065	0.013 J1
Calcium	mg/L	3.9	2.58	0.23	0.32	2.38	6.10
Chloride	mg/L	29.4	3.95	4.45	5.92	17.7	11.6
Chromium	µg/L	0.9 J1	0.57	0.43	1.02	1.18	0.40
Cobalt	µg/L	29.6	3.52	1.06	1.28	9.20	14.3
Combined Radium	pCi/L	2.85	3.46	2.84	2	3.95	1.18
Fluoride	mg/L	0.18	0.02 J1	0.07	0.02 J1	0.09	0.30
Lead	µg/L	0.8 J1	0.07 J1	0.08 J1	0.37	0.54	0.08 J1
Lithium	mg/L	0.0851	0.030	0.006 J1	0.021	0.0857	0.0693
Mercury	µg/L	0.041	0.004 J1	0.002 J1	0.013	0.740	0.380
Molybdenum	µg/L	2.0 J1	0.5 U1	0.5 U1	0.5 U1	0.5 U1	0.5 U1
Selenium	µg/L	3.5	0.5 U1	0.19 J1	0.19 J1	0.37 J1	0.28 J1
Sulfate	mg/L	281	18.4	3.1	10.2	73.2	59.7
Thallium	µg/L	0.1 J1	0.10 J1	0.02 J1	0.05 J1	0.10 J1	0.06 J1
Total Dissolved Solids	mg/L	510	130	60	130	260	190
pH	SU	4.0	4.9	3.0	4.2	3.4	4.8

Notes:

J1: Estimated value. Parameter was detected in concentrations below the reporting limit.

mg/L: milligrams per liter

pCi/L: picocuries per liter

SU: standard unit

U1: Non-detect value. For statistical analysis, parameters which were not detected were replaced with the reporting limit.

µg/L: micrograms per liter

**Table 2. Appendix IV Groundwater Protection Standards  
Statistical Analysis Summary  
Pirkey Plant – East Bottom Ash Pond**

Constituent Name	MCL	Calculated UTL	GWPS
Antimony, Total (mg/L)	0.00600	0.000100	0.00600
Arsenic, Total (mg/L)	0.0100	0.0110	0.0110
Barium, Total (mg/L)	2.00	0.183	2.00
Beryllium, Total (mg/L)	0.00400	0.00125	0.00400
Cadmium, Total (mg/L)	0.00500	0.000260	0.00500
Chromium, Total (mg/L)	0.100	0.00262	0.100
Cobalt, Total (mg/L)	n/a	0.00939	0.00939
Combined Radium, Total (pCi/L)	5.00	3.26	5.00
Fluoride, Total (mg/L)	4.00	0.257	4.00
Lead, Total (mg/L)	n/a	0.000700	0.000700
Lithium, Total (mg/L)	n/a	0.0489	0.0489
Mercury, Total (mg/L)	0.00200	0.0000640	0.00200
Molybdenum, Total (mg/L)	n/a	0.000700	0.000700
Selenium, Total (mg/L)	0.0500	0.00245	0.0500
Thallium, Total (mg/L)	0.00200	0.00187	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. Either the UTL is higher than the MCL or an MCL does not exist.

GWPS: groundwater protection standard

MCL: maximum contaminant level

mg/L: milligrams per liter

n/a: not applicable

pCi/L: picocuries per liter

**Table 3. Appendix III Data Summary  
Statistical Analysis Report  
Pirkey Plant – East Bottom Ash Pond**

Analyte	Unit	Description	AD-2	AD-31	AD-32
			9/17/2024	9/16/2024	9/16/2024
Boron	mg/L	Interwell Background Value (UPL)	0.0409		
		Analytical Result	<b>3.09</b>	0.026	<b>0.175</b>
Calcium	mg/L	Interwell Background Value (UPL)	3.23		
		Analytical Result	<b>3.9</b>	2.38	<b>6.10</b>
Chloride	mg/L	Interwell Background Value (UPL)	8.45		
		Analytical Result	<b>29.4</b>	<b>17.7</b>	<b>11.6</b>
Fluoride	mg/L	Interwell Background Value (UPL)	0.257		
		Analytical Result	0.18	0.09	<b>0.30</b>
pH	SU	Intrawell Background Value (UPL)	4.6	5.0	4.6
		Intrawell Background Value (LPL)	3.4	2.9	2.6
		Analytical Result	4.0	3.4	<b>4.8</b>
Sulfate	mg/L	Interwell Background Value (UPL)	24.7		
		Analytical Result	<b>281</b>	<b>73.2</b>	<b>59.7</b>
Total Dissolved Solids	mg/L	Interwell Background Value (UPL)	168		
		Analytical Result	<b>510</b>	<b>260</b>	<b>190</b>

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 Pirkey East Bottom Ash Pond CCR management area and that the requirements of § 352.931(a) have been met.

David Anthony Miller

Printed Name of Licensed Professional Engineer

*David Anthony Miller*

Signature



112498

License Number

Texas

Licensing State

12.24.2024

Date

**ATTACHMENT B**  
Data Quality Review Memorandum



## Memorandum

Date: December 2, 2024  
To: David Miller (AEP)  
Copies to: Pryce Warren (AEP)  
From: Allison Kreinberg (Geosyntec)  
Subject: Data Quality Review – Pirkey Power Plant  
September 2024 Sampling Event

---

This memorandum summarizes the findings of a data quality review for groundwater samples collected at the Pirkey Power Plant in Hallsville, Texas in September 2024. The groundwater samples were collected to comply with the Texas Commission on Environmental Quality’s (TCEQ’s) regulations regarding the disposal of coal combustion residuals (CCRs) in landfills and surface impoundments (Title 30 Chapter 352, “CCR Rule”). 40 CFR 257 Appendix III and IV constituents were analyzed.

The following sample data groups (SDGs) were associated with the groundwater samples collected during the September 2024 sampling event and are reviewed in this memorandum:

- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 242807
- Dolan Chemical Laboratory (Groveport, Ohio) Job ID # 242840

The data included in these SDGs were reviewed to assess if they met the objectives outlined in TCEQ Draft Technical Guideline No. 32<sup>1</sup> prior to submittal of this data to TCEQ. Only data quality issues which affected data used for compliance with the CCR Rule are discussed herein (i.e., issues associated with filtered samples or additional parameters beyond those included in 40 CFR 257 Appendix III and IV are not discussed).

The following data quality issues were identified:

---

<sup>1</sup> TCEQ. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action: Technical Guidance No. 32. May 2020.

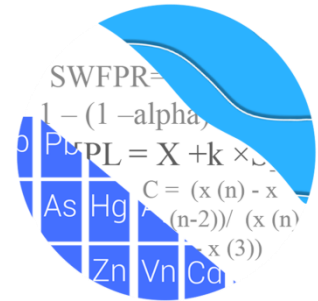
- As reported in SDG 242840, chromium and lithium were detected in the field blank sample “Field Blank” collected on 9/17/24. The detected estimated (J-flagged) chromium concentration in the field blank (0.23 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias in the chromium results for all groundwater samples.
- As reported in SDG 242840, chromium was detected in the equipment blank sample “Equipment Blank” collected on 9/17/24. The detected estimated (J-flagged) chromium concentration in the equipment blank (0.22 µg/L) was more than 10% of the detected values for chromium in all groundwater samples, which could result in high bias in the chromium results for all groundwater samples.
- As reported in SDG 242840, the relative percent difference (RPD) for chromium concentrations from parent sample “AD-22” and duplicate sample “Duplicate 1” was 22%. The RPD for lead concentrations from AD-22 and Duplicate was 32%. The AD-22 results for chromium, and lead should be considered estimated.
- As reported in SDG 242840, Radium-228 was detected in the method blank (MB) above the UCL of 0.95 pCi/L and the associated samples were flagged B1: analyte detected in the MB at or above the method criteria. The associated results should be considered estimated.
- As reported in SDG 242840, laboratory control spike (LCS) recovery for Radium-228 (136%) was above the acceptable limit of 125%. The associated sample (AD-31) was flagged L1: the associated LCS or laboratory control spike duplicate (LCS D) recovery was outside acceptance limits. Insufficient sample was provided for radium duplicates, and AD-31 was flagged O2: insufficient sample was received to perform the matrix spike (MS) and duplicate analyses with this sample batch. The AD-31 Radium-228 result should be considered estimated.
- As reported in SDG 242840, matrix spike duplicate (MSD) recoveries for calcium (129%) and cobalt (205%) were above the acceptable limit of 125%, and MSD recovery for lithium (66.1%) was below the acceptable limit of 75%. The associated sample (AD-22) was flagged M1: the associated MS or MSD recovery was outside acceptance limits. The AD-22 calcium, cobalt, and lithium results should be considered estimated.

Based on these findings, the majority of the data reported in these SDGs are considered accurate and complete. Although the QC failures mentioned above will result in some limitations of data use since the affected results are considered estimated or have elevated reporting limits, the data are considered usable for supporting project objectives.

# ATTACHMENT C

## Statistical Analysis Output

## GROUNDWATER STATS CONSULTING



December 11, 2024

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

Re: Pirkey EBAP - Assessment Monitoring Event & Background Update 2024

Dear Ms. Kreinberg,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the evaluation of groundwater data and the background update through 2024 for American Electric Power Company's Pirkey EBAP. The analysis complies with the Texas Commission of Environmental Quality rule 30 TAC 352 as well as with the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling at each of the wells below began at Pirkey EBAP for the Coal Combustion Residuals (CCR) program in 2016. The monitoring well network, as provided by Geosyntec Consultants, consists of the following:

- **Upgradient wells:** AD-4, AD-12, and AD-18
- **Downgradient wells:** AD-2, AD-31, and AD-32

Data were sent electronically, and 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 analysis was conducted according to the Statistical Analysis Plan and initial screening evaluation prepared in November 2017 by GSC and approved by Dr. Kirk Cameron, PhD Statistician with MacStat Consulting, primary author of the USEPA Unified Guidance, and Senior Advisor to GSC.

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

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

Time series and box plots for Appendix III and IV parameters are provided for all wells and constituents, and are used to evaluate concentrations over the entire record (Figures A & B, respectively). A summary of the values identified as outliers in this report and through previous screenings follows this letter. These values are deselected prior to the statistical analysis. All flagged values may also be seen in a lighter font and disconnected symbol on the time series graphs (Figure C).

For all constituents, a substitution of the most recent reporting limit is used for non-detect data and this generally gives the most conservative limit in each case. For interwell prediction and tolerance limits, a single reporting limit substitution is used across upgradient wells for a given parameter. In some cases, the reporting limit provided by the laboratory contains varying limits for a given parameter; therefore, the substitution may differ from well to well. Reporting limit changes may occur depending on laboratory capabilities and, in the case of fluoride and lead, elevated historic reporting limits were replaced by the most recent laboratory reporting limits of 0.06 mg/L and 0.0002 mg/L, respectively, which were substituted across all non-detects for all wells.

In earlier analyses, data at all wells were evaluated for the following: 1) outliers; 2) trends; 3) most appropriate statistical method for Appendix III parameters based on site characteristics of groundwater data upgradient of the facility; and 4) eligibility of downgradient wells when intrawell statistical methods are recommended. Power curves were provided during the initial background screening and demonstrated that the selected statistical methods for Appendix III parameters comply with the USEPA Unified Guidance recommendations as discussed below. During this analysis, data were screened through April 2024 to update intrawell prediction limits for pH and through September 2024 to update interwell prediction limits for all other Appendix III parameters and interwell upper tolerance limits for Appendix IV parameters.

## Summary of Statistical Methods, Appendix III:

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

- Intrawell prediction limits, combined with a 1-of-2 resample plan for pH
- Interwell prediction limits, combined with a 1-of-2 resample plan for boron, calcium, chloride, fluoride, 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 false positive rate associated with the parametric limits is based on an annual 10% (5% per semi-annual event) as recommended by the EPA Unified Guidance (2009), the false positive rate associated with the nonparametric limits is dependent 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.

- 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. 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 current groundwater quality. In the interwell case, prediction limits are updated with upgradient well data

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

## **Appendix III Parameters Background Update and Evaluation**

### **Fall 2022 & Fall 2023**

Proposed background data were originally screened during December 2017. Prior to updating background data sets during the Fall 2022 analysis, pH (which is evaluated using intrawell methods) at all wells and during the Fall 2023 analysis, boron, calcium, chloride, fluoride, sulfate, and TDS (which are evaluated using interwell methods) at upgradient wells were re-evaluated using Tukey's outlier test and visual screening. Tukey's Outlier test did not identify any additional statistical outliers.

The Mann-Whitney (Wilcoxon Rank Sum) test was used to compare the medians of historical data through June 2020 to the new compliance samples at each well through June 2022 to evaluate whether the medians are statistically similar at the 99% confidence level, in which case background data may be updated with compliance data. No statistically significant differences were identified; therefore, all records were updated with compliance data.

The Sen's Slope/Mann Kendall trend test was used to evaluate data at upgradient wells for boron, calcium, chloride, fluoride, sulfate and TDS, which are tested using interwell prediction limits, to identify statistically significant increasing or decreasing trends. The statistically significant decreasing trend noted for fluoride in well AD-12 resulted from elevated reporting limits early in the record with no detections reported above the practical quantitation limit. No other statistically significant increasing or decreasing trends were noted. The results of the trend analyses showed all remaining data were consistent over time.

### **Fall 2024**

#### Outlier Analysis

Prior to updating interwell prediction limits for the Fall 2024 analysis, data were evaluated using Tukey's outlier test and visual screening on pooled upgradient well data through

September 2024 for boron, calcium, chloride, fluoride, sulfate, and TDS. Results of the outlier tests follow this report (Figure C), showing that Tukey's outlier test on pooled upgradient well data identified significant values for fluoride. However, no values among upgradient wells for fluoride were flagged as outliers since all identified observations were low-level concentrations. Visual screening confirmed a previously flagged value for TDS at upgradient well AD-12 since this observation was at least an order of magnitude lower than existing concentrations. Although calcium and fluoride are tested using interwell methods, previously identified elevated observations for calcium at downgradient well AD-31 and fluoride at downgradient well AD-32 remain flagged as outliers and have no bearing on resulting statistical limits. No changes were made to previously flagged data.

For pH, which uses intrawell prediction limits, data through April 2024 were evaluated using Tukey's outlier test on all wells. Although there are a few low values of pH at multiple wells, none were identified as outliers by Tukey's test and visual screening; therefore, no values for pH are flagged as outliers.

#### Intrawell – Mann-Whitney Test

For pH, 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 medians are statistically different at the 99% confidence level. If no significant difference is found, background data may be updated with compliance data (Figure D). No statistically significant differences were identified; therefore, all records were updated with compliance data. A summary of the Mann-Whitney results follows this report.

#### Intrawell – Prediction Limits

Intrawell prediction limits using all historical data through April 2024 combined with a 1-of-2 resample plan, were constructed for pH, and a summary of the limits follows this letter (Figure E). No comparison of the September 2024 compliance data was made in this analysis.

#### Interwell – Trend Test Evaluation

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



Increasing

- None

Decreasing

- Boron: AD-12 and AD-4
- Chloride: AD-18
- Sulfate: AD-12

For the well/constituent pairs with significant trends, concentrations were similar to those at other upgradient wells; therefore, no adjustments were required at this time. All data from upgradient wells were used to construct interwell prediction limits for boron, calcium, chloride, fluoride, sulfate, and TDS.

#### Interwell – Prediction Limits

Interwell prediction limits, combined with a 1-of-2 resample plan, were updated using all available data through September 2024 from upgradient wells for the constituents listed above (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. A summary table of the updated limits may be found following this letter in the Prediction Limit Summary Table. No comparison of the September 2024 compliance data was made in this analysis.

#### **Evaluation of Appendix IV Parameters – Fall 2024**

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

For the current analysis, Tukey's outlier test on pooled upgradient well data through September 2024 identified values for fluoride and thallium as shown in the Tukey's Outlier Test Results table. However, none of those currently identified values were flagged as all identified observations were low-level concentrations and were below the respective MCL. Visual screening confirmed previously flagged non-detects observations from 2019 with elevated reporting limits for molybdenum and thallium in both upgradient and downgradient wells. These elevated reporting limits are more than an order of magnitude higher than the current reporting limits.

Additionally, downgradient well data through September 2024 were screened through visual screening using time series graphs. Since the downgradient well data are used to construct confidence intervals, values that are marginally high relative to the rest of the

data are retained unless there is particular justification for excluding them. Several observations among the 2016 events for multiple Appendix IV constituents among downgradient wells AD-2, AD-31, and AD-32 remain flagged as outliers since the measurements were inconsistent with remaining concentrations. As mentioned above, an elevated fluoride observation in 2018 at downgradient well AD-32 remains flagged. The flagged non-detect observations with elevated reporting limits from 2019 for molybdenum and thallium were discussed above. No changes were made to previously flagged data.

### Interwell Upper Tolerance Limits

Interwell upper tolerance limits were used to calculate background limits from all available pooled upgradient well data through September 2024 for Appendix IV parameters to determine the background limit for each constituent (Figure H). For parametric limits a target of 95% confidence and 95% coverage is used. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

### Groundwater Protection Standards

Background limits were compared to the Maximum Contaminant Levels (MCLs) 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 then constructed on downgradient wells with data through September 2024 for each of the Appendix IV parameters using either parametric or nonparametric intervals depending on the data distribution and percentage of non-detects (Figure J). When data followed a normal or transformed-normal distribution, parametric confidence intervals were constructed for Appendix IV parameters. Nonparametric confidence intervals, which use the largest and smallest order statistics depending on the sample size as interval limits, were constructed when data did not follow a normal or transformed-normal distribution or when there were greater than 50% non-detects. The lower confidence limit, which is constructed with 99% confidence for parametric confidence intervals, is compared to the GWPS prepared as described above. The confidence level associated with nonparametric confidence intervals is dependent upon the number samples available. Only when the entire confidence interval is above the GWPS is the well/constituent pair considered to exceed its respective standard.

A change in reported concentrations of more recent data was noted for lithium and cobalt relative to historical concentrations in well AD-2. In order to construct confidence intervals that represent current groundwater quality conditions and eliminate the influence of the trend, earlier concentrations were truncated from these records. A list of well/constituent pairs using truncated records follows this report.

Both a tabular summary and graphical presentation of the confidence interval results follow this letter. Exceedances were noted for the following well/constituent pairs:

- Cobalt: AD-2, AD-31, and AD-32
- Lithium: AD-2, AD-31, and AD-32

#### Trend Test Evaluation – Appendix IV

When confidence interval exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable at the 95% confidence level (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 prediction limit in downgradient wells. When similar patterns exist upgradient of the site, it is an indication of variability in groundwater which may be unrelated to practices at the site. Statistically significant trends were identified for the following well/constituent pairs:

##### Increasing

- Cobalt: AD-2
- Lithium: AD-2

##### Decreasing

- Cobalt: AD-12, AD-18, AD-4 (all upgradient), AD-31, and AD-32
- Lithium: AD-12, AD-18 (both upgradient), AD-31, and AD-32

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

For Groundwater Stats Consulting,

Handwritten signature of Abdul Diane in black ink.

Abdul Diane  
Groundwater Analyst

Handwritten signature of Andrew T. Collins in black ink.

Andrew T. Collins  
Project Manager

# Date Ranges

Date: 12/4/2024 10:11 AM

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

---

Cobalt, total (mg/L)

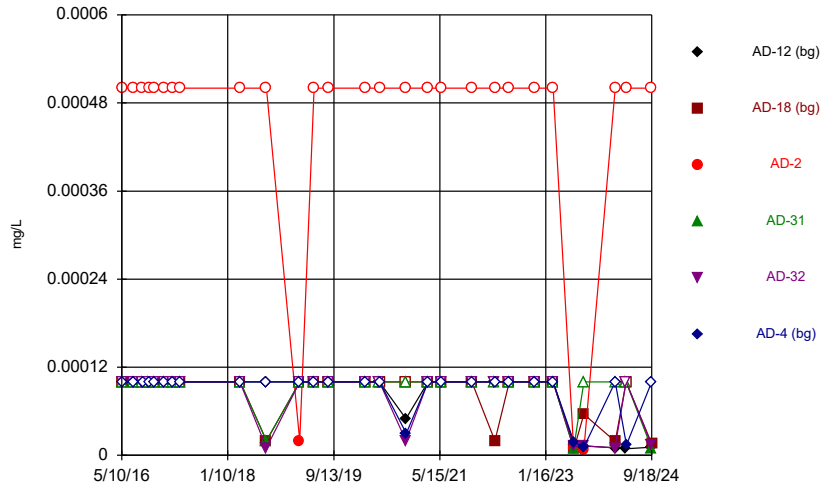
AD-2 overall:3/29/2022-9/17/2024

Lithium, total (mg/L)

AD-2 overall:3/29/2022-9/17/2024

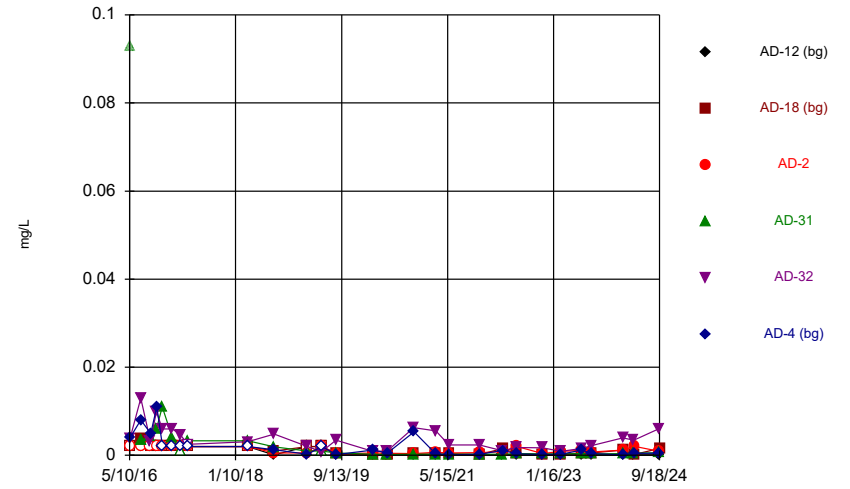
FIGURE A  
Time Series

### Time Series



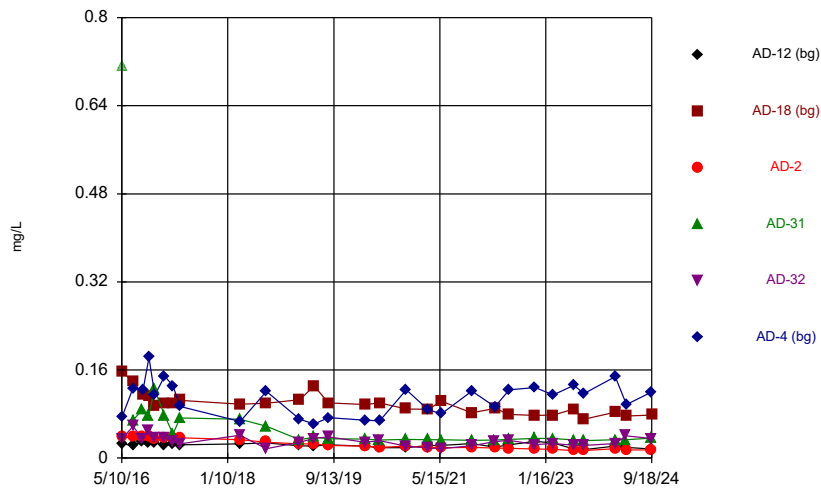
Constituent: Antimony, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



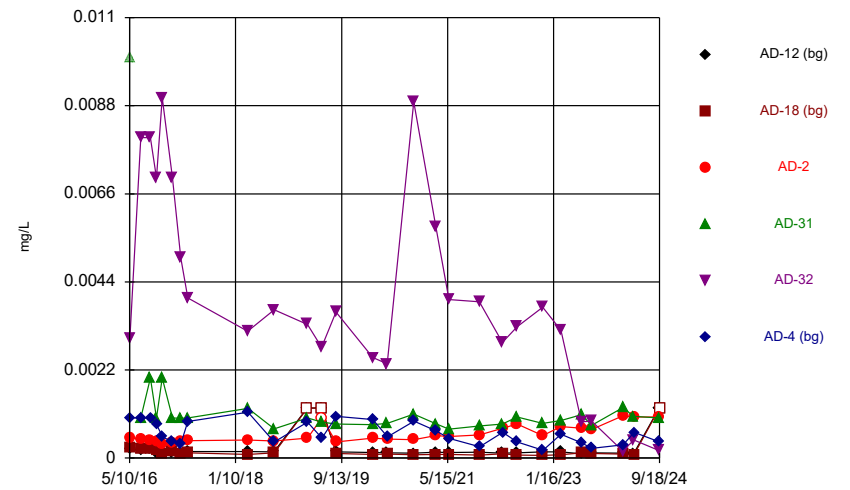
Constituent: Arsenic, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



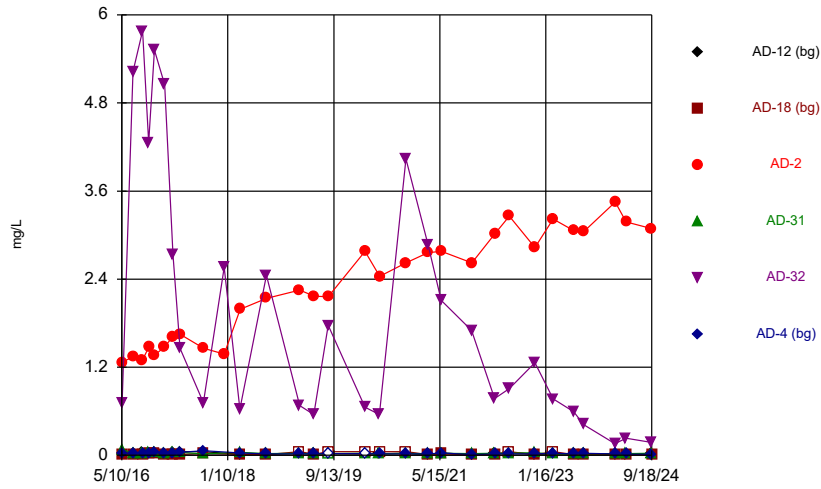
Constituent: Barium, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



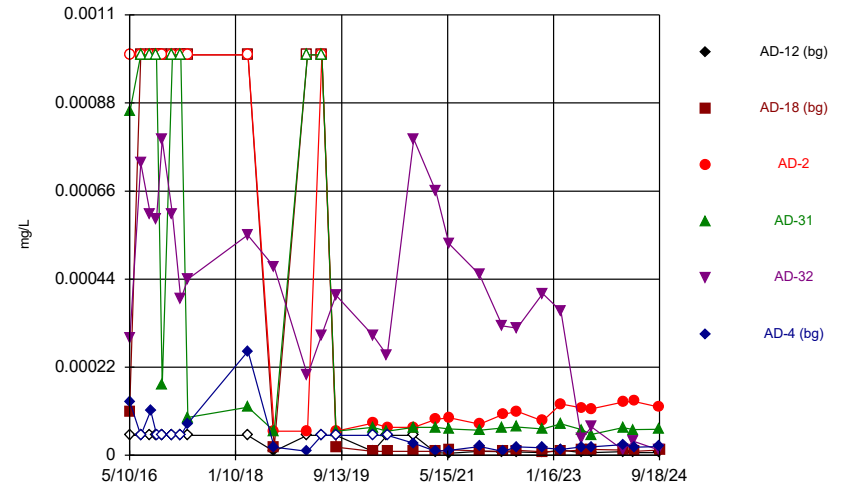
Constituent: Beryllium, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



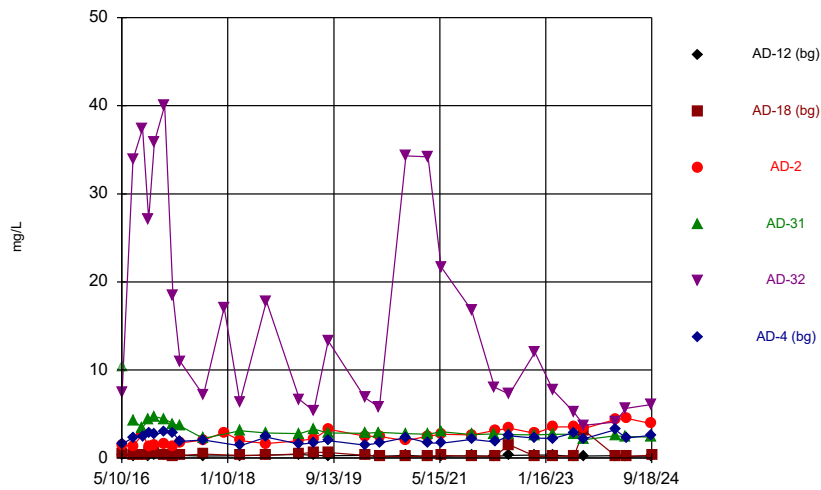
Constituent: Boron, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



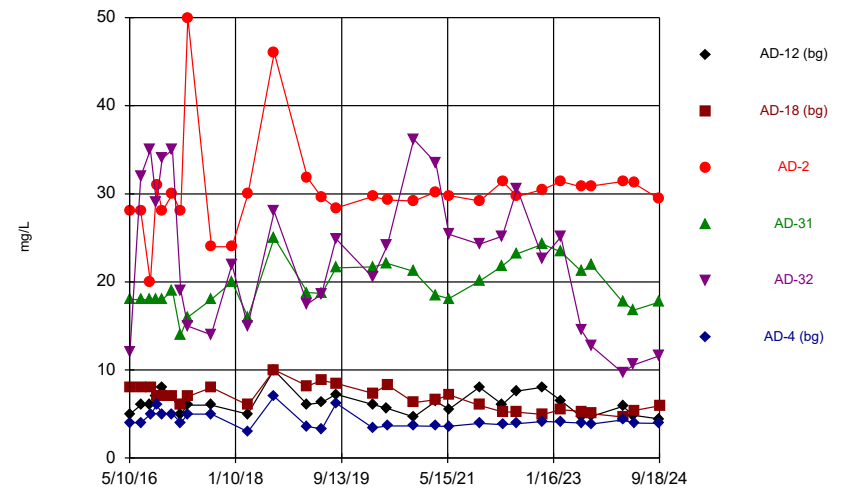
Constituent: Cadmium, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



Constituent: Calcium, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

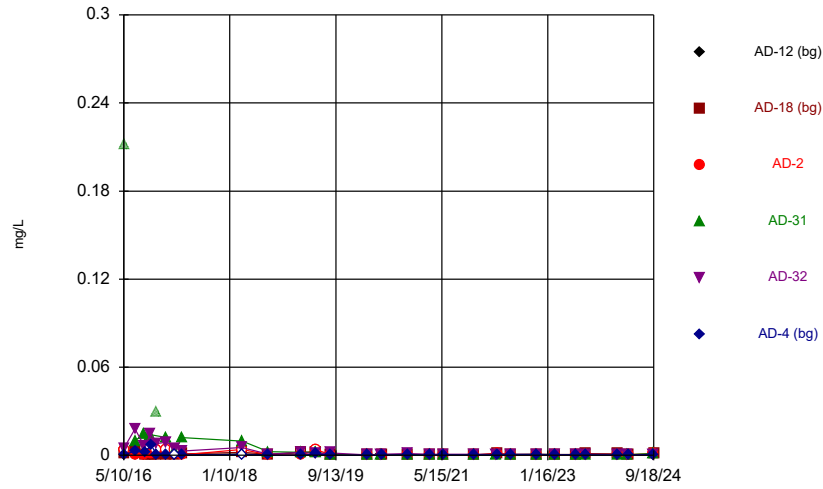
### Time Series



Constituent: Chloride, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

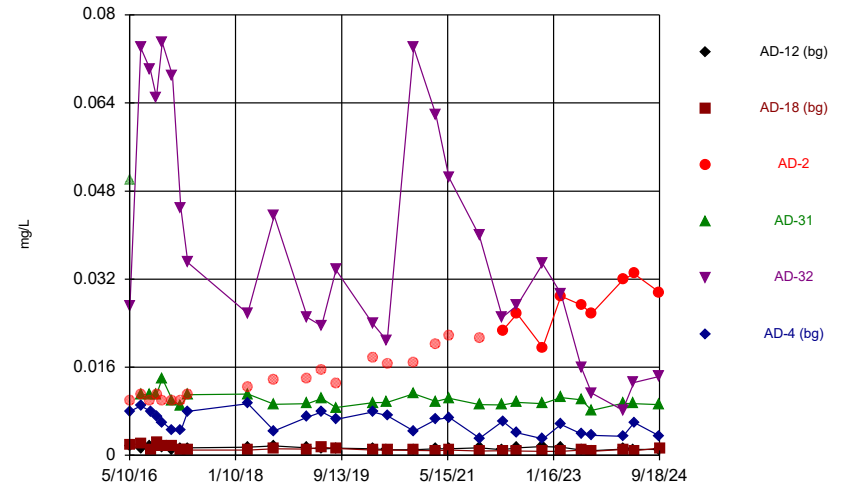


### Time Series



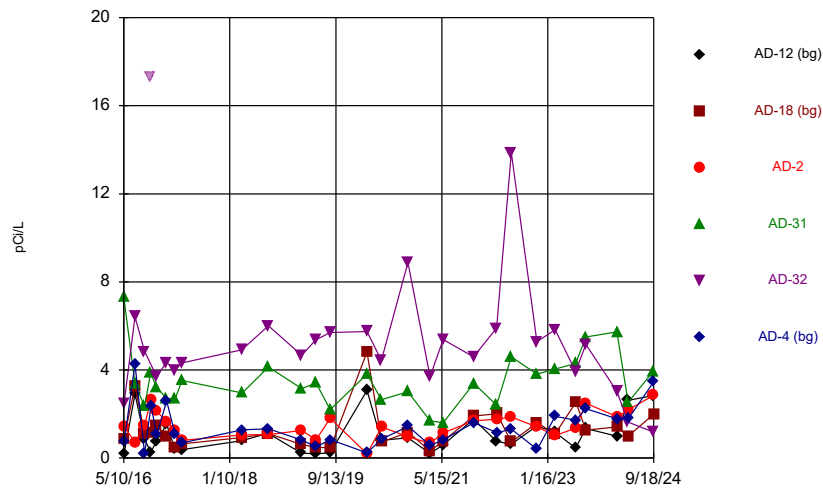
Constituent: Chromium, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



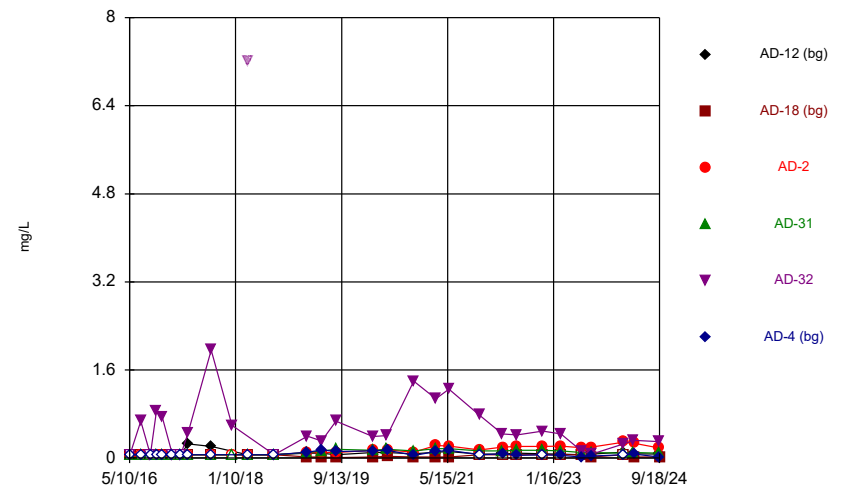
Constituent: Cobalt, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



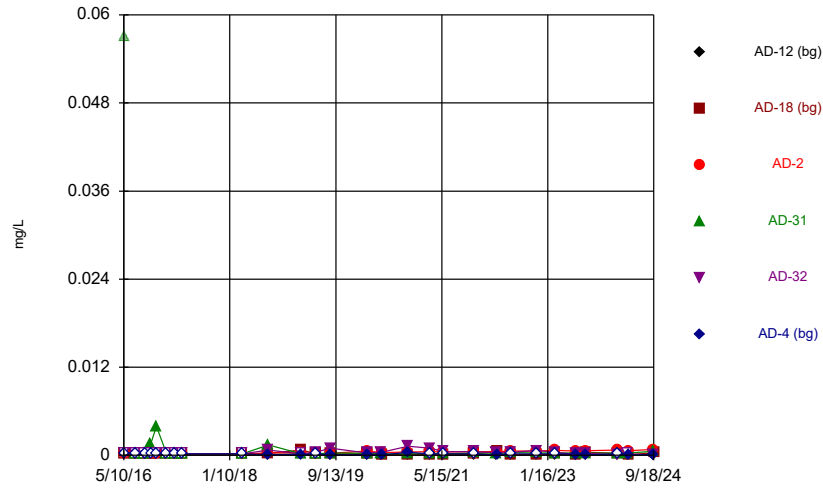
Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



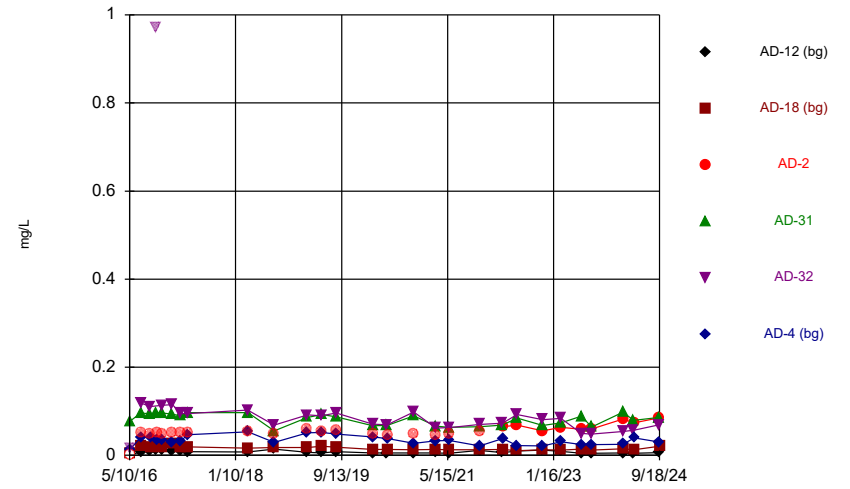
Constituent: Fluoride, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



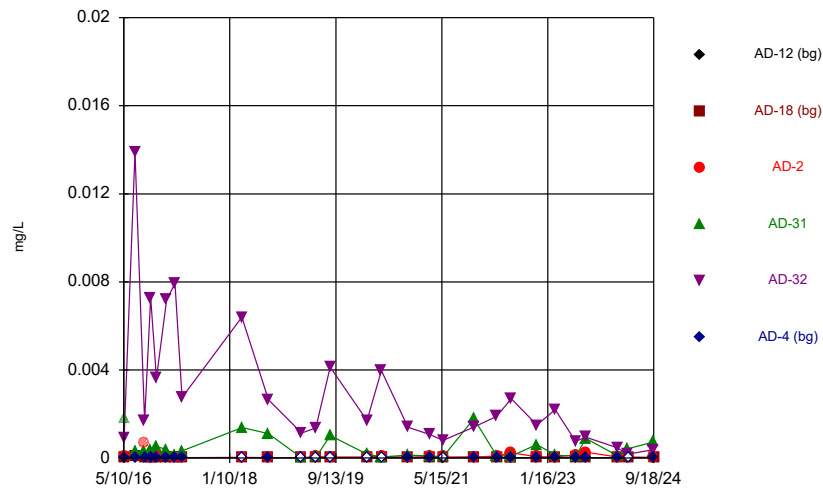
Constituent: Lead, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



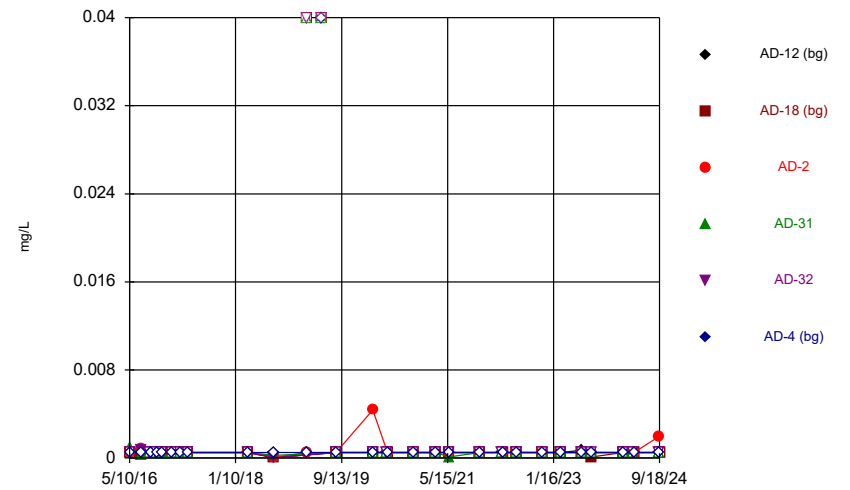
Constituent: Lithium, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



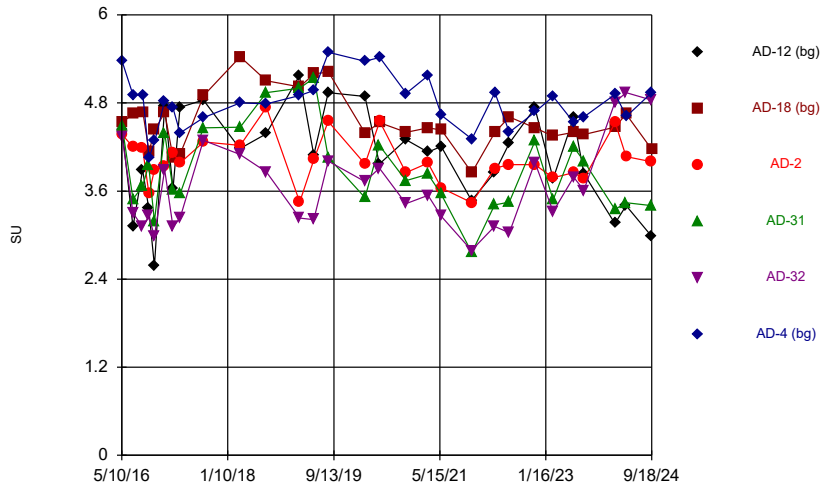
Constituent: Mercury, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



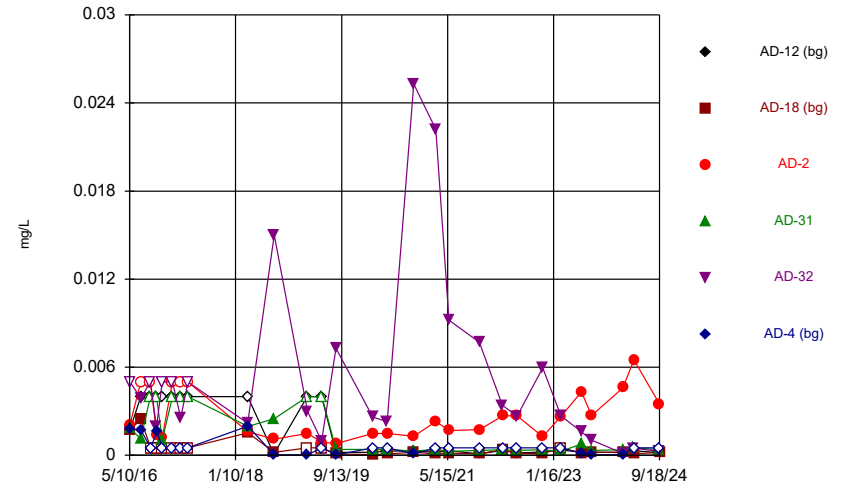
Constituent: Molybdenum, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



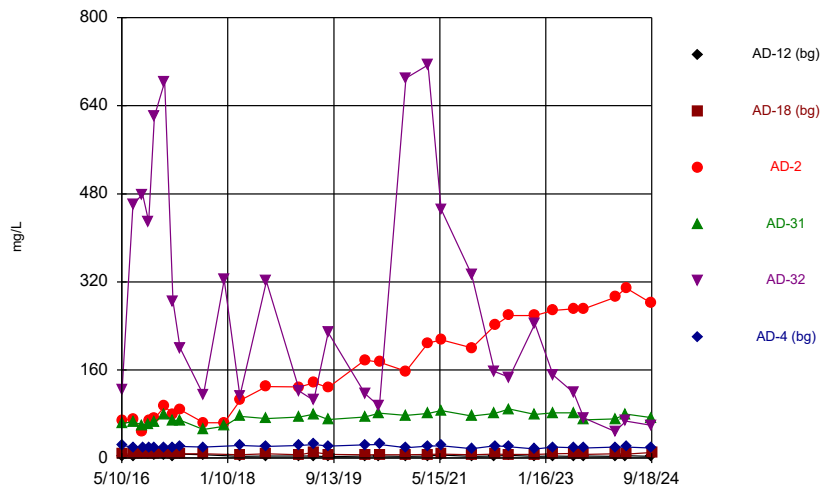
Constituent: pH, field Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



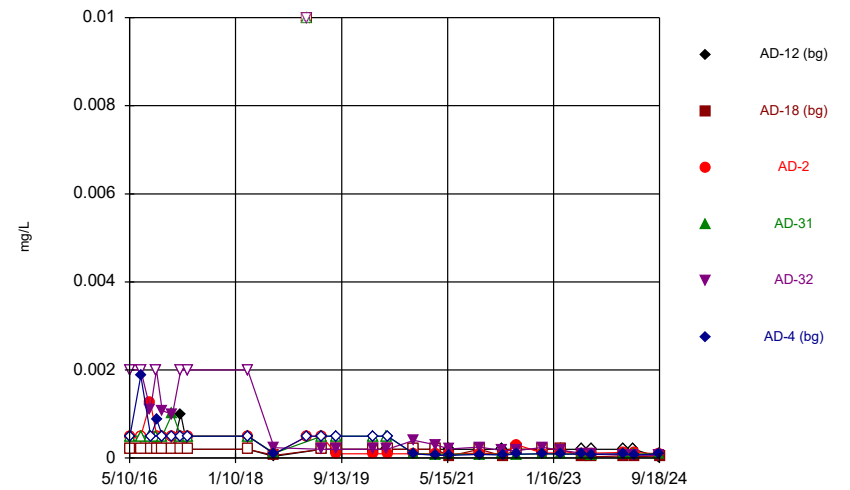
Constituent: Selenium, total Analysis Run 12/11/2024 9:29 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



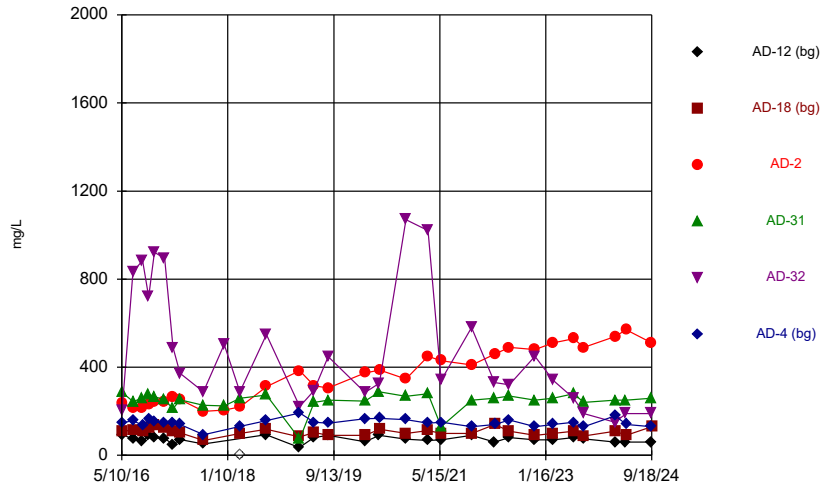
Constituent: Sulfate, total Analysis Run 12/11/2024 9:30 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series



Constituent: Thallium, total Analysis Run 12/11/2024 9:30 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Time Series

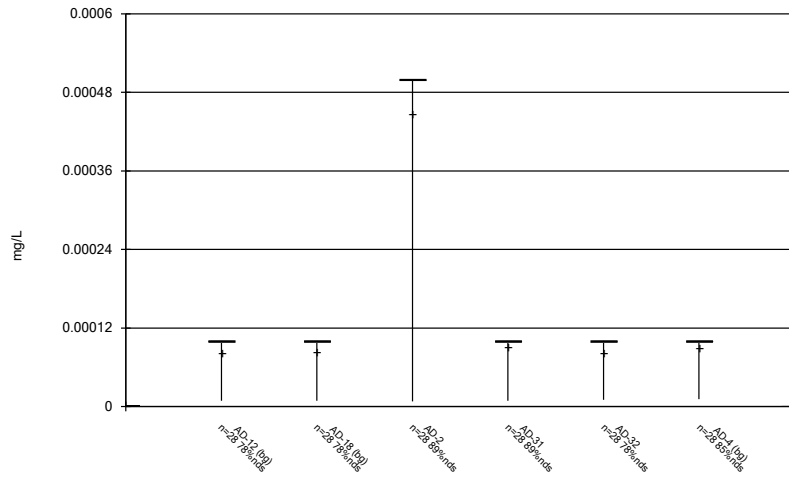


Constituent: Total Dissolved Solids Analysis Run 12/11/2024 9:30 AM

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

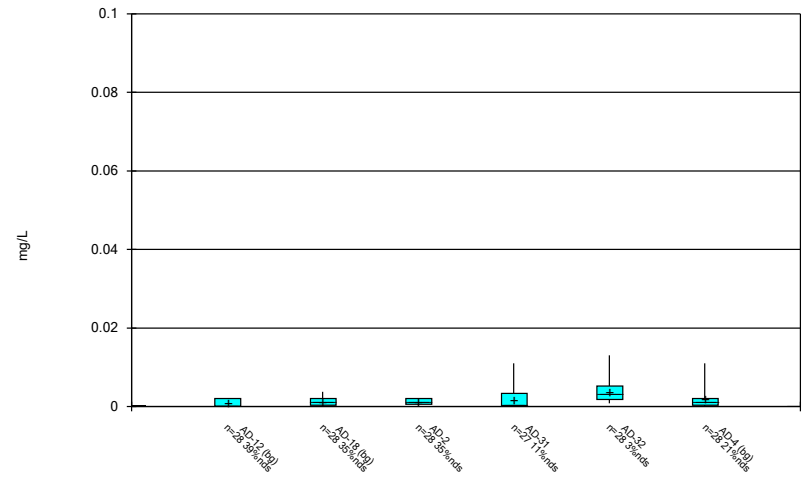
FIGURE B  
Box Plots

### Box & Whiskers Plot



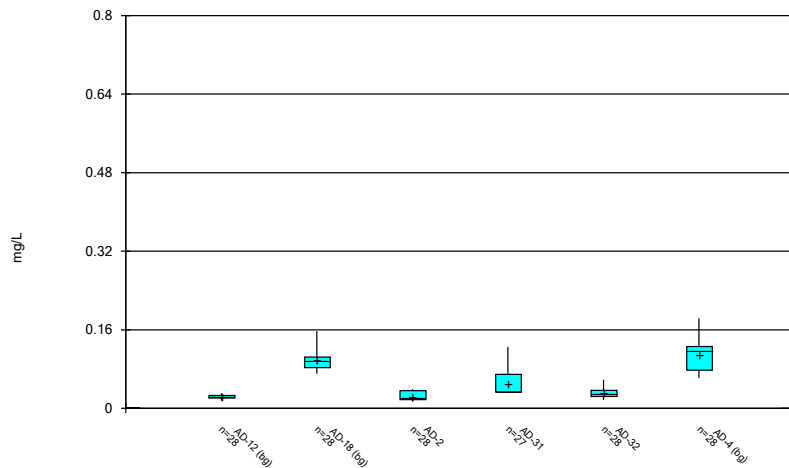
Constituent: Antimony, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



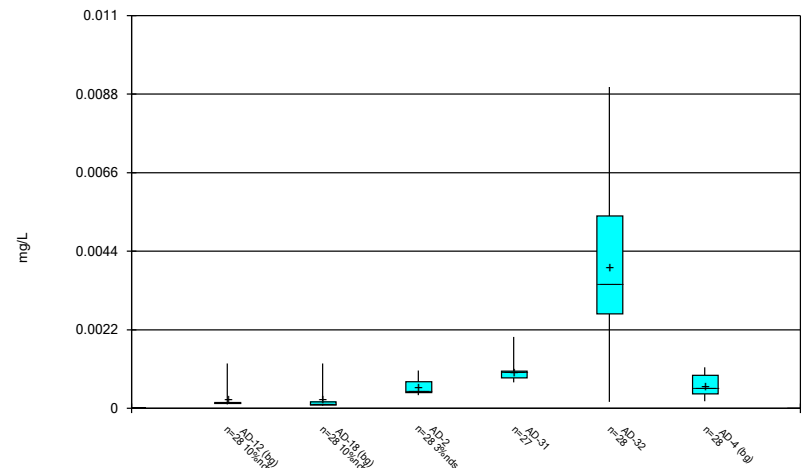
Constituent: Arsenic, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



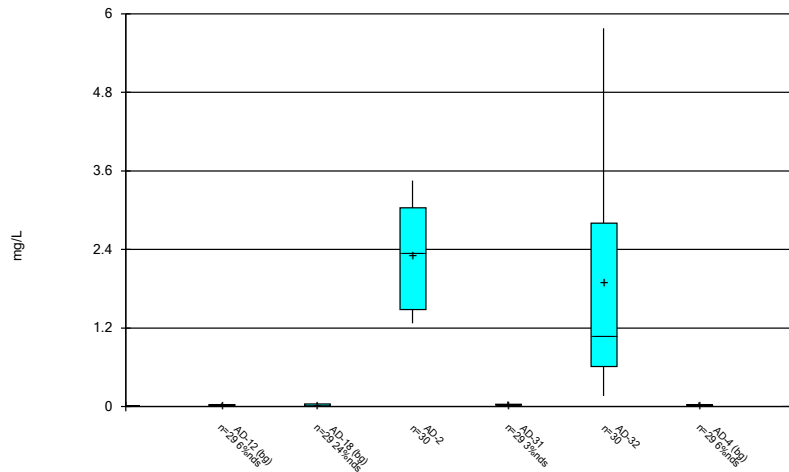
Constituent: Barium, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



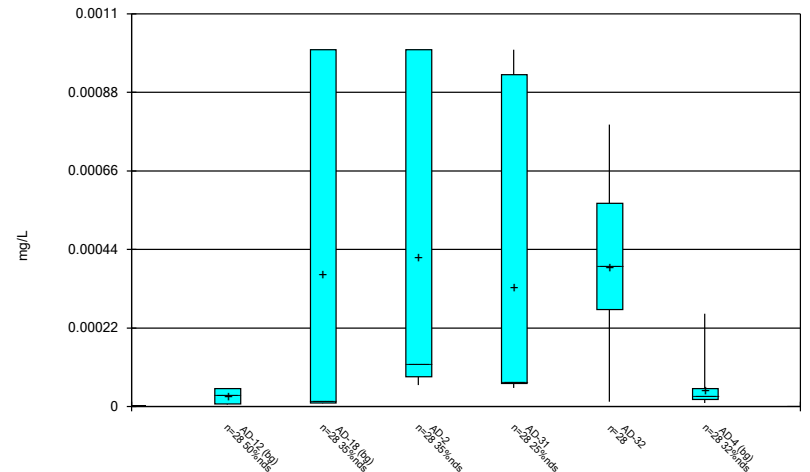
Constituent: Beryllium, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



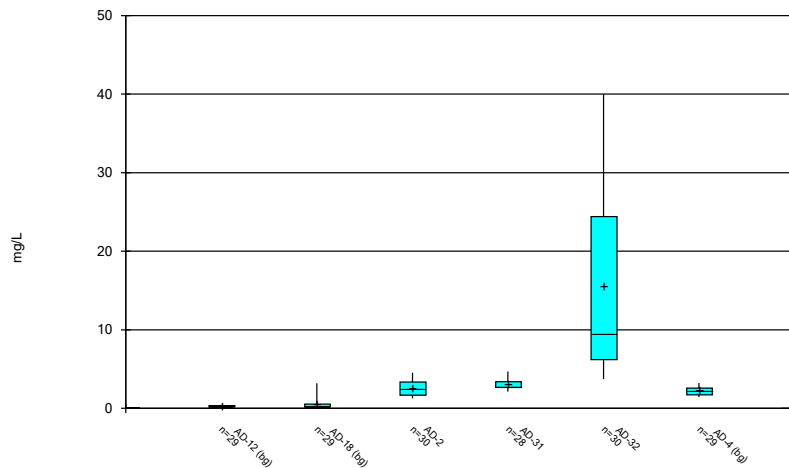
Constituent: Boron, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



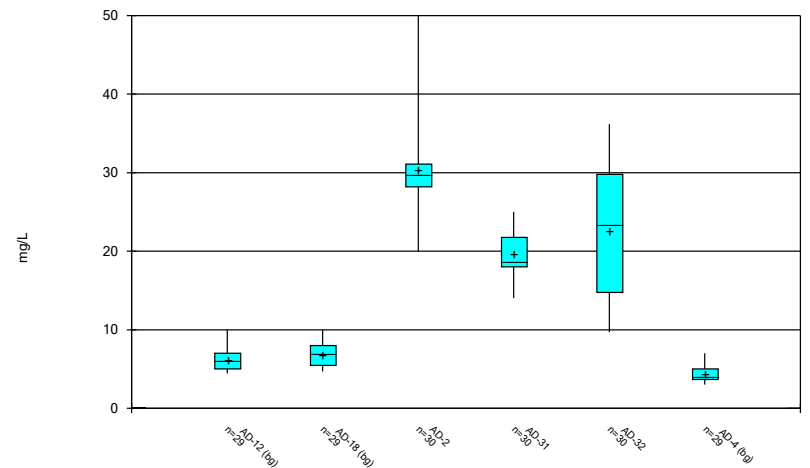
Constituent: Cadmium, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



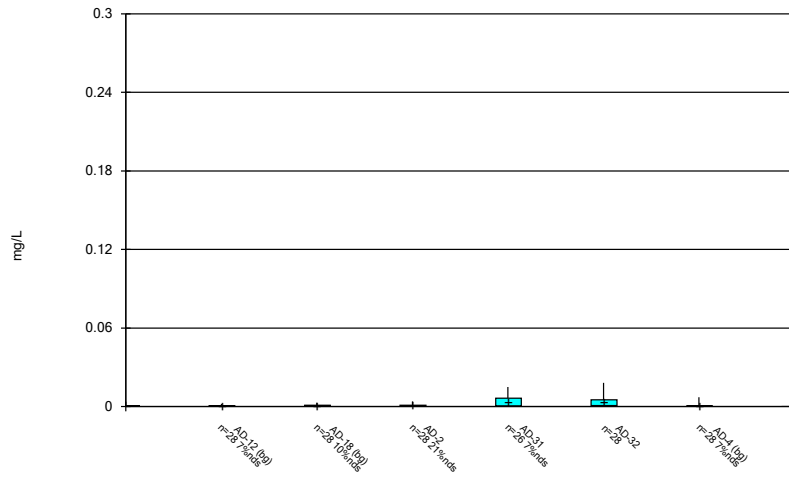
Constituent: Calcium, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



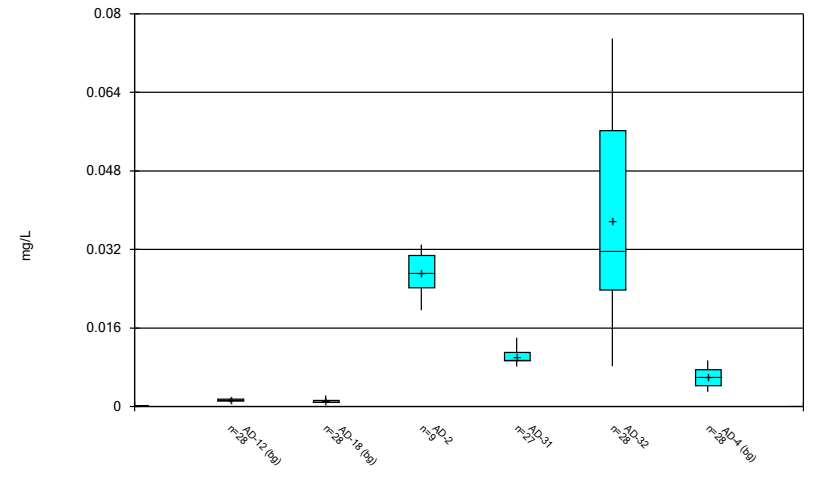
Constituent: Chloride, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



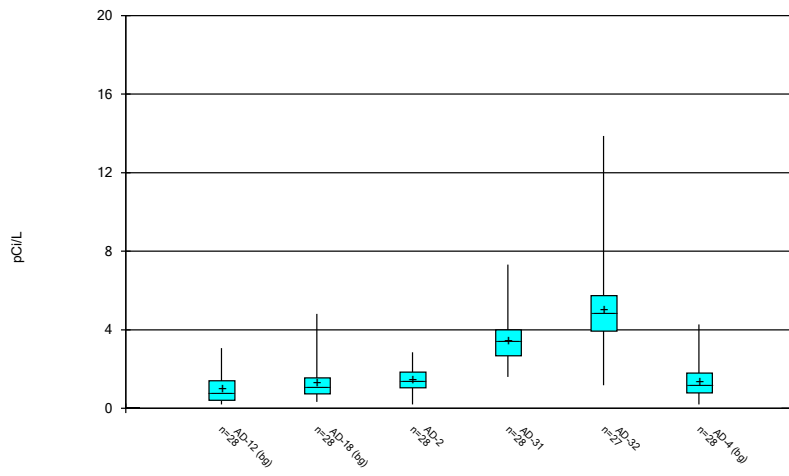
Constituent: Chromium, total Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



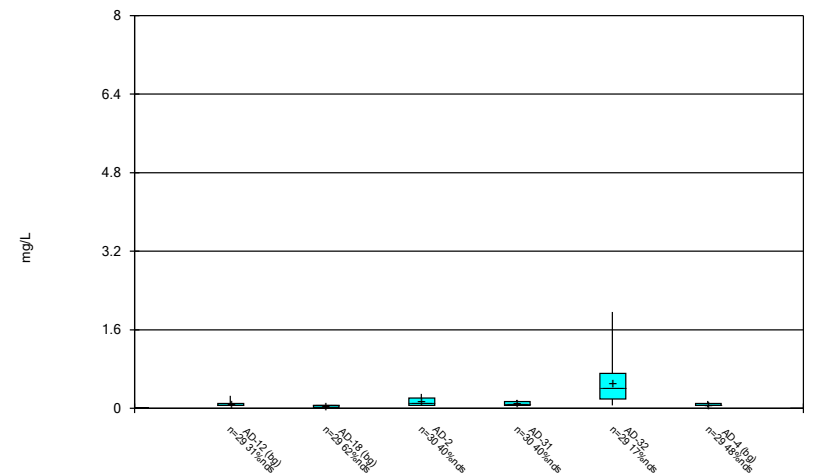
Constituent: Cobalt, total Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

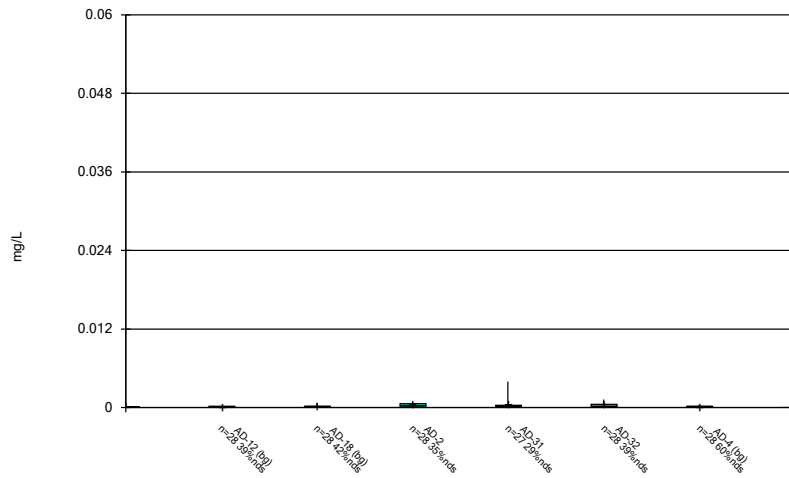
Box & Whiskers Plot



Constituent: Fluoride, total Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

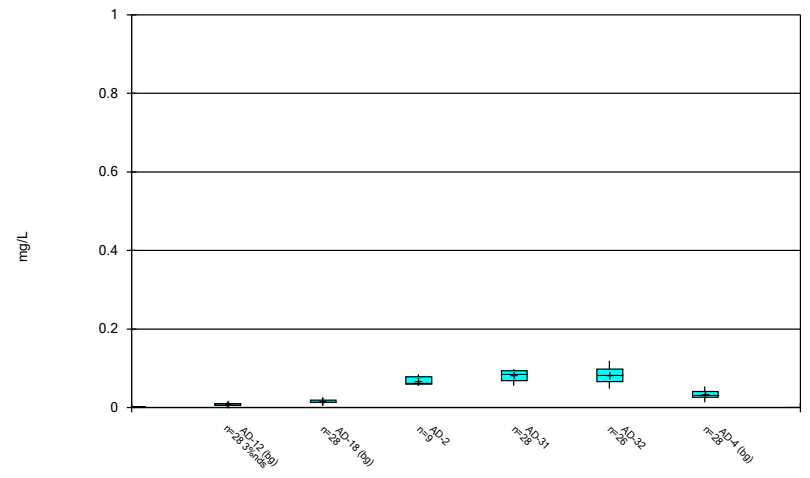


Box & Whiskers Plot



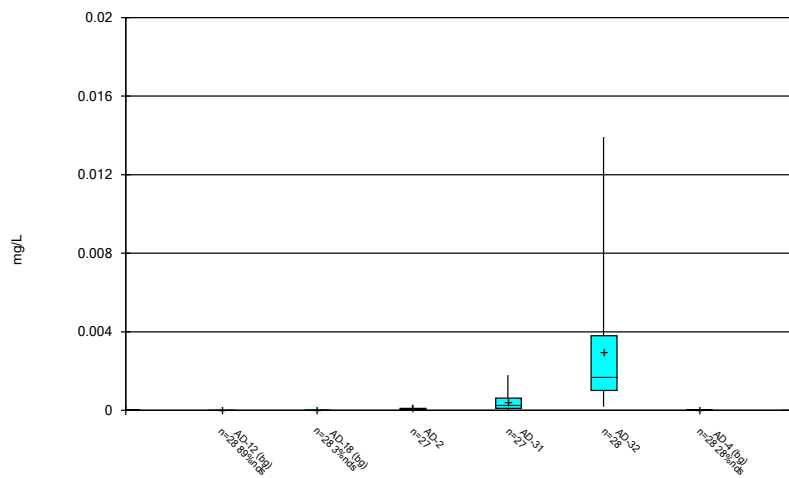
Constituent: Lead, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



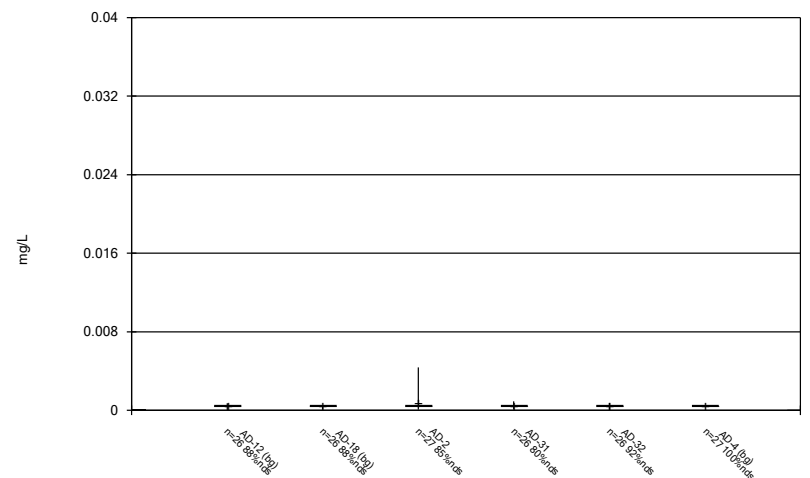
Constituent: Lithium, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



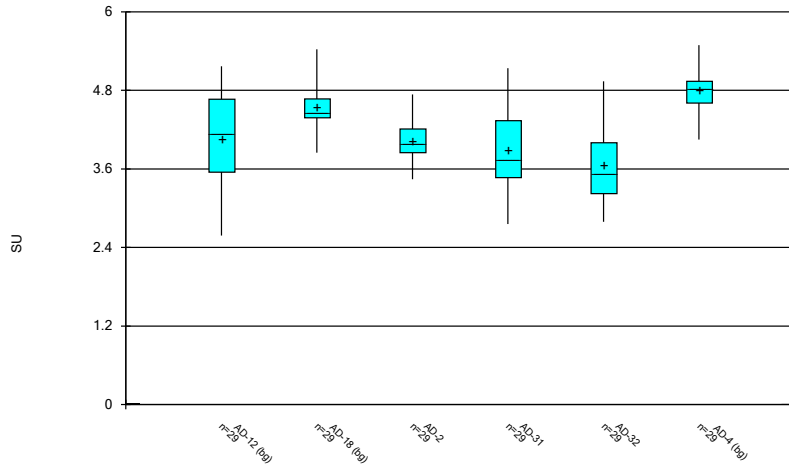
Constituent: Mercury, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



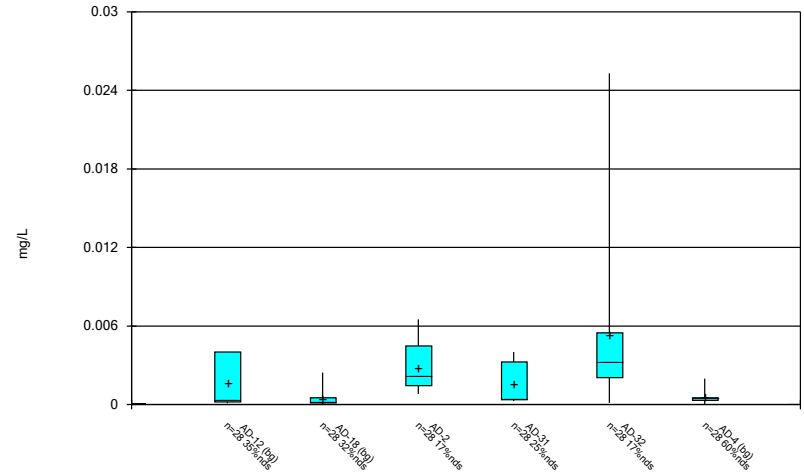
Constituent: Molybdenum, total Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



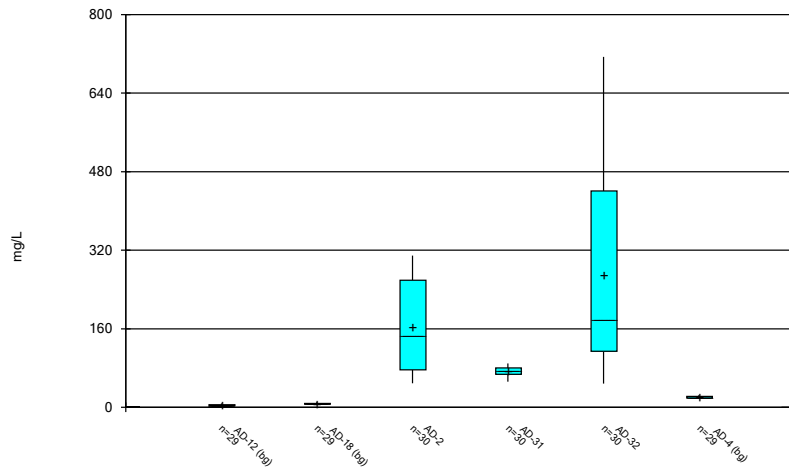
Constituent: pH, field Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



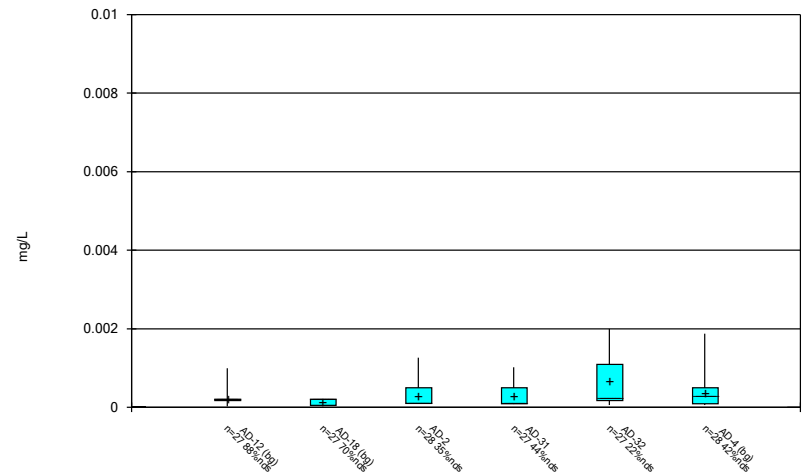
Constituent: Selenium, total Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



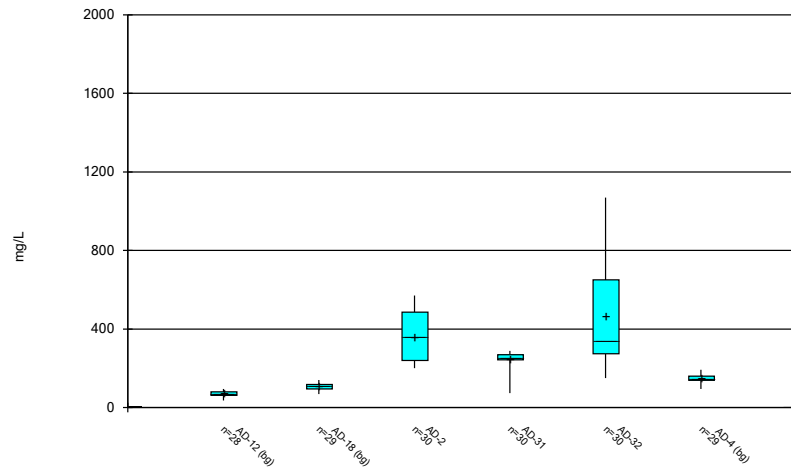
Constituent: Sulfate, total Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Box & Whiskers Plot



Constituent: Thallium, total Analysis Run 12/11/2024 9:32 AM  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 12/11/2024 9:32 AM  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

## FIGURE C

Outlier Summary and Tukey's Outlier Test

# Outlier Summary

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/27/2024, 1:42 PM

Date	AD-31 Arsenic, total (mg/L)	AD-31 Barium, total (mg/L)	AD-31 Beryllium, total (mg/L)	AD-31 Calcium, total (mg/L)	AD-31 Chromium, total (mg/L)	AD-31 Cobalt, total (mg/L)	AD-32 Combined Radium 226 + 228 (pCi/L)	AD-31 Lead, total (mg/L)	AD-32 Lithium, total (mg/L)
5/11/2016	0.093 (o)	0.712 (o)	0.01 (o)	10.4 (o)	0.212 (o)	0.05 (o)		0.057 (o)	0.016 (o)
9/7/2016									
10/12/2016							17.32 (o)		0.972 (o)
11/14/2016				0.03 (o)					
3/21/2018							7.2 (o)		
2/27/2019									
2/28/2019									
5/21/2019									
5/22/2019									
5/23/2019									

Date	AD-2 Mercury, total (mg/L)	AD-31 Mercury, total (mg/L)	AD-12 Molybdenum, total (mg/L)	AD-18 Molybdenum, total (mg/L)	AD-2 Molybdenum, total (mg/L)	AD-31 Molybdenum, total (mg/L)	AD-32 Molybdenum, total (mg/L)	AD-4 Molybdenum, total (mg/L)	AD-12 Thallium, total (mg/L)	AD-18 Thallium, total (mg/L)
5/11/2016		0.001797 (o)								
9/7/2016	0.000675 (o)									
10/12/2016										
11/14/2016										
3/21/2018										
2/27/2019			<0.04 (o)						<0.01 (o)	
2/28/2019			<0.04 (o)	<0.04 (o)	<0.04 (o)	<0.04 (o)			<0.01 (o)	
5/21/2019			<0.04 (o)			<0.04 (o)				
5/22/2019				<0.04 (o)						
5/23/2019			<0.04 (o)		<0.04 (o)		<0.04 (o)			

Date	AD-31 Thallium, total (mg/L)	AD-32 Thallium, total (mg/L)	AD-12 Total Dissolved Solids (mg/L)
5/11/2016			
9/7/2016			
10/12/2016			
11/14/2016			
3/21/2018			<5 (o)
2/27/2019			
2/28/2019	<0.01 (o)	<0.01 (o)	
5/21/2019			
5/22/2019			
5/23/2019			

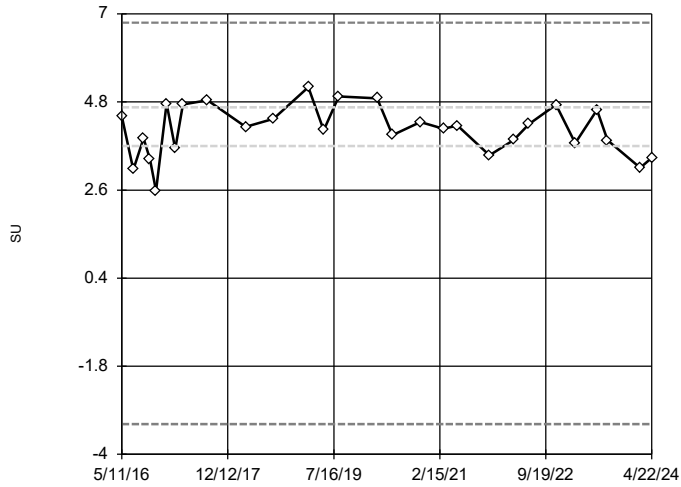
# Tukey's Outlier Analysis - All Results (No Significant)

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/25/2024, 11:12 AM

<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	<u>Value(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Distribution</u>	<u>Normality Test</u>
pH, field (SU)	AD-12 (bg)	No	n/a	NP	NaN	28	4.096	0.6355	x^2	ShapiroWilk
pH, field (SU)	AD-18 (bg)	No	n/a	NP	NaN	28	4.568	0.3679	ln(x)	ShapiroWilk
pH, field (SU)	AD-2	No	n/a	NP	NaN	28	4.027	0.3266	ln(x)	ShapiroWilk
pH, field (SU)	AD-31	No	n/a	NP	NaN	28	3.917	0.5798	ln(x)	ShapiroWilk
pH, field (SU)	AD-32	No	n/a	NP	NaN	28	3.614	0.5467	ln(x)	ShapiroWilk
pH, field (SU)	AD-4 (bg)	No	n/a	NP	NaN	28	4.801	0.3548	ln(x)	ShapiroWilk

### Tukey's Outlier Screening

AD-12 (bg)

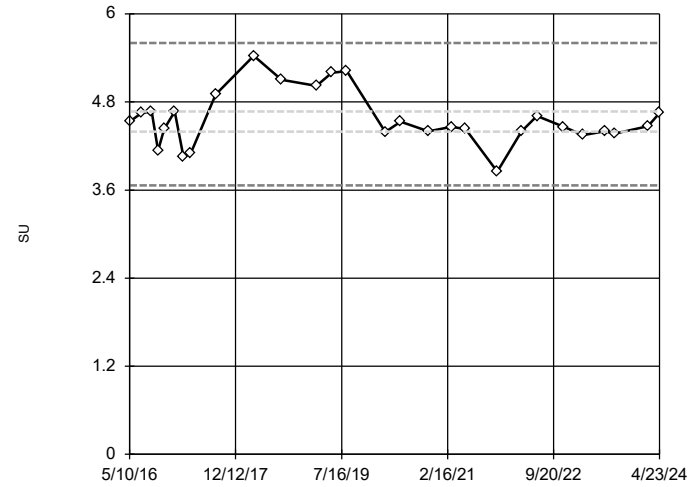


n = 28  
 No outliers found.  
 Tukey's method selected by user.  
 Data were square transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 6.781, low cutoff = -3.243, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 11/25/2024 11:09 AM View: Outliers - pH  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening

AD-18 (bg)

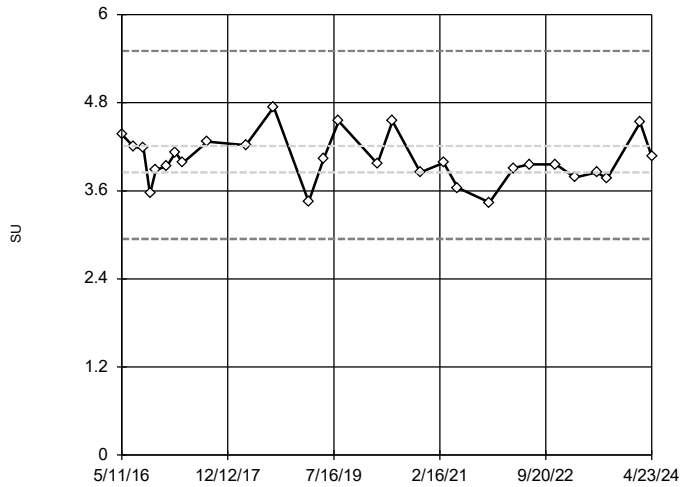


n = 28  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 5.603, low cutoff = 3.663, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 11/25/2024 11:09 AM View: Outliers - pH  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening

AD-2

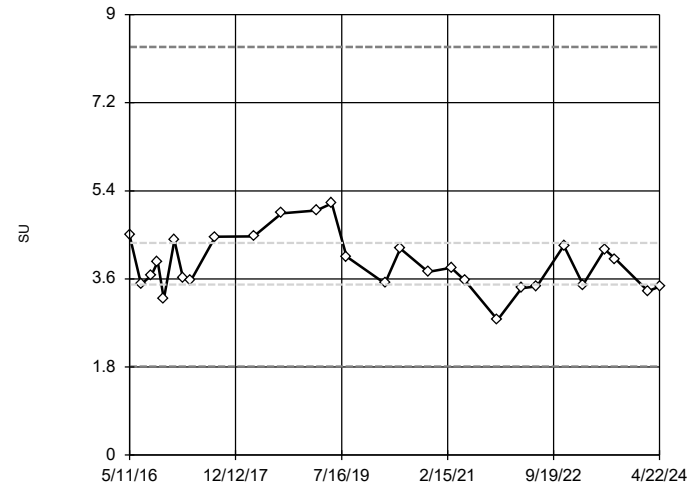


n = 28  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 5.505, low cutoff = 2.944, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 11/25/2024 11:09 AM View: Outliers - pH  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening

AD-31

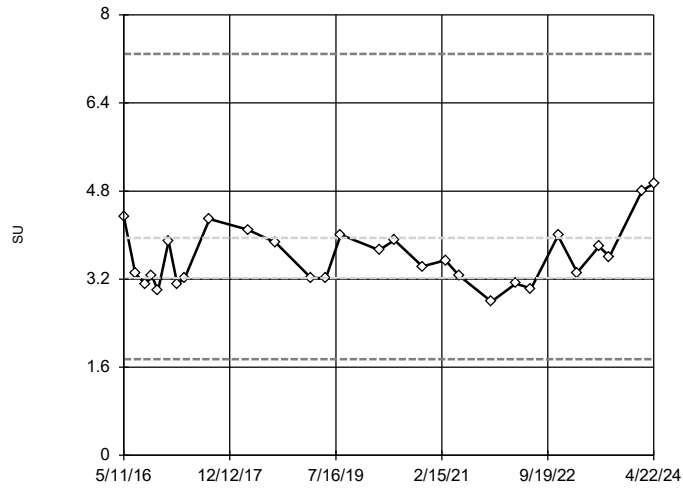


n = 28  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 8.341, low cutoff = 1.811, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 11/25/2024 11:09 AM View: Outliers - pH  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening

AD-32

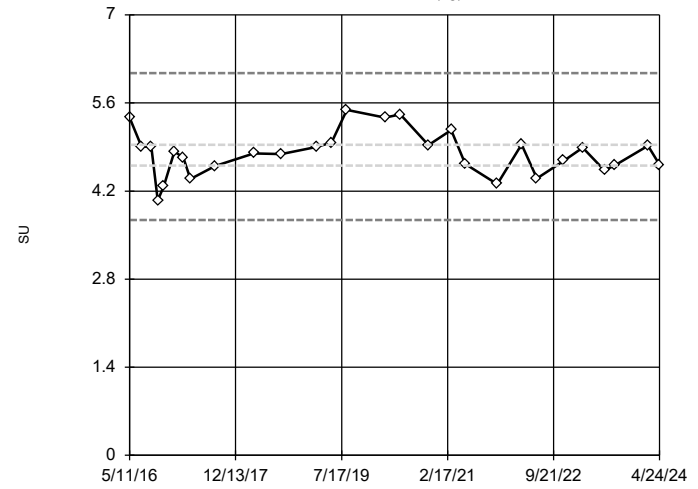


n = 28  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.29, low cutoff = 1.745, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 11/25/2024 11:09 AM View: Outliers - pH  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening

AD-4 (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 = 6.074, low cutoff = 3.742, based on IQR multiplier of 3.

Constituent: pH, field Analysis Run 11/25/2024 11:09 AM View: Outliers - pH  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP



# Tukey's Outlier Test - Upgradient Wells - Significant Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/22/2024, 12:12 PM

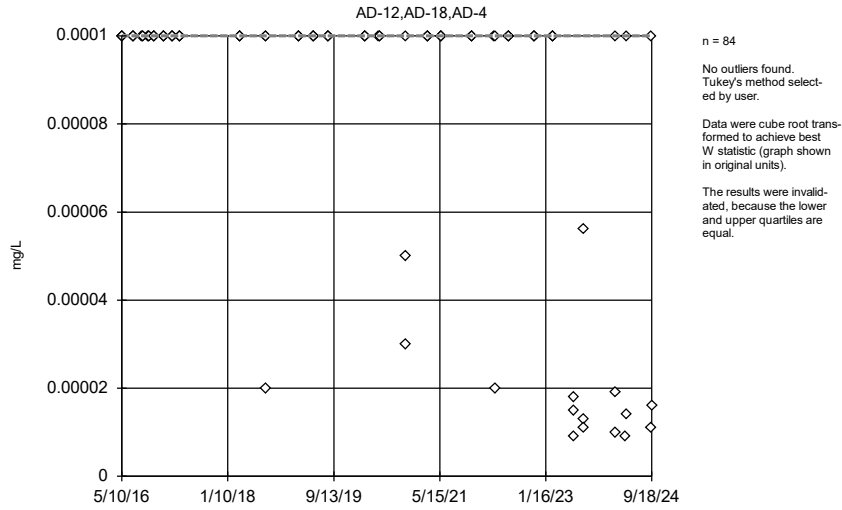
Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Fluoride, total (mg/L)	AD-12,AD-18,AD-4	Yes	0.2565,0.213,0.11,0.11,0.11,0.12,0.12,0.12,0.02,0	NP	NaN	87	0.0685	0.03883	x^(1/3)	ShapiroFrancia
Thallium, total (mg/L)	AD-12,AD-18,AD-4	Yes	0.001874	NP	NaN	84	0.0001993	0.0002281	ln(x)	ShapiroFrancia

# Tukey's Outlier Test - Upgradient Wells - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/22/2024, 12:12 PM

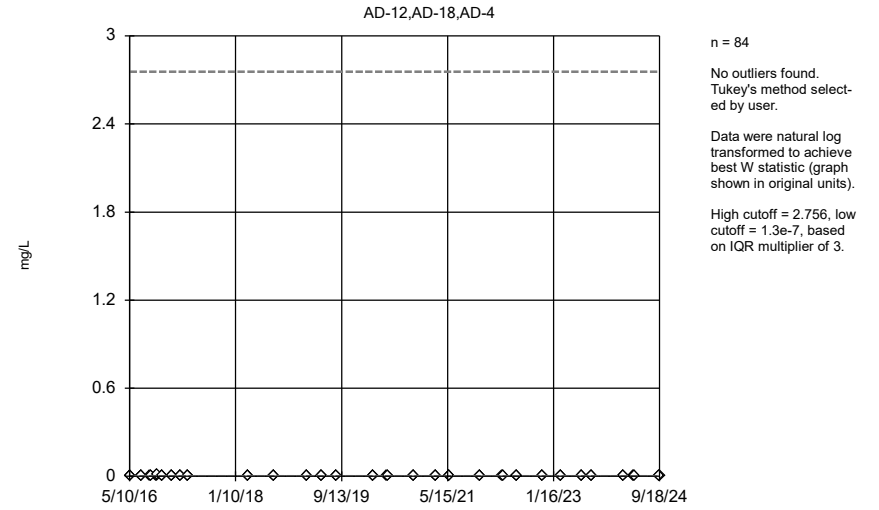
Constituent	Well	Outlier	Value(s)	Method	Alpha	N	Mean	Std. Dev.	Distribution	Normality Test
Antimony, total (mg/L)	AD-12,AD-18,AD-4	n/a	n/a	NP	NaN	84	0.00008477	0.00003213	unknown	ShapiroFrancia
Arsenic, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.001314	0.001725	ln(x)	ShapiroFrancia
Barium, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.07625	0.04315	normal	ShapiroFrancia
Beryllium, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.0003812	0.0003739	ln(x)	ShapiroFrancia
Boron, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	87	0.02223	0.01049	ln(x)	ShapiroFrancia
Cadmium, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.00003511	0.00003548	ln(x)	ShapiroFrancia
Calcium, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	87	0.9876	0.967	ln(x)	ShapiroFrancia
Chloride, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	87	5.75	1.604	ln(x)	ShapiroFrancia
Chromium, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.0007424	0.0009406	ln(x)	ShapiroFrancia
Cobalt, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.002774	0.00249	ln(x)	ShapiroFrancia
Combined Radium 226 + 228 (pCi/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	1.258	0.9236	x^(1/3)	ShapiroFrancia
<b>Fluoride, total (mg/L)</b>	<b>AD-12,AD-18,AD-4</b>	<b>Yes</b>	<b>0.2565,0.213,0.11,0.11,0.11,0.12,0.12,0.12,0.02,0</b>	<b>NP</b>	<b>NaN</b>	<b>87</b>	<b>0.0685</b>	<b>0.03883</b>	<b>x^(1/3)</b>	<b>ShapiroFrancia</b>
Lead, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.000171	0.0001048	ln(x)	ShapiroFrancia
Lithium, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.01917	0.01305	x^(1/3)	ShapiroFrancia
Mercury, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.00000963	0.000009336	ln(x)	ShapiroFrancia
Molybdenum, total (mg/L)	AD-12,AD-18,AD-4	n/a	n/a	NP	NaN	84	0.0004861	0.00008354	unknown	ShapiroFrancia
Selenium, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	84	0.0004691	0.0004795	ln(x)	ShapiroFrancia
Sulfate, total (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	87	10.77	7.253	ln(x)	ShapiroFrancia
<b>Thallium, total (mg/L)</b>	<b>AD-12,AD-18,AD-4</b>	<b>Yes</b>	<b>0.001874</b>	<b>NP</b>	<b>NaN</b>	<b>84</b>	<b>0.0001993</b>	<b>0.0002281</b>	<b>ln(x)</b>	<b>ShapiroFrancia</b>
Total Dissolved Solids (mg/L)	AD-12,AD-18,AD-4	No	n/a	NP	NaN	87	108	36.61	normal	ShapiroFrancia

### Tukey's Outlier Screening, Pooled Background



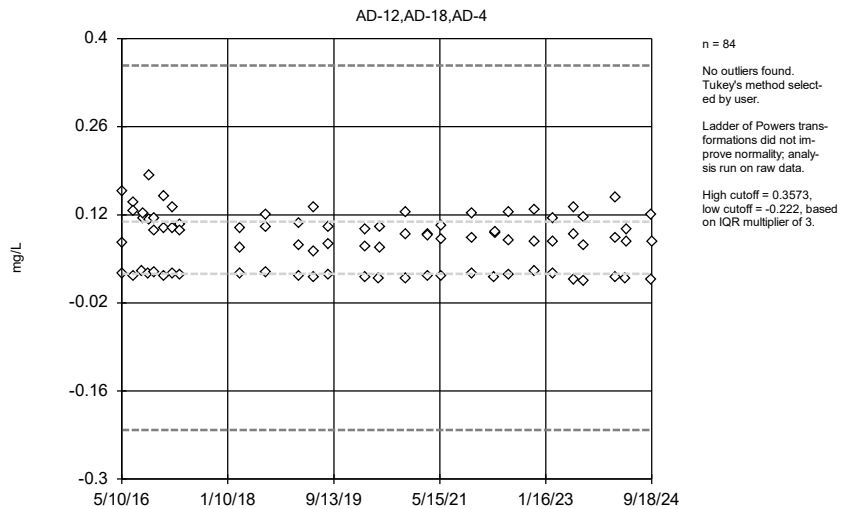
Constituent: Antimony, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background



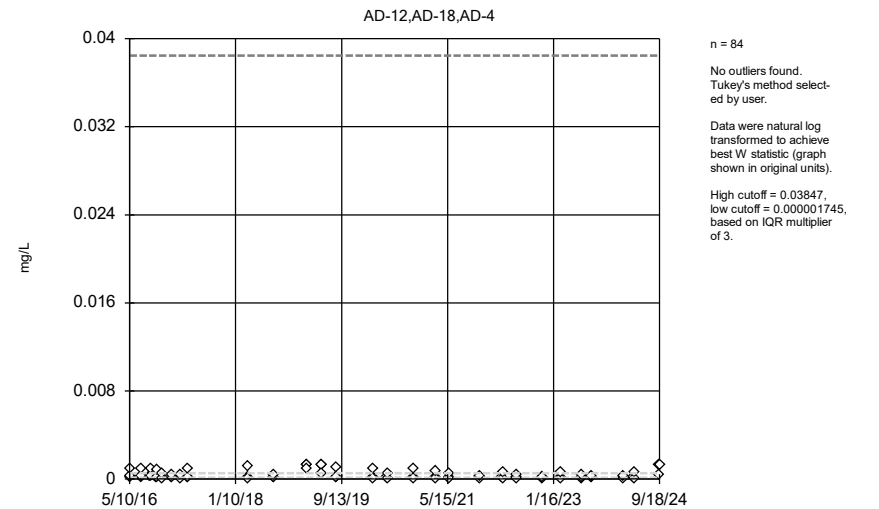
Constituent: Arsenic, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background



Constituent: Barium, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

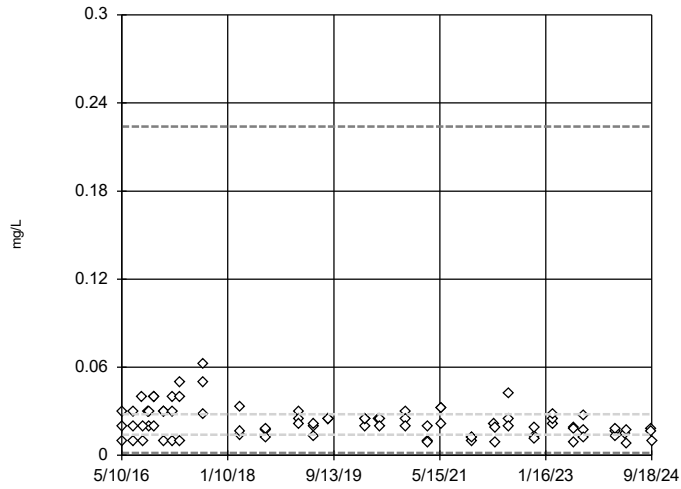
### Tukey's Outlier Screening, Pooled Background



Constituent: Beryllium, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

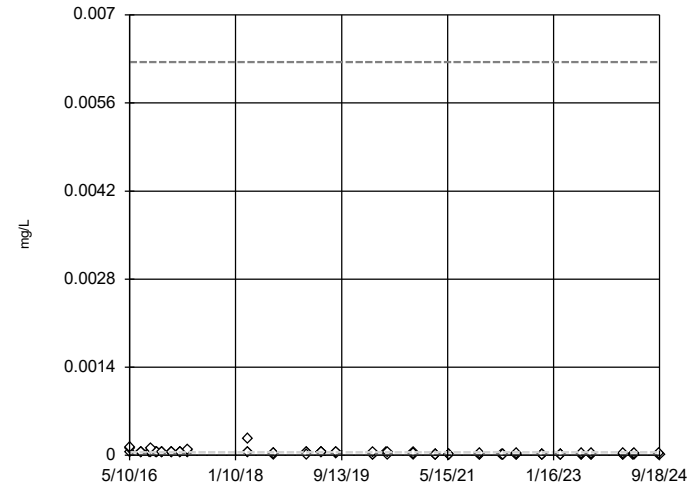


n = 87  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.224, low cutoff = 0.00175, based on IQR multiplier of 3.

Constituent: Boron, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

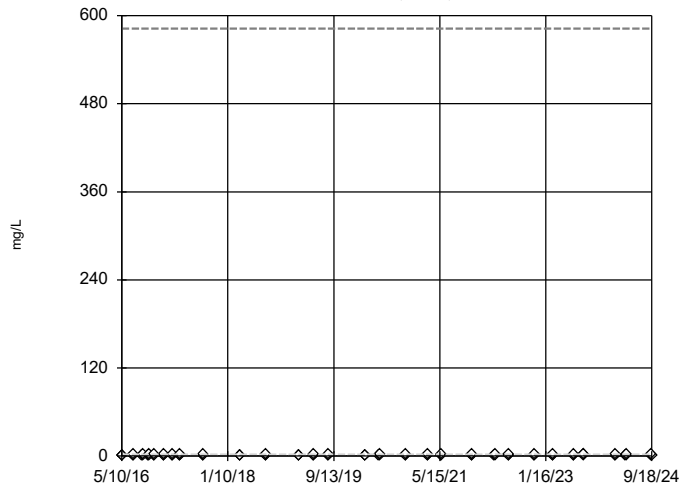


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.00625, low cutoff = 8.0e-8, based on IQR multiplier of 3.

Constituent: Cadmium, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

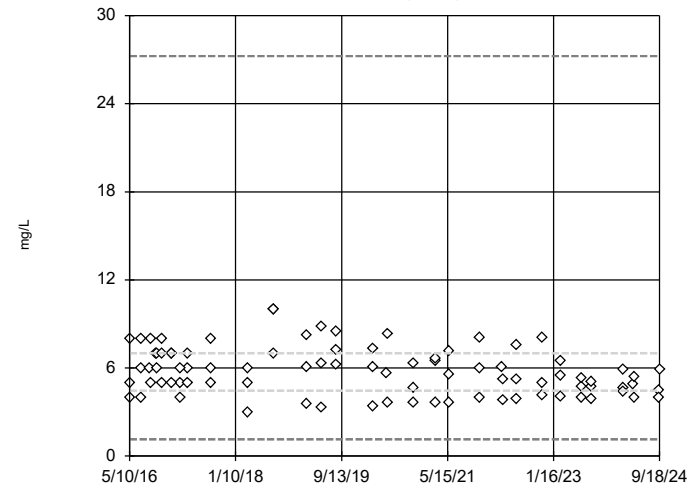


n = 87  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 582.3, low cutoff = 0.0008531, based on IQR multiplier of 3.

Constituent: Calcium, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

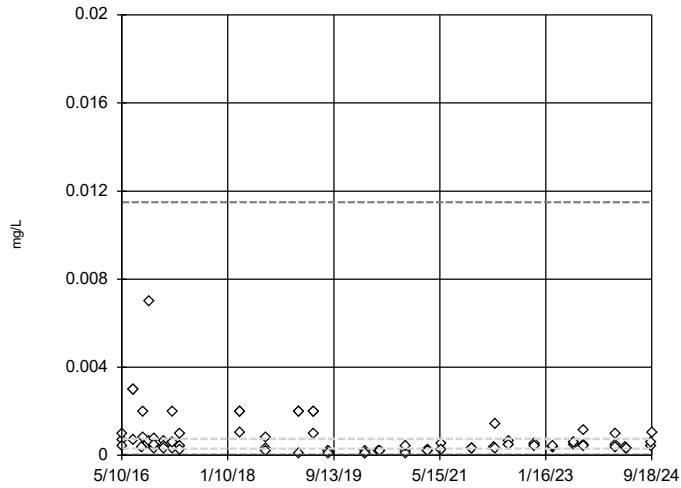


n = 87  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 27.25, low cutoff = 1.143, based on IQR multiplier of 3.

Constituent: Chloride, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

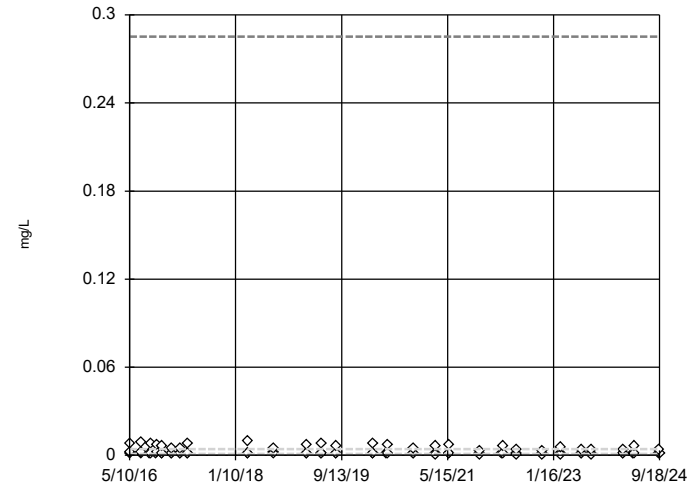


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.01149,  
 low cutoff = 0.00001981,  
 based on IQR multiplier of 3.

Constituent: Chromium, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

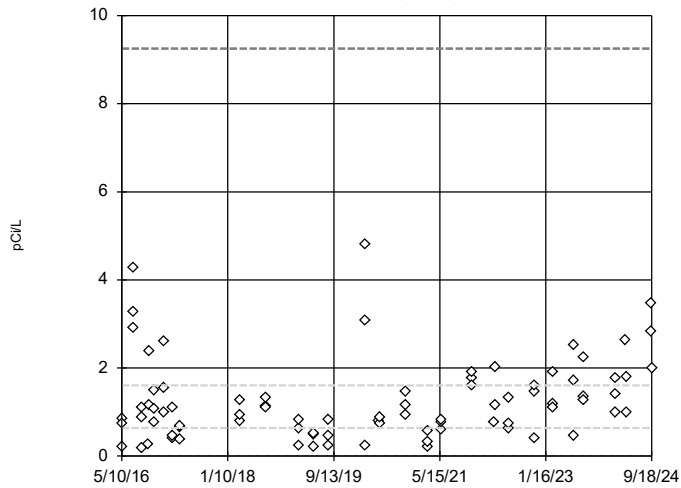


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.2852,  
 low cutoff = 0.00001556,  
 based on IQR multiplier of 3.

Constituent: Cobalt, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

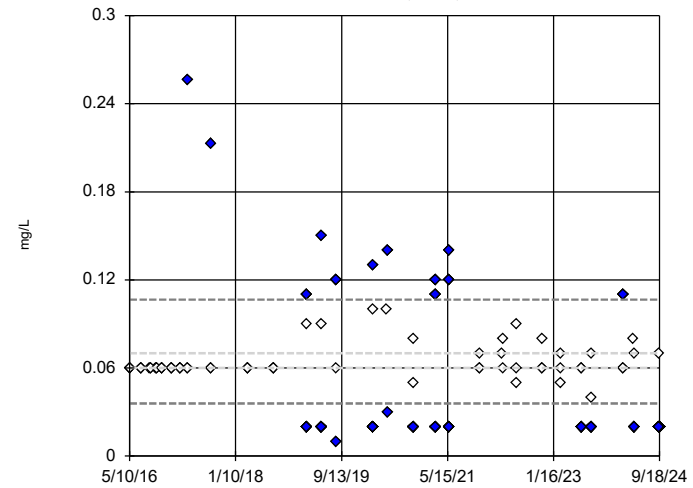


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were cube root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 9.253,  
 low cutoff = -0.0003041,  
 based on IQR multiplier of 3.

Constituent: Combined Radium 226 + 228 Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

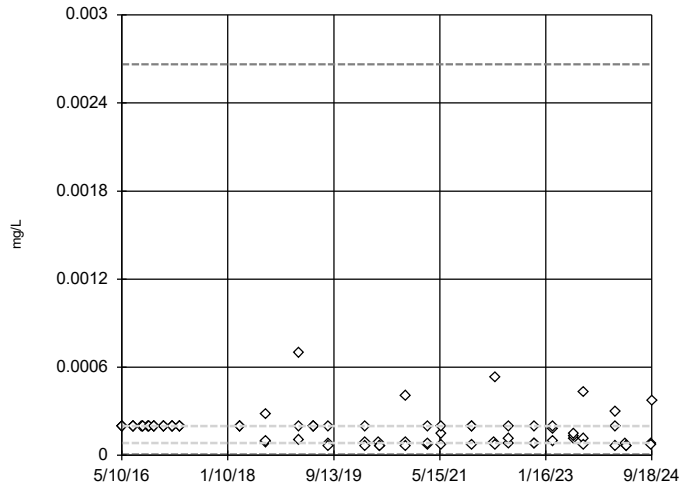


n = 87  
 Outliers are drawn as solid.  
 Tukey's method selected by user.  
 Data were cube root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.1065,  
 low cutoff = 0.03579,  
 based on IQR multiplier of 3.

Constituent: Fluoride, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

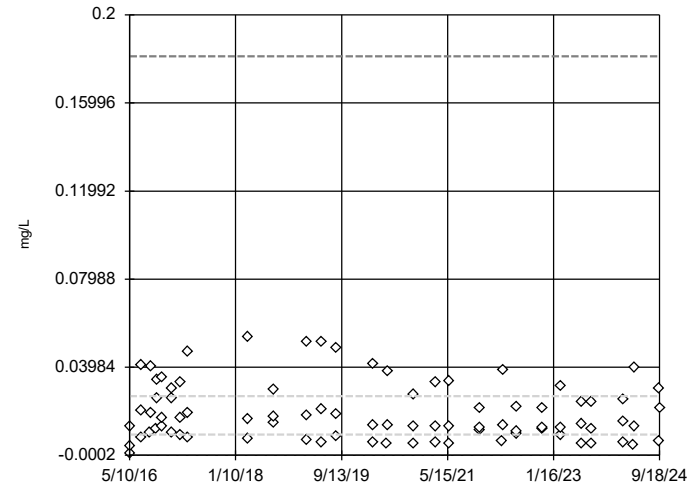


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.002663,  
 low cutoff = 0.00006337,  
 based on IQR multiplier of 3.

Constituent: Lead, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

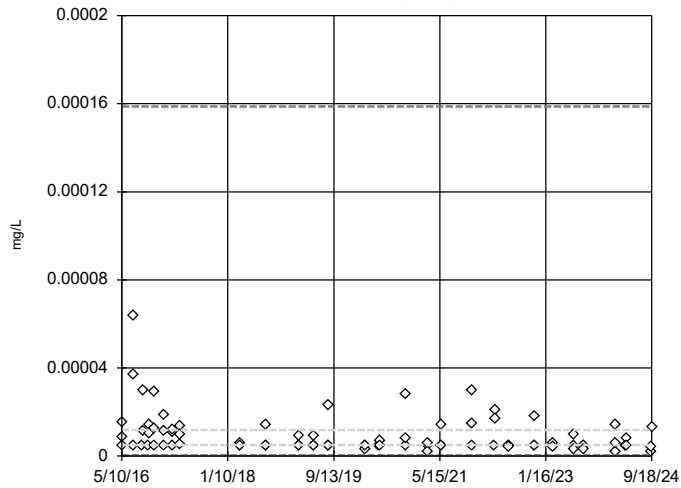


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were cube root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.1812,  
 low cutoff = -0.0001865,  
 based on IQR multiplier of 3.

Constituent: Lithium, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

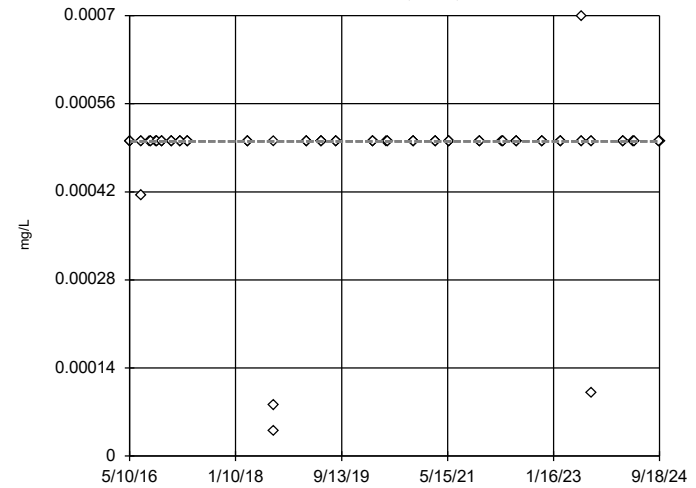


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.0001588,  
 low cutoff = 3.7e-7, based on IQR multiplier of 3.

Constituent: Mercury, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

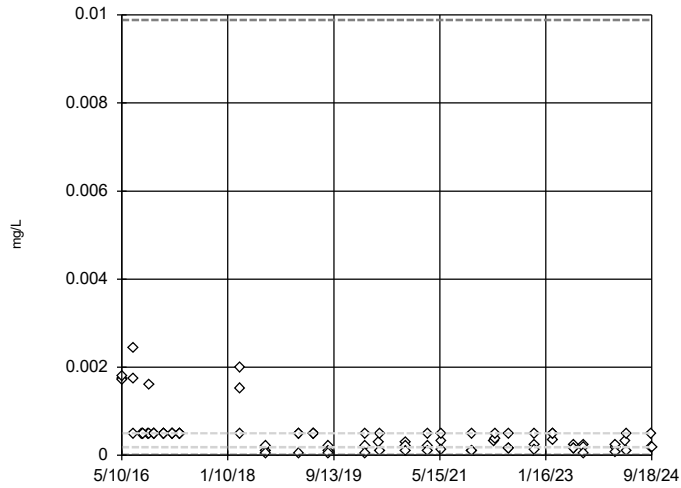


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were square transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Molybdenum, total Analysis Run 11/22/2024 12:11 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

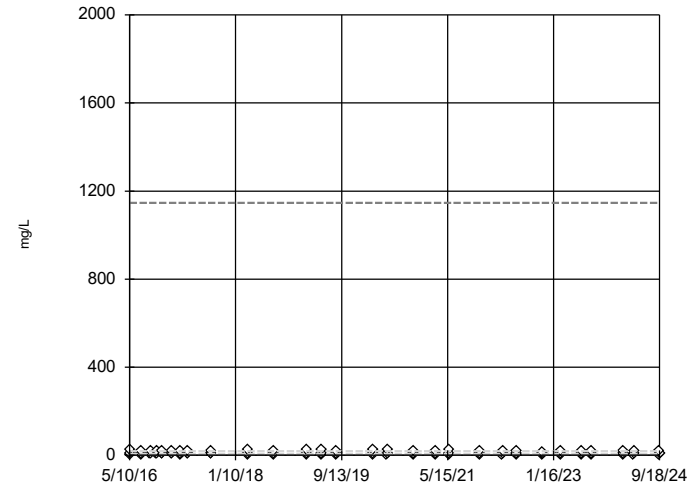


n = 84  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.009882, low cutoff = 0.00009357, based on IQR multiplier of 3.

Constituent: Selenium, total Analysis Run 11/22/2024 12:12 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

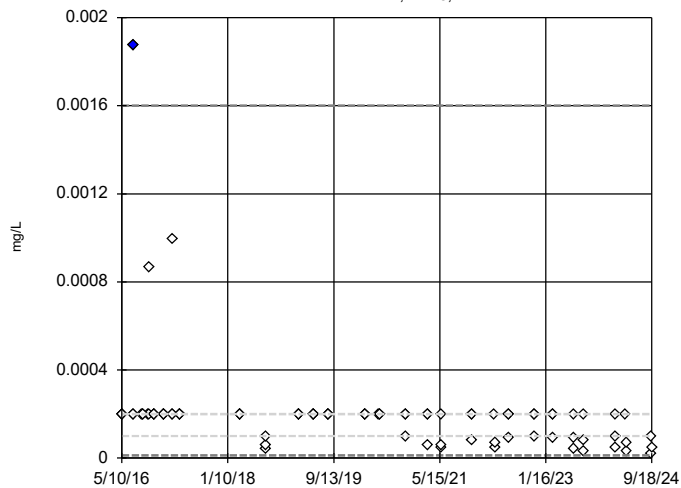


n = 87  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 1147, low cutoff = 0.07929, based on IQR multiplier of 3.

Constituent: Sulfate, total Analysis Run 11/22/2024 12:12 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4

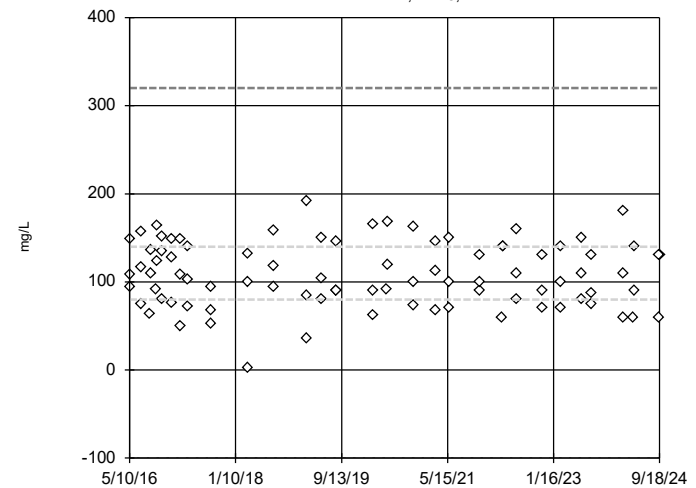


n = 84  
 Outlier is drawn as solid.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.0016, low cutoff = 0.0000125, based on IQR multiplier of 3.

Constituent: Thallium, total Analysis Run 11/22/2024 12:12 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tukey's Outlier Screening, Pooled Background

AD-12,AD-18,AD-4



n = 87  
 No outliers found.  
 Tukey's method selected by user.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 High cutoff = 320, low cutoff = -100, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids Analysis Run 11/22/2024 12:12 PM View: Outliers - Upgradient Wells  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

FIGURE D  
Mann-Whitney



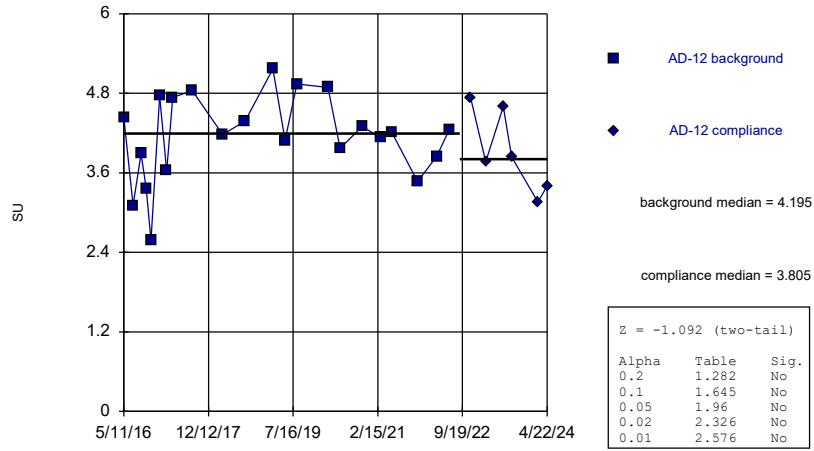
# Mann Whitney - All Results (No Significant)

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/25/2024, 11:23 AM

<u>Constituent</u>	<u>Well</u>	<u>Calc.</u>	<u>0.01</u>	<u>Alpha</u>	<u>Method</u>
pH, field (SU)	AD-12 (bg)	-1.092	No	0.01	Mann-W
pH, field (SU)	AD-18 (bg)	-1.093	No	0.01	Mann-W
pH, field (SU)	AD-2	-0.7563	No	0.01	Mann-W
pH, field (SU)	AD-31	-0.868	No	0.01	Mann-W
pH, field (SU)	AD-32	2.044	No	0.01	Mann-W
pH, field (SU)	AD-4 (bg)	-0.9801	No	0.01	Mann-W

### Mann-Whitney (Wilcoxon Rank Sum)

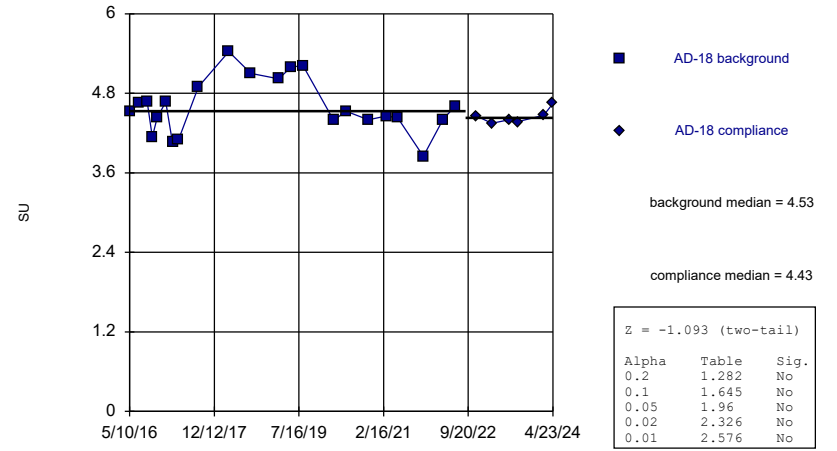
AD-12 (bg)



Constituent: pH, field Analysis Run 11/25/2024 11:22 AM View: Mann-Whitney  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Mann-Whitney (Wilcoxon Rank Sum)

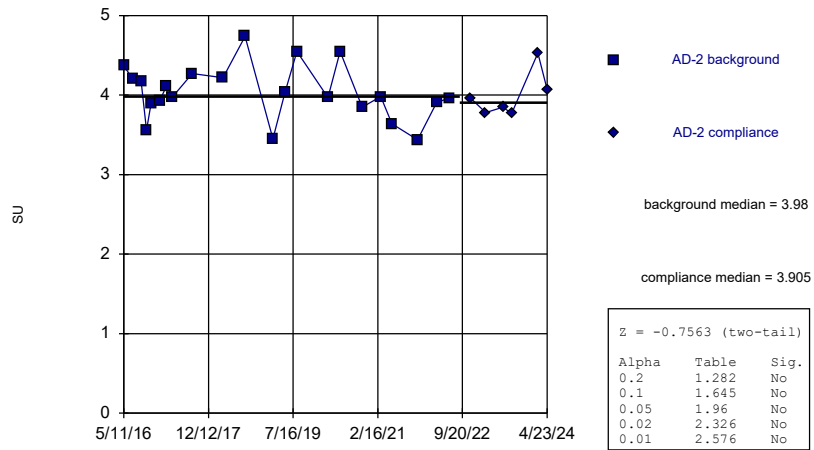
AD-18 (bg)



Constituent: pH, field Analysis Run 11/25/2024 11:22 AM View: Mann-Whitney  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Mann-Whitney (Wilcoxon Rank Sum)

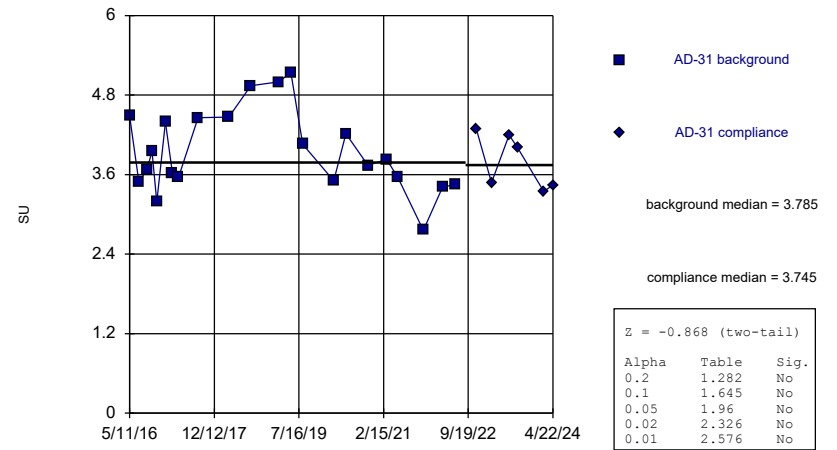
AD-2



Constituent: pH, field Analysis Run 11/25/2024 11:22 AM View: Mann-Whitney  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Mann-Whitney (Wilcoxon Rank Sum)

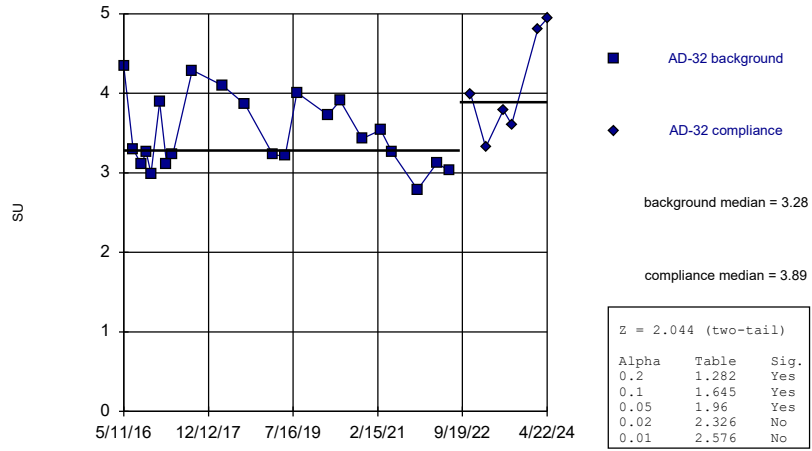
AD-31



Constituent: pH, field Analysis Run 11/25/2024 11:22 AM View: Mann-Whitney  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Mann-Whitney (Wilcoxon Rank Sum)

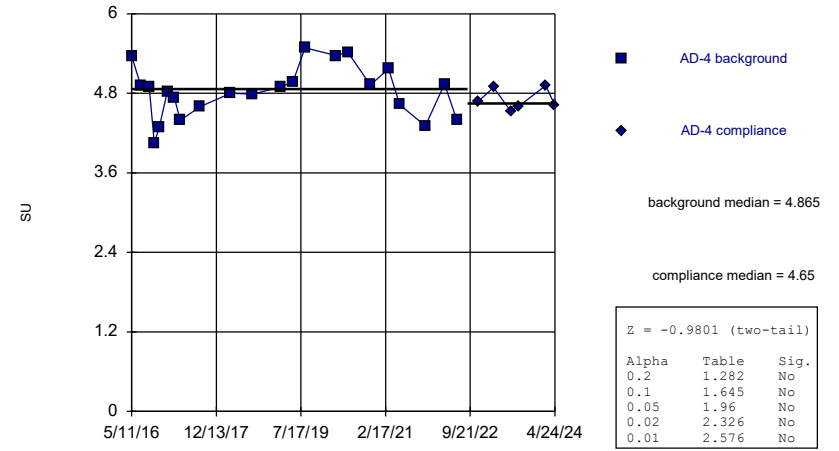
AD-32



Constituent: pH, field Analysis Run 11/25/2024 11:22 AM View: Mann-Whitney  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Mann-Whitney (Wilcoxon Rank Sum)

AD-4 (bg)



Constituent: pH, field Analysis Run 11/25/2024 11:22 AM View: Mann-Whitney  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

FIGURE E  
Intrawell PLs

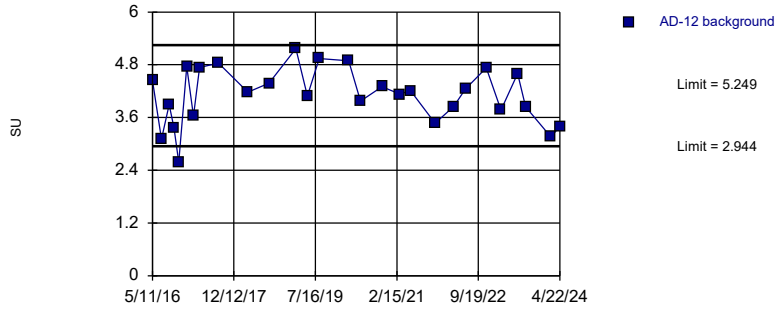
# Appendix III - Intrawell Prediction Limits - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/25/2024, 11:26 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
pH, field (SU)	AD-12	5.249	2.944	n/a	1 future	n/a	28	4.096	0.6355	0	None	No	0.001253	Param Intra 1 of 2
pH, field (SU)	AD-18	5.235	3.9	n/a	1 future	n/a	28	4.568	0.3679	0	None	No	0.001253	Param Intra 1 of 2
pH, field (SU)	AD-2	4.619	3.435	n/a	1 future	n/a	28	4.027	0.3266	0	None	No	0.001253	Param Intra 1 of 2
pH, field (SU)	AD-31	4.968	2.865	n/a	1 future	n/a	28	3.917	0.5798	0	None	No	0.001253	Param Intra 1 of 2
pH, field (SU)	AD-32	4.606	2.623	n/a	1 future	n/a	28	3.614	0.5467	0	None	No	0.001253	Param Intra 1 of 2
pH, field (SU)	AD-4	5.445	4.158	n/a	1 future	n/a	28	4.801	0.3548	0	None	No	0.001253	Param Intra 1 of 2

### Prediction Limit

Intrawell Parametric, AD-12 (bg)

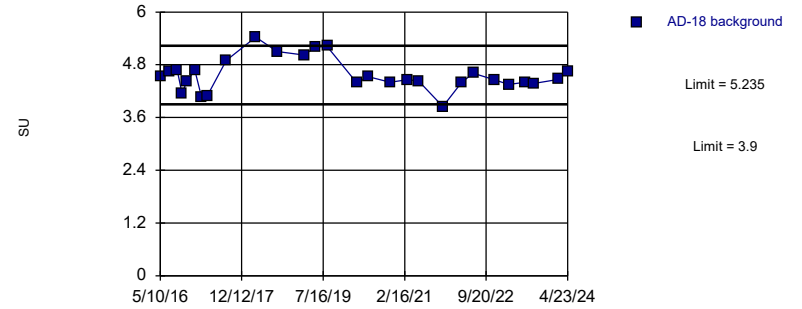


Background Data Summary: Mean=4.096, Std. Dev.=0.6355, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9753, critical = 0.896. Kappa = 1.814 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: pH, field Analysis Run 11/25/2024 11:24 AM View: Intrawell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Prediction Limit

Intrawell Parametric, AD-18 (bg)

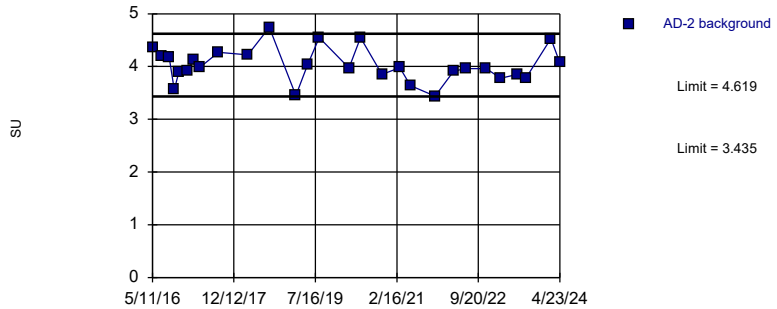


Background Data Summary: Mean=4.568, Std. Dev.=0.3679, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9397, critical = 0.896. Kappa = 1.814 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: pH, field Analysis Run 11/25/2024 11:24 AM View: Intrawell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Prediction Limit

Intrawell Parametric, AD-2

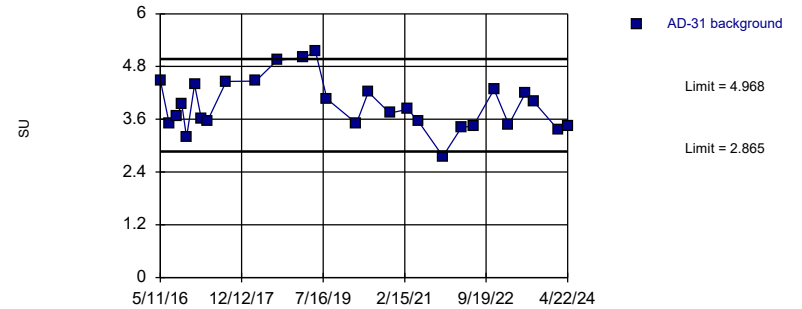


Background Data Summary: Mean=4.027, Std. Dev.=0.3266, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.968, critical = 0.896. Kappa = 1.814 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: pH, field Analysis Run 11/25/2024 11:24 AM View: Intrawell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Prediction Limit

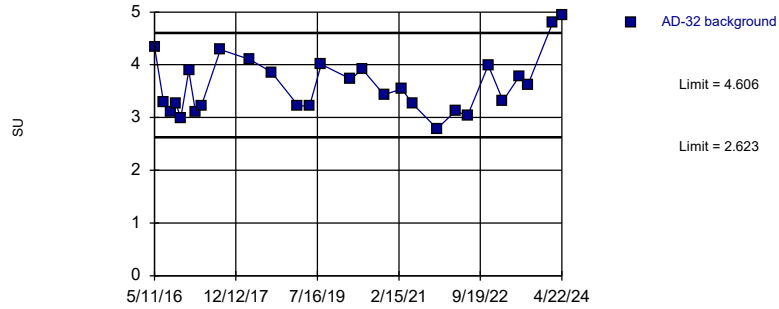
Intrawell Parametric, AD-31



Background Data Summary: Mean=3.917, Std. Dev.=0.5798, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9558, critical = 0.896. Kappa = 1.814 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: pH, field Analysis Run 11/25/2024 11:24 AM View: Intrawell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

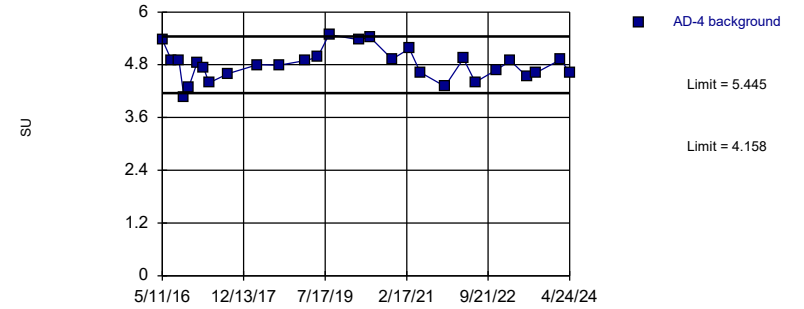
Prediction Limit  
Intrawell Parametric, AD-32



Background Data Summary: Mean=3.614, Std. Dev.=0.5467, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9293, critical = 0.896. Kappa = 1.814 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: pH, field Analysis Run 11/25/2024 11:24 AM View: Intrawell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Prediction Limit  
Intrawell Parametric, AD-4 (bg)



Background Data Summary: Mean=4.801, Std. Dev.=0.3548, n=28. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9664, critical = 0.896. Kappa = 1.814 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.002505. Assumes 1 future value.

Constituent: pH, field Analysis Run 11/25/2024 11:24 AM View: Intrawell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

## FIGURE F

Upgradient Trend Tests – Appendix III



# Appendix III - Upgradient Trend Test Summary - Significant Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 12/4/2024, 9:44 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron, total (mg/L)	AD-12 (bg)	-0.001946	-152	-139	Yes	29	6.897	n/a	n/a	0.01	NP
Boron, total (mg/L)	AD-4 (bg)	-0.0008732	-151	-139	Yes	29	6.897	n/a	n/a	0.01	NP
Chloride, total (mg/L)	AD-18 (bg)	-0.3278	-193	-139	Yes	29	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	AD-12 (bg)	-0.1743	-158	-139	Yes	29	0	n/a	n/a	0.01	NP

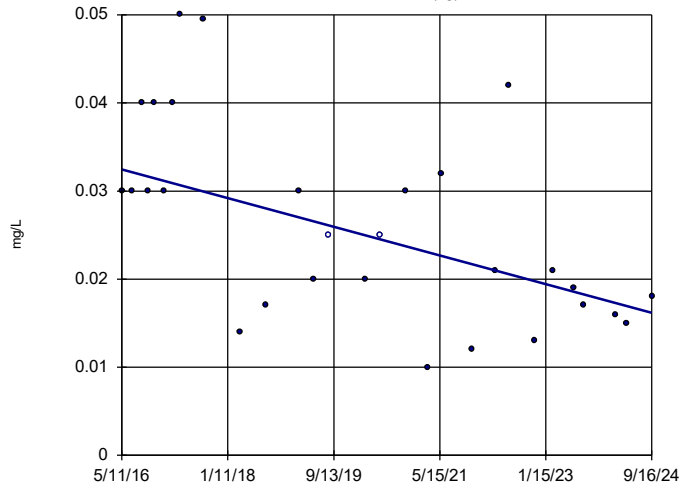
# Appendix III - Upgradient Trend Test Summary - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 12/4/2024, 9:44 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
<b>Boron, total (mg/L)</b>	<b>AD-12 (bg)</b>	<b>-0.001946</b>	<b>-152</b>	<b>-139</b>	<b>Yes</b>	<b>29</b>	<b>6.897</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Boron, total (mg/L)	AD-18 (bg)	0	-1	-139	No	29	24.14	n/a	n/a	0.01	NP
<b>Boron, total (mg/L)</b>	<b>AD-4 (bg)</b>	<b>-0.0008732</b>	<b>-151</b>	<b>-139</b>	<b>Yes</b>	<b>29</b>	<b>6.897</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Calcium, total (mg/L)	AD-12 (bg)	-0.01113	-117	-139	No	29	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	AD-18 (bg)	-0.02114	-116	-139	No	29	0	n/a	n/a	0.01	NP
Calcium, total (mg/L)	AD-4 (bg)	0.02996	41	139	No	29	0	n/a	n/a	0.01	NP
Chloride, total (mg/L)	AD-12 (bg)	-0.06328	-44	-139	No	29	0	n/a	n/a	0.01	NP
<b>Chloride, total (mg/L)</b>	<b>AD-18 (bg)</b>	<b>-0.3278</b>	<b>-193</b>	<b>-139</b>	<b>Yes</b>	<b>29</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Chloride, total (mg/L)	AD-4 (bg)	-0.01638	-46	-139	No	29	0	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	AD-12 (bg)	0.001389	89	139	No	29	31.03	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	AD-18 (bg)	0	-81	-139	No	29	62.07	n/a	n/a	0.01	NP
Fluoride, total (mg/L)	AD-4 (bg)	0	-45	-139	No	29	48.28	n/a	n/a	0.01	NP
<b>Sulfate, total (mg/L)</b>	<b>AD-12 (bg)</b>	<b>-0.1743</b>	<b>-158</b>	<b>-139</b>	<b>Yes</b>	<b>29</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.01</b>	<b>NP</b>
Sulfate, total (mg/L)	AD-18 (bg)	0	8	139	No	29	0	n/a	n/a	0.01	NP
Sulfate, total (mg/L)	AD-4 (bg)	-0.1159	-54	-139	No	29	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	AD-12 (bg)	-1.232	-78	-131	No	28	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	AD-18 (bg)	-1.326	-55	-139	No	29	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	AD-4 (bg)	-0.9871	-55	-139	No	29	0	n/a	n/a	0.01	NP

### Sen's Slope Estimator

AD-12 (bg)

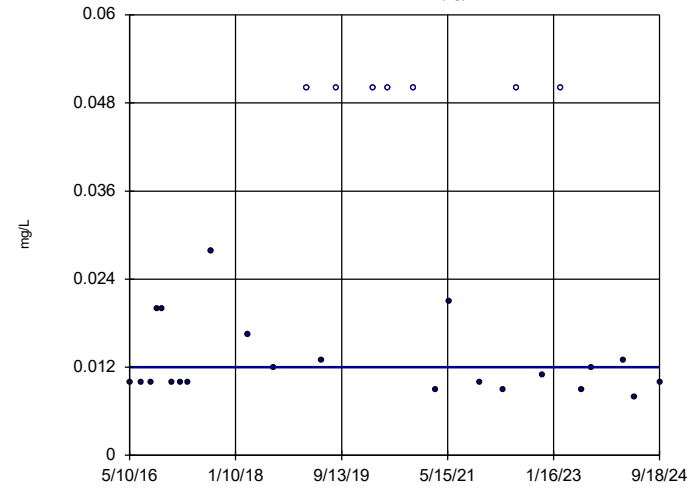


n = 29  
Slope = -0.001946  
units per year.  
Mann-Kendall  
statistic = -152  
critical = -139  
Decreasing trend  
significant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Boron, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

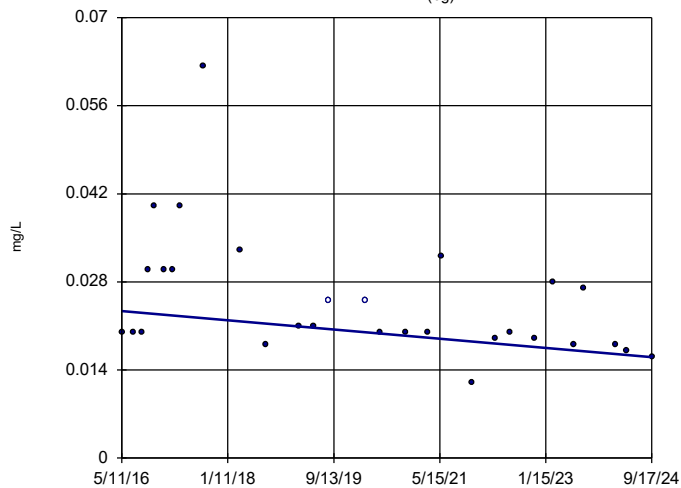


n = 29  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = -1  
critical = -139  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Boron, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)

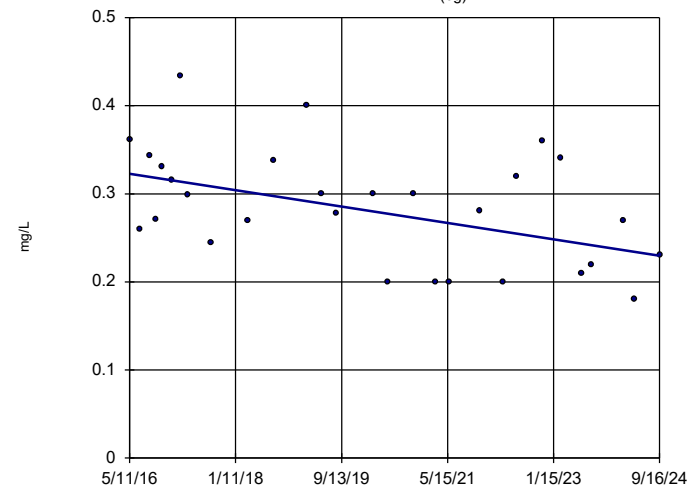


n = 29  
Slope = -0.0008732  
units per year.  
Mann-Kendall  
statistic = -151  
critical = -139  
Decreasing trend  
significant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Boron, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-12 (bg)

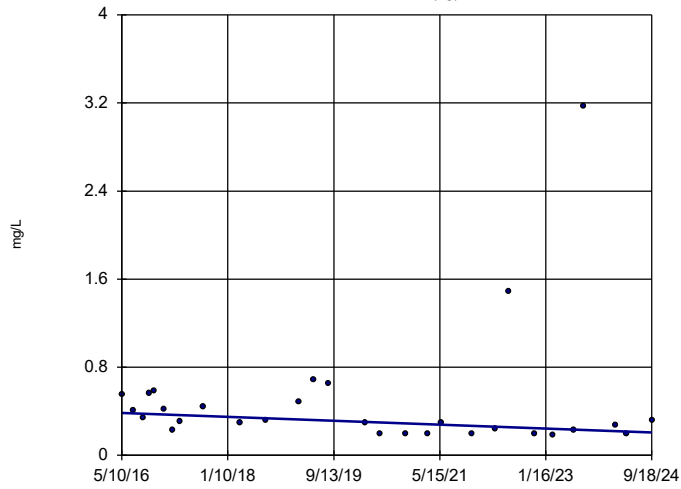


n = 29  
Slope = -0.01113  
units per year.  
Mann-Kendall  
statistic = -117  
critical = -139  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Calcium, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

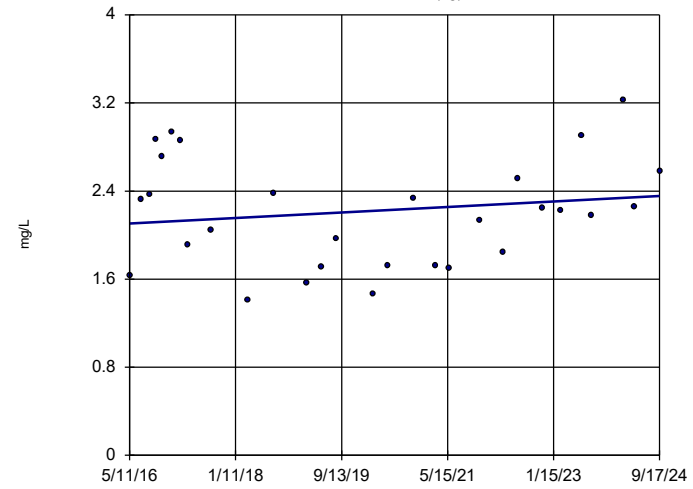


n = 29  
 Slope = -0.02114  
 units per year.  
 Mann-Kendall  
 statistic = -116  
 critical = -139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Calcium, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)

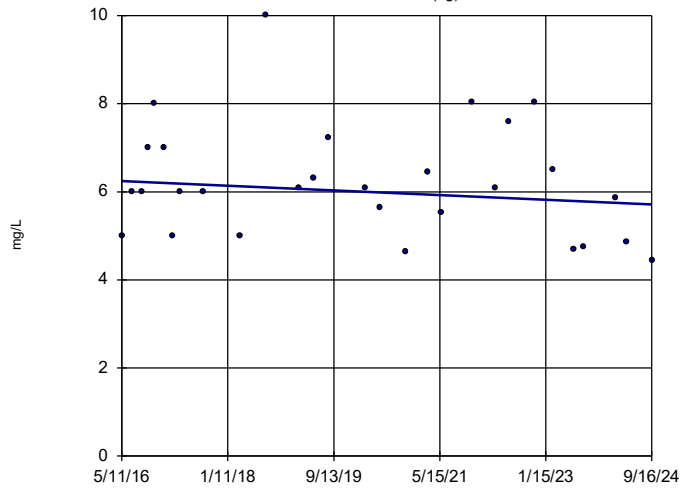


n = 29  
 Slope = 0.02996  
 units per year.  
 Mann-Kendall  
 statistic = 41  
 critical = 139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Calcium, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-12 (bg)

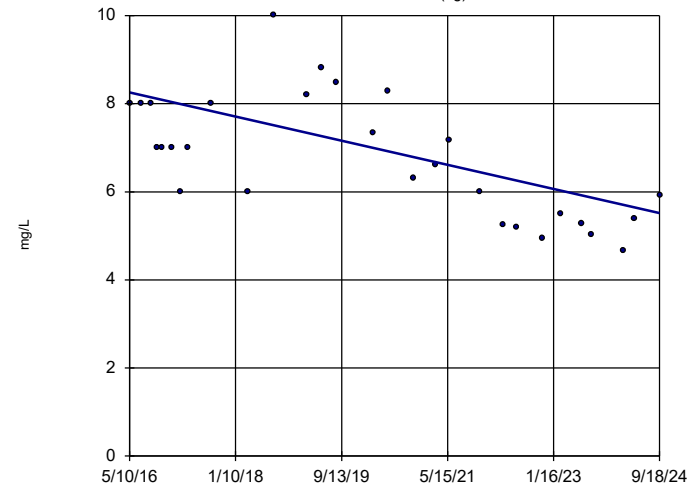


n = 29  
 Slope = -0.06328  
 units per year.  
 Mann-Kendall  
 statistic = -44  
 critical = -139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Chloride, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

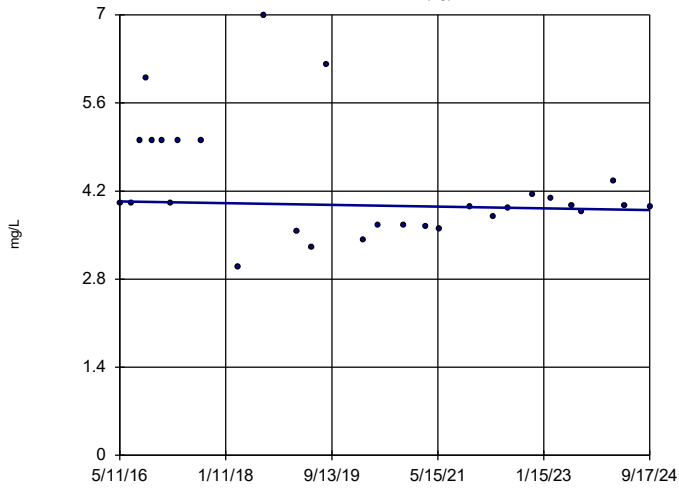


n = 29  
 Slope = -0.3278  
 units per year.  
 Mann-Kendall  
 statistic = -193  
 critical = -139  
 Decreasing trend  
 significant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Chloride, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)



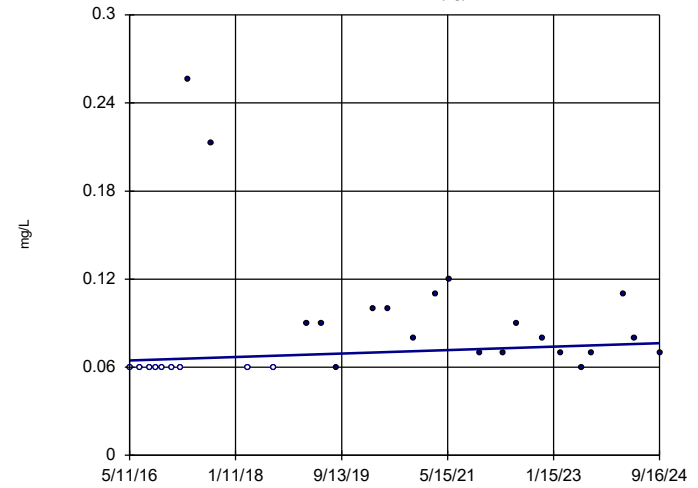
n = 29  
 Slope = -0.01638  
 units per year.  
 Mann-Kendall  
 statistic = -46  
 critical = -139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Chloride, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Hollow symbols indicate censored values.

### Sen's Slope Estimator

AD-12 (bg)



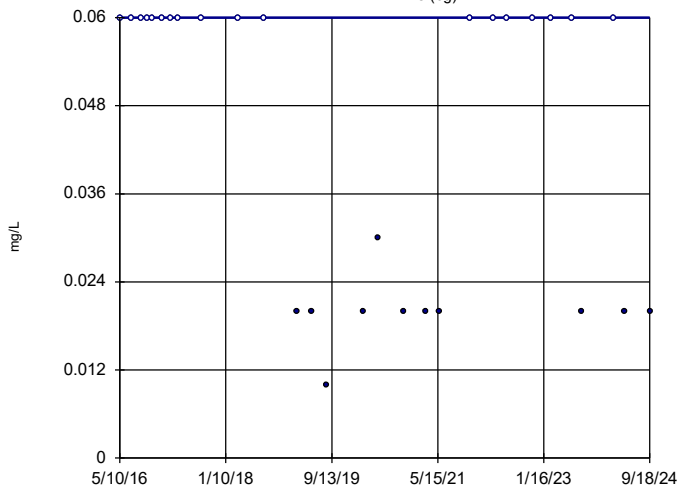
n = 29  
 Slope = 0.001389  
 units per year.  
 Mann-Kendall  
 statistic = 89  
 critical = 139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Fluoride, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Hollow symbols indicate censored values.

### Sen's Slope Estimator

AD-18 (bg)



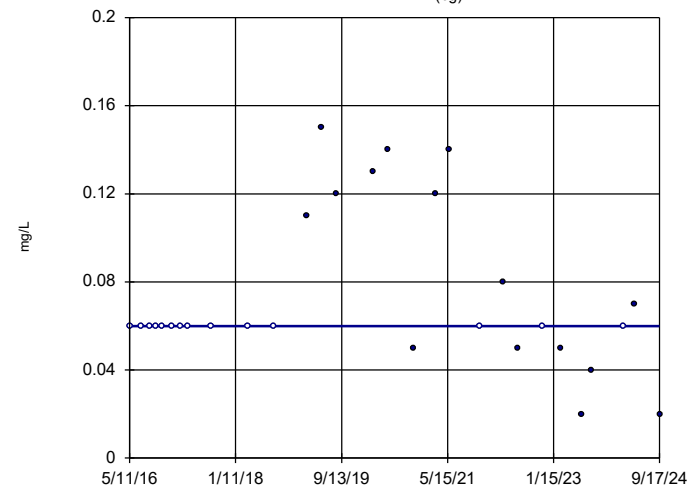
n = 29  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = -81  
 critical = -139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Fluoride, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

Hollow symbols indicate censored values.

### Sen's Slope Estimator

AD-4 (bg)

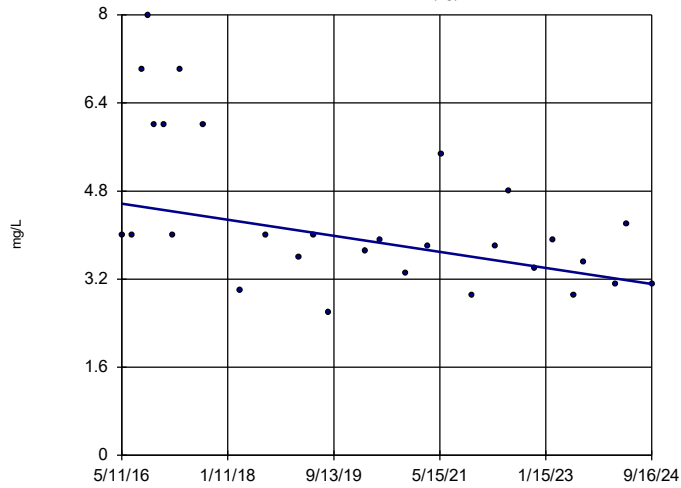


n = 29  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = -45  
 critical = -139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Fluoride, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-12 (bg)

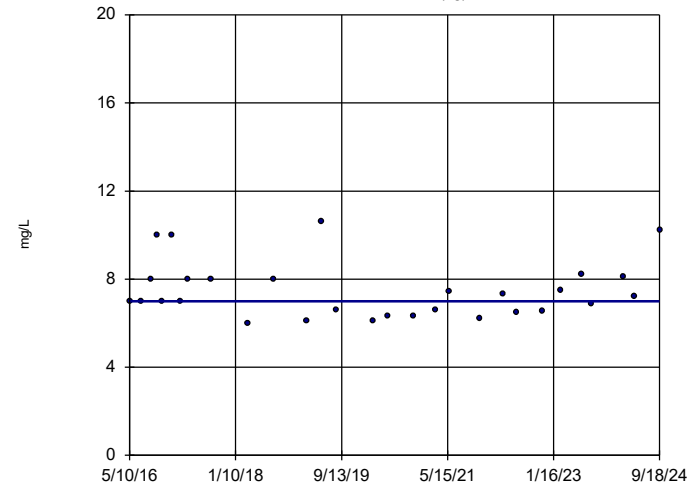


n = 29  
 Slope = -0.1743  
 units per year.  
 Mann-Kendall  
 statistic = -158  
 critical = -139  
 Decreasing trend  
 significant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Sulfate, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

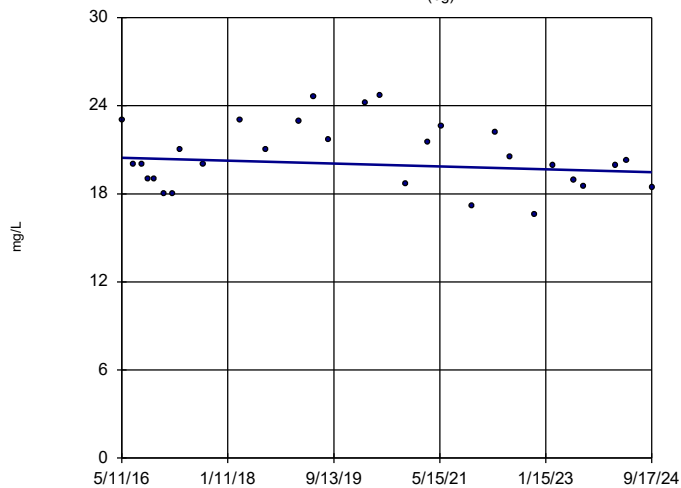


n = 29  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = 8  
 critical = 139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Sulfate, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)

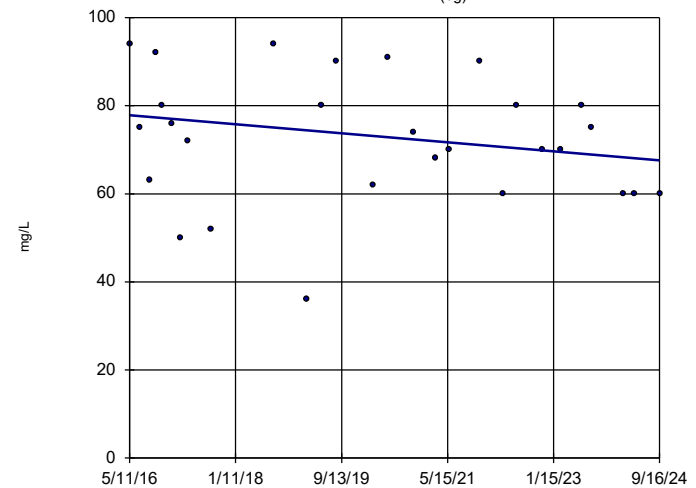


n = 29  
 Slope = -0.1159  
 units per year.  
 Mann-Kendall  
 statistic = -54  
 critical = -139  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Sulfate, total Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-12 (bg)

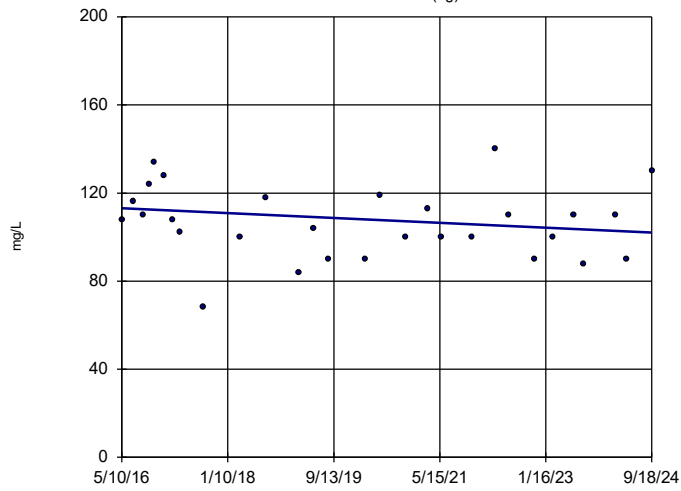


n = 28  
 Slope = -1.232  
 units per year.  
 Mann-Kendall  
 statistic = -78  
 critical = -131  
 Trend not sig-  
 nificant at 99%  
 confidence level  
 ( $\alpha = 0.005$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 12/4/2024 9:42 AM View: Interwell  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

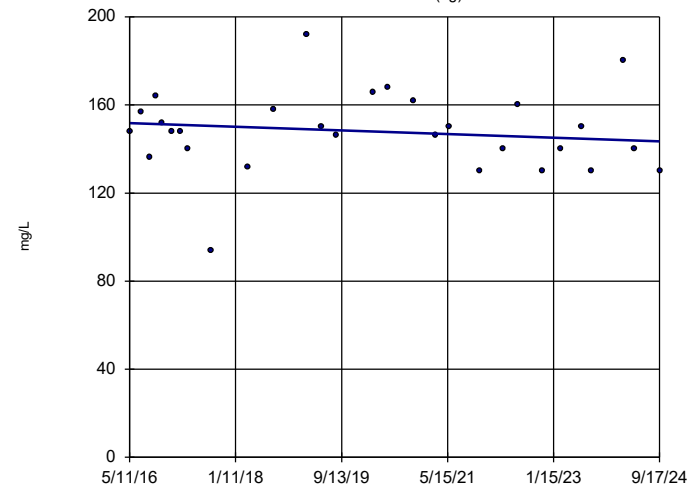


n = 29  
Slope = -1.326  
units per year.  
Mann-Kendall  
statistic = -55  
critical = -139  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Total Dissolved Solids Analysis Run 12/4/2024 9:42 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)



n = 29  
Slope = -0.9871  
units per year.  
Mann-Kendall  
statistic = -55  
critical = -139  
Trend not sig-  
nificant at 99%  
confidence level  
( $\alpha = 0.005$  per  
tail).

Constituent: Total Dissolved Solids Analysis Run 12/4/2024 9:42 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

FIGURE G  
Interwell PLs



# Appendix III - Interwell Prediction Limits - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 12/4/2024, 9:47 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron, total (mg/L)	n/a	0.04085	n/a	n/a	3 future	n/a	87	0.1453	0.03373	12.64	None	sqrt(x)	0.002505	Param Inter 1 of 2
Calcium, total (mg/L)	n/a	3.23	n/a	n/a	3 future	n/a	87	n/a	n/a	0	n/a	n/a	0.0002567	NP Inter (normality) 1 of 2
Chloride, total (mg/L)	n/a	8.453	n/a	n/a	3 future	n/a	87	5.75	1.604	0	None	No	0.002505	Param Inter 1 of 2
Fluoride, total (mg/L)	n/a	0.2565	n/a	n/a	3 future	n/a	87	n/a	n/a	47.13	n/a	n/a	0.0002567	NP Inter (normality) 1 of 2
Sulfate, total (mg/L)	n/a	24.7	n/a	n/a	3 future	n/a	87	n/a	n/a	0	n/a	n/a	0.0002567	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	n/a	168.2	n/a	n/a	3 future	n/a	86	109.2	34.98	0	None	No	0.002505	Param Inter 1 of 2

### Prediction Limit Interwell Parametric



Background Data Summary (based on square root transformation): Mean=0.1453, Std. Dev.=0.03373, n=87, 12.64% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9627, critical = 0.961. Kappa = 1.685 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Assumes 3 future values.

Constituent: Boron, total Analysis Run 12/4/2024 9:46 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

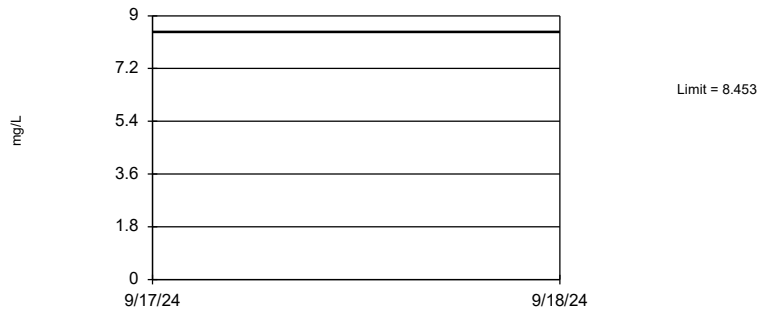
### Prediction Limit Interwell Non-parametric



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 87 background values. Annual per-constituent alpha = 0.001539. Individual comparison alpha = 0.0002567 (1 of 2). Assumes 3 future values.

Constituent: Calcium, total Analysis Run 12/4/2024 9:46 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

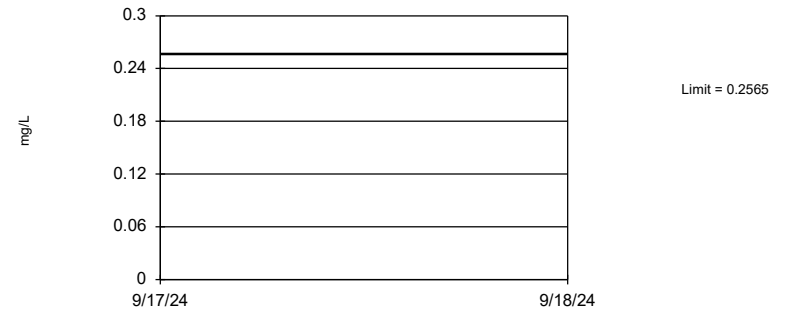
### Prediction Limit Interwell Parametric



Background Data Summary: Mean=5.75, Std. Dev.=1.604, n=87. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9673, critical = 0.961. Kappa = 1.685 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Assumes 3 future values.

Constituent: Chloride, total Analysis Run 12/4/2024 9:46 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

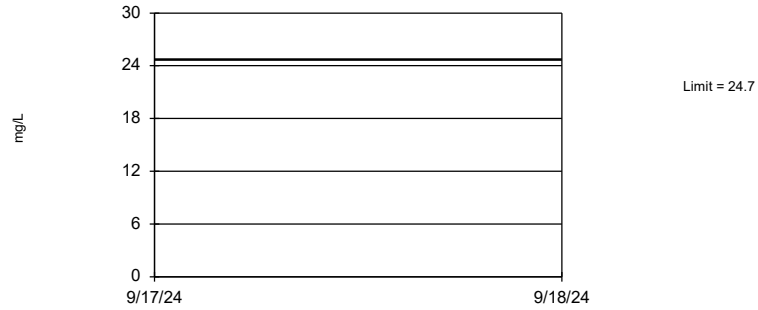
### Prediction Limit Interwell Non-parametric



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 87 background values. 47.13% NDs. Annual per-constituent alpha = 0.001539. Individual comparison alpha = 0.0002567 (1 of 2). Assumes 3 future values.

Constituent: Fluoride, total Analysis Run 12/4/2024 9:46 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

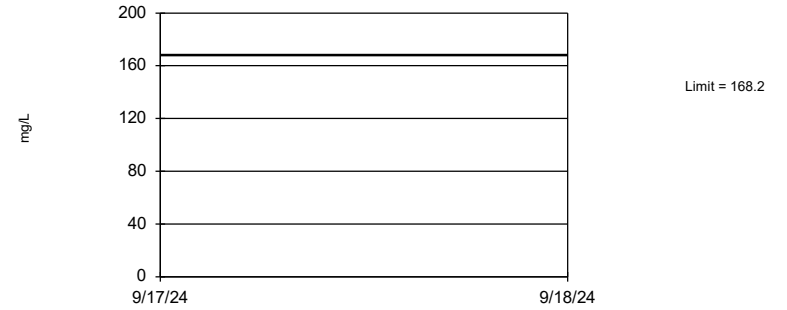
### Prediction Limit Interwell Non-parametric



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 87 background values. Annual per-constituent alpha = 0.001539. Individual comparison alpha = 0.0002567 (1 of 2). Assumes 3 future values.

Constituent: Sulfate, total Analysis Run 12/4/2024 9:46 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Prediction Limit Interwell Parametric



Background Data Summary: Mean=109.2, Std. Dev.=34.98, n=86. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9813, critical = 0.961. Kappa = 1.686 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Assumes 3 future values.

Constituent: Total Dissolved Solids Analysis Run 12/4/2024 9:46 AM View: Interwell  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

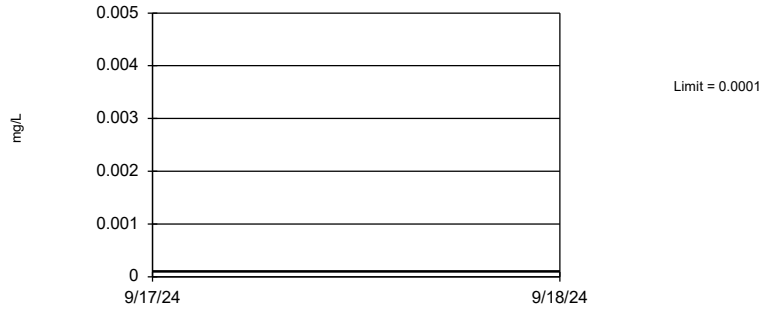
FIGURE H  
UTLs

# Upper Tolerance Limits Summary Table

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 12/4/2024, 10:08 AM

Constituent	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony, total (mg/L)	0.0001	n/a	n/a	n/a	n/a	84	80.95	n/a	0.01345	NP Inter(NDs)
Arsenic, total (mg/L)	0.011	n/a	n/a	n/a	n/a	84	32.14	n/a	0.01345	NP Inter(normality)
Barium, total (mg/L)	0.183	n/a	n/a	n/a	n/a	84	0	n/a	0.01345	NP Inter(normality)
Beryllium, total (mg/L)	0.00125	n/a	n/a	n/a	n/a	84	7.143	n/a	0.01345	NP Inter(normality)
Cadmium, total (mg/L)	0.00026	n/a	n/a	n/a	n/a	84	39.29	n/a	0.01345	NP Inter(normality)
Chromium, total (mg/L)	0.002623	n/a	n/a	n/a	n/a	84	8.333	ln(x)	0.05	Inter
Cobalt, total (mg/L)	0.00939	n/a	n/a	n/a	n/a	84	0	n/a	0.01345	NP Inter(normality)
Combined Radium 226 + 228 (pCi/L)	3.256	n/a	n/a	n/a	n/a	84	0	sqrt(x)	0.05	Inter
Fluoride, total (mg/L)	0.2565	n/a	n/a	n/a	n/a	87	47.13	n/a	0.01153	NP Inter(normality)
Lead, total (mg/L)	0.0007	n/a	n/a	n/a	n/a	84	47.62	n/a	0.01345	NP Inter(normality)
Lithium, total (mg/L)	0.04891	n/a	n/a	n/a	n/a	84	1.19	sqrt(x)	0.05	Inter
Mercury, total (mg/L)	0.000064	n/a	n/a	n/a	n/a	84	40.48	n/a	0.01345	NP Inter(normality)
Molybdenum, total (mg/L)	0.0007	n/a	n/a	n/a	n/a	79	92.41	n/a	0.01738	NP Inter(NDs)
Selenium, total (mg/L)	0.00245	n/a	n/a	n/a	n/a	84	42.86	n/a	0.01345	NP Inter(normality)
Thallium, total (mg/L)	0.001874	n/a	n/a	n/a	n/a	82	67.07	n/a	0.01491	NP Inter(NDs)

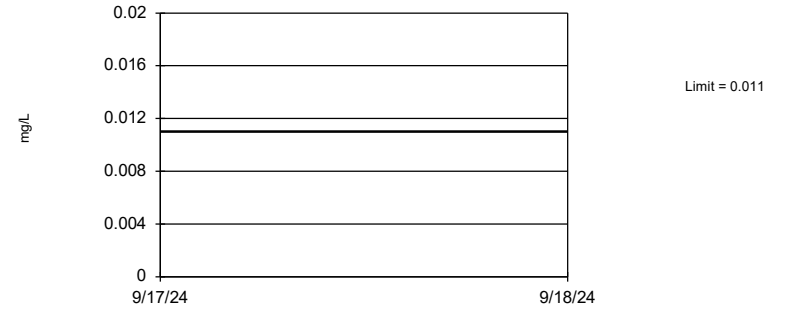
### Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 84 background values. 80.95% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Antimony, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

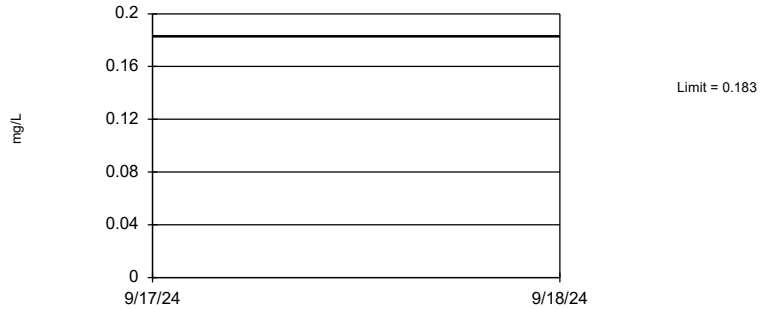
### Tolerance Limit Interwell Non-parametric



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 84 background values. 32.14% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Arsenic, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

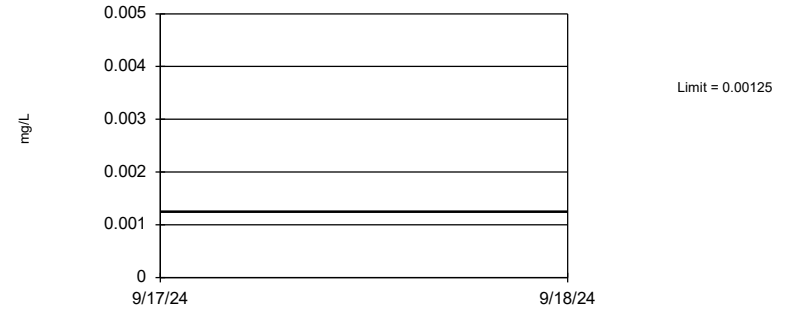
### Tolerance Limit Interwell Non-parametric



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 84 background values. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Barium, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

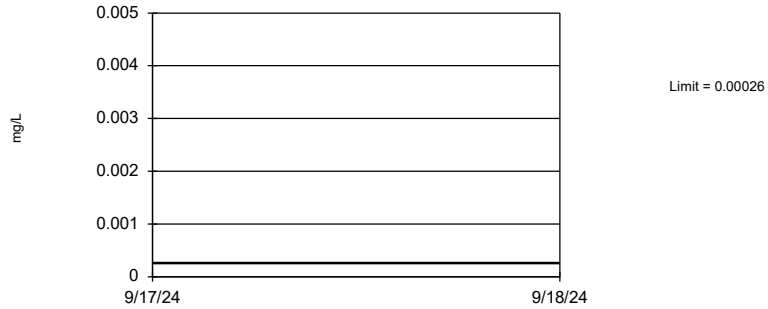
### Tolerance Limit Interwell Non-parametric



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 84 background values. 7.143% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Beryllium, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

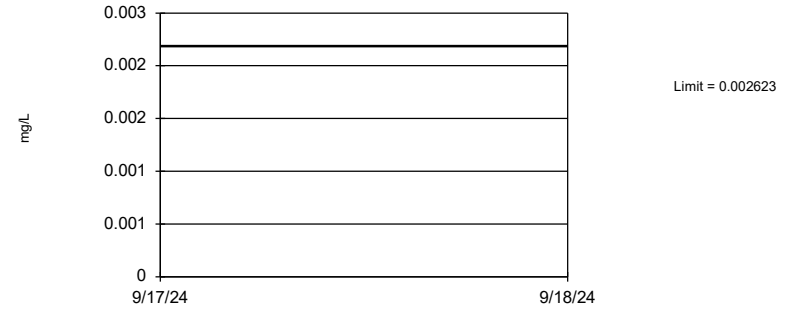
### Tolerance Limit Interwell Non-parametric



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 84 background values. 39.29% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Cadmium, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

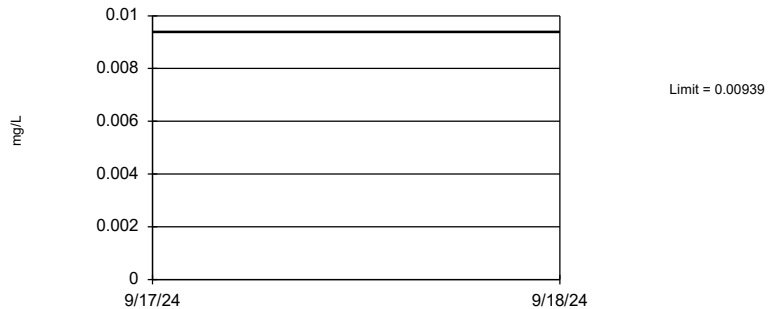
### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation): Mean=-7.627, Std. Dev.=0.8613, n=84, 8.333% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9615, critical = 0.96. Report alpha = 0.05.

Constituent: Chromium, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

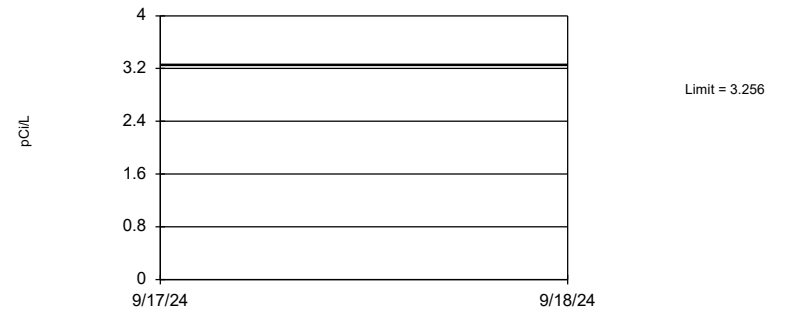
### Tolerance Limit Interwell Non-parametric



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 84 background values. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Cobalt, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

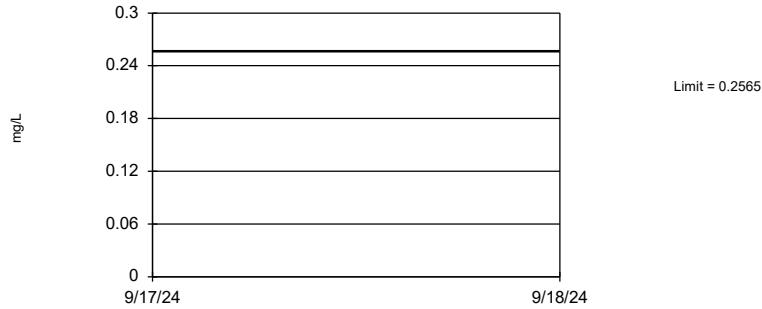
### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=1.055, Std. Dev.=0.3836, n=84. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9676, critical = 0.96. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limit  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

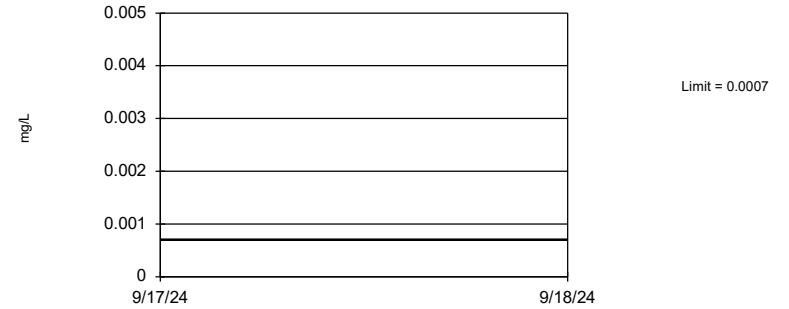
### Tolerance Limit Interwell Non-parametric



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 87 background values. 47.13% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01153.

Constituent: Fluoride, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### 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 84 background values. 47.62% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Lead, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

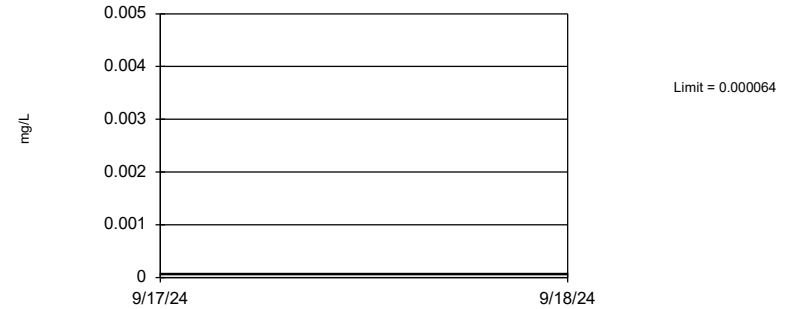
### Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on square root transformation): Mean=0.1306, Std. Dev.=0.04633, n=84, 1.19% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9731, critical = 0.96. Report alpha = 0.05.

Constituent: Lithium, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tolerance Limit Interwell Non-parametric

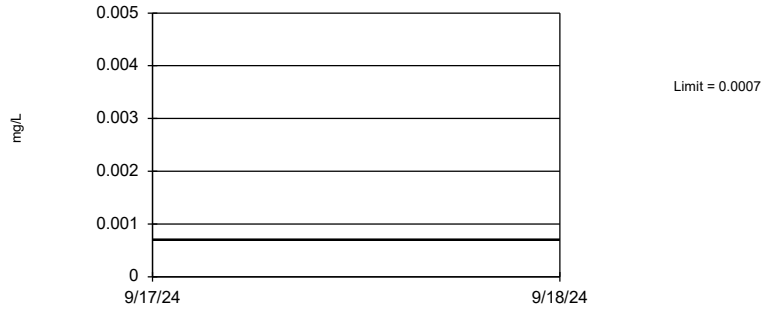


Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 84 background values. 40.48% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Mercury, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP



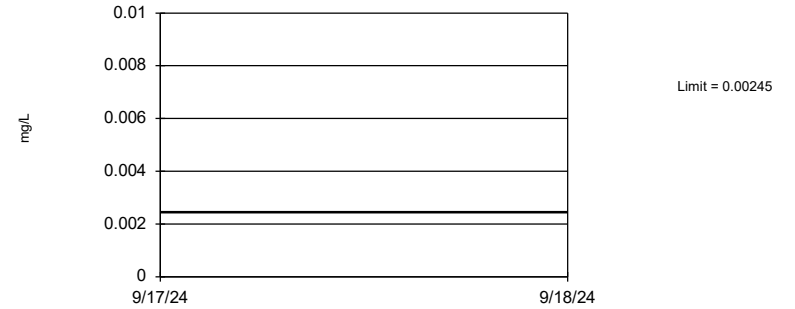
### Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 79 background values. 92.41% NDs. 94.34% coverage at alpha=0.01; 96.29% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01738.

Constituent: Molybdenum, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

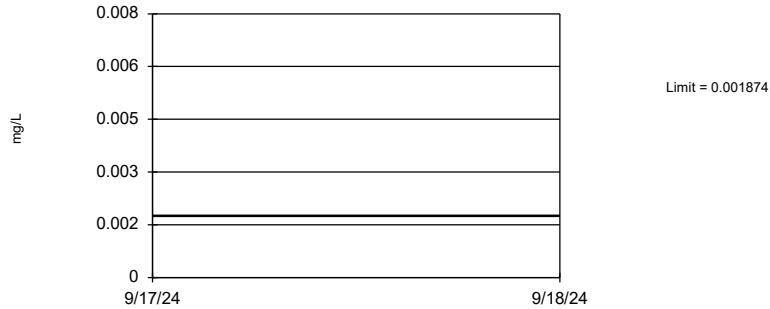
### Tolerance Limit Interwell Non-parametric



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 84 background values. 42.86% NDs. 94.73% coverage at alpha=0.01; 96.68% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01345.

Constituent: Selenium, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Tolerance Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 50%. Limit is highest of 82 background values. 67.07% NDs. 94.73% coverage at alpha=0.01; 96.29% coverage at alpha=0.05; 99.02% coverage at alpha=0.5. Report alpha = 0.01491.

Constituent: Thallium, total Analysis Run 12/4/2024 10:07 AM View: Upper Tolerance Limits  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

FIGURE I  
GWPS

<b>PIRKEY EBAP GWPS</b>			
<b>Constituent Name</b>	<b>MCL</b>	<b>Background Limit</b>	<b>GWPS</b>
Antimony, Total (mg/L)	0.006	0.0001	0.006
Arsenic, Total (mg/L)	0.01	0.011	0.011
Barium, Total (mg/L)	2	0.18	2
Beryllium, Total (mg/L)	0.004	0.0013	0.004
Cadmium, Total (mg/L)	0.005	0.00026	0.005
Chromium, Total (mg/L)	0.1	0.0026	0.1
Cobalt, Total (mg/L)	n/a	0.0094	0.0094
Combined Radium, Total (pCi/L)	5	3.26	5
Fluoride, Total (mg/L)	4	0.26	4
Lead, Total (mg/L)	n/a	0.0007	0.0007
Lithium, Total (mg/L)	n/a	0.049	0.049
Mercury, Total (mg/L)	0.002	0.000064	0.002
Molybdenum, Total (mg/L)	n/a	0.0007	0.0007
Selenium, Total (mg/L)	0.05	0.0025	0.05
Thallium, Total (mg/L)	0.002	0.0019	0.002

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

*\*MCL = Maximum Contaminant Level*

*\*GWPS = Groundwater Protection Standard*

FIGURE J  
Confidence Intervals

# Appendix IV - Confidence Intervals - Significant Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 12/11/2024, 9:40 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig. N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt, total (mg/L)	AD-2	0.0313	0.02303	0.0094	Yes 9	0.02717	0.004281	0	None	No	0.01	Param.
Cobalt, total (mg/L)	AD-31	0.01052	0.009469	0.0094	Yes 27	0.01002	0.001141	0	None	sqrt(x)	0.01	Param.
Cobalt, total (mg/L)	AD-32	0.04789	0.02796	0.0094	Yes 28	0.03793	0.02133	0	None	No	0.01	Param.
Lithium, total (mg/L)	AD-2	0.07823	0.0583	0.05	Yes 9	0.06827	0.01032	0	None	No	0.01	Param.
Lithium, total (mg/L)	AD-31	0.08856	0.07665	0.05	Yes 28	0.0818	0.01321	0	None	x^2	0.01	Param.
Lithium, total (mg/L)	AD-32	0.09261	0.07212	0.05	Yes 26	0.08237	0.02101	0	None	No	0.01	Param.

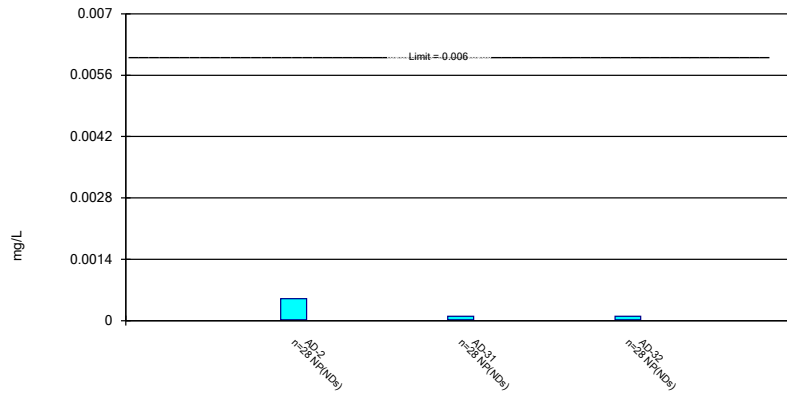
# Appendix IV - Confidence Intervals - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 12/11/2024, 9:40 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig. N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony, total (mg/L)	AD-2	0.0005	0.00002	0.006	No 28	0.0004478	0.0001536	89.29	None	No	0.01	NP (NDs)
Antimony, total (mg/L)	AD-31	0.0001	0.00002	0.006	No 28	0.00009068	0.00002745	89.29	None	No	0.01	NP (NDs)
Antimony, total (mg/L)	AD-32	0.0001	0.00002	0.006	No 28	0.00008143	0.00003625	78.57	None	No	0.01	NP (NDs)
Arsenic, total (mg/L)	AD-2	0.002	0.00055	0.011	No 28	0.001243	0.0006983	35.71	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	AD-31	0.003317	0.00027	0.011	No 27	0.00169	0.002454	11.11	None	No	0.01	NP (normality)
Arsenic, total (mg/L)	AD-32	0.00453	0.002244	0.011	No 28	0.003726	0.00283	3.571	None	sqrt(x)	0.01	Param.
Barium, total (mg/L)	AD-2	0.02777	0.01973	2	No 28	0.02497	0.009153	0	None	ln(x)	0.01	Param.
Barium, total (mg/L)	AD-31	0.069	0.0332	2	No 27	0.04787	0.02355	0	None	No	0.01	NP (normality)
Barium, total (mg/L)	AD-32	0.03555	0.02667	2	No 28	0.03111	0.009501	0	None	No	0.01	Param.
Beryllium, total (mg/L)	AD-2	0.000744	0.0004397	0.004	No 28	0.0006013	0.0002198	3.571	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	AD-31	0.00104	0.000854	0.004	No 27	0.001029	0.0003092	0	None	No	0.01	NP (normality)
Beryllium, total (mg/L)	AD-32	0.005148	0.002767	0.004	No 28	0.003957	0.002547	0	None	No	0.01	Param.
Cadmium, total (mg/L)	AD-2	0.001	0.000086	0.005	No 28	0.0004183	0.0004421	35.71	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	AD-31	0.0008589	0.000065	0.005	No 28	0.0003345	0.0004187	25	None	No	0.01	NP (normality)
Cadmium, total (mg/L)	AD-32	0.0004969	0.0002827	0.005	No 28	0.0003898	0.0002292	0	None	No	0.01	Param.
Chromium, total (mg/L)	AD-2	0.0009	0.00037	0.1	No 28	0.001208	0.001497	21.43	None	No	0.01	NP (normality)
Chromium, total (mg/L)	AD-31	0.003	0.00041	0.1	No 26	0.003471	0.004964	7.692	None	No	0.01	NP (normality)
Chromium, total (mg/L)	AD-32	0.005	0.000646	0.1	No 28	0.003191	0.004505	0	None	No	0.01	NP (normality)
<b>Cobalt, total (mg/L)</b>	<b>AD-2</b>	<b>0.0313</b>	<b>0.02303</b>	<b>0.0094</b>	<b>Yes 9</b>	<b>0.02717</b>	<b>0.004281</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Cobalt, total (mg/L)</b>	<b>AD-31</b>	<b>0.01052</b>	<b>0.009469</b>	<b>0.0094</b>	<b>Yes 27</b>	<b>0.01002</b>	<b>0.001141</b>	<b>0</b>	<b>None</b>	<b>sqrt(x)</b>	<b>0.01</b>	<b>Param.</b>
<b>Cobalt, total (mg/L)</b>	<b>AD-32</b>	<b>0.04789</b>	<b>0.02796</b>	<b>0.0094</b>	<b>Yes 28</b>	<b>0.03793</b>	<b>0.02133</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Combined Radium 226 + 228 (pCi/L)	AD-2	1.76	1.176	5	No 28	1.468	0.625	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	AD-31	4.077	2.92	5	No 28	3.499	1.238	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	AD-32	5.862	3.812	5	No 27	5.014	2.342	0	None	sqrt(x)	0.01	Param.
Fluoride, total (mg/L)	AD-2	0.2	0.06	4	No 30	0.133	0.07489	40	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	AD-31	0.13	0.06	4	No 30	0.101	0.03968	40	None	No	0.01	NP (normality)
Fluoride, total (mg/L)	AD-32	0.6053	0.2498	4	No 29	0.5216	0.4502	17.24	Kaplan-Meier	sqrt(x)	0.01	Param.
Lead, total (mg/L)	AD-2	0.0006	0.0002	0.0007	No 28	0.0004176	0.0001998	35.71	None	No	0.01	NP (normality)
Lead, total (mg/L)	AD-31	0.00033	0.0002	0.0007	No 27	0.0004936	0.0007631	29.63	None	No	0.01	NP (normality)
Lead, total (mg/L)	AD-32	0.0003751	0.0001529	0.0007	No 28	0.0003842	0.0002905	39.29	Kaplan-Meier	x^(1/3)	0.01	Param.
<b>Lithium, total (mg/L)</b>	<b>AD-2</b>	<b>0.07823</b>	<b>0.0583</b>	<b>0.05</b>	<b>Yes 9</b>	<b>0.06827</b>	<b>0.01032</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Lithium, total (mg/L)</b>	<b>AD-31</b>	<b>0.08856</b>	<b>0.07665</b>	<b>0.05</b>	<b>Yes 28</b>	<b>0.0818</b>	<b>0.01321</b>	<b>0</b>	<b>None</b>	<b>x^2</b>	<b>0.01</b>	<b>Param.</b>
<b>Lithium, total (mg/L)</b>	<b>AD-32</b>	<b>0.09261</b>	<b>0.07212</b>	<b>0.05</b>	<b>Yes 26</b>	<b>0.08237</b>	<b>0.02101</b>	<b>0</b>	<b>None</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Mercury, total (mg/L)	AD-2	0.000084580	0.00004649	0.002	No 27	0.00007767	0.00006154	0	None	ln(x)	0.01	Param.
Mercury, total (mg/L)	AD-31	0.0005215	0.0001702	0.002	No 27	0.0004233	0.0004584	0	None	sqrt(x)	0.01	Param.
Mercury, total (mg/L)	AD-32	0.003608	0.001386	0.002	No 28	0.002942	0.003078	0	None	sqrt(x)	0.01	Param.
Molybdenum, total (mg/L)	AD-2	0.0008627	0.0005	0.0007	No 27	0.000696	0.000797	85.19	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	AD-31	0.0005	0.0004016	0.0007	No 26	0.0004789	0.0001288	80.77	None	No	0.01	NP (NDs)
Molybdenum, total (mg/L)	AD-32	0.0007621	0.00004	0.0007	No 26	0.0004924	0.0001056	92.31	None	No	0.01	NP (NDs)
Selenium, total (mg/L)	AD-2	0.002528	0.001466	0.05	No 28	0.002737	0.001646	17.86	Kaplan-Meier	sqrt(x)	0.01	Param.
Selenium, total (mg/L)	AD-31	0.0025	0.00038	0.05	No 28	0.001526	0.001556	25	None	No	0.01	NP (normality)
Selenium, total (mg/L)	AD-32	0.005778	0.001811	0.05	No 28	0.005335	0.006088	17.86	Kaplan-Meier	sqrt(x)	0.01	Param.
Thallium, total (mg/L)	AD-2	0.0005	0.0001	0.002	No 28	0.0002954	0.0002674	35.71	None	No	0.01	NP (normality)
Thallium, total (mg/L)	AD-31	0.0005	0.00009	0.002	No 27	0.0003071	0.0002488	44.44	None	No	0.01	NP (normality)
Thallium, total (mg/L)	AD-32	0.001093	0.00018	0.002	No 27	0.0006863	0.0007691	22.22	None	No	0.01	NP (normality)

### Non-Parametric Confidence Interval

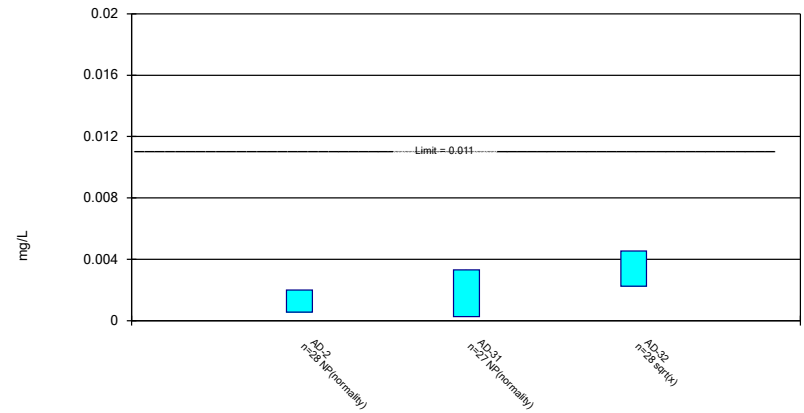
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Antimony, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

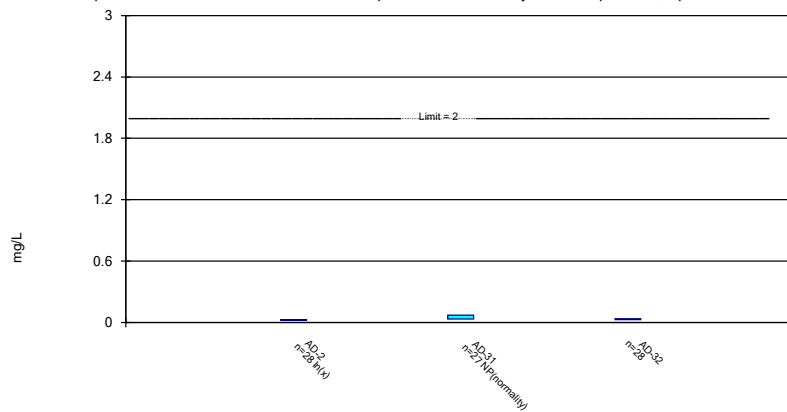
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

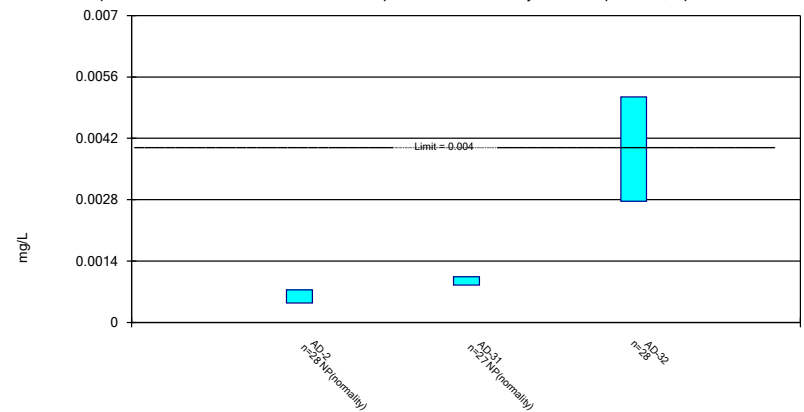
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

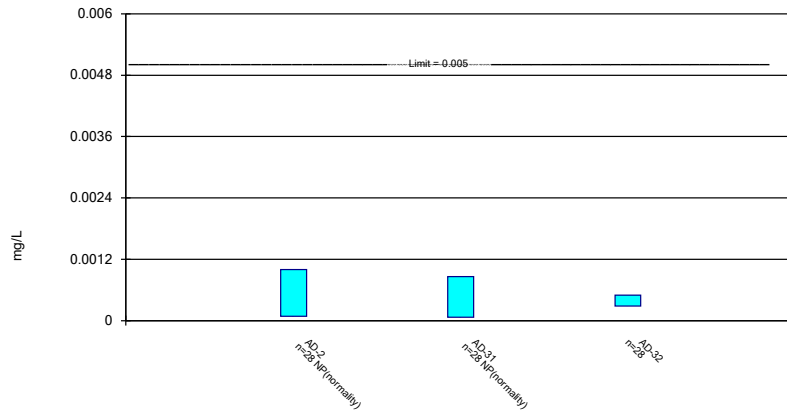
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

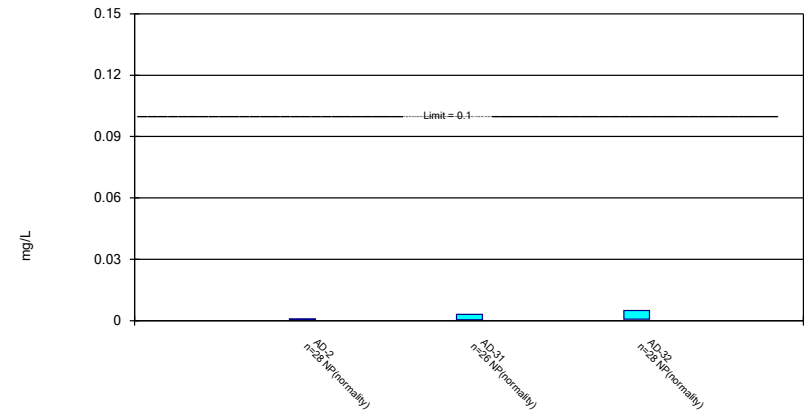
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Non-Parametric Confidence Interval

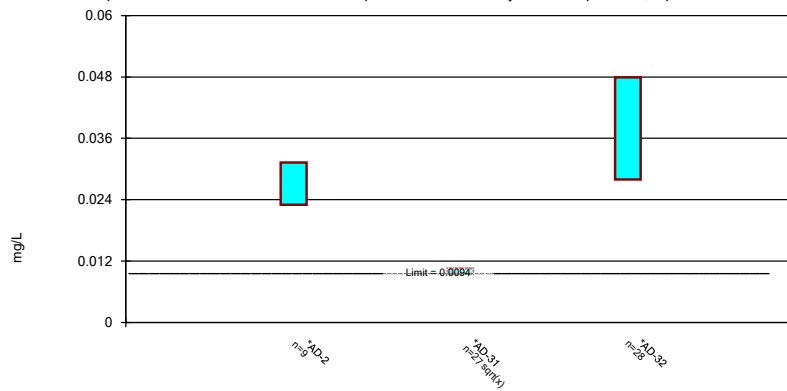
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Chromium, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric Confidence Interval

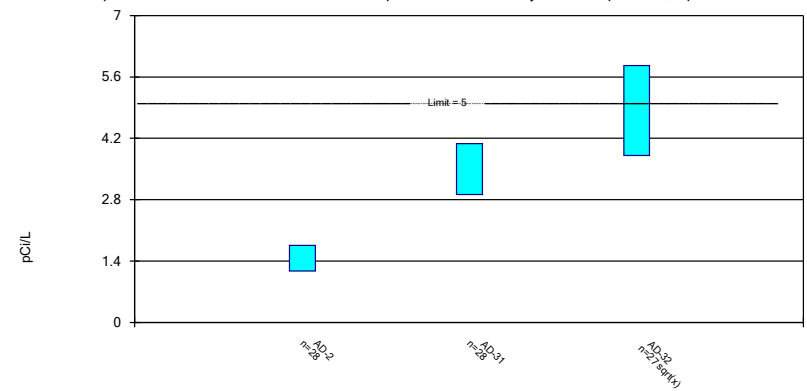
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric Confidence Interval

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

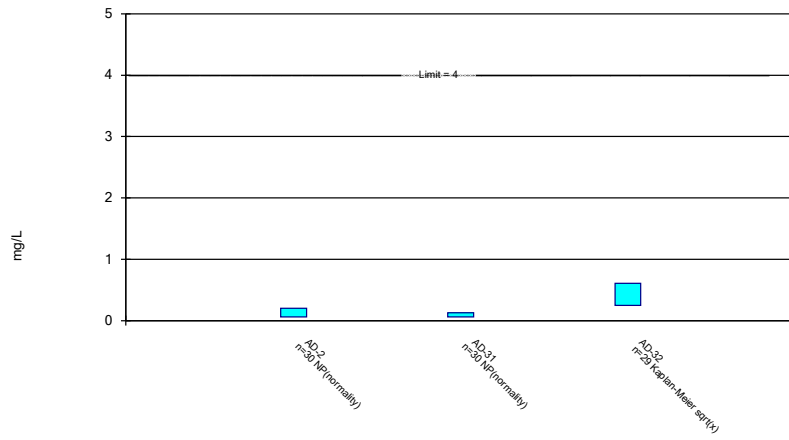


Constituent: Combined Radium 226 + 228 Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP



### Parametric and Non-Parametric (NP) Confidence Interval

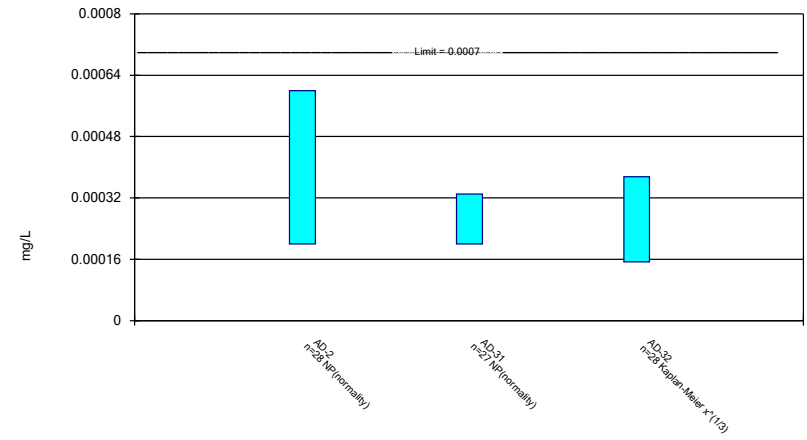
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

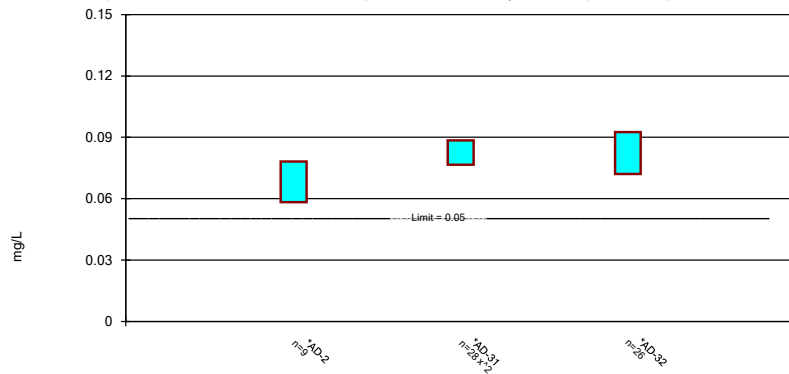
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lead, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric Confidence Interval

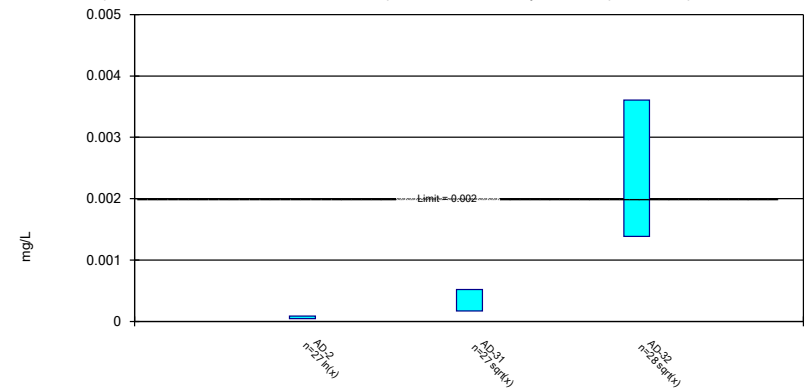
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric Confidence Interval

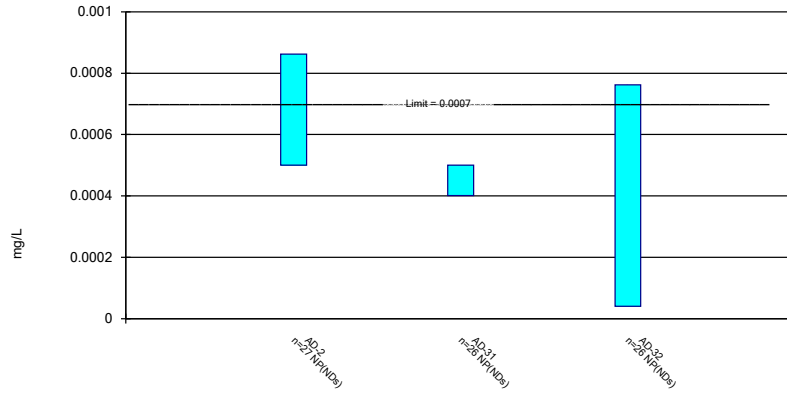
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Mercury, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Non-Parametric Confidence Interval

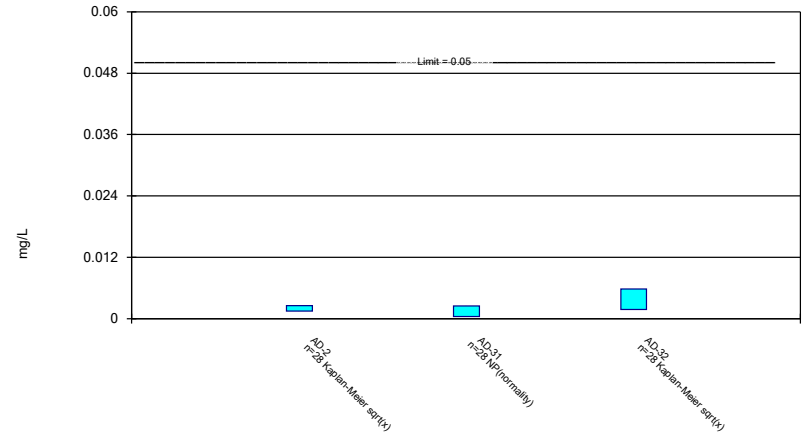
Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Molybdenum, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Parametric and Non-Parametric (NP) Confidence Interval

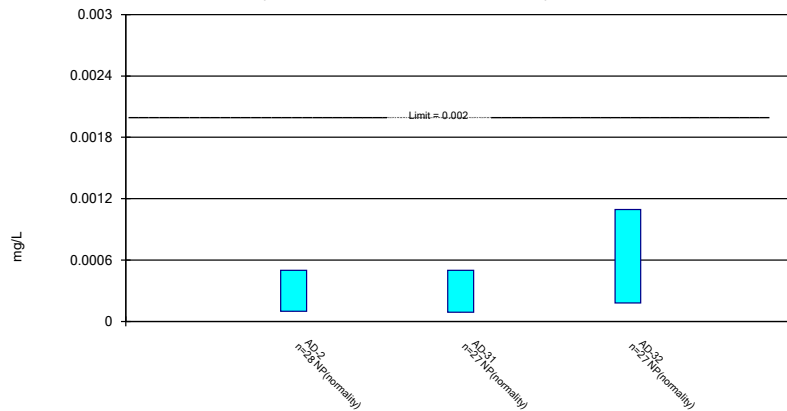
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Selenium, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Non-Parametric Confidence Interval

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



Constituent: Thallium, total Analysis Run 12/11/2024 9:39 AM View: Confidence Intervals  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

## FIGURE K

Upgradient Trend Tests – Appendix IV

# Appendix IV - Confidence Intervals - Significant Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/27/2024, 11:59 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Cobalt, total (mg/L)	AD-12 (bg)	-0.00004974	-139	-101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-18 (bg)	-0.00007867	-206	-101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-2	0.00246	319	101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-31	-0.0001691	-110	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-32	-0.005152	-191	-101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-4 (bg)	-0.000412	-199	-101	Yes	28	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-12 (bg)	-0.0004284	-115	-101	Yes	28	3.571	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-18 (bg)	-0.0007871	-139	-101	Yes	28	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-2	0.002409	168	96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-31	-0.001748	-104	-101	Yes	28	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-32	-0.006636	-186	-90	Yes	26	0	n/a	n/a	0.05	NP

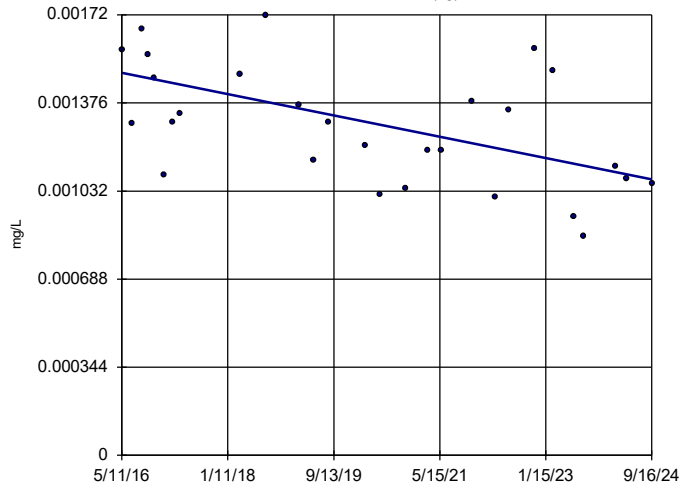
# Appendix IV - Trend Test Summary - All Results

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 11/27/2024, 11:59 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Cobalt, total (mg/L)	AD-12 (bg)	-0.00004974	-139	-101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-18 (bg)	-0.00007867	-206	-101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-2	0.00246	319	101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-31	-0.0001691	-110	-96	Yes	27	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-32	-0.005152	-191	-101	Yes	28	0	n/a	n/a	0.05	NP
Cobalt, total (mg/L)	AD-4 (bg)	-0.000412	-199	-101	Yes	28	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-12 (bg)	-0.0004284	-115	-101	Yes	28	3.571	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-18 (bg)	-0.0007871	-139	-101	Yes	28	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-2	0.002409	168	96	Yes	27	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-31	-0.001748	-104	-101	Yes	28	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-32	-0.006636	-186	-90	Yes	26	0	n/a	n/a	0.05	NP
Lithium, total (mg/L)	AD-4 (bg)	-0.001446	-91	-101	No	28	0	n/a	n/a	0.05	NP

### Sen's Slope Estimator

AD-12 (bg)

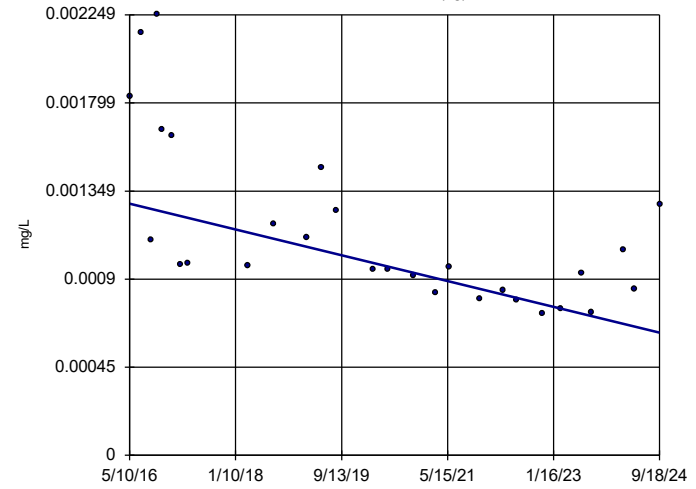


n = 28  
 Slope = -0.0004974  
 units per year.  
 Mann-Kendall  
 statistic = -139  
 critical = -101  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Cobalt, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

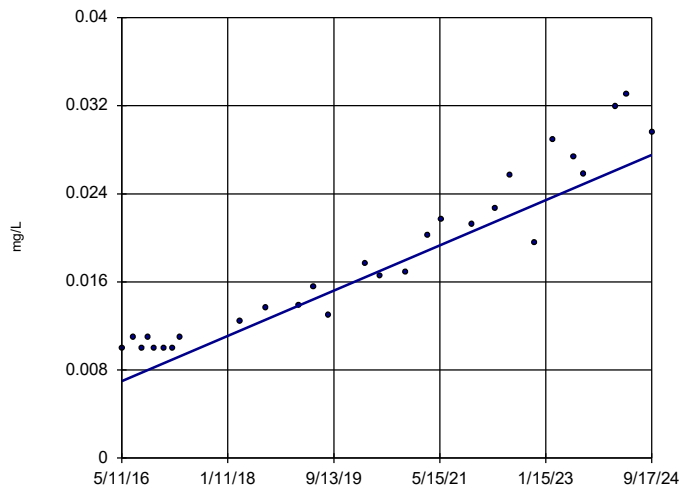


n = 28  
 Slope = -0.00007867  
 units per year.  
 Mann-Kendall  
 statistic = -206  
 critical = -101  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Cobalt, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-2

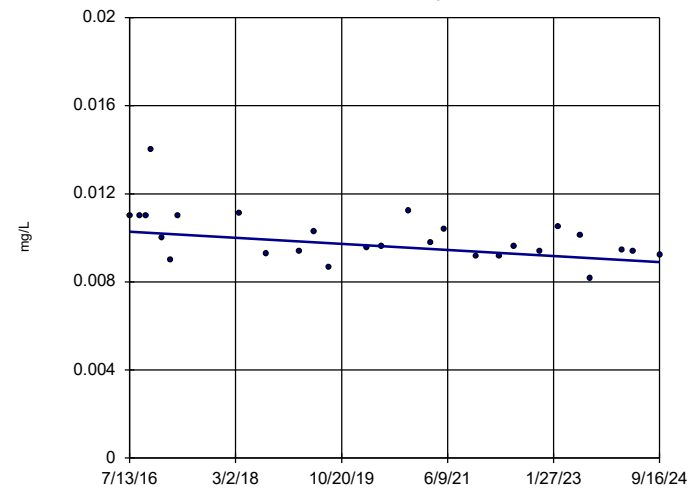


n = 28  
 Slope = 0.00246  
 units per year.  
 Mann-Kendall  
 statistic = 319  
 critical = 101  
 Increasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Cobalt, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-31

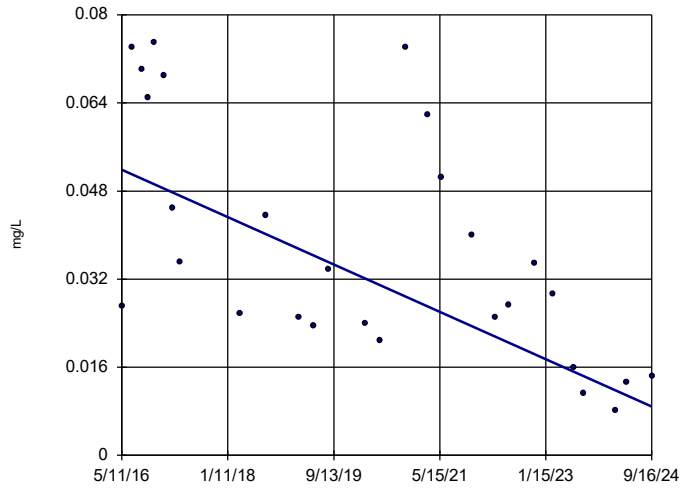


n = 27  
 Slope = -0.0001691  
 units per year.  
 Mann-Kendall  
 statistic = -110  
 critical = -96  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Cobalt, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-32

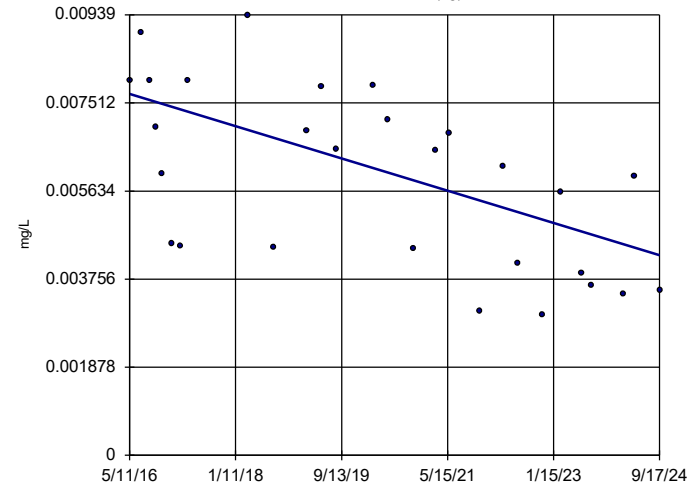


n = 28  
 Slope = -0.005152  
 units per year.  
 Mann-Kendall  
 statistic = -191  
 critical = -101  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Cobalt, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)

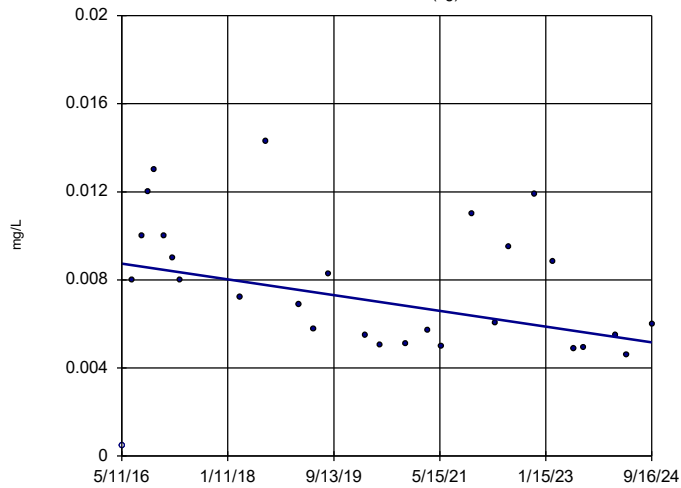


n = 28  
 Slope = -0.000412  
 units per year.  
 Mann-Kendall  
 statistic = -199  
 critical = -101  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Cobalt, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-12 (bg)

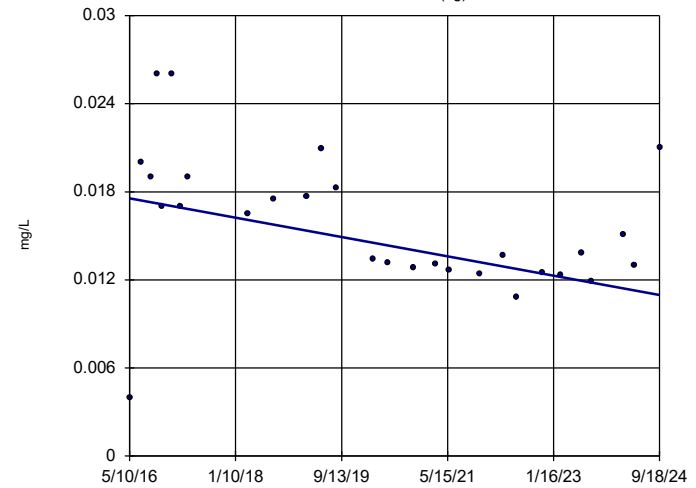


n = 28  
 Slope = -0.0004284  
 units per year.  
 Mann-Kendall  
 statistic = -115  
 critical = -101  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Lithium, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-18 (bg)

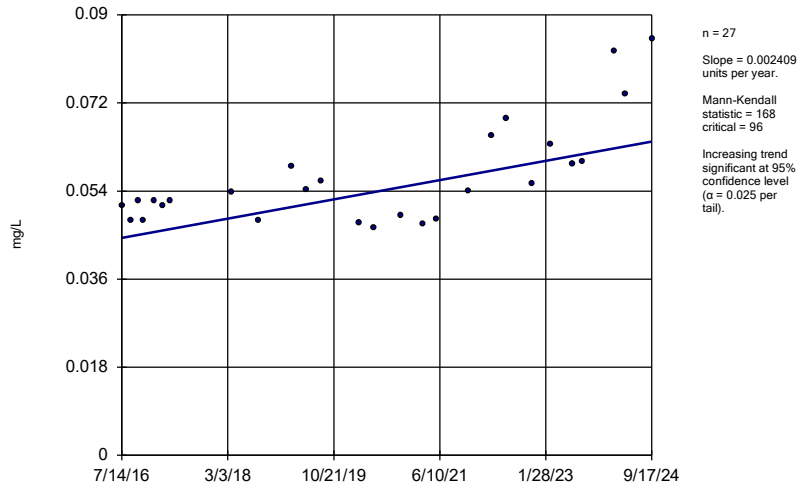


n = 28  
 Slope = -0.0007871  
 units per year.  
 Mann-Kendall  
 statistic = -139  
 critical = -101  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Lithium, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
 Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

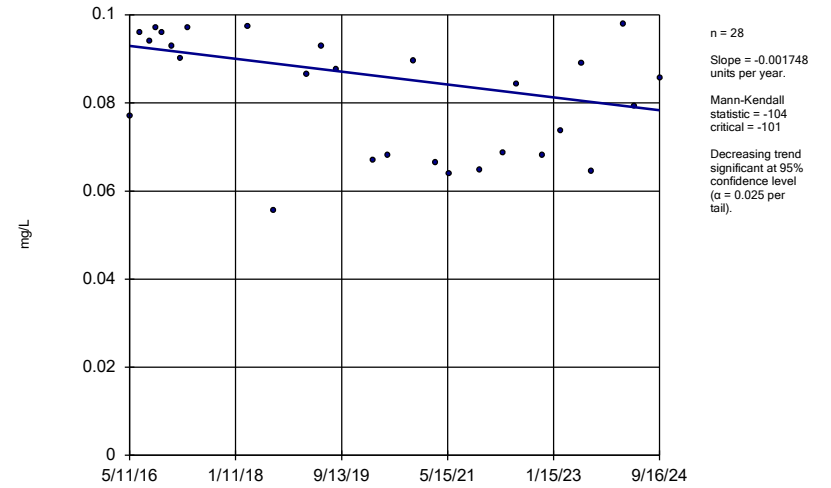
AD-2



Constituent: Lithium, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

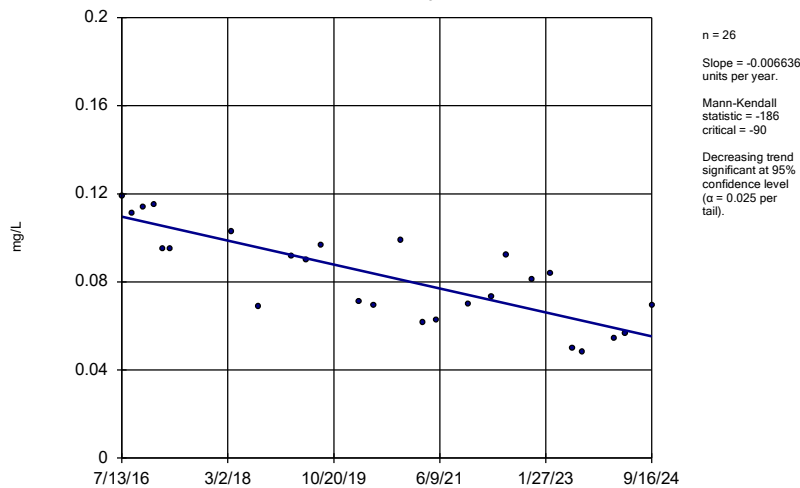
AD-31



Constituent: Lithium, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

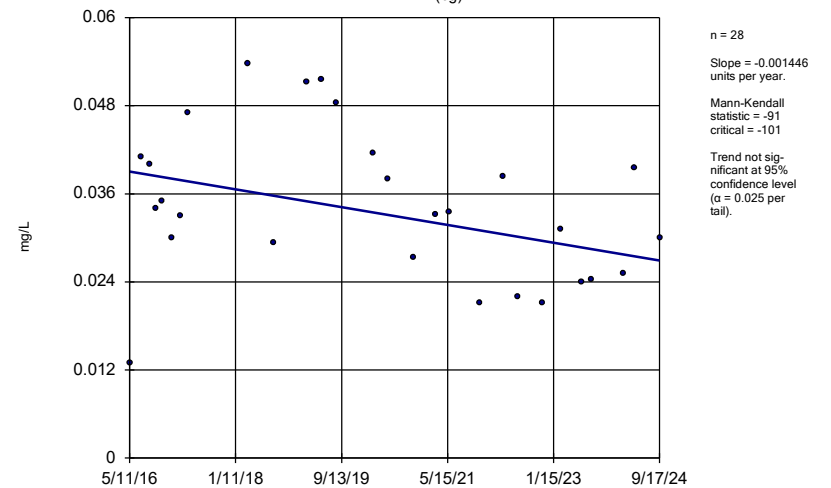
AD-32



Constituent: Lithium, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP

### Sen's Slope Estimator

AD-4 (bg)



Constituent: Lithium, total Analysis Run 11/27/2024 11:59 AM View: Trend Tests  
Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP



### **APPENDIX 3- Alternate Source Demonstrations**

Alternate source demonstrations are included in this appendix. Alternate sources are sources or reasons that explain that statistically significant increases over background or statistically significant levels above the groundwater protection standard are not attributable to the CCR unit.

---

# **ALTERNATIVE SOURCE DEMONSTRATION REPORT**

## **2024 1<sup>st</sup> SEMIANNUAL EVENT TEXAS STATE CCR RULE**

### **H.W. Pirkey Power Plant East Bottom Ash Pond Registration No. CCR104 Hallsville, Texas**

*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 CHA8495B

December 2024

## TABLE OF CONTENTS

1.	INTRODUCTION AND SUMMARY .....	1
1.1	CCR Rule Requirements .....	1
1.2	Demonstration of Alternative Sources .....	2
2.	SUMMARY OF SITE CONDITIONS.....	3
2.1	EBAP Design and Construction.....	3
2.2	Regional Geology / Site Hydrogeology .....	3
2.3	Groundwater Monitoring History and Flow Conditions .....	4
3.	ALTERNATIVE SOURCE DEMONSTRATION .....	5
3.1	Proposed Alternative Source .....	5
3.1.1	Cobalt .....	5
3.1.2	Lithium .....	7
4.	CONCLUSIONS AND RECOMMENDATIONS .....	9
5.	REFERENCES .....	10

## LIST OF TABLES

Table 1	Summary of Key Cobalt Analytical Data
Table 2	Soil Cobalt Data
Table 3	B-3 X-Ray Diffraction Results
Table 4	Summary of Key Lithium Analytical Data
Table 5	Soil Lithium Data
Table 6	Calculated Site-Specific Partition Coefficients

## LIST OF FIGURES

Figure 1	Potentiometric Contours: Uppermost Aquifer April 2024
Figure 2	Aqueous Cobalt Distribution
Figure 3	Cobalt Distribution in Soil
Figure 4	B-3 Visual Boring Log
Figure 5	Aqueous Lithium Distribution

## LIST OF ATTACHMENTS

Attachment A	Geologic Cross Section A-A'
Attachment B	SB-2 Boring Log
Attachment C	SB-2 Boring Photographic Log
Attachment D	SEM/EDS Analysis
Attachment E	Tolerance Limit Calculation Using B-Series Data
Attachment F	Certification by a Qualified Professional Engineer

## LIST OF ACRONYMS

Å	angstrom
ASD	alternative source demonstration
bgs	below ground surface
CCR	coal combustion residuals
EBAP	East Bottom Ash Pond
EDS	energy-dispersive spectroscopy
EPRI	Electric Power Research Institute
GWPS	groundwater protection standard
LCL	lower confidence limit
mg/kg	milligram per kilogram
mg/L	milligram per liter
SEM	scanning electron microscopy
SPLP	Synthetic Precipitation Leaching Procedure
SSL	statistically significant level
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
VAP	vertical aquifer profiling
WBAP	West Bottom Ash Pond
XRD	X-ray diffraction

## 1. INTRODUCTION AND SUMMARY

This alternative source demonstration (ASD) report has been prepared to address statistically significant levels (SSLs) for cobalt and lithium in the groundwater monitoring network for the former East Bottom Ash Pond (EBAP), located at the H.W. Pirkey Plant in Hallsville, Texas, following the first semiannual assessment monitoring event of 2024. The H.W. Pirkey Plant has four coal combustion residuals (CCR) storage units regulated by the Texas Commission on Environmental Quality (TCEQ) under Registration No. CCR104 (**Figure 1**). Three of the units, including the former EBAP, have been closed by removal, and one unit is still active.

In April 2024, a semiannual assessment monitoring event was conducted at the former EBAP in accordance with the Texas Administrative Code (TAC), Title 30, §352.951(a) [30 TAC §352.951(a)]. The monitoring data were submitted to Groundwater Stats Consulting, LLC for statistical analysis. Confidence intervals were recalculated for the Appendix IV parameters at the compliance wells to assess whether these parameters were present at SSLs above the groundwater protection standards (GWPSs). An SSL was concluded if the lower confidence limit (LCL) of a parameter exceeded the GWPS (i.e., if the entire confidence interval exceeded the GWPS). The following SSLs were identified at the former EBAP (Geosyntec 2024):

- The LCLs for cobalt exceeded the GWPS of 0.00939 milligrams per liter (mg/L) at AD-2 (0.0143 mg/L), AD-31 (0.00948 mg/L), and AD-32 (0.0287 mg/L).
- The LCL for lithium exceeded the GWPS of 0.0497 mg/L at AD-2 (0.0569 mg/L), AD-31 (0.0681 mg/L), and AD-32 (0.0723 mg/L).

No other SSLs were identified.

### 1.1 CCR Rule Requirements

TCEQ regulations regarding assessment monitoring programs for CCR landfills and surface impoundments provide owners and operators with the option to make an ASD when an SSL is identified:

In making a demonstration under this subsection, the owner or operator must, within 90 days of detecting a statistically significant level above the groundwater protection standard of any constituent listed in Appendix IV adopted by reference in §352.1431 of this title, submit a report prepared and certified in accordance with §352.4 of this title (relating to Engineering and Geoscientific Information) to the executive director, and any local pollution agency with jurisdiction that has requested to be notified, demonstrating that a source other than a CCR unit caused the exceedance or that the exceedance resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. (30 TAC §352.951(e))

Pursuant to 30 TAC §352.951(e), Geosyntec Consultants, Inc. (Geosyntec) has prepared this ASD report to document that the SSLs identified for cobalt and lithium in the groundwater monitoring network for the EBAP are from a source other than the former EBAP.

## 1.2 Demonstration of Alternative Sources

An evaluation was completed to assess possible alternative sources to which the identified SSLs could be attributed. Alternative sources were categorized into the following five types, based on methodology provided by the Electric Power Research Institute (EPRI 2017):

- ASD Type I: Sampling Causes
- ASD Type II: Laboratory Causes
- ASD Type III: Statistical Evaluation Causes
- ASD Type IV: Natural Variation
- ASD Type V: Alternative Sources (i.e., anthropogenic impacts)

A demonstration was conducted to show that the SSLs identified for cobalt and lithium were based on a Type IV cause and not by a release from the former Pirkey EBAP.

## 2. SUMMARY OF SITE CONDITIONS

The EBAP design and construction, regional geology and site hydrogeology, and groundwater monitoring system and flow conditions are described below.

### 2.1 EBAP Design and Construction

The EBAP was a 31.5-acre CCR surface impoundment located at the north end of the Pirkey Plant, immediately east of the West Bottom Ash Pond (WBAP) (**Figure 1**). It was constructed while the Pirkey Plant was being developed in 1983 and 1984 and placed into operation in 1985 to receive bottom ash and economizer ash sluiced from the Plant boiler (Arcadis 2016). Pirkey Power Plant placed CCR and non-CCR waste streams into the pond complex, alternating between the EBAP and WBAP. Bottom ash generated at the plant was sluiced to one of the ponds (the active pond) until it was close to full. Bottom ash in the inactive pond was drained and dewatered, and then removed from the pond. Dry ash was loaded into trucks and transported to the Landfill. It typically took approximately twelve months for the active pond to fill, at which time the second pond (which has been emptied of bottom ash) became the active pond, and the first pond was drained.

A Closure Plan was developed in October 2016 and revised in December 2021 (AEP 2021). This document detailed the closure activities which were to take place throughout the closure of the EBAP. AEP submitted a certified notification that the receipt of CCR materials had ceased as of April 25, 2023 and the closure activities had been initiated (AEP 2023a). At that time, the EBAP commenced closure by removal in accordance with the Closure Plan, with CCR material removal occurring from April to June of 2023. The final inspection for CCR material removal was completed on July 20, 2023. On October 17, 2023, the EBAP was certified closed by removal in accordance with 30 TAC §352.1221 and the most recent Closure Plan, and notification was placed in the Operating Record (AEP 2023b).

The former EBAP was developed by excavating part of its perimeter into native soils to create an embankment height of approximately 4 feet, constructing compacted clay perimeter embankments, and constructing a compacted clay liner over the base of the pond (Arcadis 2016). Multiple lithological borings advanced after the installation of the clay liner confirm that at least 6 feet of clay was present below the base of the EBAP (Arcadis 2016). The bottom elevation of the EBAP was approximately 347 feet above mean sea level, and the elevation of the top of the pond embankment was approximately 357 feet above mean sea level.

### 2.2 Regional Geology / Site Hydrogeology

The former EBAP was positioned on an outcrop of the Eocene-age Recklaw Formation, which consists predominantly of clay and fine-grained sand (Arcadis 2016). The Recklaw Formation is underlain by the Carrizo Sand, which crops out in the topographically lower southern portion of the plant. Regionally, the Carrizo Sand consists of fine- to medium-grained sand interbedded with silt and clay.

The very-fine- to fine-grained clayey and silty sand found beneath an upper silty to silty sandy clay layer in the vicinity of the former EBAP is considered to be the Uppermost Aquifer below this CCR unit (Arcadis, 2016). Here it is approximately 15-feet thick and located between an elevation of 325 and 340 feet mean sea level.



## 2.3 Groundwater Monitoring History and Flow Conditions

The groundwater monitoring well network for the former EBAP monitors groundwater within the Uppermost Aquifer. Geologic cross section A-A' from the EBAP Groundwater Monitoring Well Network Report (Arcadis 2016), provided herein as **Attachment A**, shows the subsurface geometry of the Uppermost Aquifer (indicated on the figure as clayey silty sand, tan to gray) underlying the former EBAP and the former WBAP and demonstrates lateral continuity of the Uppermost Aquifer spanning the entire length of the former EBAP.

Groundwater flow direction in the area of the former EBAP is west-southwesterly (**Figure 1**). Seasonal variability in groundwater flow has not been observed since the monitoring well network was installed. Groundwater flow velocities in the uppermost aquifer in the vicinity of the former EBAP have been reported as approximately 6 to 44 feet per year. The monitoring network for the former EBAP unit consists of upgradient monitoring wells AD-4, AD-12, and AD-18 and compliance wells AD-2, AD-3, AD-31, and AD-32, all of which are screened within the Uppermost Aquifer.

### 3. ALTERNATIVE SOURCE DEMONSTRATION

The ASD evaluation method and proposed alternative source of cobalt or lithium in AD-2, AD-31, and AD-32 are described below.

#### 3.1 Proposed Alternative Source

An initial review of site geochemistry, site historical data, and laboratory quality assurance and quality control data did not identify alternative sources for cobalt and lithium due to Type I (sampling), Type II (laboratory), Type III (statistical evaluation), or Type V (anthropologic) issues. Groundwater sampling, laboratory analysis, and statistical evaluations were generally completed in accordance with 30 TAC §352.931 and the draft TCEQ guidance for groundwater monitoring (TCEQ 2020). As described below, the SSLs have been attributed to natural variation associated with the underlying geology, which is a Type IV (natural variation) issue.

##### 3.1.1 Cobalt

Previous ASDs for cobalt at the former EBAP provided evidence that cobalt is present in the aquifer geologic media at the site and that the observed cobalt concentrations in groundwater were due to natural variation of native geogenic sources (Geosyntec 2019a, Geosyntec 2019b, Geosyntec 2020b, Geosyntec 2020c, Geosyntec 2021a, Geosyntec 2021b, Geosyntec 2022a, Geosyntec 2022b, Geosyntec 2023b, Geosyntec 2023c, Geosyntec 2023d). The previous ASDs demonstrated how the former EBAP was not a source for cobalt in downgradient groundwater, based on observed concentrations of cobalt both in the ash material and in leachate from Synthetic Precipitation Leaching Procedure (SPLP) analysis (SW-846 Test Method 1312 [United States Environmental Protection Agency 1994]) of the ash material. Cobalt was not detected in the most recent SPLP ash leachate sample, collected in 2019, below the reporting limit of 0.01 mg/L, which is lower than the average concentrations of 0.0115 to 0.0389 mg/L observed at the wells of interest (**Table 1**).

In a February 2023 surface water sample collected from the EBAP to characterize the total cobalt concentrations, cobalt was detected at a concentration of 0.00350 mg/L (**Table 1**). This concentration is lower than the reported cobalt concentrations for multiple in-network wells from the April 2024 sampling event, including the upgradient monitoring well AD-4 (0.00595 mg/L; **Figure 2**). The cobalt concentration of the EBAP sample was also found to be approximately an order of magnitude lower than the average concentration in groundwater at the wells of interest (**Table 1**). Therefore, the former EBAP is not the likely source of cobalt at AD-2, AD-31, or AD-32.

As noted in the previous ASDs, soil samples collected across the site, including from locations near the former EBAP, identified cobalt in the aquifer solids at concentrations ranging from non-detect to 23.5 milligrams per kilogram (mg/kg), with the highest value reported at AD-41, which is upgradient of the EBAP and WBAP (**Figure 3**). SB-2 was advanced in the vicinity of AD-2 in April 2020 to re-log the geology at AD-2 and collect samples for laboratory analysis of total metals and mineralogy. The SB-2 field boring log, which was generated by Auckland Consulting LLC, is provided as **Attachment B**. Cobalt was detected at SB-2 at concentrations of 9.45 mg/kg at 25–27 feet below ground surface (bgs) and 19.2 mg/kg at 31–33 feet bgs (**Table 2**). These cobalt concentrations are greater than the concentration of cobalt present in the bottom ash (6.1 mg/kg; **Table 1**). Both samples correlate to the depth of the monitoring well screen of AD-2 (20–40 feet

bgs), indicating that naturally occurring cobalt is present in aquifer solids within the AD-2 screened interval.

In addition to the analysis of total cobalt, soil samples were submitted for mineralogical analysis to determine the mineral composition of soils near the former EBAP. X-ray diffraction (XRD) analysis of soils from SB-2 identified pyrite (an iron sulfide) in samples collected at 25–27 feet bgs and 31–33 feet bgs at concentrations up to 7% by weight (**Figure 3**). Cobalt is known to undergo isomorphic substitution for iron in crystalline iron minerals such as pyrite due to their similar ionic radii of approximately 1.56 angstroms (Å) for iron and 1.52 Å for cobalt (Clementi and Raimondi 1963, Krupka and Serne 2002, Hitzman et al. 2017). The presence of iron-bearing minerals in soil near the former EBAP constitutes a potential source of naturally occurring cobalt.

The aquifer solids at SB-2 are distinctly red in color at shallow depths, as illustrated in the photolog of soil cores provided in **Attachment C**. The red color of the soil suggests the presence of iron oxide and hydroxide minerals within the shallow depth interval. While shallow samples were not collected for mineralogical analysis, red color in soils is often associated with the presence of oxidized iron-bearing minerals such as hematite and goethite. The weathering of pyrite to these iron oxide and hydroxide minerals under oxidizing conditions is also a well-understood phenomenon, including in formations in east Texas (Senkayi et al. 1986, Dixon et al. 1982). It is likely that the pyrite weathering process is resulting in the release of isomorphically substituted cobalt from the pyrite crystal structure as it undergoes oxidative transformation to iron oxide/hydroxide minerals.

As described in the previous ASDs for the former EBAP, vertical aquifer profiling (VAP) was completed in May 2019 to collect groundwater samples from upgradient locations B-2 and B-3 during the soil boring and sample collection process (Geosyntec 2019b). A groundwater sample was also collected from AD-32, one of the existing compliance wells within the EBAP groundwater monitoring network where a cobalt SSL was identified. Solid-phase materials within these groundwater samples were separated and submitted for analysis of chemical composition. For the VAP samples, because of the high abundance of suspended solids, separation was completed using a centrifuge. For the groundwater sample at AD-32, the sample was filtered using a 1.5-micron filter. Based on total metals analysis, cobalt was identified both in the centrifuged solid material collected from upgradient VAP location B-3 (VAP-B3-[40-45]) and in the material retained on the filter after processing groundwater from permanent monitoring wells B-2 and B-3 (**Table 2**). The concentrations of cobalt in the solid material retained after filtration were comparable to concentrations in the bulk soil samples collected from the same locations.

The solid sample VAP-B3-(40-45) was submitted for mineralogical analysis via XRD and scanning electron microscopy (SEM) using an energy-dispersive spectroscopy (EDS) analyzer. The XRD results identified pyrite as approximately 3% of the solid phase (**Table 3**). Pyrite was identified during SEM/EDS analysis of lignite, which is mined immediately adjacent to the site. Logging completed while the VAP boring was advanced identified coal at several intervals, including 45 and 48 feet bgs (**Figure 4**). Furthermore, SEM/EDS of both centrifuged solid samples VAP-B3-(40-45) and VAP-B3-(50-55) identified pyrite in backscattered electron micrographs by the distinctive framboidal morphology (Harris et al. 1981, Sawlowicz 2000). Major peaks representing iron and sulfur were identified in the EDS spectrum, which further support the identification of pyrite (**Attachment D**). While cobalt was not identified in the EDS spectrum, it is likely present at concentrations below the detection limit.

The former EBAP was not identified as the source of cobalt at wells in the EBAP monitoring network based on the low concentrations of cobalt in the pond itself and the ubiquity of naturally occurring cobalt, especially in soil and groundwater samples upgradient from the EBAP. Cobalt in the EBAP network groundwater is believed to be a result of natural variability within the aquifer. Naturally occurring cobalt is known to substitute for iron in iron-bearing minerals. The presence of iron sulfide (as pyrite) and iron oxides/hydroxides hematite and goethite has been confirmed at AD-2 and across the site. The weathering of pyritic minerals to iron oxide/hydroxide minerals may be resulting in the release of cobalt into groundwater from the crystal structure of these aquifer minerals.

### 3.1.2 Lithium

Previous ASDs for lithium at the former EBAP attributed the observed lithium exceedances at AD-2, AD-31, and AD-32 to variations in lithium associated with the suspended native aquifer solids that likely originate from naturally occurring lignite present in these soils. These native lithium-containing aquifer solids are ubiquitous in the aquifer based on the presence of both solid-phase and dissolved lithium at upgradient locations (Geosyntec 2019b, Geosyntec 2020b, Geosyntec 2020c, Geosyntec 2021a, Geosyntec 2021b, Geosyntec 2022, Geosyntec 2023b, Geosyntec 2023c, Geosyntec 2023d). Data gathered in support of the prior ASDs and recent results provide additional evidence that the observed lithium groundwater concentrations at AD-2, AD-31, and AD-32 are naturally occurring and are due to natural variation in the aquifer (Type IV ASD).

As discussed in Section 3.1.1, a surface water sample was collected directly from the EBAP in February 2023. Lithium was detected in the February 2023 EBAP sample at a concentration of 0.0653 mg/L (**Figure 5, Table 4**). This concentration is below the reported lithium value at AD-2 and comparable to the reported values at AD-31 and AD-32 (**Figure 5**). The labile fraction identified in the bottom ash by SPLP from a February 2019 sample was even lower, with an estimated (J-flagged) lithium concentration of 0.011 mg/L. This labile concentration is below the average lithium concentrations at AD-2 (0.0536 mg/L), AD-31 (0.0816 mg/L) and AD-32 (0.0837 mg/L) (**Table 4**). Therefore, the former EBAP is not the likely source of lithium at AD-2, AD-31 and AD-32.

Groundwater samples collected from upgradient wells B-2 and B-3 in April 2024 had total lithium concentrations of 0.0484 mg/L and 0.0658 mg/L, respectively (**Figure 5**). Because B-2 and B-3 were installed at locations upgradient to and unimpacted by site activities, these lithium concentrations suggest that aqueous lithium is naturally present at concentrations above the GWPS across the site at variable concentrations and not limited to AD-2, AD-31, and AD-32.

B-2 and B-3 are not part of the monitoring network for the former EBAP, and as such the lithium concentrations in groundwater from these wells were not considered in calculating the GWPS for the CCR unit. The addition of B-2 and B-3 as background locations to the monitoring network would result in a site-specific GWPS of 0.122 mg/L (**Attachment E**). This is higher than the lower confidence limits at the wells of concern (Section 1), suggesting that concentrations of lithium within the observed ranges at AD-2, AD-31, and AD-32 are naturally occurring across the site.

As described in Section 3.1.1, groundwater samples were collected from B-2, B-3, and AD-32 in 2019 and filtered to separate solids. Groundwater was also collected from a VAP boring (VAP-B3-[40-45]) and centrifuged to separate solids. Lithium was detected in the solid material

separated from these groundwater samples at concentrations comparable to bulk soil at all locations, providing evidence that the particulates captured during groundwater sampling contain lithium (**Table 5**).

### **3.1.2.1 Calculated Partition Coefficients**

A previous ASD for lithium at the former EBAP discussed lithium mobility in groundwater due to desorption from cation exchange complexes associated with clay minerals within naturally occurring lignite material. This mechanism was posited as the source of lithium in both upgradient and downgradient wells at the former EBAP (Geosyntec 2019b). Previously completed XRD analysis of centrifuged solid material samples (VAP-B3-[40-45]) found that clay minerals, including kaolinite, smectite, and illite/mica, made up at least 60% of the aquifer solid (**Table 3**). SEM/EDS analysis also identified the presence of silicon, aluminum, and oxygen, all of which are components of clay minerals (**Attachment D**). The backscattered electron micrographs of these samples also identified clay particles by morphology. The largest clay particles ( $\geq 5$  micrometers) are likely kaolinite, while smectite and illite dominate the smaller fraction. These clay minerals, particularly smectite and illite, are known to retain cations such as lithium via incorporation into the octahedral layer of the mineral structure and through cation exchange processes.

Partition coefficients values ( $K_d$ ) for lithium, potassium, and sodium were calculated using mass measurements and total metal concentrations in the solid materials separated from the groundwater samples during filtration and the filtered groundwater concentrations. Details about the  $K_d$  calculation are provided in the previous ASD (Geosyntec 2019b).  $K_d$  values for groundwater and particulates collected from wells B-2, B-3, and AD-32 were comparable to literature  $K_d$  values reported for organic-rich media such as bogs and peat beds (Sheppard et al. 2009, Sheppard et al. 2011), providing further evidence that lithium mobility in site groundwater is similar to other sites with organic-rich soils (**Table 6**). Additionally, the calculated  $K_d$  values for Pirkey soils were consistent with the literature, with potassium having the highest  $K_d$  (greatest affinity for sorption) and sodium the lowest  $K_d$  (least affinity for sorption). Furthermore, the values are similar for groundwater from all three wells, suggesting a universal mechanism controlling lithium, sodium, and potassium mobility in groundwater.

These multiple lines of evidence show that elevated lithium concentrations at AD-2, AD-31, and AD-32 are likely not due to a release from the former EBAP and can instead be attributed to natural variation (Type IV ASD). This variation appears related to the distribution of clay fractions associated with lignite materials in the soil aquifer material.

#### 4. CONCLUSIONS AND RECOMMENDATIONS

The preceding information serves as the ASD prepared in accordance with 30 TAC §352.951(e) and supports the position that the SSLs for cobalt and lithium identified during assessment monitoring in April 2024 were not due to a release from the former EBAP. The identified SSLs should instead be attributed to natural variation in the underlying geology. Therefore, no further action is warranted. Certification of this ASD by a qualified professional engineer is provided in **Attachment F**.

## 5. REFERENCES

- AEP. 2021. Closure Plan. East and West Bottom Ash Ponds – Pirkey Power Plant, Hallsville, Texas. December.
- AEP, 2023a. Notification of Intent to Close a CCR Unit. Pirkey Power Plant, East Bottom Ash Pond. April.
- AEP, 2023b. Closure Completion Notification for Closure by Removal. Henry W. Pirkey Plant, East Bottom Ash Pond. October.
- Arcadis. 2016. East Bottom Ash Pond – CCR Groundwater Monitoring Well Network Evaluation. H.W. Pirkey Power Plant. May.
- Clementi, E., and D. L. Raimondi. 1963. “Atomic Screening Constants from SCF Functions.” *J. Chem. Phys.* 38(11): 2686–2689.
- Dixon, J.B., L.R. Hossner, A.L. Senkayi, and K. Egashira. 1982. “Mineralogical Properties of Lignite Overburden as They Relate to Mine Spoil Reclamation.” In *Acid Sulfate Weathering*, edited by J.A. Kittrick, D.S. Fanning, and L.R. Hossner, 169–191. Soil Science Society of America Special Publications.
- EPRI. 2017. Guidelines for Development of Alternative Source Demonstrations at Coal Combustion Residual Sites. 3002010920. Electric Power Research Institute. October.
- Geosyntec. 2019a. Alternative Source Demonstration – Federal CCR Rule. H.W. Pirkey Power Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. April.
- Geosyntec. 2019b. Alternative Source Demonstration Report – Federal CCR Rule. H.W. Pirkey Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. September.
- Geosyntec. 2020a. Statistical Analysis Plan – Revision 1. Geosyntec Consultants. October.
- Geosyntec. 2020b. Alternative Source Demonstration Report – Federal CCR Rule. H.W. Pirkey Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. April.
- Geosyntec. 2020c. Alternative Source Demonstration Report – Federal CCR Rule. H.W. Pirkey Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. December.
- Geosyntec. 2021a. Alternative Source Demonstration Report – Federal CCR Rule. H.W. Pirkey Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. May.
- Geosyntec. 2021b. Alternative Source Demonstration Report – Federal CCR Rule. H.W. Pirkey Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. December.
- Geosyntec. 2022a. Alternative Source Demonstration Report – Texas State CCR Rule. H.W. Pirkey Power Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. June.
- Geosyntec. 2022b. Alternative Source Demonstration Report – Texas State CCR Rule. H.W. Pirkey Power Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. October.



- Geosyntec. 2023a. Alternative Source Demonstration Report – Texas State CCR Rule. H.W. Pirkey Power Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. January.
- Geosyntec. 2023b. Alternative Source Demonstration Report – Texas State CCR Rule. H.W. Pirkey Power Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. June.
- Geosyntec. 2023c. Alternative Source Demonstration Report 1 – Texas State CCR Rule. H.W. Pirkey Power Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. October.
- Geosyntec. 2023d. Alternative Source Demonstration Report 2 – Texas State CCR Rule. H.W. Pirkey Power Plant, East Bottom Ash Pond. Hallsville, Texas. Geosyntec Consultants. October.
- Geosyntec. 2024. Statistical Analysis Summary East Bottom Ash Pond. H.W. Pirkey Plant. Hallsville, Texas. Geosyntec Consultants. September.
- Harris, L.A, E.A. Kenik, and C.S. Yust. 1981. “Reactions in Pyrite Framboids Induced by Electron Beam Heating in a HVEM.” *Scanning Electron Microscopy* 1: 657–662.
- Hitzman, M.W., A.A. Bookstrom, J.F. Slack, and M.L. Zientek. 2017. Cobalt – Styles of Deposits and the Search for Primary Deposits. United States Geological Survey Open File Report 2017-1155.
- Krupka, K.M., and R.J. Serne. 2002. Geochemical Factors Affecting the Behavior of Antimony, Cobalt, Europium, Technetium, and Uranium in Vadose Sediments. Pacific Northwest National Lab, PNNL-14126. December.
- Sawlowicz, Z. 2000. “Framboids: From Their Origin to Application.” *Mineralogical Transactions* 88. ISSN 0079-3396.
- Senkayi, A.L., J.B. Dixon, and L.R. Hossner. 1986. “Todorokite, Goethite, and Hematite: Alteration Products of Siderite in East Texas Lignite Overburden.” *Soil Science* 142(1): 36–43.
- Sheppard, S., J. Long, B. Sanipelli, and G. Sohlenius. 2009. Solid/Liquid Partition Coefficients ( $K_d$ ) for Selected Soil and Sediments at Forsmark and Laxemar-Simpevarp. R-09-27. Swedish Nuclear Fuel and Waste Management Co. March.
- Sheppard, S., G. Sohlenius, L.G. Omberg, M. Borgiel, S. Grolander, and S. Nordén. 2011. Solid/Liquid Partition Coefficients ( $K_d$ ) and Plant/Soil Concentration Ratios (CR) for Selected Soil, Tills, and Sediments at Forsmark. R-11-24. Swedish Nuclear Fuel and Waste Management Co. November.
- TCEQ. 2020. Coal Combustion Residuals Groundwater Monitoring and Corrective Action Draft Technical Guideline No. 32. Topic: Coal Combustion Residuals (CCR) Groundwater Monitoring and Corrective Action. Texas Commission on Environmental Quality, Waste Permits Division. May.



United States Environmental Protection Agency. 1994. Method 1312 – Synthetic Precipitation Leaching Procedure, Revision 0. Update to the Third Edition of the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. Publication SW-846. September.

# TABLES

**Table 1. Summary of Key Cobalt Analytical Data  
Alternative Source Demonstration Report  
East Bottom Ash Pond - H.W. Pirkey Plant**

<b>Sample</b>	<b>Sample Date</b>	<b>Unit</b>	<b>Cobalt Concentration</b>
Bottom Ash (Solid Material)	2/11/2019	mg/kg	6.1
Texas-Specific Soil Background Concentration			7
SPLP Leachate of Bottom Ash	2/11/2019	mg/L	<0.01
EBAP Pond Water	2/28/2023	mg/L	0.0035
AD-2 - Average	May 2016 - April 2024	mg/L	0.0178
AD-31 - Average	May 2016 - April 2024	mg/L	0.0115
AD-32 - Average	May 2016 - April 2024	mg/L	0.0389
Site-Specific Groundwater Protection Standard		mg/L	0.00939

Notes:

1. Texas-specific soil background concentration from table in 30 TAC 350.51(m). (30 TAC Chapter 350 covers the Texas Risk Reduction Program rules.)
2. Average values were calculated using all cobalt data collected under 40 CFR 257 Subpart D, excluding any identified outliers.
3. Site-specific Groundwater Protection Standard from "Statistical Analysis Summary - 2024 1st Semiannual Event. East Bottom Ash Pond. H.W. Pirkey Plant." (Geosyntec 2024).

EBAP: East Bottom Ash Pond

mg/kg: milligrams per kilogram

mg/L: milligrams per liter

SPLP: synthetic precipitation leaching procedure

**Table 2. Soil Cobalt Data**  
**Alternative Source Demonstration Report**  
**East Bottom Ash Pond - H.W. Pirkey Plant**

*Geosyntec Consultants, Inc.*

<b>Location ID</b>	<b>Location</b>	<b>Sample Depth (ft bgs)</b>	<b>Cobalt (mg/kg)</b>
<b>Bulk Soil Samples</b>			
AD-2	EBAP Network	25-27	9.45
		31-33	19.2
AD-18	EBAP Network	8	3.60
		22	2.90
AD-31	EBAP Network	12	1.90
		26	0.83
AD-32	EBAP Network	11	1.70
		20-25	9.10
AD-41	Upgradient	15	< 1.0
		35	23.5
		95	1.90
B-2	Upgradient	10	2.36
		16	3.62
		71	10.30
		82	7.21
		87	3.11
B-3	Upgradient	10	1.30
		20	0.59
		97	1.11
<b>Solid Material Retained After Filtration</b>			
AD-32	EBAP Network	13-33	5.4
B-2	Upgradient	38-48	4.3
B-3	Upgradient	29-34	12.0
		VAP 40-45	18.0

Notes:

1. For AD-XX locations, samples were collected from additional boreholes advanced in the immediate area of the location identified by the well ID. Samples were not collected from the cuttings of the borings advanced for well installation. Samples for B-2 and B-3 locations were collected from cores removed from the borehole during well lithology logging.
2. Depths for samples collected after filtration represent the screened interval for the permanent well where the sample was collected.

EBAP: East Bottom Ash Pond  
ft bgs: feet below ground surface  
mg/kg: milligram per kilogram  
VAP: vertical aquifer profiling

**Table 3. B-3 X-Ray Diffraction Results  
Alternative Source Demonstration Report  
East Bottom Ash Pond - H. W. Pirkey Plant**

*Geosyntec Consultants, Inc.*

<b>Constituent</b>	<b>VAP-B3-(40-45)</b>
Quartz	15
Plagioclase Feldspar	0.5
Orthoclase	ND
Calcite	ND
Dolomite	ND
Siderite	0.5
Goethite	ND
Hematite	2
Pyrite	3
Kaolinite	42
Chlorite	4
Illite/Mica	6
Smectite	12
Amorphous	15

Notes:

1. Results given in units of relative % abundance
2. VAP-B3-(40-45) is the centrifuged solid material from the groundwater sample collected at that interval.

ND: not detected

VAP: vertical aquifer profiling

**Table 4. Summary of Key Lithium Analytical Data  
East Bottom Ash Pond - H.W. Pirkey Plant**

<b>Sample</b>	<b>Sample Date</b>	<b>Unit</b>	<b>Lithium Concentration</b>
Bottom Ash (Solid Material)	2/11/2019	mg/kg	0.82 J
SPLP Leachate of Bottom Ash	2/11/2019	mg/L	0.011 J
EBAP Pond Water	2/28/2023	mg/L	0.0653
AD-2 - Average	May 2016 - April 2024	mg/L	0.0556
AD-31 - Average	May 2016 - April 2024	mg/L	0.0816
AD-32 - Average	May 2016 - April 2024	mg/L	0.0837

Notes:

1. Average lithium values for monitoring wells AD-2, AD-31, and AD-32 were calculated using all lithium data collected under 40 CFR 257 Subpart D, excluding statistically identified outliers.

EBAP: East Bottom Ash Pond

J: Estimated value. Result is less than the reporting limit but greater than or equal to the method detection limit.

mg/kg: milligram per kilogram

mg/L: milligram per liter

SPLP: synthetic precipitation leaching procedure

**Table 5. Soil Lithium Data**  
**Alternative Source Demonstration Report**  
**East Bottom Ash Pond - H.W. Pirkey**  
**Plant**

*Geosyntec Consultants, Inc.*

Location ID	Sample Depth (ft bgs)	Lithium (mg/kg)
Bulk Soil Sample		
AD-32*	11	0.53
	20-25	1.60
B-2	10	5.30
	16	3.97
	71	7.42
	87	13.10
B-3	10	3.64
	20	2.59
	97	11.10
Lignite	N/A	2.9 J
Solid Material Retained After Filtration		
AD-32*	13-33	9.8 J
B-2	38-48	6.5 J
B-3	29-34	7.8 J
	VAP 40-45	13.0

Notes:

1. Depths for samples collected after filtration represent the screened interval for the permanent well where the sample was collected.

\*: AD-32 samples were collected from a separate borehole advanced near monitoring well AD-32

ft bgs: feet below ground surface

J: Estimated value. Result is less than the reporting limit but greater than or equal to the method detection limit.

mg/kg: milligram per kilogram

VAP: vertical aquifer profiling

**Table 6. Calculated Site-Specific Partition Coefficients  
Alternative Source Demonstration Report  
Pirkey Plant - East Bottom Ash Pond**

Source	B-2			Literature Value
Unit	mg/L	mg/kg	L/kg	L/kg
Element	Aqueous Phase	Adsorbed	Kd	Kd
Lithium	0.081	6.5	80	43-370
Potassium	2.6	1100	423	42-1200
Sodium	14	130	9	5.2-82

Source	B-3			Literature Value
Unit	mg/L	mg/kg	L/kg	L/kg
Element	Aqueous Phase	Adsorbed	Kd	Kd
Lithium	0.097	7.8	80	43-370
Potassium	2.9	1100	379	42-1200
Sodium	32	240	8	5.2-82

Source	AD-32*			Literature Value
Unit	mg/L	mg/kg	L/kg	L/kg
Element	Aqueous Phase	Adsorbed	Kd	Kd
Lithium	0.11	9.8	89	43-370
Potassium	3.9	1800	462	42-1200
Sodium	57	220	4	5.2-82

Notes:

1. Adsorbed values are total metals concentrations reported by USEPA Method 6010B.
2. Literature values represent maximum and minimum values for the parameter as reported in Sheppard et al, 2009 (Table 4-1, all sites) and Sheppard et al, 2011 (Table 3-3 cultivated peat and wetland peat only).

\*: AD-32 samples were collected from a separate borehole advanced near monitoring well AD-32

Kd: partition coefficient

L/kg: liters per kilogram

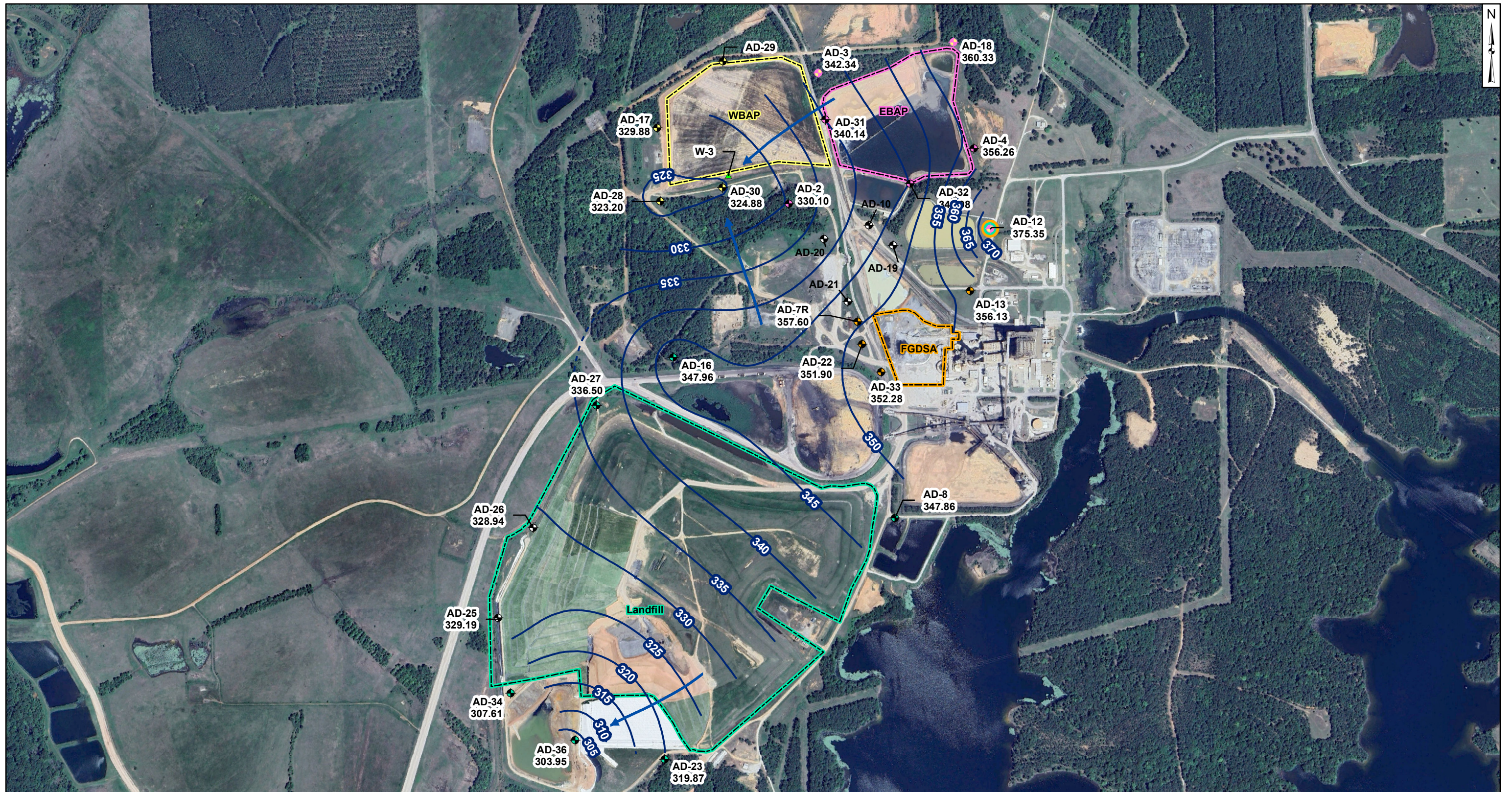
mg/kg: milligrams per kilogram

mg/L: milligrams per liter



# FIGURES

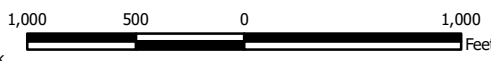




- Legend**
- Groundwater Monitoring Wells**
- ⊕ Out of Network
  - ⊕ East Bottom Ash Pond (EBAP)
  - ⊕ West Bottom Ash Pond (WBAP)
  - ⊕ Landfill
  - ⊕ Flue Gas Desulfurization Stackout Area (FGDSA)
  - ⊕ EBAP and WBAP

- ⊕ All CCR Unit Networks
- ▲ Piezometer
- Groundwater Elevation Contour
- - - Groundwater Elevation Contour (Inferred)
- Approximate Groundwater Flow Direction

- Notes**
1. Monitoring well coordinates and water level data (collected on April 22, 23 and 24, 2024) provided by AEP.
  2. Site features based on information available in coal combustion residual (CCR) Groundwater Monitoring Well Network Evaluation Update (Arcadis 2022) provided by AEP.
  3. Groundwater elevation units are feet above mean sea level (ft msl).
  4. AD-10, AD-19, AD-20, AD-21, AD-29, and W-3 were not gauged during the April 2024 event.
  5. AD-7R replaced AD-7, which was abandoned.
  6. AD-7R (357.60 ft msl) was not used for contouring due to an anomalous reading.
  7. Wells shaded in grey were not used for contouring.
  8. AD-35 was abandoned on November 13, 2018.
  9. Removal of CCR plus one foot of material for the WBAP was completed for on July 26, 2022.
  10. Removal of CCR plus one foot of material for the EBAP was completed on July 20, 2023, for the East Pond.
  11. Removal of CCR plus one foot of material was completed for the FGDSA on September 18, 2023.
  12. Aerial imagery provided by Google Earth Pro, dated April 21, 2023.
  13. Map is updated to incorporate Landfill survey data collected on May 1, 2024.



**Potentiometric Contours: Uppermost Aquifer  
April 2024**

AEP Pirkey Power Plant  
Hallsville, Texas

**Geosyntec**  
consultants

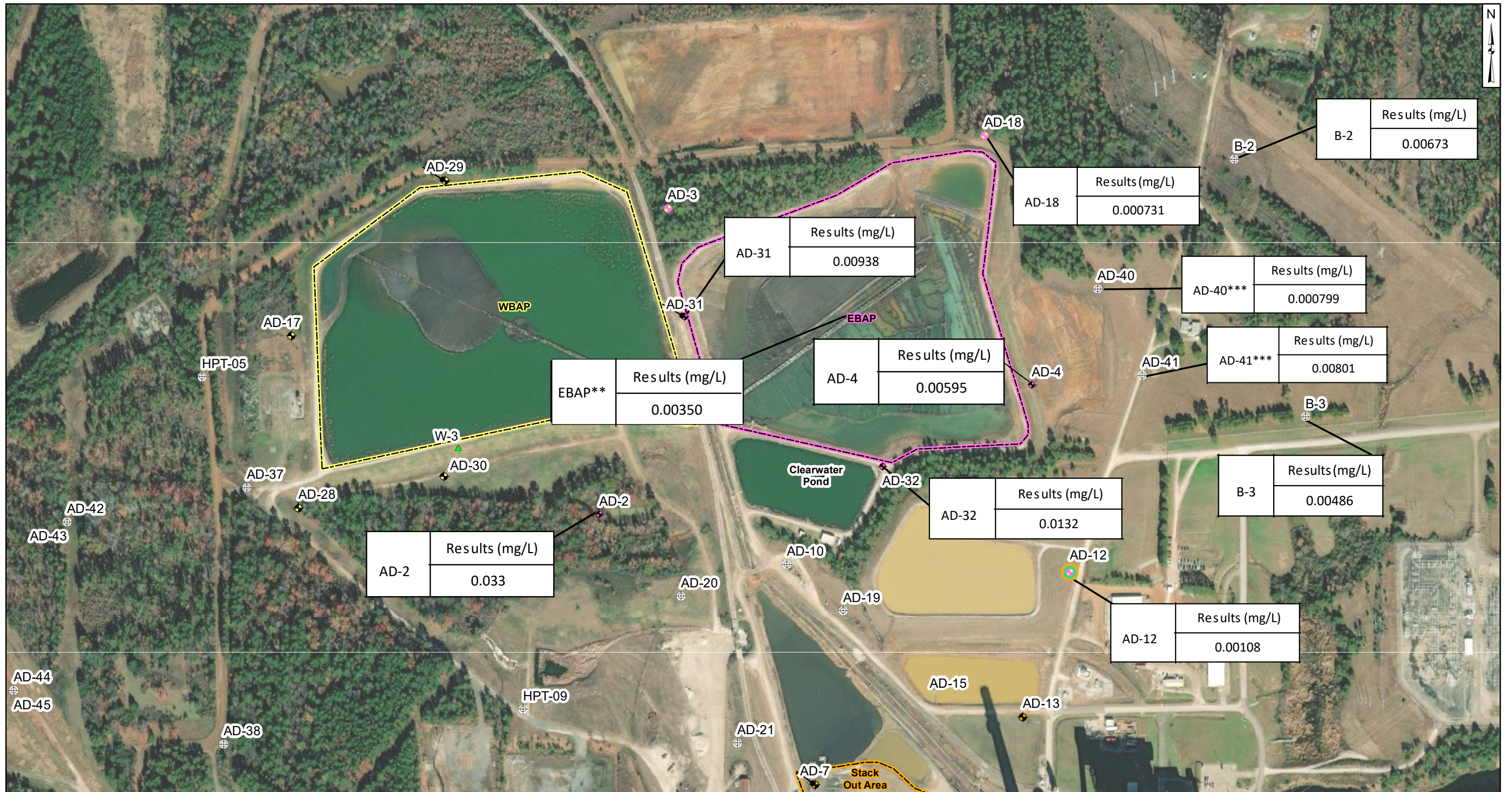
Figure

**1**

Columbus, Ohio

2024/07/19





**Legend**

- ⊕ Out of Network
- ◆ Stackout Area
- ◆ EBAP
- ◆ WBAP
- ◆ Landfill
- ◆ EBAP and WBAP
- ⊕ All CCR Unit Networks
- ▲ Piezometer
- ▭ EBAP
- ▭ WBAP

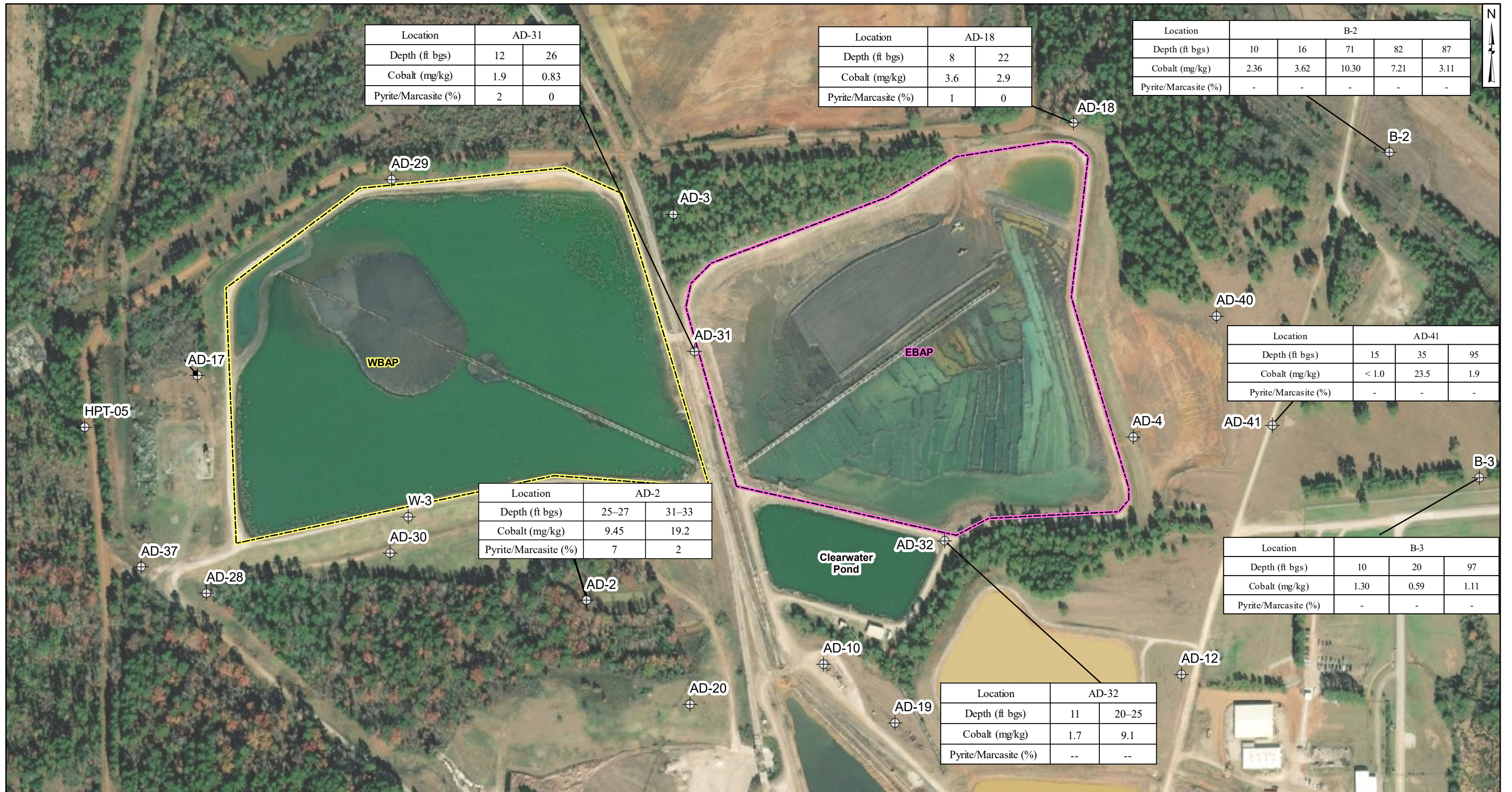
- Notes**
1. Monitoring well coordinates, site features, and data provided by AEP.
  2. AD-15 location is approximated.
  3. Samples collected in April 2024.
  4. \*\*: Porewater sample from East Bottom Ash Pond (EBAP) was collected in February 2023
  5. \*\*\*: Well most recently sampled in August 2019.
  6. Results shown in milligrams per liter (mg/L).




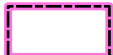

AEP: American Electric Power  
 CCR: coal combustion residuals  
 EBAP: East Bottom Ash Pond  
 mg/L: milligrams per liter  
 WBAP: West Bottom Ash Pond

<b>Aqueous Cobalt Distribution</b>	
AEP Pirkey Power Plant Hallsville, Texas	
Columbus, Ohio	September 2024
<b>Figure 2</b>	





**Legend**

-  Monitoring Wells
-  EBAP
-  WBAP

**Notes**

1. Monitoring well coordinates provided by AEP.
  2. AD-2 sample collected on April 20, 2020
  3. All other data provided by AEP, 2019.
- : not analyzed.  
 AEP: American Electric Power  
 EBAP: East Bottom Ash Pond  
 ft bgs: feet below ground surface.  
 mg/kg: milligrams per kilogram.  
 WBAP: West Bottom Ash Pond



**Cobalt Distribution in Soil**

AEP Pirkey Power Plant  
Hallsville, Texas

**Geosyntec**  
consultants

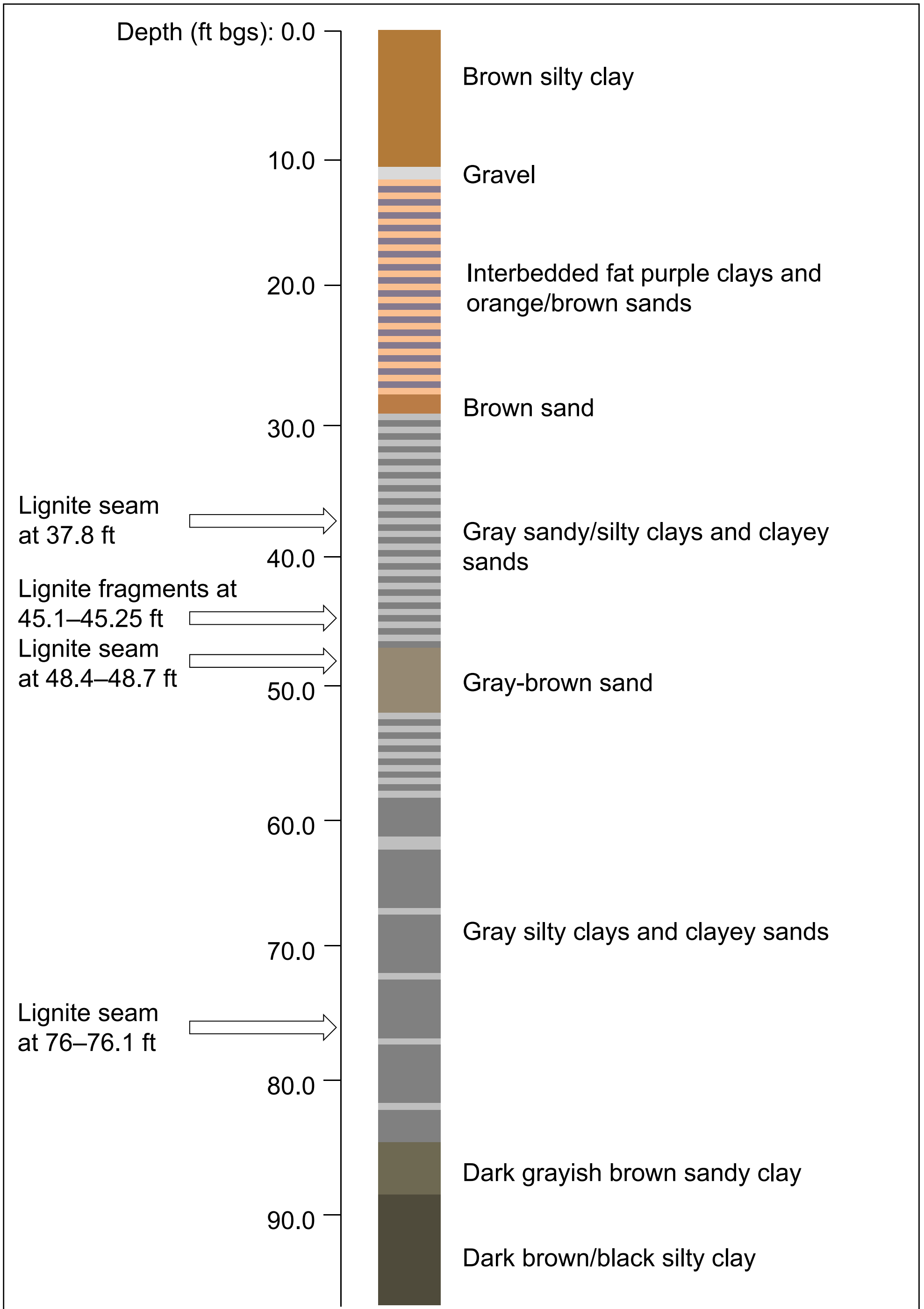
Figure

**3**

Columbus, Ohio

2024/09/18





Notes:  
 1. Well installed in offset boring screened at 29-34 ft bgs  
 2. Boring completed May 2019  
 3. Total depth of 97.5 ft bgs  
 AEP: American Electric Power  
 bgs: below ground surface  
 ft: feet

**B-3 Visual Boring Log**

AEP Pirkey Powerplant  
 Hallsville, Texas

**Geosyntec**  
 consultants

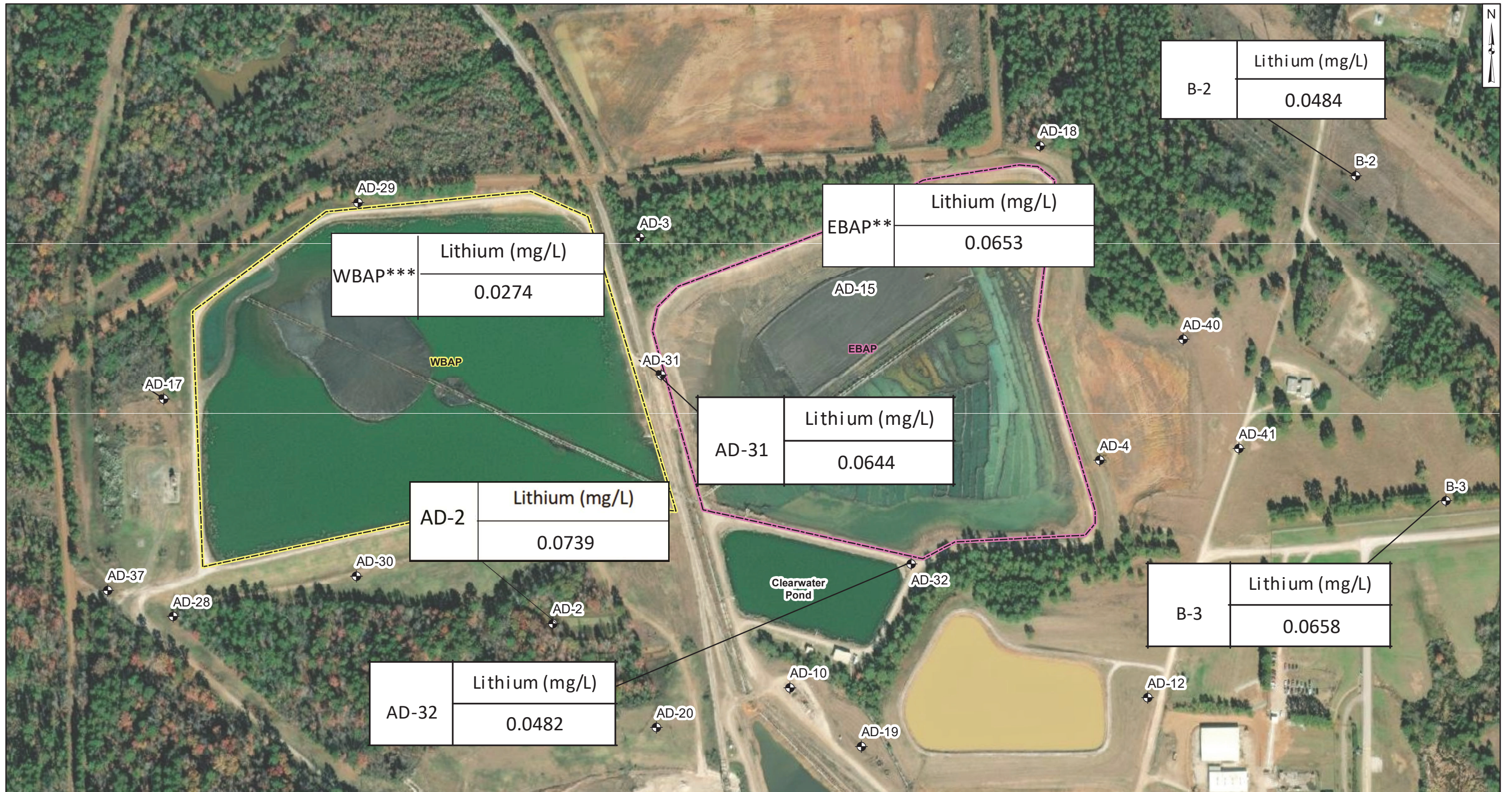
Columbus, Ohio

September 2024

**Figure**

**4**





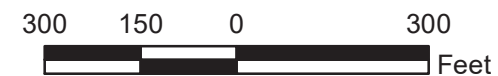
**Legend**

- Monitoring Well
- EBAP
- WBAP

**Notes**

1. Lithium concentrations in milligrams per liter (mg/L).
2. Monitoring well coordinates, site features, and data provided by AEP.
3. Groundwater samples were collected in April 2024.
4. \*\*: Porewater sample from East Bottom Ash Pond (EBAP) was collected in February 2023.
5. \*\*\*: Porewater sample from West Bottom Ash Pond (WBAP) was collected in 2022.

AEP: American Electric Power



**Aqueous Lithium Distribution**

AEP Pirkey Power Plant  
Hallsville, Texas

**Geosyntec**  
consultants

Figure

**5**

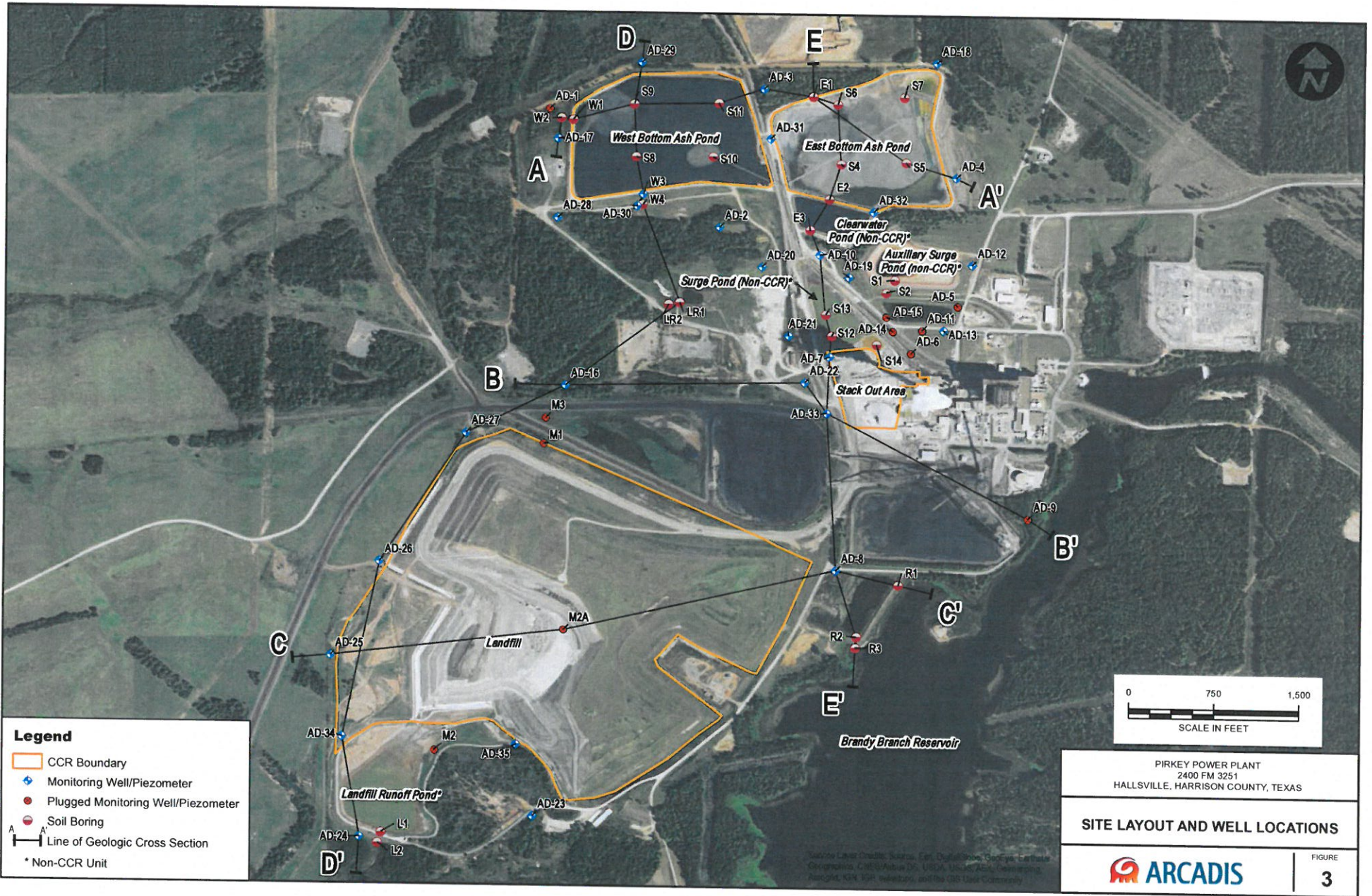
Columbus, Ohio

2024/9/26



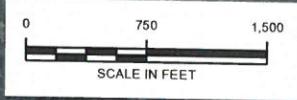
# ATTACHMENT A

## Geologic Cross Section A-A'



**Legend**

- CCR Boundary
- ◆ Monitoring Well/Piezometer
- Plugged Monitoring Well/Piezometer
- Soil Boring
- Line of Geologic Cross Section
- \* Non-CCR Unit



PIRKEY POWER PLANT  
 2400 FM 3251  
 HALLSVILLE, HARRISON COUNTY, TEXAS

**SITE LAYOUT AND WELL LOCATIONS**

FIGURE  
**3**



CITY: DRISGOUAP, DR: LD, AM: PD, TR: LTR/COM-OFF-F-REF7  
 G:\Main Projects\AM\20161019\74-CCR Plant Assessment\Site\Plan\Power Plant\Fig 4  
 - PG 07/22/2016 11:17 AM BY: LK/SE, DDBK  
 LAYOUT: MODEL, DATED: 2/10/2016 2:18 PM, ACAD/REV: 15 (LMS TECH) PAGESETUP: - PL03151.ETMLB

WEST

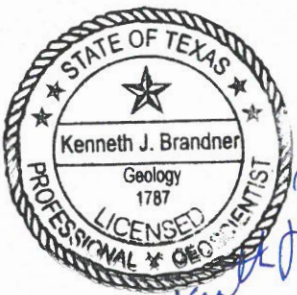
EAST

A

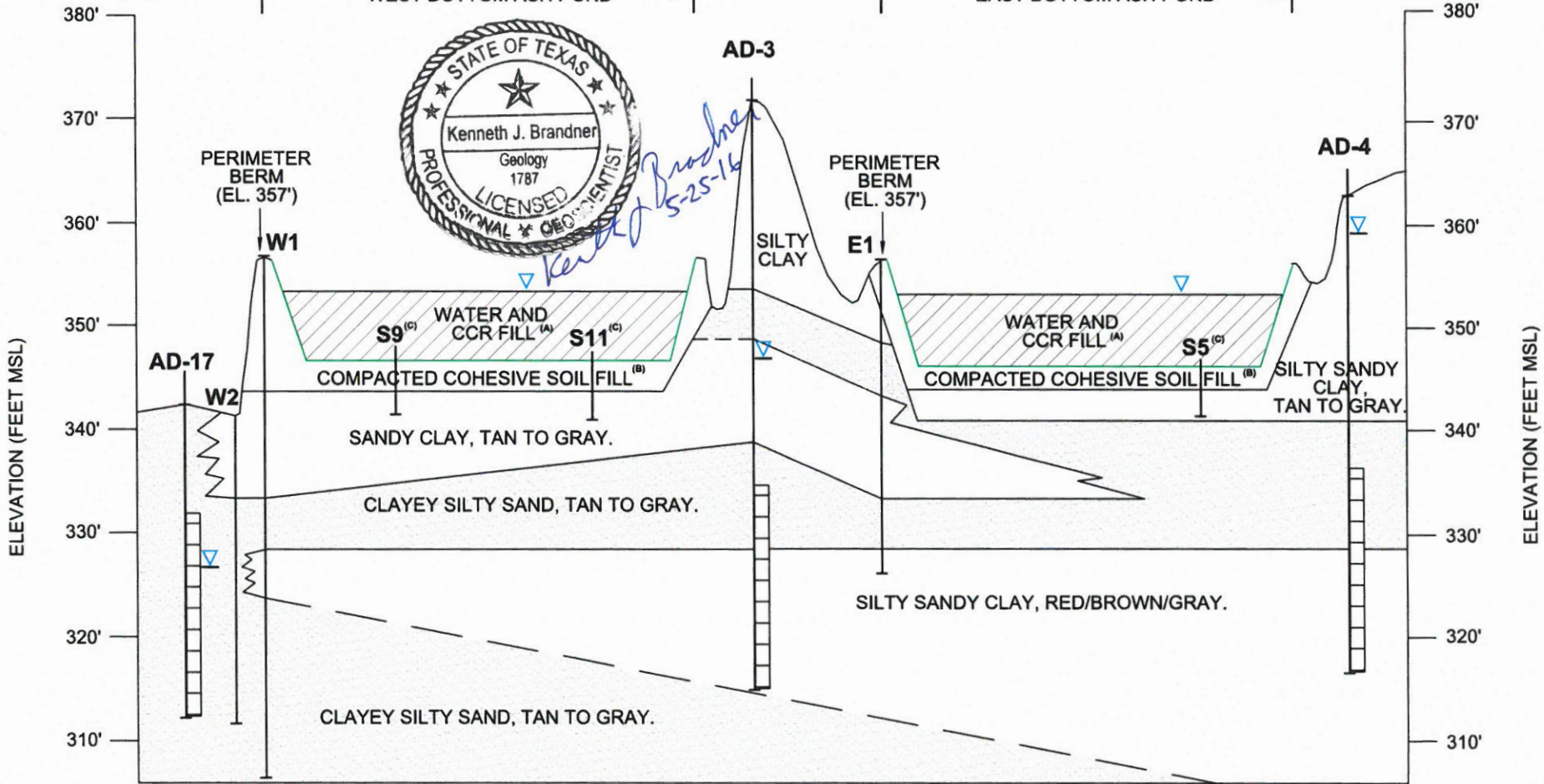
A'

WEST BOTTOM ASH POND

EAST BOTTOM ASH POND



*Kenneth J. Brandner  
 5-25-16*



LEGEND

- MONITORING WELL SCREENED INTERVAL
- WATER LEVEL IN MONITORING WELL (1/20/16)
- BASE OF CCR UNIT

- NOTES:
- A) TOP OF WEST BOTTOM ASH POND AND EAST BOTTOM ASH POND PERIMETER BERM ELEVATION IS 357', OPERATING ELEVATION IS 354' (JOHNSON & PACE, MAY 2011). BASE ELEVATION OF WEST BOTTOM ASH POND AND EAST BOTTOM ASH POND IS 347' (SARGENT & LUNDY, JANUARY 1983).
  - B) COMPACTED COHESIVE SOIL FROM ELEVATION 344' TO 347' (SARGENT & LUNDY, SEPTEMBER 1984; AMEC, AUGUST 2011).
  - C) SOIL BORING INSTALLED BY SOUTHWESTERN LABORATORIES DURING ASH POND CONSTRUCTION IN 1983.



PIRKEY POWER PLANT  
 2400 FM 3251  
 HALLSVILLE, HARRISON COUNTY, TEXAS

**CROSS SECTION  
 A - A'**

**ARCADIS**

FIGURE  
**4**

# ATTACHMENT B

## SB-2 Boring Log



PROJECT NO. \_\_\_\_\_ PROJ. \_\_\_\_\_ BOR. NO. SB-2  
 LOCATION AD-2/MW-2-Pitney Power Plant ELEV. \_\_\_\_\_ DATE 4/20/20

SILTS & SANDS		COHESIVE SOILS - CLAYS			COLORS		MATERIALS		SAND ADI.		CHARACTERISTICS		
CONDITION		CONSISTENCY		PENETROMETER	N - VALUE	Li ... Light ... Br ... Brown Dk ... Dark ... Bk ... Black G ... Grey ... Bl ... Blue T ... Tan ... Gr ... Green R ... Red ... Y ... Yellow Rdsh. Reddish. Wh ... White		Cl ... Clay, Clayey Si ... Silt, Silty Sa ... Sand, Sandy Ls ... Limestone Gr ... Gravel SiS ... Siltstone SS ... Sandstone Sh ... Shale, Shaley		F ... Fine M ... Medium Co ... Coarse Si ... Silty		Calc ... Calcareous Lig ... Lignite Org ... Organic Lam ... Laminate Sl ... Slickensided SL ... Slightly Sm(s) ... Seam(s) Nod ... Nodules	
VLo ... Very Loose	0-4	Vso ... Very Soft	0 - 0.25	0	< 2								
Lo ... Loose	4-10	So ... Soft	0.25 - 0.5	2 - 4	2 - 4								
MDe ... Med. Dense	10-30	Mst. Stiff	0.5 - 1.0	4 - 8	4 - 8								
De ... Dense	30-50	St ... Stiff	1.0 - 2.0	8 - 15	8 - 15								
VDe ... Very Dense	>50	VSt. Very Stiff	2.0 - 4.0	15 - 30	15 - 30								
		H ... Hard	> 4.0	> 30	> 30								

Sample Interval FEET ASSIGNMENT	S-A-M-P-L-E-N-O. RECOVERY	DEPTH FT.	SAMPLES	STRATUM DESCRIPTION					STANDARD PENETROMETER			UNIFIED SOIL CLASSIFICATION	N - VALUE OR HAND PENETROMETER
				CONDITION OR CONSISTENCY	COLOR	MINOR MATERIALS OR ADJECTIVES	PREDOMINATE MATERIAL	CHARACTERISTICS OR MODIFICATIONS	SEAT - 6"	1st - 6"	2nd - 6"		
SM 8' CI 14.5'		0-5	2' Rec	0-8'	Br, Lt. Rd Br	Si	Sa	Silty Sand - trace clay, trace root hairs, moist.				moist (0-5)	
		5-10	2.5' Rec		Lt. Rd Br			- thin lenses (less than 1/4") at 7.5', trace iron staining				moist (5-10)	
		10-15	4' Rec	8-14.5	Lt. Rd Br, Br, Gray	Sa, Si, Cl	Cl	Clayey sand in interbeds to 14.5', trace iron ore gravel in sand seams @ 10.5', 12', 12.5'				moist (10-15)	
		15-20	2' Rec	14.5-39'	Rd Br, Ylw, Br, Gray	Si, Cl	Sa	silty sand - some sand/silt iron cemented bands @ 16.5' and ironstone @ 17' (1.5")				v. moist to moist (15-20)	
		20-25	* No Rec.					- cemented sand seams in silty sand @ 20-25'				v. moist (20-25)	
		25-30	2.5' Rec		Gray - dk Gray dk. Br (25-39')			- gravel & cemented sand seam @ 25' (6") - cemented and part. clay cemented clayey silty sand @ 25.5' - dark gray silty sat sand seam (2") @ 27"				sat. @ 25'-25.5' moist 25.5-27' sati. @ 27' (2")	
		30-35	3' Rec					- sat. silty sand seam @ 30.5' (1") - sat. silty sand seam @ 32' (3") * some u.f. gypsum crystals in clayey sand between sat. sand seams (25-40')				sat. @ 30.5' (1") 32.0' (3") v. moist (to 39')	
ML 39'		35-40	4' Rec	39-40	Lt. Gray, Gray Cl, Br (39-40)	Si	Si	Clayey sandy silt - interbedded silt & clay @ 39' to 40' B.O.T. @ 40'				moist (39-40)	
								* 25-27' collected @ 1015 * 31-33' collected @ 1035					

Type HSA Dry Auger  Rotary Wash   
 SEEPAGE @ 25 FT. WHILE DRILLING, W.L. @ \_\_\_\_\_ FT. ON COMPL.  
 (OR) BAILED TO \_\_\_\_\_ FT. UPON COMPLETION.  
 W.L. @ \_\_\_\_\_ FT AND CAVED TO \_\_\_\_\_ FT. ON \_\_\_\_\_

\* GPS: 32,46522, -94,49032 (12' E,  
3.5' N)  
of AD-2/MW-2



# ATTACHMENT C

## SB-2 Boring Photographic Log

**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: AEP**

**Project Number: CHA8495**

**Site Name: Pirkey East Bottom Ash Pond**

**Site Location: Hallsville, Texas**

**Photograph 1**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
0-5 foot interval of SB-2.

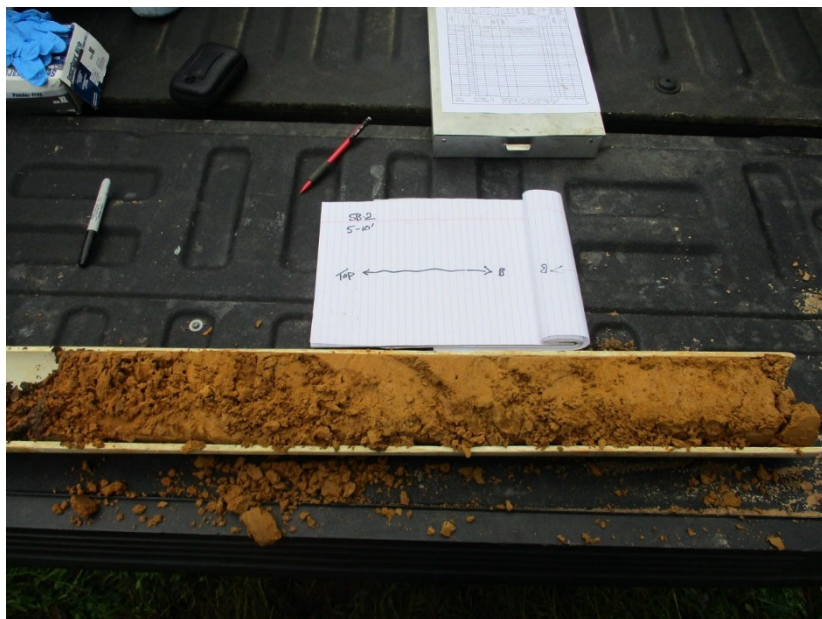


**Photograph 2**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
5-10 foot interval of SB-2.



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: AEP**

**Project Number: CHA8495**

**Site Name: Pirkey East Bottom Ash Pond**

**Site Location: Hallsville, Texas**

**Photograph 3**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
10-15 foot interval of SB-2.



**Photograph 4**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
15-20 foot interval of SB-2. Recovery of this interval was limited.





**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: AEP**

**Project Number: CHA8495**

**Site Name: Pirkey East Bottom Ash Pond**

**Site Location: Hallsville, Texas**

**Photograph 5**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
20-25 foot interval of SB-2. Recovery of this interval was limited.

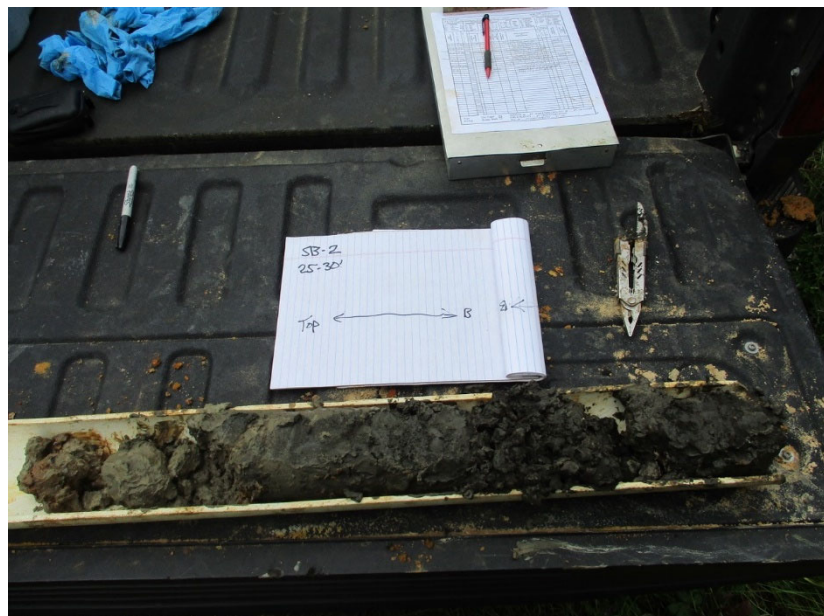


**Photograph 6**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
25-30 foot interval of SB-2. Very little of this interval was recovered. A color change was observed from red to dark brown/black. A sample was collected from this interval.



**GEOSYNTEC CONSULTANTS**  
**Photographic Record**



**Client: AEP**

**Project Number: CHA8495**

**Site Name: Pirkey East Bottom Ash Pond**

**Site Location: Hallsville, Texas**

**Photograph 9**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
30-35 foot interval of SB-2. Very little of this interval was recovered.. A sample was collected from this interval.



**Photograph 10**

**Date: 4/21/2020**

**Direction: N/A**

**Comments:**  
35-40 foot interval of SB-2



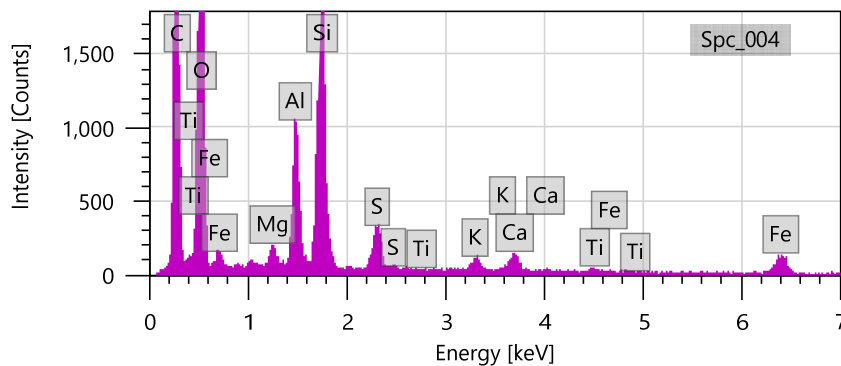
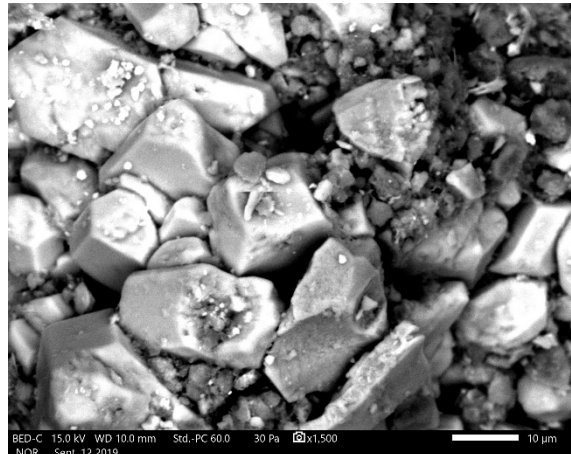
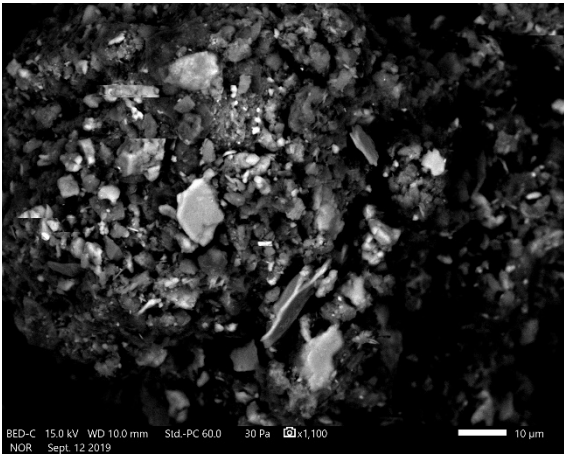
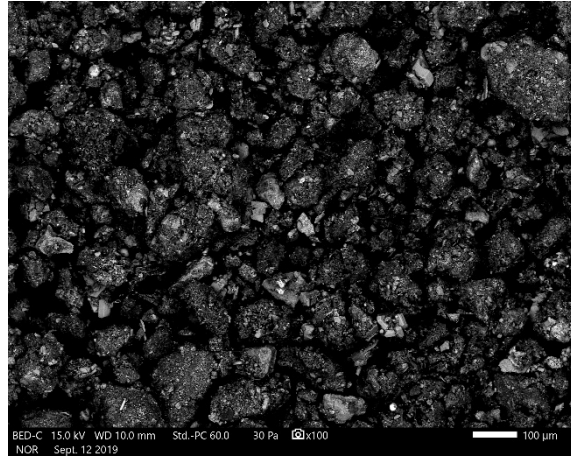
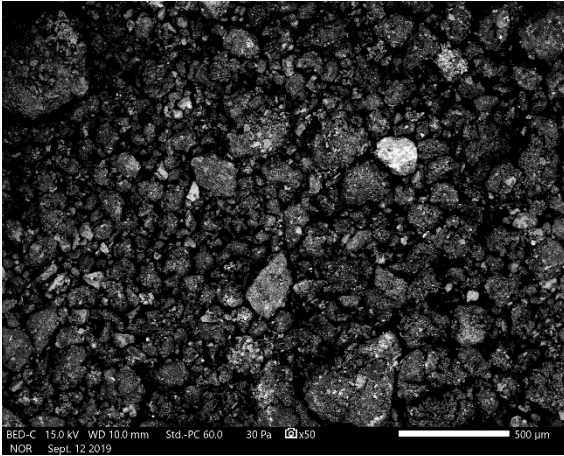


# ATTACHMENT D

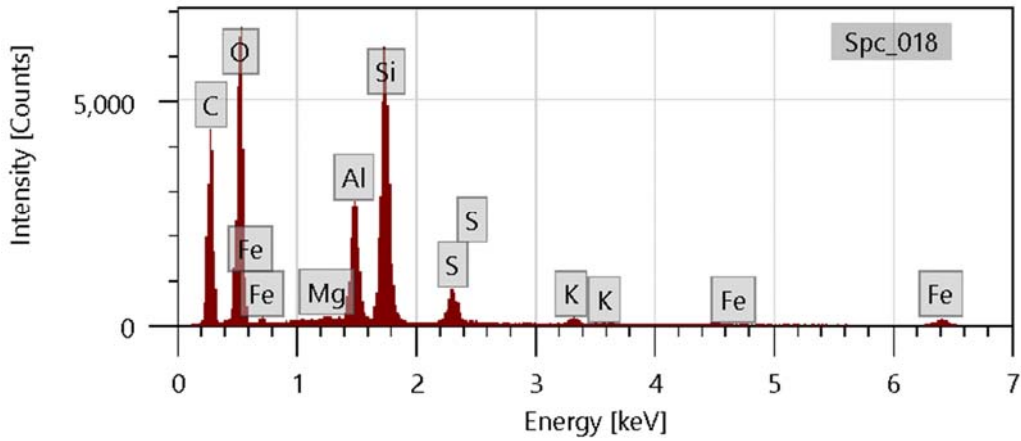
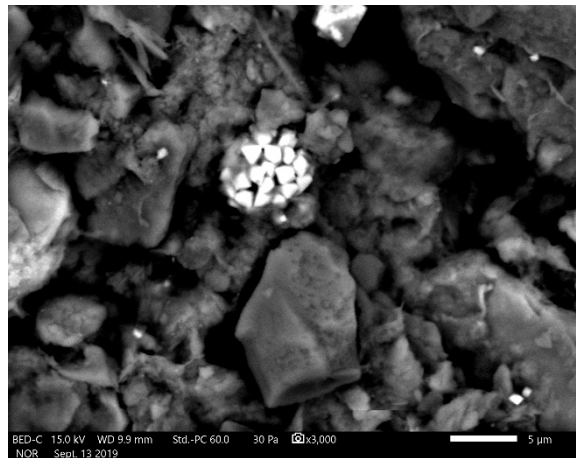
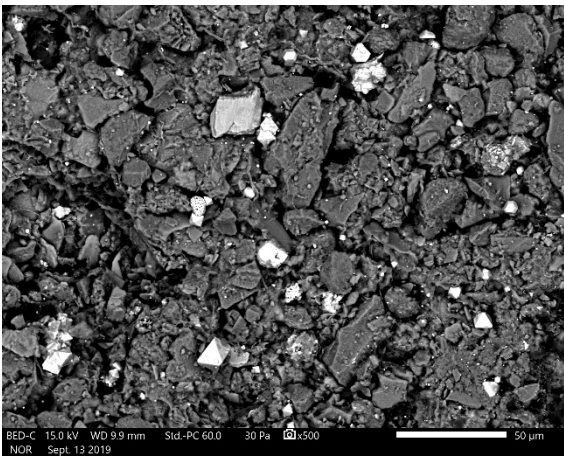
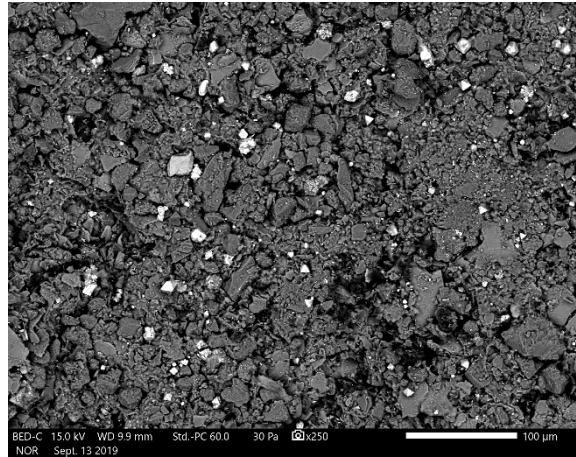
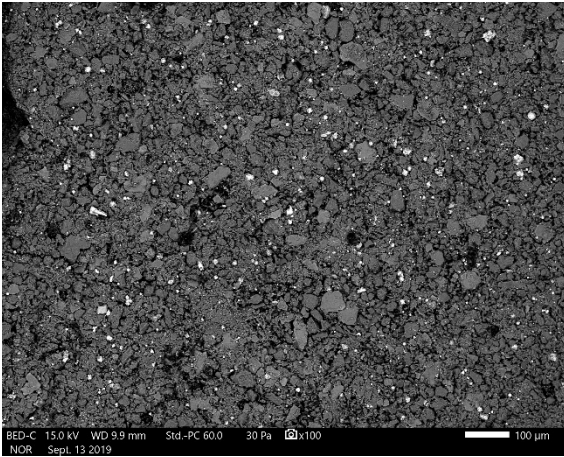
## SEM/EDS Analysis

Dr. Bruce Sass  
941 Chatham Lane, Suite 103, Columbus, OH 43221

via Email: [BSass@geosyntec.com](mailto:BSass@geosyntec.com)

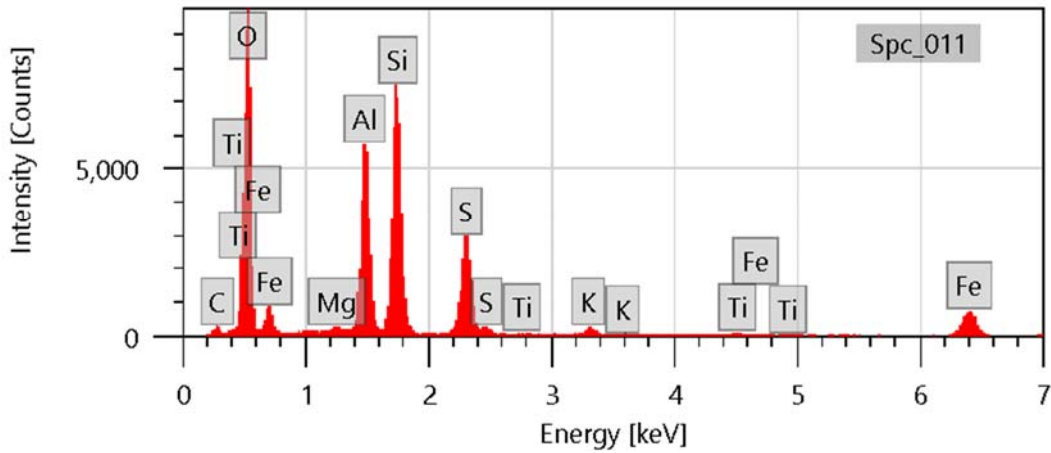
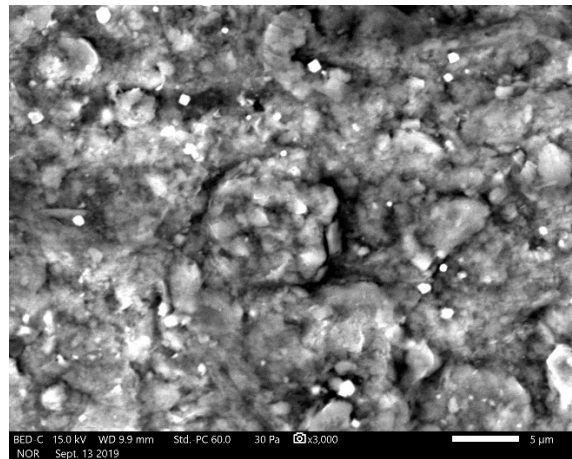
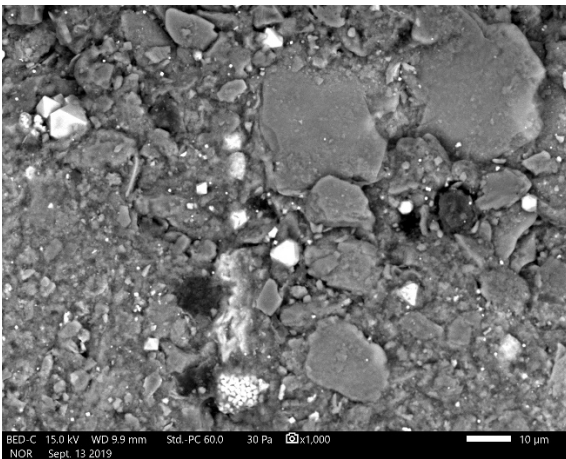
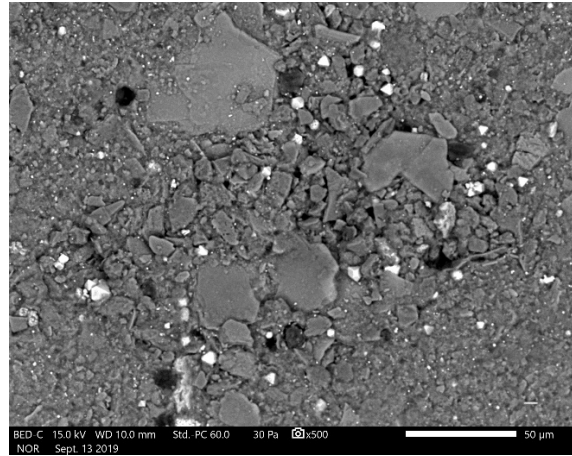
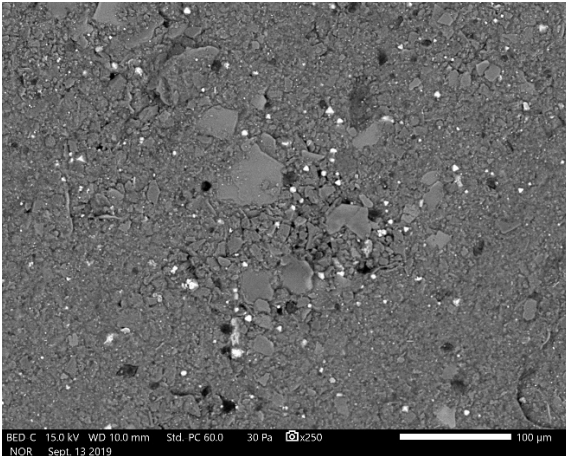


Lignite. Backscattered electron micrographs show the sample at 100X, 1,100X, and 1,500X. EDS spectrum at bottom is an area scan of the region shown in top right micrograph. Bright particles are mostly quartz and feldspar. Major peaks for carbon, oxygen, silicon, and aluminum suggest coal and clay.



Sample VAP B3 40-45. Backscattered electron micrographs show the sample at 100X, 250X, 500X, and 3000X. EDS spectrum at bottom is an area scan of the region shown at 500X. Bright particles are pyrite (framboid in bottom right micrograph). Major peaks for carbon, oxygen, silicon, and aluminum suggest coal and clay.





Sample VAP B3 50-55. Backscattered electron micrographs show the sample at 250X, 500X, 1000X, and 3000X. EDS spectrum at bottom is an area scan of the region shown at 3000X. Bright particles are mostly pyrite (framboid in bottom left micrograph); occasional particles of Fe-Ti oxide are detected. Major peaks for oxygen, silicon, and aluminum suggest clay. Large blocky particles are mostly quartz, feldspar, and clay.

# ATTACHMENT E

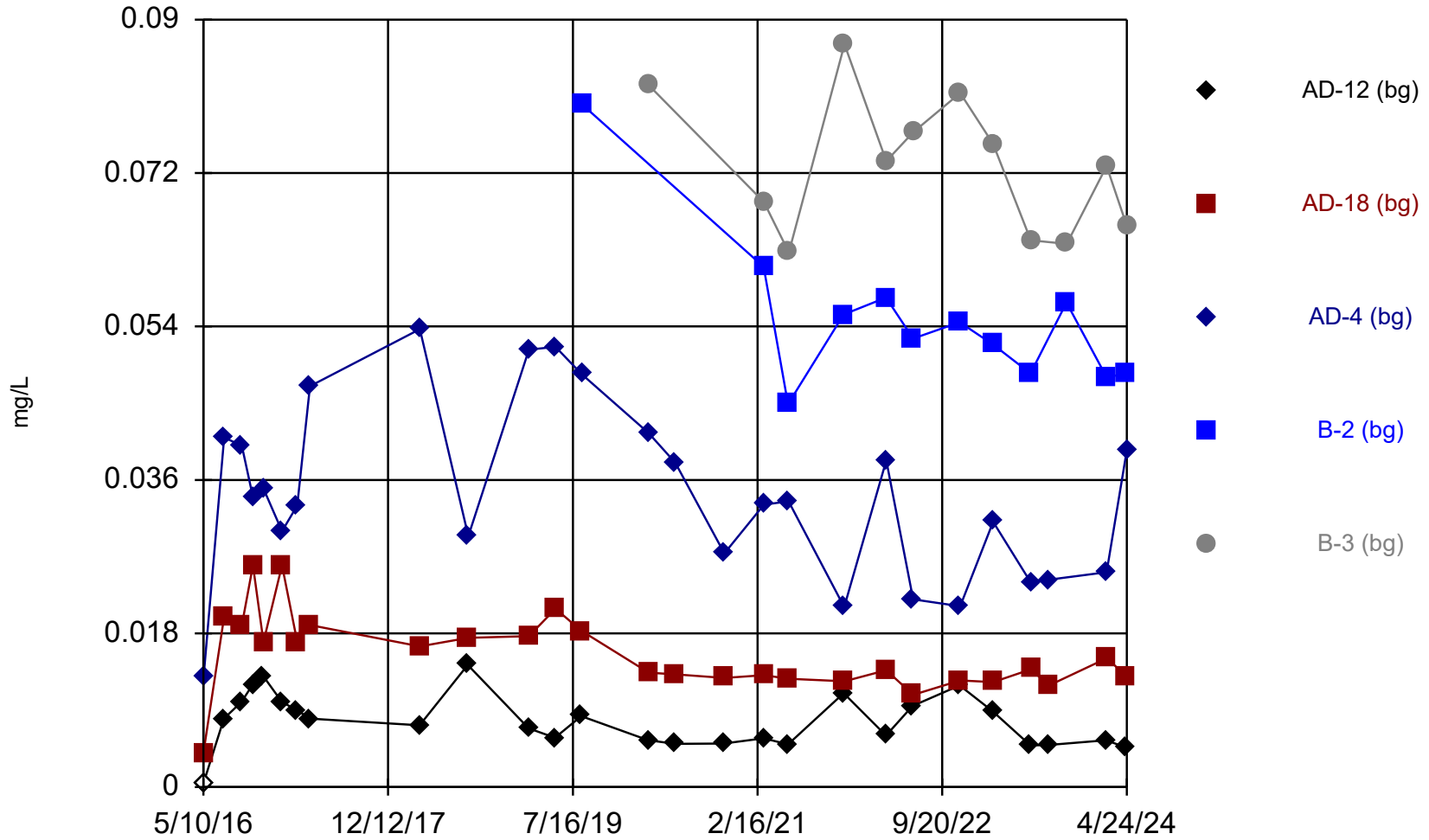
## Tolerance Limit Calculation Using B-Series Data

# Upper Tolerance Limit - Lithium

Pirkey EBAP Client: Geosyntec Data: Pirkey EBAP Printed 10/8/2024, 9:14 AM

<u>Constituent</u>	<u>Upper Lim.</u>	<u>Bq.N</u>	<u>Bq.Mean</u>	<u>Std.Dev.</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Lithium, total (mg/L)	0.1217	105	-3.881	0.9259	0.9524	None	ln(x)	0.05	Inter

### Time Series



Constituent: Lithium, total    Analysis Run 10/8/2024 9:18 AM    View: Lithium UTLs  
Pirkey EBAP    Client: Geosyntec    Data: Pirkey EBAP

## Tolerance Limit Interwell Parametric



95% coverage. Background Data Summary (based on natural log transformation): Mean=-3.881, Std. Dev.=0.9259, n=105, 0.9524% NDs. Normality test: Chi Squared @alpha = 0.01, calculated = 13, critical = 14.07. Report alpha = 0.05.

Constituent: Lithium, total    Analysis Run 10/8/2024 9:13 AM    View: Lithium UTLs  
Pirkey EBAP    Client: Geosyntec    Data: Pirkey EBAP



# **ATTACHMENT F**

## **Certification by a 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 Pirkey East Bottom Ash Pond CCR management area and that the requirements of 30 TAC §352.951(e) have been met.

Beth Ann Gross  
Printed Name of Licensed Professional Engineer

*Beth Ann Gross*

\_\_\_\_\_  
Signature



Geosyntec Consultants  
2039 Centre Pointe Blvd, Suite 103  
Tallahassee, Florida 32308

Texas Registered Engineering Firm  
No. F-1182

79864  
License Number

Texas  
Licensing State

December 6, 2024  
Date

**APPENDIX 4- Field Reports**

# CCR Groundwater Monitoring Well Inspection Form

Facility: AEP Plantry PP      Sampling Period: FEBRUARY 2024  
 Sampling Contractor: EA&E      Signature: [Signature]

Well No.	Well Locked	Lock Functioning	Well Locked After Sampling	Access to Well Maintained	Well Casing, Housing, and Pad in Good Shape	Well Properly Labeled	Well cap present	Comments
AD-13	✓	✓	✓	✓	✓	✓	✓	
AP-33	✓	✓	✓	✓	✓	✓	✓	
AO-22	✓	✓	✓	✓	✓	✓	✓	
AO-7R	✓	✓	✓	✓	✓	✓	✓	
B-3	✓	✓	✓	✓	✓		✓	NO LABEL
AO-18	✓	✓	✓	✓	✓	✓	✓	
AO-4	✓	✓	✓		✓	✓	✓	ACCESS LIMIT
AD-2	✓	✓	✓	✓	✓	✓	✓	
AO-28	✓	✓	✓	✓	✓	✓	✓	
AO-17	✓	✓	✓	✓	✓	✓	✓	

ALONG STEEP SLOPE

**Instructions:** Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

# CCR Groundwater Monitoring Well Inspection Form

Facility: Piney      Sampling Period: Feb 2024  
 Signature: [Signature]      Signature: [Signature]  
 Sampling Contractor: F-sk

Well No.	Well Locked	Lock Functioning	Well Locked After Sampling	Access to Well Maintained	Well Casing, Housing, and Pad in Good Shape	Well Properly Labeled	Well cap present	Comments
B-2	✓	✓	✓	✓	✓	✓	✓	Well will not close
AD-12	✓	✓	✓	✓	✓	✓	✓	
AD-32	✓	✓	✓	✓	✓	✓	✓	
AD-31	✓	✓	✓	✓	✓	✓	✓	
AD-30	✓	✓	✓	✓	✓	✓	✓	
AD-36	✓	✓	✓	✓	✓	✓	✓	
AD-25	✓	✓	✓	✓	✓	✓	✓	
AD-26	✓	✓	✓	✓	✓	✓	✓	
AD-3	✓	✓	✓	✓	✓	✓	✓	

**Instructions:** Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

Facility Name	AEP P10417 PP
Sample by	Kenny McDonald

Sample Location ID	A0-2
--------------------	------

Depth to water, feet (TOC)	15.89
Measured Total Depth, feet (TOC)	40.36

Depth to water date	02/20/24
---------------------	----------

Purge Stabilization Data								
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1025	16.04	220	4.50	758	1.8	3.98	433	18.58
1030	16.06	220	4.54	750	1.1	2.26	435	19.01
1035	16.04	220	4.53	758	0.0	2.20	436	19.12
1040	16.02	220	4.53	758	0.0	2.19	435	19.24

Total volume purged	
Sample appearance	Clam
Sample time	1092
Sample date	02/20/24

Facility Name  
 Sample by

P. Kowal  
 10/27/14

Depth to water, feet (TOC)  
 Measured Total Depth, feet (TOC)

34.56  
 57.45

Sample Location ID

AD-3

Depth to water date

2-26-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
11:05	34.74	220	4.91	135	26.7	1.43	414	22.42
11:10	34.85	220	4.87	134	18.5	1.28	308	22.35
11:15	34.92	220	4.83	133	18.9	1.20	195	22.29
11:20	34.96	220	4.82	130	18.8	1.16	191	22.28

Total volume purged  
 Sample appearance  
 Sample time  
 Sample date

Clear  
 112.5  
 2-26-24

Facility Name	AEP Primary PP
Sample by	Kerry M. DeMatteo

Sample Location ID	AD-4
--------------------	------

Depth to water, feet (TOC)	11.68
Measured Total Depth, feet (TOC)	47.29

Depth to water date	02/20/24
---------------------	----------

Purge Stabilization Data								
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S/cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}\text{C}$ )
0914	11.81	180	4.84	80	3.7	4.03	450	18.11
0919	11.83	180	4.86	80	4.2	2.55	449	18.44
0924	11.88	180	4.90	80	3.1	2.51	447	19.80
0929	11.92	180	4.92	80	4.0	2.47	449	18.76

Total volume purged	
Sample appearance	clear
Sample time	0931
Sample date	02/20/24



Facility Name	ALP PICKING PP
Sample by	KIMMY McDONALD

Sample Location ID	AA-7R
--------------------	-------

Depth to water, feet (TOC)	6.93
Measured Total Depth, feet (TOC)	33.03

Depth to water date	02/19/24
---------------------	----------

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
1111	7.13	220	5.30	277	4.8	2.08	362	18.39	
1116	7.17	220	5.37	268	1.6	1.95	361	18.47	
1121	7.21	220	5.39	261	1.3	1.93	361	18.51	
1126	7.26	220	5.39	257	1.0	1.87	360	18.54	

Total volume purged	
Sample appearance	CLAR
Sample time	1128
Sample date	02/19/24

Facility Name	Dillon
Sample by	M.H. Munkittrick
Depth to water, feet (TOC)	8.62
Measured Total Depth, feet (TOC)	52.00

Sample Location ID	AP-12
Depth to water date	2-15-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
8:44	9.08	300	3.61	47	13.5	0.20	427	3.64
8:49	9.38	300	3.15	47	20.5	0.16	471	5.53
8:54	9.42	300	3.17	43	20.6	0.19	451	6.08
8:57	9.45	300	3.16	42	20.6	0.18	477	6.17

Total volume purged	
Sample appearance	Clear
Sample time	9:01
Sample date	2-15-24

Facility Name	AEP Parkway PP
Sample by	Kenny McDonald

Sample Location ID AP-13

Depth to water, feet (TOC)	10.33
Measured Total Depth, feet (TOC)	40.70

Depth to water date 02/19/24

Purge Stabilization Data										
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)		
0822	10.62	190	5.68	356	147	4.97	152	17.70		
0827	10.69	190	5.69	354	103	3.16	135	18.26		
0832	10.73	190	5.68	353	97.2	2.84	129	18.43		
0837	10.80	190	5.68	352	96.5	2.77	124	18.47		
0842	10.86	190	5.69	352	95.8	2.72	116	18.51		

Total volume purged	
Sample appearance	BROWN TINT
Sample time	0844
Sample date	02/19/24

Facility Name  
 APPRIARY PP  
 Sample by  
 KIMMY McDERMID

Sample Location ID  
 AD-17

Depth to water, feet (TOC) 20.40  
 Measured Total Depth, feet (TOC) 33.05

Depth to water date 02/20/24

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
1213	20.71	200	4.70	77	11.4	4.30	398	23.18	
1218	20.73	200	4.81	76	6.2	2.26	395	23.34	
1223	20.78	200	4.84	75	5.9	2.21	395	23.37	
1228	20.80	200	4.86	75	5.3	2.17	393	23.40	

Total volume purged  
 Sample appearance CL-GAR  
 Sample time 1230  
 Sample date 02/20/24



Facility Name: ABC PROPERTY P.P.  
 Sample by: KERRY MCDONALD

Sample Location ID: AD-18

Depth to water, feet (TOC): 4.54  
 Measured Total Depth, feet (TOC): 28.42

Depth to water date: 02/19/24

Purge Stabilization Data										
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)		
1238	5.51	106	4.52	57	24.7	2.83	447	16.93		
1243	6.43	106	4.47	56	13.9	2.51	464	17.24		
				WON'T HOLD WATER						

Total volume purged: CLCA  
 Sample appearance: 0829  
 Sample time: 02/20/24  
 Sample date:

Facility Name	ATP Plant #1
Sample by	Kirby m. Donald

Sample Location ID	AD-22
--------------------	-------

Depth to water, feet (TOC)	8.34
Measured Total Depth, feet (TOC)	32.70

Depth to water date	02/19/24
---------------------	----------

Purge Stabilization Data										
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)		
1027	8.43	170	4.05	824	12.2	3.16	361	17.57		
1032	8.44	170	4.08	879	6.4	2.09	355	17.97		
1037	8.46	170	4.09	885	5.8	2.04	352	18.09		
1042	8.46	170	4.11	891	6.2	1.93	350	18.15		

Total volume purged	CLM
Sample appearance	1044
Sample time	02/19/24
Sample date	

Facility Name	Plywood
Sample by	P. Ant / Nov 11/14

Depth to water, feet (TOC)	9.33
Measured Total Depth, feet (TOC)	27.38

Sample Location ID	AD-25
--------------------	-------

Depth to water date	2-20-24
---------------------	---------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
9:01	9.76	125	3.86	1180	71.9	0.04	509	23.42
9:06	9.75	125	4.01	1100	42.8	1.01	278	22.78
9:11	9.86	125	4.14	1020	33.6	1.17	232	22.51
9:16	9.95	125	4.26	1000	33.5	1.24	221	22.40
9:21	10.07	125	4.29	985	33.8	1.27	216	22.37

Total volume purged	0.01
Sample appearance	923
Sample time	2-20-24
Sample date	

Facility Name: Plywood  
 Sample by: M. H. / H. H. / W. H. /

Depth to water, feet (TOC): 16.52  
 Measured Total Depth, feet (TOC): 42.73

Sample Location ID: AD-26

Depth to water date: 2.20.24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1002	17.05	300	3.56	1820	6.5	0.04	473	22.81
1007	17.21	300	3.67	1840	7.8	0.22	415	22.65
1002	17.33	300	3.68	1870	6.2	0.27	319	22.63
1017	17.48	300	3.70	1870	5.1	0.28	352	22.58
1022	17.61	300	3.71	1880	4.5	0.31	374	22.59

Total volume purged: \_\_\_\_\_  
 Sample appearance: Clear  
 Sample time: 1024  
 Sample date: 2.20.24



Facility Name  
 Sample by

*AEP Pinkey PP*  
*Kerry McDonald*

Sample Location ID

*AD-28*

Depth to water, feet (TOC)

*17.90*

Depth to water date

*02/20/24*

Measured Total Depth, feet (TOC)

*38.59*

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
<i>1117</i>	<i>18.21</i>	<i>200</i>	<i>4.70</i>	<i>148</i>	<i>13.8</i>	<i>3.21</i>	<i>400</i>	<i>22.54</i>
<i>1122</i>	<i>18.28</i>	<i>200</i>	<i>4.78</i>	<i>139</i>	<i>6.2</i>	<i>2.08</i>	<i>398</i>	<i>22.49</i>
<i>1127</i>	<i>18.31</i>	<i>200</i>	<i>4.81</i>	<i>132</i>	<i>6.0</i>	<i>2.01</i>	<i>397</i>	<i>22.45</i>
<i>1132</i>	<i>18.34</i>	<i>200</i>	<i>4.83</i>	<i>126</i>	<i>5.7</i>	<i>1.93</i>	<i>397</i>	<i>22.44</i>

Total volume purged	
Sample appearance	<i>Clear</i>
Sample time	<i>1134</i>
Sample date	<i>02/20/24</i>

Facility Name	9.1.1009
Sample by	9-27 / Hom, H. U.

Depth to water, feet (TOC)	18.06
Measured Total Depth, feet (TOC)	42.71

Sample Location ID	AD-30
--------------------	-------

Depth to water date	2-14-24
---------------------	---------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
114	18.14	300	4.07	343	3.4	0.08	480	22.37
115	18.15	300	4.27	337	5.1	0.08	475	22.35
124	18.15	300	4.27	338	2.2	0.07	467	22.25
125	18.16	300	4.27	355	2.3	0.07	465	22.20

Total volume purged	
Sample appearance	Clear
Sample time	11:31
Sample date	2-15-24

Facility Name	Pikeville
Sample by	M-44/17 cmilita
Depth to water, feet (TOC)	21.66
Measured Total Depth, feet (TOC)	37.32

Sample Location ID	AD-31
Depth to water date	2-11-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
1026	21.94	220	3.18	220	53.7	0.16	424	11.64
1025	21.96	220	3.37	257	61.8	0.08	434	31.35
1030	21.97	220	3.36	267	60.4	0.08	446	21.75
1035	21.98	220	3.35	264	60.1	0.07	447	21.86
1040	21.99	220	3.35	266	60.3	0.07	448	21.91

Total volume purged	
Sample appearance	c/c/d
Sample time	1042
Sample date	2-11-24

Facility Name  
 Sample by

Pillkey  
 Matt Henrily

Sample Location ID  
 AP-32

Depth to water, feet (TOC)  
 Measured Total Depth, feet (TOC)

15.42  
 34.61

Depth to water date  
 2-21-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
626	15.45	220	4.54	141	118	0.24	484	13.75
634	16.05	220	4.61	173	125	0.15	463	15.75
635	16.13	220	4.66	185	88.6	0.16	425	17.35
644	16.17	220	4.74	188	32.1	0.15	352	17.85
645	16.20	220	4.75	196	19.8	0.15	376	18.04
654	16.22	220	4.81	191	15.5	0.14	370	18.12

Total volume purged  
 Sample appearance  
 Sample time  
 Sample date

0L  
 956  
 2-19-24

Facility Name	AKO Pinkney PP
Sample by	KERRY M. DUNN

Sample Location ID	AD-33
--------------------	-------

Depth to water, feet (TOC)	11.77
Measured Total Depth, feet (TOC)	32.50

Depth to water date	02/19/24
---------------------	----------

Purge Stabilization Data								
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (μS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
0918	11.81	200	4.05	202	4.7	6.21	236	16.30
0923	11.81	200	4.10	201	3.2	3.07	299	17.13
0928	11.83	200	4.12	203	2.9	2.98	311	17.18
0933	11.85	200	4.13	202	2.5	2.94	318	17.21

Total volume purged	
Sample appearance	clear
Sample time	0935
Sample date	02/19/24

Duplicate 1400

Facility Name Wilson  
 Sample by M. Ant / Hamill

Sample Location ID AD-36

Depth to water, feet (TOC) 6.58  
 Measured Total Depth, feet (TOC) 17.00

Depth to water date 2-20-24

**Purge Stabilization Data**

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
8:24	6.51	220	4.45	206	20.0	0.06	457	23.77
8:25	6.93	220	4.13	293	18.6	0.06	506	22.53
8:34	6.94	220	4.11	19	9.9	0.06	509	22.14

Total volume purged \_\_\_\_\_  
 Sample appearance Clear  
 Sample time 8:36  
 Sample date 2-20-24

Facility Name  
 Sample by

3-2

Sample Location ID  
 Depth to water date

Depth to water, feet (TOC)  
 Measured Total Depth, feet (TOC)

2-19-24

15.85  
 51.44

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
8:01	16.25	300	3.40	18.7	14.6	0.23	460	14.25
8:06	16.25	300	3.80	17.8	14.7	0.22	471	13.24
8:11	16.27	300	4.01	17.3	15.2	0.18	466	13.51
8:16	16.25	300	4.05	12.1	14.2	0.18	463	15.68

Total volume purged  
 Sample appearance  
 Sample time  
 Sample date

Aug - 1330

Clear  
 18:15  
 2-19-24



Facility Name	APP Round PP
Sample by	Kerry McDevad

Sample Location ID	B-3
--------------------	-----

Depth to water, feet (TOC)	11.37
Measured Total Depth, feet (TOC)	37.49

Depth to water date	02/19/24
---------------------	----------

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (μS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
1206	12.24	104	4.67	175	4.8	2.93	435	18.21	
1211	13.08	104	4.98	170	3.1	2.08	436	18.06	

Total volume purged	
Sample appearance	Cloudy
Sample time	0755
Sample date	02/20/24



# CCR Groundwater Monitoring Well Inspection Form

Facility: APP P1001 PP Sampling Period: APRIL 2024  
 Sampling Contractor: EAGLE Signature: [Signature]

Well No.	Well Locked	Lock Functioning	Well Locked After Sampling	Access to Well Maintained	Well Casing, Housing, and Pad in Good Shape	Well Properly Labeled	Well cap present	Comments
AD-13	✓	✓	✓	✓	✓	✓	✓	
AD-7R	✓	✓	✓	✓	✓		✓	NO LABEL
AD-22	✓	✓	✓	✓	✓	✓	✓	
AD-33	✓	✓	✓	✓	✓	✓	✓	
AD-02	✓	✓	✓	✓	✓	✓	✓	
AD-36	✓	✓	✓	✓	✓	✓	✓	
AD-08	✓	✓	✓	✓	✓	✓	✓	
AD-18	✓	✓	✓	✓	✓	✓	✓	
B-3	✓	✓	✓	✓	✓		✓	NO LABEL
AD-27	✓	✓	✓	✓	✓	✓	✓	
AD-04	✓	✓	✓		✓	✓	✓	ONLY ACCESS ALONG STEPSIDE
AD-16	✓		✓		✓	✓	✓	NEEDS NEW LOCK

RIGHT OF WAY TO WILL NEED CLEANING

**Instructions:** Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

AS A WHOLE MAINTENANCE IS LESS. MOWING & WEEDING AROUND WELLS DOESN'T APPEAR TO BE BEING PERFORMED

# CCR Groundwater Monitoring Well Inspection Form

Facility: Pikey

Sampling Contractor: Eagle

Sampling Period: April 2024

Signature: [Signature]

Well No.	Well Locked	Fastener and Lock Functioning	Well Locked After Sampling	Access to Well Maintained	Well Casing, Protective Cover, Barriers and Pad in Good Shape	Well Properly Labeled	Well Cap Present and Vented*	Comments
B-2	-	-	-	-	-	-	-	
AD-12	-	-	-	-	-	-	-	Well protected by wood deck
AD-32	-	-	-	-	-	-	-	
AD-31	-	-	-	-	-	-	-	
AD-30	-	-	-	-	-	-	-	No label
AD-28	-	-	-	-	-	-	-	
AD-17	-	-	-	-	-	-	-	Starting to overgrow
AD-3	-	-	-	-	-	-	-	
AD-26	-	-	-	-	-	-	-	Starting to overgrow
AD-25	-	-	-	-	-	-	-	overgrown, road removed
AD-34	-	-	-	-	-	-	-	
AD-23	-	-	-	-	-	-	-	road removed

\*Not all wells will be vented, especially flush mounted wells. If that is the case, please note "flush mount well" in the comments.

Facility Name  
 Sample by

APP Picking PP  
 Kimm McDonald

Sample Location ID  
 APB-02

Depth to water, feet (TOC)  
 Measured Total Depth, feet (TOC)

13.94  
 40.36  
 Depth to water date  
 04/23/24

Purge Stabilization Data										
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)		
0804	14.02	220	4.09	800	3.6	7.63	360	15.17		
0809	14.64	220	4.08	801	3.3	2.07	411	15.52		
0814	14.08	220	4.07	797	2.9	2.01	415	15.57		
0819	14.12	220	4.07	794	2.7	1.97	415	15.61		

Total volume purged  
 Sample appearance  
 Sample time  
 Sample date

61.44  
 Clear  
 0821  
 04/23/24

Facility Name	Pirtek
Sample by	Must Hamilton

Sample Location ID AD-3

Depth to water, feet (TOC)	32.96
Measured Total Depth, feet (TOC)	37.45

Depth to water date 4-23-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1052	33.38	220	4.38	1.8	0	3.40	458	21.63
1057	33.47	220	4.52	1.7	0	0.87	454	21.66
1102	33.56	220	4.51	1.7	0	0.49	448	21.11

Total volume purged	
Sample appearance	clear
Sample time	1104
Sample date	4-23-24

Facility Name	APP PICKUP PP
Sample by	KRUPY M/Dunkel

Depth to water, feet (TOC)	10.53
Measured Total Depth, feet (TOC)	47.29

Sample Location ID: AD-04

Depth to water date: 09/24/24

Purge Stabilization Data								
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (μS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mv)	Temperature (°C)
0919	10.82	178	4.61	112	28.2	3.21	402	22.61
0924	10.86	178	4.61	111	27.9	3.18	404	22.62
0929	10.92	178	4.62	110	27.8	3.15	406	22.62

Total volume purged	
Sample appearance	Clear
Sample time	0931
Sample date	09/24/24

Facility Name Atco Pinnac PP  
 Sample by Kenny McDonald

Sample Location ID AD-7A

Depth to water, feet (TOC) 5.32  
 Measured Total Depth, feet (TOC) 33.03

Depth to water date 04/27/24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
0908	5.36	224	4.81	264	6.2	3.42	175	18.80
0913	5.36	224	4.50	258	2.1	2.16	179	18.94
0918	5.38	224	4.49	255	1.8	2.10	180	18.96
0923	5.39	224	4.47	252	1.8	2.08	184	18.99

Total volume purged  
 Sample appearance CLAM  
 Sample time 0925  
 Sample date 04/27/24

Duplicate - 1 1400

Facility Name	ATP Pipers PP
Sample by	Kenny McDonald

Sample Location ID	AD-08
--------------------	-------

Depth to water, feet (TOC)	11.98
Measured Total Depth, feet (TOC)	31.33

Depth to water date	04/23/24
---------------------	----------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
0954	12.13	200	5.13	528	6.8	2.87	280	21.43
0959	12.13	200	5.24	533	5.1	2.06	274	21.51
1004	12.12	200	5.26	534	4.5	1.97	274	21.54
1009	12.12	200	5.29	539	4.2	1.93	272	21.57

Total volume purged	
Sample appearance	CLAR
Sample time	10:11
Sample date	04/23/24

Facility Name: Parkway  
 Sample by: Matt Hamilton

Depth to water, feet (TOC): 6.64  
 Measured Total Depth, feet (TOC): 52.00

Sample Location ID: AD012  
 Depth to water date: 4-22-24

Purge Stabilization Data										
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)		
927	7.22	300	3.56	42	7.9	3.13	382	16.61		
927	7.31	300	3.36	42	16.2	2.66	425	15.68		
932	7.40	300	3.38	42	17.2	2.64	435	15.73		
937	7.50	300	3.31	42	14.2	2.63	445	15.85		
942	7.61	300	3.40	42	14.3	2.62	445	15.92		

Total volume purged: \_\_\_\_\_  
 Sample appearance: Clear  
 Sample time: 9:44  
 Sample date: 4-22-24



Facility Name	AGG PIPER PP
Sample by	KERRY McDONALD

Sample Location ID	A0-13
--------------------	-------

Depth to water, feet (TOC)	8.63
Measured Total Depth, feet (TOC)	40.70

Depth to water date	04/22/24
---------------------	----------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
0803	9.91	180	6.14	451	28.2	6.21	-111	17.66
0808	9.97	180	6.05	447	20.6	5.83	-120	17.68
0813	10.02	180	6.03	439	22.4	5.79	-120	17.69
0818	10.11	180	6.02	437	21.3	5.77	-124	17.71

Total volume purged	CLM
Sample appearance	OK
Sample time	0820
Sample date	04/22/24

Facility Name	Agri Proton PP
Sample by	Romy Mc Donald

Sample Location ID	AD-16
--------------------	-------

Depth to water, feet (TOC)	12.09
Measured Total Depth, feet (TOC)	38.24

Depth to water date	04/24/24
---------------------	----------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1047	12.21	200	4.62	218	16.2	1.13	339	22.13
1052	12.21	200	4.64	218	13.3	1.07	346	22.15
1057	12.24	200	4.65	218	12.8	0.99	352	22.18
1102	12.26	200	4.68	217	12.4	0.94	357	22.23

Total volume purged	
Sample appearance	clear
Sample time	1104
Sample date	04/24/24

Facility Name Pillbox  
 Sample by Mota Hamilton  
 Depth to water, feet (TOC) 16.2  
 Measured Total Depth, feet (TOC) 33.65

Sample Location ID AD-17  
 Depth to water date 4/23/24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
9:55	16.75	200	3.61	50	15.9	2.88	322	20.52
10:04	16.83	200	3.61	48	7.8	2.21	516	20.62
10:09	16.83	200	3.62	47	7.6	2.01	514	20.67
10:14	16.84	200	3.62	47	7.5	1.98	512	20.73

Total volume purged  
 Sample appearance Clear  
 Sample time 1016  
 Sample date 4.23.24

Facility Name  
 Sample by

AEP Pickering PP  
 K. P. McDevitt

Sample Location ID

APD-18

Depth to water, feet (TOC)  
 Measured Total Depth, feet (TOC)

3.09  
 28.42

Depth to water date

04/23/24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1041	3.36	120	5.04	56	10.2	1.87	347	22.62
1046	3.41	120	4.72	52	7.1	1.42	354	22.62
1051	3.54	120	4.66	52	6.8	1.40	357	22.64
1056	3.72	120	4.65	51	6.6	1.37	364	22.64

Total volume purged  
 Sample appearance  
 Sample time  
 Sample date

CLINAL  
 1058  
 04/23/24

Facility Name: APP PINKA PP  
 Sample by: KIRBY M. DONALD

Sample Location ID: AD-22

Depth to water, feet (TOC): 6.61  
 Measured Total Depth, feet (TOC): 32.70

Depth to water date: 04/22/24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1010	6.75	170	3.96	817	0.0	2.74	283	22.86
1015	6.78	170	3.95	818	0.0	2.69	284	22.87
1020	6.81	170	3.95	819	0.0	2.66	286	22.89

Total volume purged: CVRAN  
 Sample appearance: 1022  
 Sample time: 04/22/24  
 Sample date: 04/22/24

Facility Name	P. H. Co.
Sample by	Moest / Hamilton

Sample Location ID AD-23

Depth to water, feet (TOC)	30.23
Measured Total Depth, feet (TOC)	38.20

Depth to water date 4-24-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1038	30.56	220	3.55	117	78.6	2.17	351	23.24
1043	30.56	220	3.65	84	55.3	1.66	355	22.94
1048	30.56	220	3.63	77	42.0	1.44	402	22.80
1053	30.56	220	3.64	74	21.7	1.22	405	22.51
1058	30.56	220	3.64	72	12.5	1.18	412	22.93
1103	30.56	220	3.65	71	12.4	1.16	415	22.55

Total volume purged	610
Sample appearance	Clear
Sample time	11:05
Sample date	4-24-24

Facility Name  
Sample by

Pinhook  
7-27 70 milltech

Depth to water, feet (TOC)  
Measured Total Depth, feet (TOC)

7.50 27.38

Sample Location ID  
Depth to water date

AD-25  
4.24.24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
916	8.04	120	3.71	1,340	27.5	1.13	376	22.14
921	8.11	120	3.78	1,310	12.6	0.62	323	22.04
926	8.17	120	3.85	1,280	8.6	0.50	306	21.99
931	8.23	120	3.93	1,250	8.5	0.47	299	21.98

Total volume purged  
Sample appearance  
Sample time  
Sample date

clear  
133  
4.24.24





Facility Name	Acip Air Highway Pl
Sample by	KERRY A. DOWD

Sample Location ID	AD-27
--------------------	-------

Depth to water, feet (TOC)	16.12
Measured Total Depth, feet (TOC)	40.07

Depth to water date	04/24/24
---------------------	----------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S/cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}\text{C}$ )
0818	16.34	310	3.60	218	6.2	1.97	441	22.75
0823	16.39	310	3.64	222	5.9	1.93	437	22.65
0828	16.41	310	3.63	223	5.6	1.88	431	22.51

Total volume purged	
Sample appearance	CLEAR
Sample time	0830
Sample date	04/24/24

Facility Name: Pillbox  
 Sample by: M. H. Hamilton

Sample Location ID: AD-28

Depth to water, feet (TOC): 16.20  
 Measured Total Depth, feet (TOC): 38.59

Depth to water date: 4-23-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
516	16.68	220	3.36	93	0	3.97	553	18.65
521	16.72	220	3.33	93	0	2.28	547	18.73
526	16.74	220	3.37	93	0	2.21	543	18.65

Total volume purged  
 Sample appearance: clear  
 Sample time: 5:28  
 Sample date: 4-23-24

Facility Name  
 Sample by

P. Hill  
 Matt Hamilton

Sample Location ID

AD-30

Depth to water, feet (TOC)

17.14

Measured Total Depth, feet (TOC)

27.13

Depth to water date

4-23-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S}/\text{cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}\text{C}$ )
816	17.25	220	3.55	306	57.2	2.08	523	17.41
821	17.25	220	3.84	256	62.9	1.22	527	18.42
826	17.25	220	3.82	284	37.9	1.16	527	14.22
831	17.25	220	3.84	245	20.6	1.04	524	14.36
836	17.26	220	3.84	291	7.8	0.95	520	14.52
841	17.26	220	3.84	259	7.7	0.91	518	11.57

Total volume purged

Sample appearance

Sample time

Sample date

0  
 clear  
 843  
 4-23-24

Facility Name: P. Veey  
Sample by: M. H. H. H. H. H.

Sample Location ID: AD-31

Depth to water, feet (TOC): 20.61  
Measured Total Depth, feet (TOC): 37.32

Depth to water date: 4-22-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1058	21.08	220	3.43	245	55.1	0.31	377	21.53
1103	21.15	220	3.38	255	42.5	0.57	377	21.97
1108	21.15	220	3.41	259	39.1	0.43	373	22.14
1113	21.23	220	3.43	261	30.2	0.37	374	23.18
1118	21.26	220	3.44	261	30.4	0.36	376	22.11

Total volume purged:  
Sample appearance: Clear  
Sample time: 1120  
Sample date: 4-22-24



Facility Name: Pikey  
 Sample by: M.H. Hamilton

Sample Location ID: AP-32

Depth to water, feet (TOC): 14.20  
 Measured Total Depth, feet (TOC): 34.65

Depth to water date: 4.22.24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
1008	14.85	220	4.74	186	25	1.44	445	20.13
1013	15.11	220	4.84	190	61.2	0.55	399	20.66
1018	15.20	220	4.88	201	54.1	0.43	330	20.71
1023	15.24	220	4.92	213	43.4	0.36	258	21.07
1028	15.27	220	4.93	217	35.6	0.33	224	21.16
1033	15.29	220	4.94	222	35.6	0.31	208	21.28

Total volume purged	
Sample appearance	<u>clear</u>
Sample time	<u>1033</u>
Sample date	<u>4.22.24</u>

Facility Name	ACAPPAK PP
Sample by	KERRY M. DENARD

Sample Location ID	AD-33
--------------------	-------

Depth to water, feet (TOC)	10.09
Measured Total Depth, feet (TOC)	32.50

Depth to water date	04/22/24
---------------------	----------

Purge Stabilization Data								
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
1101	10.20	220	4.15	207	1.3	2.21	336	25.31
1106	10.20	220	4.15	196	1.0	2.18	334	25.28
1111	10.21	220	4.15	196	1.1	2.15	330	25.26

Total volume purged	CLPAK
Sample appearance	113
Sample time	04/22/24
Sample date	

Facility Name Pillsbury  
Sample by Matt Hamill

Depth to water, feet (TOC) 10L  
Measured Total Depth, feet (TOC) 26.05

Sample Location ID AP-34

Depth to water date 4.24.24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S/cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
954	0.76	120	3.52	1,460	99.6	1.22	342	22.10
959	0.89	120	3.57	1,460	69.6	0.77	344	21.77
1004	0.97	120	3.64	1,460	17.2	0.65	332	21.50
1006	1.05	120	3.68	1,460	17.5	0.61	326	21.43

Total volume purged  
Sample appearance 0.29 g/L  
Sample time 101  
Sample date 4.24.24



Facility Name: *ATP Pinkway*  
 Sample by: *K Truitt McDevold*

Sample Location ID: *AD-36*

Depth to water, feet (TOC): *5.25*  
 Measured Total Depth, feet (TOC): *17.10*

Depth to water date: *04/23/24*

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S}/\text{cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
<i>0903</i>	<i>5.47</i>	<i>160</i>	<i>4.68</i>	<i>95</i>	<i>3.7</i>	<i>2.13</i>	<i>372</i>	<i>19.72</i>
<i>0908</i>	<i>5.49</i>	<i>160</i>	<i>4.69</i>	<i>88</i>	<i>2.6</i>	<i>1.86</i>	<i>373</i>	<i>19.94</i>
<i>0913</i>	<i>5.50</i>	<i>160</i>	<i>4.69</i>	<i>85</i>	<i>2.4</i>	<i>1.83</i>	<i>373</i>	<i>19.97</i>
<i>0918</i>	<i>5.54</i>	<i>160</i>	<i>4.67</i>	<i>85</i>	<i>2.2</i>	<i>1.79</i>	<i>370</i>	<i>20.09</i>

Total volume purged: *CLM*  
 Sample appearance: *0920*  
 Sample time: *04/23/24*  
 Sample date:



Facility Name: P. 11604  
 Sample by: Y-M Hamilton

Depth to water, feet (TOC): 13.89  
 Measured Total Depth, feet (TOC):

Sample Location ID: B-2

Depth to water date: 4.22.24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
825	14.53	300	3.66	177	8.5	5.93	466	16.88
830	14.65	300	4.26	113	33.4	0.80	412	18.46
835	14.68	300	4.36	120	28.7	0.60	354	18.62
840	14.70	300	4.44	122	27.5	0.51	371	18.65
845	14.71	300	4.51	123	27.7	0.50	363	18.68

Total volume purged: 0  
 Sample appearance: Clear  
 Sample time: 847  
 Sample date: 4.22.24

Duplicate  
 1215

Facility Name	Aer Flanby pp
Sample by	Kevin McPheraid

Sample Location ID	B-3
--------------------	-----

Depth to water, feet (TOC)	10.30
Measured Total Depth, feet (TOC)	37.49

Depth to water date	04/24/24
---------------------	----------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
0758	11.16	110	5.40	207	5.3	2.84	330	22.55
0803	12.28	110	5.42	211	4.8	2.80	325	22.55

Total volume purged	
Sample appearance	Clear
Sample time	1002
Sample date	04/24/24

# CCR Groundwater Monitoring Well Inspection Form

Facility: Plant 1 PP      Sampling Period: SEPTEMBER 2024  
 Sampling Contractor: EA661 ENVIRONMENTAL      Signature: [Signature]

Well No.	Well Locked	Lock Functioning	Well Locked After Sampling	Access to Well Maintained	Well Casing, Housing, and Pad in Good Shape	Well Properly Labeled	Well cap present	Comments
AD-13	✓	✓	✓	✓	✓	✓	✓	
AD-7R	✓	✓	✓	✓	✓		✓	NO LABEL
AD-22	✓	✓	✓	✓	✓	✓	✓	
AD-33	✓	✓	✓	✓	✓	✓	✓	WELL PAD STATION NOT FLAT
AD-19	✓	✓	✓	✓	✓	✓	✓	17.31
AD-10	✓	✓	✓	✓	✓	✓	✓	22.13
AD-21	✓	✓	✓	✓	✓	✓	✓	8.21
AD-20	✓	✓	✓	✓	✓	✓	✓	21.17
AD-02	✓	✓	✓	✓	✓	✓	✓	
AD-04	✓	✓	✓	✓	✓	✓	✓	NO GOOD ACCESS STEEP HILL OR OUPPER AND MUDDY AREA
AD-18	✓	✓	✓	✓	✓	✓	✓	
B-3	✓	✓	✓	✓	✓	✓	✓	NEED MORE INFO NO LABEL

**Instructions:** Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

# CCR Groundwater Monitoring Well Inspection Form

Facility: FRANCY PP      Sampling Period: SEPTEMBER 2024  
 Sampling Contractor: EAGLE ENVIRONMENTAL      Signature: [Signature]

Well No.	Well Locked	Lock Functioning	Well Locked After Sampling	Access to Well Maintained	Well Casing, Housing, and Pad in Good Shape	Well Properly Labeled	Well cap present	Comments
AD-16	✓				✓	✓	✓	TRAIL TO WELL OVERGROWN NEEDS NEW LOCK FUNCTIONAL ISSUE
AD-37	✓	✓	✓		✓	✓	✓	ACCESS ROAD HAS BEEN REMOVED
AD-08	✓	✓	✓	✓	✓	✓	✓	
AD-25	✓	✓	✓		✓	✓	✓	ROAD NOT MAINTAINED OVERGROWN, ROAD HAS BEEN CUT IN IT

**Instructions:** Complete form and submit to AEP Environmental Services with Field Data. Place check mark for items that are satisfactory. Unsatisfactory items should be left blank with a note in the comments section on what needs to be remedied.

# CCR Groundwater Monitoring Well Inspection Form

Facility: Pitney

Sampling Contractor: Engk

Sampling Period: Sept 2024

Signature: [Signature]

Well No.	Well Locked	Fastener and Lock Functioning	Well Locked After Sampling	Access to Well Maintained	Well Casing, Protective Cover, Barriers and Pad in Good Shape	Well Properly Labeled	Well Cap Present and Vented*	Comments
B-2					✓		✓	lid will not close No label @ Verigoma
AD-12	—	—	—	—	—	—	—	
AD-32	—	—	—	—	—	—	—	
AD-31	✓	—	—	—	—	—	—	
AD-30	—	—	—	—	—	—	—	
AD-28	✓	—	—	—	—	—	—	
AD-17	✓	—	—	—	✓	—	—	@ Verigoma
AD-3	✓	—	—	—	—	—	—	
AD-36	—	—	—	—	—	—	—	
AD-23	✓	—	—	—	—	—	—	
AD-27	—	—	—	—	—	—	—	No path to well Need access
AD-26	—	—	—	—	—	—	—	No path to well Need access Kobota

\*Not all wells will be vented, especially flush mounted wells. If that is the case, please note "flush mount well" in the comments.

Facility Name Plancy PP  
 Sample by Kevin McDaniel

Sample Location ID A0-02

Depth to water, feet (TOC) 16.93  
 Measured Total Depth, feet (TOC) 40.36

Depth to water date 09/17/24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
0741	17.04	210	4.04	713	1.7	3.01	398	22.92
0746	17.08	210	4.02	728	1.0	2.30	398	22.83
0751	17.12	210	4.02	737	1.4	2.27	398	22.81
0756	17.14	210	4.00	741	1.2	2.25	402	22.74

Total volume purged  
 Sample appearance C16M  
 Sample time 0758  
 Sample date 09/17/24

Facility Name	Polly
Sample by	Matt Hamilton

Depth to water, feet (TOC)	36.22
Measured Total Depth, feet (TOC)	57.45

Sample Location ID AD-3

Depth to water date 9-17-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (μS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1039	36.55	220	4.36	126	39.3	3.45	431	24.34
1044	36.67	220	4.31	130	53.1	0.97	424	22.64
1048	36.77	220	4.28	130	20.1	0.88	415	22.36
1054	36.85	220	4.26	130	20.2	0.62	408	22.34
1059	36.95	220	4.27	130	20.1	0.60	404	22.33

Total volume purged	
Sample appearance	Clear
Sample time	1101
Sample date	9-17-24

Facility Name	Pinney pp
Sample by	Kenny McDonald

Sample Location ID	A-D-04
--------------------	--------

Depth to water, feet (TOC)	19.23
Measured Total Depth, feet (TOC)	47.29

Depth to water date	09/17/24
---------------------	----------

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
0908	19.48	182	5.04	106	47.6	3.28	421	24.27	
0913	19.51	182	4.96	110	51.2	2.41	420	24.31	
0918	19.51	182	4.95	108	55.7	2.37	418	24.34	
0923	19.52	182	4.94	105	54.8	2.35	418	24.37	
0928	19.52	182	4.94	103	55.1	2.35	416	24.35	
0933	19.55	182	4.94	103	55.4	2.33	415	24.33	

Total volume purged	
Sample appearance	701510 R1015 R Brown
Sample time	0935
Sample date	09/17/24



Facility Name: Pleak of AP  
 Sample by: K. G. V. M. C. D. M. A. C. J.

Sample Location ID: AD-7R

Depth to water, feet (TOC): 8.80  
 Measured Total Depth, feet (TOC): 33.03

Depth to water date: 09/16/24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
0848	8.91	226	4.89	265	1.3	3.02	262	25.24
0853	8.92	226	4.72	204	0.6	2.52	265	25.00
0858	8.92	226	4.72	206	0.3	2.49	262	24.89
0903	8.93	226	4.72	207	0.0	2.45	261	24.91

Total volume purged: CLWAH  
 Sample appearance: 0905  
 Sample time: 09/16/24  
 Sample date:

Facility Name  
 Sample by

*PK on pp*  
*Kenny McPowed*

Sample Location ID

*A0-08*

Depth to water, feet (TOC)  
 Measured Total Depth, feet (TOC)

*12.82*  
*31.33*

Depth to water date

*09/18/24*

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S/cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
<i>0945</i>	<i>12.87</i>	<i>210</i>	<i>5.99</i>	<i>445</i>	<i>13.2</i>	<i>6.05</i>	<i>247</i>	<i>27.02</i>
<i>0950</i>	<i>12.87</i>	<i>210</i>	<i>5.96</i>	<i>434</i>	<i>11.6</i>	<i>2.51</i>	<i>239</i>	<i>26.88</i>
<i>0955</i>	<i>12.89</i>	<i>210</i>	<i>5.94</i>	<i>428</i>	<i>9.8</i>	<i>1.47</i>	<i>233</i>	<i>26.47</i>
<i>1000</i>	<i>12.91</i>	<i>210</i>	<i>5.91</i>	<i>427</i>	<i>10.2</i>	<i>1.42</i>	<i>225</i>	<i>26.87</i>
<i>1005</i>	<i>12.92</i>	<i>210</i>	<i>5.90</i>	<i>426</i>	<i>9.7</i>	<i>1.38</i>	<i>220</i>	<i>27.12</i>

Total volume purged  
 Sample appearance  
 Sample time  
 Sample date

*61000*  
*1007*  
*09/18/24*

Facility Name	W. W. Wilson
Sample by	W. W. Wilson
Depth to water, feet (TOC)	16.42
Measured Total Depth, feet (TOC)	52.00
Sample Location ID	AD-12
Depth to water date	9-16-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
917	16.68	300	3.16	46	9.2	13.12	405	24.52
922	17.05	300	2.98	42	12.1	2.93	431	24.71
927	17.21	300	2.95	41	12.6	2.74	446	25.18
932	17.36	300	2.59	41	12.6	2.66	450	25.07

Total volume purged	1
Sample appearance	clear
Sample time	9:24
Sample date	9-16-24

Facility Name	P. AKOY PP
Sample by	K. W. Y. McDonnell

Sample Location ID	APD-13
--------------------	--------

Depth to water, feet (TOC)	13.29
Measured Total Depth, feet (TOC)	40.70

Depth to water date	09/16/24
---------------------	----------

Purge Stabilization Data								
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S}/\text{cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}\text{C}$ )
0756	13.42	176	5.52	431	9.1	5.02	334	24.22
0801	13.47	176	5.67	426	8.4	4.38	325	24.24
0806	13.53	176	5.72	410	8.0	4.33	313	24.26
0811	13.58	176	5.75	407	7.7	4.31	300	24.31

Total volume purged	
Sample appearance	cloud
Sample time	0813
Sample date	09/16/24

Facility Name	P70107 PP
Sample by	KCANN7 MCDONALD

Sample Location ID	AJ-16
--------------------	-------

Depth to water, feet (TOC)	18.05
Measured Total Depth, feet (TOC)	38.29

Depth to water date	09/17/24
---------------------	----------

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/mip)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
1102	18.61	196	4.82	242	14.2	2.17	332	24.21	
1107	18.62	196	4.84	245	11.1	1.20	336	24.17	
1112	18.66	196	4.86	249	10.9	1.17	335	24.11	
1117	18.68	196	4.87	251	10.7	1.14	338	24.18	

Total volume purged	
Sample appearance	CLEAR
Sample time	1119
Sample date	09/17/27

Facility Name: P. Hwy  
 Sample by: M. St. Newman

Depth to water, feet (TOC): 2.50  
 Measured Total Depth, feet (TOC): 33.05

Sample Location ID: AD-17

Depth to water date: 9-17-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
938	22.62	200	3.17	1.5	17.5	8.45	496	23.74
943	22.65	200	3.07	1.8	24.5	1.08	465	23.24
948	22.67	200	3.05	1.1	5.0	1.00	453	23.20
953	22.67	200	3.11	1.7	4.5	0.57	490	23.15

Total volume purged: 10.1  
 Sample appearance: 955  
 Sample time: 9-17-24  
 Sample date:

Facility Name	Pipera PD
Sample by	K(ww) m. Demant

Sample Location ID	AD-18
--------------------	-------

Depth to water, feet (TOC)	8.76
Measured Total Depth, feet (TOC)	28.42

Depth to water date	09/17/24
---------------------	----------

Purge Stabilization Data										
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S/cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}\text{C}$ )		
1015	9.93	108	4.27	50	13.9	3.26	367	24.74		
1020	11.06	108	4.17	61	18.4	2.89	374	23.51		
				WON'T HOLD						

Total volume purged	
Sample appearance	TURBO
Sample time	0744
Sample date	09/18/24

Facility Name	Pickton PP
Sample by	K. Thompson, Dec 2004

Sample Location ID AD-22

Depth to water, feet (TOC)	10.96
Measured Total Depth, feet (TOC)	32.70

Depth to water date 09/06/24

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
0942	11.37	180	4.21	712	0.0	3.07	336	25.38	
0947	11.41	180	4.24	715	0.0	2.56	335	25.17	
0952	11.43	180	4.25	716	0.0	2.53	331	25.11	
0957	11.49	180	4.25	718	0.0	2.54	328	25.08	

Total volume purged	
Sample appearance	clear
Sample time	0959
Sample date	09/10/24

Duplicate - 1 1100



Facility Name: Pillay  
 Sample by: M. H. Hamilton

Depth to water, feet (TOC): 29.28  
 Measured Total Depth, feet (TOC): 38.20

Sample Location ID: AD-23

Depth to water date: 9-18-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
921	25.65	220	3.10	70	160	3.16	453	24.42
926	25.65	220	3.05	73	69.0	2.07	454	23.58
931	25.65	220	3.07	74	52.3	1.63	452	23.14
936	25.65	220	3.04	75	23.1	1.61	453	23.05
941	25.65	220	3.04	76	23.2	1.60	453	22.94
946	25.65	220	3.03	76	23.2	1.55	494	22.81

Total volume purged: 6.1 gal  
 Sample appearance: 448  
 Sample time: 9-18-24  
 Sample date:

Facility Name: Flannery pp  
 Sample by: Kerry McDonald

Sample Location ID: AD-25

Depth to water, feet (TOC): 9.89  
 Measured Total Depth, feet (TOC): 27.38

Depth to water date: 9/18/24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1058	10.00	120	3.56	957	26.2	2.45	377	28.14
1103	10.10	120	3.69	1010	15.5	1.27	340	24.58
1108	10.19	120	3.69	1020	12.1	0.96	329	24.65
1113	10.27	120	3.72	1030	9.9	0.88	318	24.62
1118	10.38	120	3.73	1030	9.9	0.82	311	24.49

Total volume purged: \_\_\_\_\_  
 Sample appearance: Clear  
 Sample time: 1120  
 Sample date: 09/18/24

Facility Name	Pike Mist
Sample by	H. S. H.
Depth to water, feet (TOC)	15.78
Measured Total Depth, feet (TOC)	42.73

Sample Location ID	AD-26
--------------------	-------

Depth to water date	9-18-24
---------------------	---------

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1121	16.05	300	3.37	1,520	8.6	1.80	437	26.10
1126	16.24	300	3.40	1,540	0	1.01	433	25.58
1131	16.35	300	3.41	1,560	0	0.98	426	25.32

Total volume purged	
Sample appearance	clear
Sample time	1133
Sample date	9-18-24

Facility Name	Billco
Sample by	Matt Harrison

Sample Location ID	AD.27
Depth to water date	9-18-27

Depth to water, feet (TOC)	22.75
Measured Total Depth, feet (TOC)	4.07

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu\text{S}/\text{cm}$ )	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}\text{C}$ )
1046	22.66	300	3.06	216	17.1	2.25	487	29.76
1051	23.05	300	3.19	218	6.5	2.07	452	34.48
1056	23.11	300	3.23	220	6.4	2.03	446	24.09

Total volume purged	
Sample appearance	clear
Sample time	1058
Sample date	9-18-24

Facility Name	Pilkey
Sample by	Matt / Hsm/14

Sample Location ID	AD-28
Depth to water date	9-17-24

Depth to water, feet (TOC)	19.19
Measured Total Depth, feet (TOC)	38.59

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
8:54	19.43	220	3.24	117	1.7	4.66	502	23.46
8:55	19.53	220	3.06	112	2.5	1.87	502	23.09
9:01	19.53	220	3.12	113	3.0	1.73	504	23.17

Total volume purged	
Sample appearance	clear
Sample time	9:06
Sample date	9-17-24

Facility Name	Pilliken
Sample by	Max H. H. H.

Sample Location ID: AD-30

Depth to water, feet (TOC)	20.60
Measured Total Depth, feet (TOC)	27.15

Depth to water date: 9-17-29

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
803	21.09	220	3.88	351	37.7	1.97	473	24.14
808	21.11	220	3.64	354	46.9	0.91	465	23.62
813	21.12	220	3.68	354	13.6	0.84	464	23.66
818	21.13	220	3.66	354	9.8	0.76	463	23.68
823	21.13	220	3.67	355	9.8	0.73	461	23.73

Total volume purged	
Sample appearance	Clear
Sample time	825
Sample date	9-17-29

Facility Name	Pilloy
Sample by	M.A. H. H. H.

Sample Location ID: A11-31

Depth to water, feet (TOC)	23.23
Measured Total Depth, feet (TOC)	37.32

Depth to water date: 8-16-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1059	23.64	220	3.15	241	39	0.52	383	25.76
1104	23.55	220	3.01	255	20.6	0.53	382	24.97
1105	23.60	220	2.91	262	18.5	0.76	350	24.50
1124	23.62	220	2.98	264	55.6	0.68	345	24.91
1175	23.63	220	3.02	265	73.6	0.57	335	25.00
1124	23.64	220	3.03	266	64.5	0.55	336	24.74
1124	23.64	220	3.03	267	67.3	0.60	336	24.67
1134	23.65	220	3.04	267	66.9	0.61	336	24.63

Total volume purged	
Sample appearance	clear
Sample time	1136
Sample date	8-16-24

Facility Name: P. Keeley  
 Sample by: M. N. Hamilton

Sample Location ID: AD-32

Depth to water, feet (TOC): 17.16  
 Measured Total Depth, feet (TOC): 34.65

Depth to water date: 9-16-24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)
1005	17.165	220	4.57	236	258	1.30	421	24.76
1010	17.85	220	4.73	244	114	0.77	271	24.67
1015	17.91	220	4.74	246	79.5	0.64	190	24.05
1020	17.94	220	4.82	245	76.1	0.62	147	24.05
1025	17.96	220	4.83	244	77.5	0.60	202	24.03
1030	17.97	220	4.84	244	77.6	0.59	204	24.02

Total volume purged: turbid  
 Sample appearance: turbid  
 Sample time: 1032  
 Sample date: 9-16-24



Facility Name	Pipha PP
Sample by	K. Srinivasan

Sample Location ID: 40-33

Depth to water, feet (TOC)	12.64
Measured Total Depth, feet (TOC)	32.50

Depth to water date: 09/16/24

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
1113	12.08	228	4.02	207	0.2	4.18	341	24.68	
1118	12.69	228	3.97	206	0.0	4.07	341	24.62	
1123	12.69	228	3.97	204	0.0	3.98	341	24.58	
1125									

Total volume purged	
Sample appearance	Clear
Sample time	1125
Sample date	09/16/24

Facility Name	Proctor PP
Sample by	K (M) M (D) (A) C (D)

Sample Location ID	AD-34
--------------------	-------

Depth to water, feet (TOC)	TOC
Measured Total Depth, feet (TOC)	26.05

Depth to water date	09/18/24
---------------------	----------

Purge Stabilization Data									
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)	
0858	0.81	122	3.95	1460	9.7	3.68	341	25.16	
0903	0.85	122	3.98	1480	7.6	3.51	334	25.52	
0908	0.90	122	3.98	1500	6.4	3.47	327	25.53	
0913	0.92	122	4.00	1520	6.4	3.39	324	25.51	

Total volume purged	
Sample appearance	CLM/A
Sample time	0915
Sample date	09/18/24

Facility Name	Pillbox
Sample by	Matt Hamilton
Depth to water, feet (TOC)	5.83
Measured Total Depth, feet (TOC)	17.10

Sample Location ID	AD-36
Depth to water date	9.18.24

Purge Stabilization Data

Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond ( $\mu$ S/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature ( $^{\circ}$ C)
848	6.6	200	4.15	51	1.7	8.27	442	25.38
853	6.17	200	3.52	<del>87</del> 85	13.1	0.71	462	26.51
858	6.18	200	3.55	87	11.0	0.58	455	26.57
903	6.18	200	3.55	87	6.0	0.56	451	27.06
908	6.15	200	3.60	87	6.1	0.53	446	26.58

Total volume purged	
Sample appearance	clear
Sample time	9:10
Sample date	9-18-24



Facility Name	Pinkus Pl
Sample by	Kenny McDermott

Sample Location ID: B-3

Depth to water, feet (TOC)	16.92
Measured Total Depth, feet (TOC)	37.49

Depth to water date: 09/17/24

Purge Stabilization Data										
Time	Water Depth (from TOC)	Flow Rate (mL/min)	pH (S.U.)	Spec Cond (µS/cm)	Turbidity (N.T.U)	D.O. (mg/L)	ORP (mV)	Temperature (°C)		
1032	18.01	100	5.21	216	4.8	3.30	326	22.19		
1037	19.13	100	5.05	220	3.9	2.57	304	22.43		

Total volume purged	
Sample appearance	Clean
Sample time	0816
Sample date	09/18/24

**APPENDIX 5- Analytical Laboratory Reports**



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 240666-001

Preparation:

Date Collected: 02/20/2024 11:42 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Arsenic	1.19	µg/L	1	0.10	0.03		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Barium	17.3	µg/L	1	0.20	0.05		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Beryllium	1.06	µg/L	5	0.25	0.04		GES	03/04/2024 13:43	EPA 200.8-1994, Rev. 5.4
Boron	3.45	mg/L	1	0.050	0.007		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Cadmium	0.133	µg/L	1	0.020	0.004		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Calcium	4.37	mg/L	1	0.05	0.01		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Chromium	0.47	µg/L	1	0.30	0.07		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Cobalt	31.9	µg/L	1	0.020	0.005		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Lead	0.73	µg/L	1	0.20	0.05		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Lithium	0.0825	mg/L	5	0.0015	0.0004		GES	03/04/2024 13:43	EPA 200.8-1994, Rev. 5.4
Magnesium	9.04	mg/L	1	0.100	0.006		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Mercury	48	ng/L	2	10	4		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Potassium	1.58	mg/L	1	0.100	0.008		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Selenium	4.61	µg/L	1	0.50	0.04		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Sodium	126	mg/L	1	0.20	0.01		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Strontium	0.0649	mg/L	1	0.00200	0.00005		GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4
Thallium	0.13	µg/L	1	0.20	0.02	J1	GES	03/04/2024 13:17	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.03	pCi/L	0.21	0.26		ST	02/29/2024 13:12	SW-846 9315-1986, Rev. 0
Carrier Recovery	95.0	%						
Radium-228	0.85	pCi/L	0.14	0.43		ST	03/01/2024 16:58	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	89.8	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 240666-001-01

Preparation: Dissolved

Date Collected: 02/20/2024 11:42 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.013	µg/L	1	0.100	0.008	J1	GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Arsenic	1.13	µg/L	1	0.10	0.03		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Barium	17.3	µg/L	1	0.20	0.05		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Beryllium	0.99	µg/L	5	0.25	0.04		GES	03/04/2024 13:53	EPA 200.8-1994, Rev. 5.4
Boron	3.50	mg/L	1	0.050	0.007		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Cadmium	0.140	µg/L	1	0.020	0.004		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Calcium	4.37	mg/L	1	0.05	0.01		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Chromium	0.56	µg/L	1	0.30	0.07		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Cobalt	32.0	µg/L	1	0.020	0.005		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Iron	0.162	mg/L	1	0.020	0.003		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Lead	0.77	µg/L	1	0.20	0.05		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Lithium	0.0815	mg/L	5	0.0015	0.0004		GES	03/04/2024 13:53	EPA 200.8-1994, Rev. 5.4
Magnesium	9.07	mg/L	1	0.100	0.006		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Manganese	0.111	mg/L	1	0.00100	0.00008		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Potassium	1.59	mg/L	1	0.100	0.008		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Selenium	4.19	µg/L	1	0.50	0.04		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Sodium	128	mg/L	1	0.20	0.01		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Strontium	0.0641	mg/L	1	0.00200	0.00005		GES	03/04/2024 13:22	EPA 200.8-1994, Rev. 5.4
Thallium	0.13	µg/L	1	0.20	0.02	J1	GES	03/04/2024 13:22	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-3

Customer Description:

Lab Number: 240666-002

Preparation:

Date Collected: 02/20/2024 12:25 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.008	µg/L	1	0.100	0.008	J1	GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Arsenic	0.10	µg/L	1	0.10	0.03		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Barium	57.7	µg/L	1	0.20	0.05		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Beryllium	0.21	µg/L	5	0.25	0.04	J1	GES	03/04/2024 13:58	EPA 200.8-1994, Rev. 5.4
Boron	0.037	mg/L	1	0.050	0.007	J1	GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Cadmium	0.024	µg/L	1	0.020	0.004		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Calcium	3.55	mg/L	1	0.05	0.01		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Chromium	0.49	µg/L	1	0.30	0.07		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Cobalt	3.07	µg/L	1	0.020	0.005		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Lithium	0.0511	mg/L	5	0.0015	0.0004		GES	03/04/2024 13:58	EPA 200.8-1994, Rev. 5.4
Magnesium	1.64	mg/L	1	0.100	0.006		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Potassium	2.21	mg/L	1	0.100	0.008		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Selenium	0.07	µg/L	1	0.50	0.04	J1	GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Sodium	8.79	mg/L	1	0.20	0.01		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Strontium	0.0245	mg/L	1	0.00200	0.00005		GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	GES	03/04/2024 13:28	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.06	pCi/L	0.21	0.23		ST	02/29/2024 13:12	SW-846 9315-1986, Rev. 0
Carrier Recovery	93.0	%						
Radium-228	0.19	pCi/L	0.12	0.40		ST	03/01/2024 16:58	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	99.3	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-3

Customer Description:

Lab Number: 240666-002-01

Preparation: Dissolved

Date Collected: 02/20/2024 12:25 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Arsenic	0.11	µg/L	1	0.10	0.03		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Barium	55.2	µg/L	1	0.20	0.05		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Beryllium	0.11	µg/L	5	0.25	0.04	J1	GES	03/04/2024 14:03	EPA 200.8-1994, Rev. 5.4
Boron	0.035	mg/L	1	0.050	0.007	J1	GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Cadmium	0.014	µg/L	1	0.020	0.004	J1	GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Calcium	3.52	mg/L	1	0.05	0.01		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Chromium	0.36	µg/L	1	0.30	0.07		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Cobalt	2.74	µg/L	1	0.020	0.005		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Iron	0.582	mg/L	1	0.020	0.003		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Lithium	0.0513	mg/L	5	0.0015	0.0004		GES	03/04/2024 14:03	EPA 200.8-1994, Rev. 5.4
Magnesium	1.48	mg/L	1	0.100	0.006		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Manganese	0.0307	mg/L	1	0.00100	0.00008		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Potassium	2.20	mg/L	1	0.100	0.008		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Sodium	8.71	mg/L	1	0.20	0.01		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Strontium	0.0244	mg/L	1	0.00200	0.00005		GES	03/04/2024 13:33	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/04/2024 13:33	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 240666-003

Preparation:

Date Collected: 02/20/2024 10:31 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Arsenic	0.13	µg/L	1	0.10	0.03		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Barium	148	µg/L	1	0.20	0.05		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Beryllium	0.33	µg/L	5	0.25	0.04		GES	03/04/2024 14:09	EPA 200.8-1994, Rev. 5.4
Boron	0.018	mg/L	1	0.050	0.007	J1	GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Cadmium	0.027	µg/L	1	0.020	0.004		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Calcium	3.23	mg/L	1	0.05	0.01		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Chromium	0.34	µg/L	1	0.30	0.07		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Cobalt	3.44	µg/L	1	0.020	0.005		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Lithium	0.0252	mg/L	5	0.0015	0.0004		GES	03/04/2024 14:09	EPA 200.8-1994, Rev. 5.4
Magnesium	0.694	mg/L	1	0.100	0.006		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Mercury	6	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Potassium	2.35	mg/L	1	0.100	0.008		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Selenium	0.06	µg/L	1	0.50	0.04	J1	GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Sodium	7.01	mg/L	1	0.20	0.01		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Strontium	0.0263	mg/L	1	0.00200	0.00005		GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4
Thallium	0.10	µg/L	1	0.20	0.02	J1	GES	03/04/2024 13:38	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.86	pCi/L	0.19	0.29		ST	02/29/2024 13:12	SW-846 9315-1986, Rev. 0
Carrier Recovery	96.1	%						
Radium-228	0.92	pCi/L	0.12	0.38		ST	03/01/2024 16:58	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	92.4	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 240666-003-01

Preparation: Dissolved

Date Collected: 02/20/2024 10:31 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Arsenic	0.04	µg/L	1	0.10	0.03	J1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Barium	120	µg/L	1	0.20	0.05		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Beryllium	0.20	µg/L	5	0.25	0.04	J1	GES	03/04/2024 14:14	EPA 200.8-1994, Rev. 5.4
Boron	0.017	mg/L	1	0.050	0.007	J1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Cadmium	0.017	µg/L	1	0.020	0.004	J1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Calcium	2.54	mg/L	1	0.05	0.01		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Chromium	0.27	µg/L	1	0.30	0.07	J1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Cobalt	3.09	µg/L	1	0.020	0.005		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Iron	0.013	mg/L	1	0.020	0.003	J1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Lead	0.10	µg/L	1	0.20	0.05	J1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Lithium	0.0268	mg/L	5	0.0015	0.0004		GES	03/04/2024 14:14	EPA 200.8-1994, Rev. 5.4
Magnesium	0.548	mg/L	1	0.100	0.006		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Manganese	0.0242	mg/L	1	0.00100	0.00008		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Mercury	2	ng/L	1	5	2	J1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Potassium	2.25	mg/L	1	0.100	0.008		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Sodium	6.73	mg/L	1	0.20	0.01		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Strontium	0.0216	mg/L	1	0.00200	0.00005		GES	03/04/2024 13:48	EPA 200.8-1994, Rev. 5.4
Thallium	0.10	µg/L	1	0.20	0.02	J1	GES	03/04/2024 13:48	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 240666-004

Preparation:

Date Collected: 02/19/2024 12:28 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Arsenic	0.29	µg/L	1	0.10	0.03		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Barium	50.7	µg/L	1	0.20	0.05		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Beryllium	1.93	µg/L	1	0.050	0.007		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Boron	0.066	mg/L	1	0.050	0.007		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Cadmium	0.330	µg/L	1	0.020	0.004		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Calcium	3.32	mg/L	1	0.05	0.01		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Cobalt	19.4	µg/L	1	0.020	0.005		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Lead	0.07	µg/L	1	0.20	0.05	J1	GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Lithium	0.0616	mg/L	1	0.00030	0.00007		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Magnesium	5.22	mg/L	1	0.100	0.006		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Mercury	126	ng/L	2	10	4		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Potassium	2.12	mg/L	1	0.100	0.008		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Selenium	0.73	µg/L	1	0.50	0.04		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Sodium	26.3	mg/L	1	0.20	0.01		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Strontium	0.0374	mg/L	1	0.00200	0.00005		GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4
Thallium	0.15	µg/L	1	0.20	0.02	J1	GES	03/04/2024 14:19	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	2.40	pCi/L	0.31	0.22		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	84.9	%						
Radium-228	0.86	pCi/L	0.14	0.45		ST	03/01/2024 16:58	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	91.7	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 240666-004-01

Preparation: Dissolved

Date Collected: 02/19/2024 12:28 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Arsenic	0.08	µg/L	1	0.10	0.03	J1	GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Barium	49.4	µg/L	1	0.20	0.05		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Beryllium	1.62	µg/L	1	0.050	0.007		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Boron	0.063	mg/L	1	0.050	0.007		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Cadmium	0.297	µg/L	1	0.020	0.004		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Calcium	3.12	mg/L	1	0.05	0.01		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Chromium	0.26	µg/L	1	0.30	0.07	J1	GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Cobalt	18.2	µg/L	1	0.020	0.005		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Iron	2.11	mg/L	1	0.020	0.003		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Lead	0.07	µg/L	1	0.20	0.05	J1	GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Lithium	0.0629	mg/L	1	0.00030	0.00007		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Magnesium	4.88	mg/L	1	0.100	0.006		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Manganese	0.0579	mg/L	1	0.00100	0.00008		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Mercury	60	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Potassium	2.09	mg/L	1	0.100	0.008		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Selenium	0.05	µg/L	1	0.50	0.04	J1	GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Sodium	25.3	mg/L	1	0.20	0.01		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Strontium	0.0352	mg/L	1	0.00200	0.00005		GES	03/04/2024 14:29	EPA 200.8-1994, Rev. 5.4
Thallium	0.14	µg/L	1	0.20	0.02	J1	GES	03/04/2024 14:29	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-12

Customer Description:

Lab Number: 240666-005

Preparation:

Date Collected: 02/19/2024 10:01 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.010	µg/L	1	0.100	0.008	J1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Arsenic	0.07	µg/L	1	0.10	0.03	J1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Barium	21.7	µg/L	1	0.20	0.05		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Beryllium	0.127	µg/L	1	0.050	0.007		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Boron	0.016	mg/L	1	0.050	0.007	J1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Cadmium	0.009	µg/L	1	0.020	0.004	J1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Calcium	0.27	mg/L	1	0.05	0.01		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Chromium	0.50	µg/L	1	0.30	0.07		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Cobalt	1.13	µg/L	1	0.020	0.005		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Lead	0.06	µg/L	1	0.20	0.05	J1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Lithium	0.00547	mg/L	1	0.00030	0.00007		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Magnesium	0.379	mg/L	1	0.100	0.006		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Mercury	2	ng/L	1	5	2	J1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Potassium	0.286	mg/L	1	0.100	0.008		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Selenium	0.19	µg/L	1	0.50	0.04	J1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Sodium	4.34	mg/L	1	0.20	0.01		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Strontium	0.00359	mg/L	1	0.00200	0.00005		GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/04/2024 14:40	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.78	pCi/L	0.18	0.20		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	95.2	%						
Radium-228	0.22	pCi/L	0.12	0.41		ST	03/01/2024 16:58	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	88.6	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-12

Customer Description:

Lab Number: 240666-005-01

Preparation: Dissolved

Date Collected: 02/19/2024 10:01 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.011	µg/L	1	0.100	0.008	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Arsenic	0.05	µg/L	1	0.10	0.03	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Barium	6.59	µg/L	1	0.20	0.05		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Beryllium	0.026	µg/L	1	0.050	0.007	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Boron	0.016	mg/L	1	0.050	0.007	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Calcium	0.09	mg/L	1	0.05	0.01		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Chromium	0.31	µg/L	1	0.30	0.07		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Cobalt	0.307	µg/L	1	0.020	0.005		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Iron	0.012	mg/L	1	0.020	0.003	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Lithium	0.00496	mg/L	1	0.00030	0.00007		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Magnesium	0.113	mg/L	1	0.100	0.006		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Manganese	0.00095	mg/L	1	0.00100	0.00008	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Potassium	0.279	mg/L	1	0.100	0.008		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Selenium	0.14	µg/L	1	0.50	0.04	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Sodium	4.00	mg/L	1	0.20	0.01		GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Strontium	0.00113	mg/L	1	0.00200	0.00005	J1	GES	03/04/2024 14:50	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/04/2024 14:50	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 240666-006

Preparation:

Date Collected: 02/19/2024 09:44 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Arsenic	0.74	µg/L	1	0.10	0.03		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Barium	45.1	µg/L	1	0.20	0.05		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Beryllium	0.290	µg/L	1	0.050	0.007		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Boron	0.068	mg/L	1	0.050	0.007		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Calcium	10.6	mg/L	1	0.05	0.01		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Chromium	0.29	µg/L	1	0.30	0.07	J1	GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Cobalt	41.9	µg/L	1	0.020	0.005		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Lithium	0.134	mg/L	1	0.00030	0.00007		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Magnesium	12.4	mg/L	1	0.100	0.006		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Potassium	4.84	mg/L	1	0.100	0.008		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Sodium	20.5	mg/L	1	0.20	0.01		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Strontium	0.0985	mg/L	1	0.00200	0.00005		GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	03/04/2024 16:22	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.22	pCi/L	0.23	0.25		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	84.2	%						
Radium-228	0.75	pCi/L	0.13	0.41		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	87.7	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 240666-006-01

Preparation: Dissolved

Date Collected: 02/19/2024 09:44 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Arsenic	0.29	µg/L	1	0.10	0.03		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Barium	43.5	µg/L	1	0.20	0.05		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Beryllium	0.255	µg/L	1	0.050	0.007		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Boron	0.067	mg/L	1	0.050	0.007		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Calcium	10.2	mg/L	1	0.05	0.01		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Cobalt	41.1	µg/L	1	0.020	0.005		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Iron	15.9	mg/L	1	0.020	0.003		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Lithium	0.134	mg/L	1	0.00030	0.00007		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Magnesium	12.0	mg/L	1	0.100	0.006		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Manganese	0.404	mg/L	1	0.00100	0.00008		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Potassium	4.71	mg/L	1	0.100	0.008		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Sodium	20.3	mg/L	1	0.20	0.01		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Strontium	0.0959	mg/L	1	0.00200	0.00005		GES	03/04/2024 16:33	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/04/2024 16:33	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 240666-007

Preparation:

Date Collected: 02/20/2024 13:30 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.009	µg/L	1	0.100	0.008	J1	GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Arsenic	0.23	µg/L	1	0.10	0.03		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Barium	85.2	µg/L	1	0.20	0.05		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Beryllium	0.310	µg/L	1	0.050	0.007		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Boron	0.034	mg/L	1	0.050	0.007	J1	GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Cadmium	0.020	µg/L	1	0.020	0.004		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Calcium	0.14	mg/L	1	0.05	0.01		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Chromium	0.57	µg/L	1	0.30	0.07		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Cobalt	4.40	µg/L	1	0.020	0.005		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Lithium	0.00998	mg/L	1	0.00030	0.00007		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Magnesium	1.37	mg/L	1	0.100	0.006		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Mercury	131	ng/L	4	20	7		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Potassium	0.372	mg/L	1	0.100	0.008		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Selenium	0.16	µg/L	1	0.50	0.04	J1	GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Sodium	6.11	mg/L	1	0.20	0.01		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Strontium	0.00683	mg/L	1	0.00200	0.00005		GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/04/2024 16:43	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	2.15	pCi/L	0.27	0.22		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	103	%						
Radium-228	1	pCi/L	0.15	0.49		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	93.6	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 240666-007-01

Preparation: Dissolved

Date Collected: 02/20/2024 13:30 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Arsenic	0.04	µg/L	1	0.10	0.03	J1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Barium	77.6	µg/L	1	0.20	0.05		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Beryllium	0.174	µg/L	1	0.050	0.007		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Boron	0.036	mg/L	1	0.050	0.007	J1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Cadmium	0.015	µg/L	1	0.020	0.004	J1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Calcium	0.15	mg/L	1	0.05	0.01		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Chromium	0.31	µg/L	1	0.30	0.07		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Cobalt	3.98	µg/L	1	0.020	0.005		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Iron	0.004	mg/L	1	0.020	0.003	J1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Lead	0.06	µg/L	1	0.20	0.05	J1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Lithium	0.0105	mg/L	1	0.00030	0.00007		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Magnesium	1.24	mg/L	1	0.100	0.006		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Manganese	0.00288	mg/L	1	0.00100	0.00008		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Mercury	65	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Potassium	0.358	mg/L	1	0.100	0.008		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Sodium	6.20	mg/L	1	0.20	0.01		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Strontium	0.00630	mg/L	1	0.00200	0.00005		GES	03/04/2024 16:53	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/04/2024 16:53	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-18

Customer Description:

Lab Number: 240666-008

Preparation:

Date Collected: 02/20/2024 09:29 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.019	µg/L	1	0.100	0.008	J1	GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Arsenic	1.17	µg/L	1	0.10	0.03		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Barium	83.1	µg/L	1	0.20	0.05		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Beryllium	0.100	µg/L	1	0.050	0.007		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Boron	0.013	mg/L	1	0.050	0.007	J1	GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Cadmium	0.013	µg/L	1	0.020	0.004	J1	GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Calcium	0.27	mg/L	1	0.05	0.01		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Chromium	0.95	µg/L	1	0.30	0.07		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Cobalt	1.05	µg/L	1	0.020	0.005		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Lead	0.30	µg/L	1	0.20	0.05		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Lithium	0.0151	mg/L	1	0.00030	0.00007		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Magnesium	0.365	mg/L	1	0.100	0.006		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Mercury	14	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Potassium	0.901	mg/L	1	0.100	0.008		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Selenium	0.23	µg/L	1	0.50	0.04	J1	GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Sodium	5.80	mg/L	1	0.20	0.01		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Strontium	0.00539	mg/L	1	0.00200	0.00005		GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	GES	03/04/2024 17:03	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.57	pCi/L	0.13	0.15		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	111	%						
Radium-228	0.85	pCi/L	0.17	0.55		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	91.2	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-18

Customer Description:

Lab Number: 240666-008-01

Preparation: Dissolved

Date Collected: 02/20/2024 09:29 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Arsenic	0.07	µg/L	1	0.10	0.03	J1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Barium	32.4	µg/L	1	0.20	0.05		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Beryllium	0.007	µg/L	1	0.050	0.007	J1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Boron	0.012	mg/L	1	0.050	0.007	J1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Calcium	0.14	mg/L	1	0.05	0.01		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Chromium	0.40	µg/L	1	0.30	0.07		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Cobalt	0.506	µg/L	1	0.020	0.005		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Iron	0.040	mg/L	1	0.020	0.003		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Lithium	0.0163	mg/L	1	0.00030	0.00007		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Magnesium	0.131	mg/L	1	0.100	0.006		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Manganese	0.00192	mg/L	1	0.00100	0.00008		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Mercury	5	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Potassium	0.947	mg/L	1	0.100	0.008		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Selenium	0.04	µg/L	1	0.50	0.04	J1	GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Sodium	5.84	mg/L	1	0.20	0.01		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Strontium	0.00229	mg/L	1	0.00200	0.00005		GES	03/04/2024 17:14	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/04/2024 17:14	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 240666-009

Preparation:

Date Collected: 02/19/2024 11:44 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Arsenic	1.20	µg/L	1	0.10	0.03		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Barium	20.1	µg/L	1	0.20	0.05		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Beryllium	4.23	µg/L	1	0.050	0.007		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Boron	0.050	mg/L	1	0.050	0.007		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Cadmium	0.922	µg/L	1	0.020	0.004		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Calcium	13.7	mg/L	1	0.05	0.01		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Chromium	0.39	µg/L	1	0.30	0.07		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Cobalt	86.9	µg/L	1	0.020	0.005		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Lead	0.23	µg/L	1	0.20	0.05		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Lithium	0.128	mg/L	1	0.00030	0.00007		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Magnesium	19.8	mg/L	1	0.100	0.006		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Mercury	262	ng/L	4	20	7		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Potassium	3.91	mg/L	1	0.100	0.008		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Selenium	4.57	µg/L	1	0.50	0.04		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Sodium	94.8	mg/L	1	0.20	0.01		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Strontium	0.125	mg/L	1	0.00200	0.00005		GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4
Thallium	0.18	µg/L	1	0.20	0.02	J1	GES	03/04/2024 17:24	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.46	pCi/L	0.25	0.31		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	88.8	%						
Radium-228	1.83	pCi/L	0.16	0.48		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	89.4	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 240666-009-01

Preparation: Dissolved

Date Collected: 02/19/2024 11:44 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Arsenic	1.20	µg/L	1	0.10	0.03		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Barium	20.2	µg/L	1	0.20	0.05		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Beryllium	4.08	µg/L	1	0.050	0.007		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Boron	0.052	mg/L	1	0.050	0.007		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Cadmium	0.937	µg/L	1	0.020	0.004		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Calcium	13.9	mg/L	1	0.05	0.01		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Chromium	0.48	µg/L	1	0.30	0.07		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Cobalt	88.2	µg/L	1	0.020	0.005		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Iron	20.0	mg/L	1	0.020	0.003		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Lead	0.25	µg/L	1	0.20	0.05		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Lithium	0.127	mg/L	1	0.00030	0.00007		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Magnesium	19.9	mg/L	1	0.100	0.006		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Manganese	0.361	mg/L	1	0.00100	0.00008		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Mercury	93	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Potassium	3.99	mg/L	1	0.100	0.008		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Selenium	4.60	µg/L	1	0.50	0.04		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Sodium	94.7	mg/L	1	0.20	0.01		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Strontium	0.127	mg/L	1	0.00200	0.00005		GES	03/04/2024 17:34	EPA 200.8-1994, Rev. 5.4
Thallium	0.18	µg/L	1	0.20	0.02	J1	GES	03/04/2024 17:34	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-28

Customer Description:

Lab Number: 240666-010

Preparation:

Date Collected: 02/20/2024 12:34 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.008	µg/L	1	0.100	0.008	J1	GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Arsenic	0.10	µg/L	1	0.10	0.03		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Barium	124	µg/L	1	0.20	0.05		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Beryllium	0.917	µg/L	1	0.050	0.007		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Boron	0.333	mg/L	1	0.050	0.007		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Cadmium	0.063	µg/L	1	0.020	0.004		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Calcium	1.34	mg/L	1	0.05	0.01		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Chromium	0.38	µg/L	1	0.30	0.07		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Cobalt	14.4	µg/L	1	0.020	0.005		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Lithium	0.0207	mg/L	1	0.00030	0.00007		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Magnesium	3.20	mg/L	1	0.100	0.006		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Mercury	17	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Potassium	0.757	mg/L	1	0.100	0.008		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Selenium	0.32	µg/L	1	0.50	0.04	J1	GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Sodium	7.87	mg/L	1	0.20	0.01		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Strontium	0.0251	mg/L	1	0.00200	0.00005		GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	03/04/2024 17:44	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	3.97	pCi/L	0.46	0.29		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	89.2	%						
Radium-228	1.87	pCi/L	0.17	0.51		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	90.4	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-28

Customer Description:

Lab Number: 240666-010-01

Preparation: Dissolved

Date Collected: 02/20/2024 12:34 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Arsenic	0.04	µg/L	1	0.10	0.03	J1	GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Barium	117	µg/L	1	0.20	0.05		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Beryllium	0.649	µg/L	1	0.050	0.007		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Boron	0.339	mg/L	1	0.050	0.007		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Cadmium	0.055	µg/L	1	0.020	0.004		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Calcium	1.28	mg/L	1	0.05	0.01		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Chromium	0.35	µg/L	1	0.30	0.07		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Cobalt	13.3	µg/L	1	0.020	0.005		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Iron	0.009	mg/L	1	0.020	0.003	J1	GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Lead	0.09	µg/L	1	0.20	0.05	J1	GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Lithium	0.0201	mg/L	1	0.00030	0.00007		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Magnesium	2.93	mg/L	1	0.100	0.006		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Manganese	0.0359	mg/L	1	0.00100	0.00008		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Mercury	7	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Potassium	0.778	mg/L	1	0.100	0.008		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Selenium	0.13	µg/L	1	0.50	0.04	J1	GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Sodium	7.20	mg/L	1	0.20	0.01		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Strontium	0.0230	mg/L	1	0.00200	0.00005		GES	03/04/2024 17:55	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	03/04/2024 17:55	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 240666-011

Preparation:

Date Collected: 02/19/2024 12:31 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.009	µg/L	1	0.100	0.008	J1	GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Arsenic	0.25	µg/L	1	0.10	0.03		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Barium	61.3	µg/L	1	0.20	0.05		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Beryllium	0.097	µg/L	1	0.050	0.007		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Boron	1.50	mg/L	1	0.050	0.007		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Cadmium	0.012	µg/L	1	0.020	0.004	J1	GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Calcium	0.44	mg/L	1	0.05	0.01		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Chromium	0.53	µg/L	1	0.30	0.07		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Cobalt	3.33	µg/L	1	0.020	0.005		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Lithium	0.00870	mg/L	1	0.00030	0.00007		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Magnesium	1.75	mg/L	1	0.100	0.006		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Mercury	22	ng/L	2	10	4		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Potassium	0.742	mg/L	1	0.100	0.008		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Selenium	0.31	µg/L	1	0.50	0.04	J1	GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Sodium	66.9	mg/L	1	0.20	0.01		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Strontium	0.00776	mg/L	1	0.00200	0.00005		GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	03/04/2024 19:53	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.27	pCi/L	0.23	0.26		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	91.2	%						
Radium-228	0.99	pCi/L	0.13	0.40		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	90.7	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 240666-011-01

Preparation: Dissolved

Date Collected: 02/19/2024 12:31 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Arsenic	0.08	µg/L	1	0.10	0.03	J1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Barium	38.4	µg/L	1	0.20	0.05		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Beryllium	0.037	µg/L	1	0.050	0.007	J1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Boron	1.52	mg/L	1	0.050	0.007		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Cadmium	0.008	µg/L	1	0.020	0.004	J1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Calcium	0.34	mg/L	1	0.05	0.01		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Chromium	0.40	µg/L	1	0.30	0.07		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Cobalt	2.43	µg/L	1	0.020	0.005		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Iron	0.006	mg/L	1	0.020	0.003	J1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Lithium	0.00847	mg/L	1	0.00030	0.00007		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Magnesium	1.34	mg/L	1	0.100	0.006		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Manganese	0.00822	mg/L	1	0.00100	0.00008		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Mercury	11	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Potassium	0.749	mg/L	1	0.100	0.008		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Selenium	0.16	µg/L	1	0.50	0.04	J1	GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Sodium	66.8	mg/L	1	0.20	0.01		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Strontium	0.00616	mg/L	1	0.00200	0.00005		GES	03/04/2024 20:03	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	03/04/2024 20:03	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-31

Customer Description:

Lab Number: 240666-012

Preparation:

Date Collected: 02/19/2024 11:42 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Arsenic	0.40	µg/L	1	0.10	0.03		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Barium	33.3	µg/L	1	0.20	0.05		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Beryllium	1.26	µg/L	5	0.25	0.04		GES	03/04/2024 20:18	EPA 200.8-1994, Rev. 5.4
Boron	0.022	mg/L	1	0.050	0.007	J1	GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Cadmium	0.069	µg/L	1	0.020	0.004		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Calcium	2.54	mg/L	1	0.05	0.01		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Chromium	0.56	µg/L	1	0.30	0.07		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Cobalt	9.47	µg/L	1	0.020	0.005		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Lead	0.30	µg/L	1	0.20	0.05		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Lithium	0.0979	mg/L	5	0.0015	0.0004		GES	03/04/2024 20:18	EPA 200.8-1994, Rev. 5.4
Magnesium	3.42	mg/L	1	0.100	0.006		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Mercury	120	ng/L	10	50	20		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Potassium	1.63	mg/L	1	0.100	0.008		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Selenium	0.39	µg/L	1	0.50	0.04	J1	GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Sodium	29.5	mg/L	1	0.20	0.01		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Strontium	0.0364	mg/L	1	0.00200	0.00005		GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4
Thallium	0.09	µg/L	1	0.20	0.02	J1	GES	03/04/2024 20:13	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	2.93	pCi/L	0.34	0.23		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	90.4	%						
Radium-228	2.80	pCi/L	0.18	0.52		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	88.7	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-31

Customer Description:

Lab Number: 240666-012-01

Preparation: Dissolved

Date Collected: 02/19/2024 11:42 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.013	µg/L	1	0.100	0.008	J1	GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Arsenic	0.24	µg/L	1	0.10	0.03		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Barium	32.8	µg/L	1	0.20	0.05		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Beryllium	0.92	µg/L	5	0.25	0.04		GES	03/04/2024 20:29	EPA 200.8-1994, Rev. 5.4
Boron	0.023	mg/L	1	0.050	0.007	J1	GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Cadmium	0.072	µg/L	1	0.020	0.004		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Calcium	2.55	mg/L	1	0.05	0.01		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Chromium	0.43	µg/L	1	0.30	0.07		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Cobalt	9.67	µg/L	1	0.020	0.005		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Iron	0.269	mg/L	1	0.020	0.003		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Lead	0.35	µg/L	1	0.20	0.05		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Lithium	0.0848	mg/L	5	0.0015	0.0004		GES	03/04/2024 20:29	EPA 200.8-1994, Rev. 5.4
Magnesium	3.33	mg/L	1	0.100	0.006		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Manganese	0.0253	mg/L	1	0.00100	0.00008		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Mercury	12	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Potassium	1.65	mg/L	1	0.100	0.008		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Selenium	0.15	µg/L	1	0.50	0.04	J1	GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Sodium	29.6	mg/L	1	0.20	0.01		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Strontium	0.0361	mg/L	1	0.00200	0.00005		GES	03/04/2024 20:24	EPA 200.8-1994, Rev. 5.4
Thallium	0.09	µg/L	1	0.20	0.02	J1	GES	03/04/2024 20:24	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 240666-013

Preparation:

Date Collected: 02/19/2024 10:56 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.010	µg/L	1	0.100	0.008	J1	GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Arsenic	3.94	µg/L	1	0.10	0.03		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Barium	26.2	µg/L	1	0.20	0.05		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Beryllium	0.182	µg/L	1	0.050	0.007		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Boron	0.161	mg/L	1	0.050	0.007		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Cadmium	0.014	µg/L	1	0.020	0.004	J1	GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Calcium	4.08	mg/L	1	0.05	0.01		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Chromium	0.45	µg/L	1	0.30	0.07		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Cobalt	8.24	µg/L	1	0.020	0.005		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Lithium	0.0542	mg/L	1	0.00030	0.00007		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Magnesium	4.51	mg/L	1	0.100	0.006		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Mercury	470	ng/L	20	100	40		RLP	03/05/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Potassium	2.64	mg/L	1	0.100	0.008		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Selenium	0.13	µg/L	1	0.50	0.04	J1	GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Silver	<0.007	µg/L	1	0.050	0.007	U1	GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Sodium	16.4	mg/L	1	0.20	0.01		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Strontium	0.0606	mg/L	1	0.00200	0.00005		GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4
Thallium	0.07	µg/L	1	0.20	0.02	J1	GES	03/04/2024 20:34	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.28	pCi/L	0.23	0.31		ST	02/29/2024 14:45	SW-846 9315-1986, Rev. 0
Carrier Recovery	88.4	%						
Radium-228	1.75	pCi/L	0.15	0.45		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	91.5	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 240666-013-01

Preparation: Dissolved

Date Collected: 02/19/2024 10:56 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Arsenic	2.91	µg/L	1	0.10	0.03		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Barium	25.5	µg/L	1	0.20	0.05		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Beryllium	0.155	µg/L	1	0.050	0.007		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Boron	0.166	mg/L	1	0.050	0.007		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Cadmium	0.012	µg/L	1	0.020	0.004	J1	GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Calcium	4.00	mg/L	1	0.05	0.01		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Chromium	0.30	µg/L	1	0.30	0.07		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Cobalt	7.97	µg/L	1	0.020	0.005		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Iron	8.75	mg/L	1	0.020	0.003		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Lithium	0.0538	mg/L	1	0.00030	0.00007		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Magnesium	4.41	mg/L	1	0.100	0.006		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Manganese	0.0651	mg/L	1	0.00100	0.00008		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Mercury	2	ng/L	1	5	2	J1	RLP	03/05/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Potassium	2.72	mg/L	1	0.100	0.008		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Selenium	0.04	µg/L	1	0.50	0.04	J1	GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Silver	<0.007	µg/L	1	0.050	0.007	U1	GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Sodium	16.8	mg/L	1	0.20	0.01		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Strontium	0.0595	mg/L	1	0.00200	0.00005		GES	03/04/2024 20:44	EPA 200.8-1994, Rev. 5.4
Thallium	0.07	µg/L	1	0.20	0.02	J1	GES	03/04/2024 20:44	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-33

Customer Description:

Lab Number: 240666-014

Preparation:

Date Collected: 02/19/2024 10:35 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Arsenic	0.67	µg/L	1	0.10	0.03		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Barium	46.5	µg/L	1	0.20	0.05		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Beryllium	1.28	µg/L	1	0.050	0.007		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Boron	0.158	mg/L	1	0.050	0.007		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Cadmium	0.059	µg/L	1	0.020	0.004		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Calcium	2.35	mg/L	1	0.05	0.01		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Chromium	0.38	µg/L	1	0.30	0.07		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Cobalt	11.1	µg/L	1	0.020	0.005		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Lead	0.27	µg/L	1	0.20	0.05		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Lithium	0.0205	mg/L	1	0.00030	0.00007		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Magnesium	4.42	mg/L	1	0.100	0.006		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Mercury	7100	ng/L	100	500	200		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Potassium	0.305	mg/L	1	0.100	0.008		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Selenium	2.65	µg/L	1	0.50	0.04		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Sodium	17.6	mg/L	1	0.20	0.01		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Strontium	0.0376	mg/L	1	0.00200	0.00005		GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/04/2024 20:54	EPA 200.8-1994, Rev. 5.4

### Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.67	pCi/L	0.12	0.13	P1	ST	03/20/2024 11:53	SW-846 9315-1986, Rev. 0
Carrier Recovery	92.6	%						
Radium-228	2.43	pCi/L	0.16	0.47		TTP	03/07/2024 15:20	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	92.8	%						

\* 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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: AD-33

Customer Description:

Lab Number: 240666-014-01

Preparation: Dissolved

Date Collected: 02/19/2024 10:35 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.009	µg/L	1	0.100	0.008	J1	GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Arsenic	0.63	µg/L	1	0.10	0.03		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Barium	48.2	µg/L	1	0.20	0.05		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Beryllium	1.27	µg/L	1	0.050	0.007		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Boron	0.162	mg/L	1	0.050	0.007		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Cadmium	0.063	µg/L	1	0.020	0.004		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Calcium	2.75	mg/L	1	0.05	0.01		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Chromium	0.42	µg/L	1	0.30	0.07		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Cobalt	11.4	µg/L	1	0.020	0.005		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Iron	0.019	mg/L	1	0.020	0.003	J1	GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Lead	0.30	µg/L	1	0.20	0.05		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Lithium	0.0207	mg/L	1	0.00030	0.00007		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Magnesium	4.47	mg/L	1	0.100	0.006		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Manganese	0.00800	mg/L	1	0.00100	0.00008		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Mercury	1090	ng/L	20	100	40		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Potassium	0.309	mg/L	1	0.100	0.008		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Selenium	2.25	µg/L	1	0.50	0.04		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Sodium	18.2	mg/L	1	0.20	0.01		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Strontium	0.0389	mg/L	1	0.00200	0.00005		GES	03/04/2024 21:05	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/04/2024 21:05	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 240666-015

Preparation:

Date Collected: 02/19/2024 15:00 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Arsenic	0.74	µg/L	1	0.10	0.03		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Barium	47.6	µg/L	1	0.20	0.05		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Beryllium	1.26	µg/L	1	0.050	0.007		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Boron	0.160	mg/L	1	0.050	0.007		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Cadmium	0.058	µg/L	1	0.020	0.004		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Calcium	2.36	mg/L	1	0.05	0.01		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Chromium	0.32	µg/L	1	0.30	0.07		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Cobalt	11.3	µg/L	1	0.020	0.005		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Lead	0.28	µg/L	1	0.20	0.05		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Lithium	0.0200	mg/L	1	0.00030	0.00007		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Magnesium	4.46	mg/L	1	0.100	0.006		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Mercury	6800	ng/L	100	500	200		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Potassium	0.303	mg/L	1	0.100	0.008		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Selenium	2.61	µg/L	1	0.50	0.04		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Sodium	18.1	mg/L	1	0.20	0.01		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Strontium	0.0385	mg/L	1	0.00200	0.00005		GES	03/04/2024 21:15	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/04/2024 21:15	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 240666-015-01

Preparation: Dissolved

Date Collected: 02/19/2024 15:00 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Arsenic	0.62	µg/L	1	0.10	0.03		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Barium	47.8	µg/L	1	0.20	0.05		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Beryllium	1.31	µg/L	1	0.050	0.007		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Boron	0.161	mg/L	1	0.050	0.007		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Cadmium	0.064	µg/L	1	0.020	0.004		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Calcium	2.37	mg/L	1	0.05	0.01		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Chromium	0.37	µg/L	1	0.30	0.07		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Cobalt	11.2	µg/L	1	0.020	0.005		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Iron	0.019	mg/L	1	0.020	0.003	J1	GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Lead	0.30	µg/L	1	0.20	0.05		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Lithium	0.0211	mg/L	1	0.00030	0.00007		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Magnesium	4.41	mg/L	1	0.100	0.006		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Manganese	0.00793	mg/L	1	0.00100	0.00008		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Mercury	1080	ng/L	20	100	40		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Potassium	0.304	mg/L	1	0.100	0.008		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Selenium	2.27	µg/L	1	0.50	0.04		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Sodium	17.9	mg/L	1	0.20	0.01		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Strontium	0.0386	mg/L	1	0.00200	0.00005		GES	03/04/2024 21:25	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/04/2024 21:25	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: Equipment Blank

Customer Description:

Lab Number: 240666-016

Preparation:

Date Collected: 02/19/2024 12:11 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Calcium	<0.01	mg/L	1	0.05	0.01	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Chromium	0.25	µg/L	1	0.30	0.07	J1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Cobalt	0.022	µg/L	1	0.020	0.005		GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.006	mg/L	1	0.100	0.006	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Potassium	<0.008	mg/L	1	0.100	0.008	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Sodium	<0.01	mg/L	1	0.20	0.01	U1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Strontium	0.00006	mg/L	1	0.00200	0.00005	J1	GES	03/04/2024 22:58	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/04/2024 22:58	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

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

Customer Sample ID: Field Blank

Customer Description:

Lab Number: 240666-017

Preparation:

Date Collected: 02/20/2024 12:32 EST

Date Received: 02/23/2024 12:31 EST

### Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Calcium	<0.01	mg/L	1	0.05	0.01	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Chromium	0.27	µg/L	1	0.30	0.07	J1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Cobalt	0.032	µg/L	1	0.020	0.005		GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.006	mg/L	1	0.100	0.006	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Potassium	<0.008	mg/L	1	0.100	0.008	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Sodium	0.48	mg/L	1	0.20	0.01		GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/04/2024 23:03	EPA 200.8-1994, Rev. 5.4

240666

Job Comments:

Original report issued 4/1/24. Report reissued 8/12/24 with "Preparation" corrected on 24066-017.

240666-001

Comments:

TG-32



## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

# Reissued

**Job ID: 240666**

**Customer: Pirkey Power Station**

**Date Reported: 08/12/2024**

240666-001-01

Comments:

TG-32

240666-002

Comments:

TG-32

240666-002-01

Comments:

TG-32

240666-003

Comments:

TG-32

240666-003-01

Comments:

TG-32

240666-004

Comments:

TG-32



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

240666-004-01

Comments:

TG-32

240666-005

Comments:

TG-32

240666-005-01

Comments:

TG-32

240666-006

Comments:

TG-32

240666-006-01

Comments:

TG-32





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

## Reissued

**Job ID: 240666**

**Customer: Pirkey Power Station**

**Date Reported: 08/12/2024**

240666-007  
Comments:

TG-32

240666-007-01  
Comments:

TG-32

240666-008  
Comments:

TG-32

240666-008-01  
Comments:

TG-32

240666-009  
Comments:

TG-32

240666-009-01  
Comments:

TG-32



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

## Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

240666-010

Comments:

TG-32

240666-010-01

Comments:

TG-32

240666-011

Comments:

TG-32

240666-011-01

Comments:

TG-32

240666-012

Comments:

TG-32



## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

# Reissued

**Job ID: 240666**

**Customer: Pirkey Power Station**

**Date Reported: 08/12/2024**

240666-012-01

Comments:

TG-32

240666-013

Comments:

TG-32

240666-013-01

Comments:

TG-32

240666-014

Comments:

TG-32

240666-014-01

Comments:

TG-32

240666-015

Comments:

TG-32



## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

**Reissued**

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

240666-015-01

Comments:

TG-32

240666-016

Comments:

TG-32

240666-017

Comments:

TG-32



## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

# Reissued

Job ID: 240666

Customer: Pirkey Power Station

Date Reported: 08/12/2024

### Report Verification

This report and the above data have been confirmed by the following analyst.

Michael Ohlinger, Chemist

Email: [msohlinger@aep.com](mailto: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 Qualifier 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.

**P1** - The precision between duplicate results was above acceptance limits.

Dolan Chemical Laboratory (DCL)  
4001 Bixby Road  
Groveport, Ohio 43125

Contacts: Jonathan Barnhill (318-673-3803)  
Michael Ohlinger (614-836-4184)

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Site Contact: *81* Date: *2*

For Lab Use Only:  
COC/Order #: *242666*

Project Name: Pirkey - CCR  
Contact Name: Leslie Fuerschbach  
Contact Phone: 318-423-3805  
Sampler(s): Matt Hamilton Kenny McDonald

Analysis Turnaround Time (in Calendar Days)

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sampler(s) Initials				Sample Specific Notes	
						B, Ca, Li, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-6°C	Three (six every 10th) L bottles, pH<2, HNO <sub>3</sub>		Field-Filter 250 mL PTFE lined bottle, HCL <sup>+</sup> , pH<2
AD-2	2/20/2024	1042	G	GW	7	X	X	X	X	X	
AD-3	2/20/2024	1125	G	GW	7	X	X	X	X	X	
AD-4	2/20/2024	931	G	GW	7	X	X	X	X	X	
AD-7R	2/19/2024	1128	G	GW	7	X	X	X	X	X	
AD-12	2/19/2024	901	G	GW	7	X	X	X	X	X	
AD-13	2/19/2024	844	G	GW	7	X	X	X	X	X	
AD-17	2/20/2024	1230	G	GW	7	X	X	X	X	X	
AD-18	2/20/2024	829	G	GW	7	X	X	X	X	X	
AD-22	2/19/2024	1044	G	GW	7	X	X	X	X	X	
AD-28	2/20/2024	1134	G	GW	7	X	X	X	X	X	
AD-30	2/19/2024	1131	G	GW	7	X	X	X	X	X	

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other \_\_\_\_\_; F= filter in field  
\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:  
**TG-32**

Relinquished by: <i>Matt Hamilton</i>	Company: <i>East</i>	Date/Time: <i>1/6/24</i>	Received by:	Date/Time:
Relinquished by: <i>Michael Ohlinger</i>	Company:	Date/Time: <i>2-21-24</i>	Received in Laboratory by: <i>Michael Ohlinger</i>	Date/Time: <i>2/23/24</i>
Relinquished by:	Company:	Date/Time:		Date/Time: <i>1/00</i>

**Dolan Chemical Laboratory (DCL)**

4001 Bixby Road  
 Groveport, Ohio 43125  
 Jonathan Bernhill (318-673-3803)  
 Contacts: Michael Ohlinger (614-836-4184)

**Chain of Custody Record**

Program: Coal Combustion Residuals (CCR)

Site Contact:

Date:

For Lab Use Only:

COC/Order #:

Project Name: Pirkey - CCR

Contact Name: Leslie Fuerschbach

Contact Phone: 318-423-3805

Sampler(s): Matt Hamilton Kenny McDonald

Analysis Turnaround Time (in Calendar Days)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials					Sample Specific Notes:
						B, Ca, Li, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	Field-Filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-6°C	Three (six every 10th) L bottles, pH<2, HNO <sub>3</sub>	Field-Filter 250 mL PTFE lined bottle, HCL**, pH<2	
AD-31	2/19/2024	1042	G	GW	7	X	X		X	X	
AD-32	2/19/2024	956	G	GW	7	X	X		X	X	
AD-33	2/19/2024	935	G	GW	10	X	X		X	X	
DUPLICATE	2/29/2024	1400	G	GW	4	X	X		X	X	
EQUIPMENT BLANK	2/19/2024	1111	G	GW	2	X				X	
FIELD BLANK	2/20/2024	1132	G	GW	2	X				X	
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other _____; F= filter in field						4	F4	1	4	F2	2

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

**TG-32**

Relinquished by: *[Signature]* Company: *Est* Date/Time: *16* Received by: *[Signature]* Date/Time: *2/23/24*

Relinquished by: *[Signature]* Company: *Est* Date/Time: *2/23/24* Received in Laboratory by: *[Signature]* Date/Time: *2/23/24*

Relinquished by: *[Signature]* Company: *Est* Date/Time: *2/23/24* Received in Laboratory by: *[Signature]* Date/Time: *2/23/24*

**AEP** WATER & WASTE SAMPLE RECEIPT FORM

<u>Package Type</u> <input checked="" type="radio"/> Cooler <input type="radio"/> Box <input type="radio"/> Bag <input type="radio"/> Envelope		<u>Delivery Type</u> PONY <input checked="" type="radio"/> UPS <input checked="" type="radio"/> FedEx <input type="radio"/> USPS Other _____	
Plant/Customer <u>Pitney</u>		Number of Plastic Containers: <u>77</u>	
Opened By <u>NLG / MSO / MKR</u>		Number of Glass Containers: <u>-</u>	
Date/Time <u>2/23/24 1000</u>		Number of Mercury Containers: <u>32</u>	
Were all temperatures within 0-6°C? Y / N or <input checked="" type="radio"/> N/A Initial: _____ on ice / no ice (IR Gun Ser# <u>2213689000</u> , Expir. <u>03/24/2024</u> ) - If No, specify each deviation: _____			
Was container in good condition? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments _____			
Was Chain of Custody received? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments _____			
Requested turnaround: <u>Routine</u> If RUSH, who was notified? _____			
pH (15 min)	Cr <sup>6</sup> (pres ) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)    Hg-diss (pres ) (48 hr)

Was COC filled out properly?  Y /  N Comments \_\_\_\_\_

Were samples labeled properly?  Y /  N Comments \_\_\_\_\_

Were correct containers used?  Y /  N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y /  N or N/A Initial & Date: MLG / WLG 2/23/24

pH paper (circle one): MQuant,PN1.09535.0001,LOT# \_\_\_\_\_ [OR] Lab Rat,PN4801,LOT# X000RWDG21 Exp 03/15/2025

- Was Add'l Preservative needed? Y /  N If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: \_\_\_\_\_

Lab ID# 240666 Initial & Date & Time : \_\_\_\_\_

Logged by MSO Comments: \_\_\_\_\_

Reviewed by MLK \_\_\_\_\_

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.



# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sunita Timsina  
Name (printed)

  
Signature

Chemist Associate  
Official Title

03/14/2024  
Date

# Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 03/14/2024  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** PB24031105

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	NA	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 03/14/2024  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** PB24031105

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 03/14/2024  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** PB24031105

Exception Report No.	Description

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tamisha Palmer

Name (printed)



Signature

Chemical Technician, Principal

Official Title

03/05/2024

Date

## Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey Power Plant

**Reviewer Name:** Tamisha Palmer

**LRC Date:** 03/05/2024

**Laboratory Job Number:** 240666

**Prep Batch Number(s):** PB24022311

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	



## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey Power Plant

**Reviewer Name:** Tamisha Palmer

**LRC Date:** 03/05/2024

**Laboratory Job Number:** 240666

**Prep Batch Number(s):** PB24022311

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey Power Plant

**Reviewer Name:** Tamisha Palmer

**LRC Date:** 03/05/2024

**Laboratory Job Number:** 240666

**Prep Batch Number(s):** PB24022311

Exception Report No.	Description

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

# Mercury Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- NR R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Susann Sulzmann     Susann Sulzmann     Senior Chemist     03/26/24  
Name (printed)     Signature     Official Title     Date

## Mercury Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 03/26/24  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** 24022702, 24022703, 24022704, 24022803, 24030501

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## Mercury Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 03/26/24  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** 24022702, 24022703, 24022704, 24022803, 24030501

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	



## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# Mercury Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 03/26/24  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** 24022702, 24022703, 24022704, 24022803, 24030501

<b>Exception Report No.</b>	<b>Description</b>
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# ICP-MS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Jonathan Barnhill		Lab Supervisor	3/22/24
Name (printed)	Signature	Official Title	Date

## ICP-MS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 3/22/24  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** PB24022905 PB24022909 QC2403028

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	No	ER1
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 3/22/24  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** PB24022905 PB24022909 QC2403028

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER2
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	Yes	
	I	Were ion abundance data within the method-required QC limits?	Yes	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	Yes	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 3/22/24  
**Laboratory Job Number:** 240666  
**Prep Batch Number(s):** PB24022905 PB24022909 QC2403028

Exception Report No.	Description
ER1	Linear Dynamic Range (LDR) study used to determine upper limit of analyte calibration.
ER2	CCB acceptance criteria is $CCB < 2.2 * MDL$ .

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 240640-001

Preparation:

Date Collected: 02/20/2024 11:42 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.44	mg/L	2	0.10	0.02		CRJ	03/04/2024 22:16	EPA 300.1 -1997, Rev. 1.0
Chloride	31.4	mg/L	2	0.04	0.01		CRJ	03/04/2024 22:16	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.29	mg/L	2	0.06	0.02		CRJ	03/04/2024 22:16	EPA 300.1 -1997, Rev. 1.0
Sulfate	292	mg/L	10	3.0	0.6		CRJ	03/04/2024 21:40	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	540	mg/L	1	50	20		ELT	02/23/2024 08:58	SM 2540C-2015

Customer Sample ID: AD-3

Customer Description:

Lab Number: 240640-002

Preparation:

Date Collected: 02/20/2024 12:25 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.05	mg/L	2	0.10	0.02	J1	CRJ	03/04/2024 21:04	EPA 300.1 -1997, Rev. 1.0
Chloride	5.55	mg/L	2	0.04	0.01		CRJ	03/04/2024 21:04	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.03	mg/L	2	0.06	0.02	J1	CRJ	03/04/2024 21:04	EPA 300.1 -1997, Rev. 1.0
Sulfate	22.3	mg/L	2	0.6	0.1		CRJ	03/04/2024 21:04	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	140	mg/L	1	50	20		ELT	02/23/2024 09:05	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 240640-003

Preparation:

Date Collected: 02/20/2024 10:31 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.18	mg/L	2	0.10	0.02		CRJ	03/04/2024 23:28	EPA 300.1 -1997, Rev. 1.0
Chloride	4.35	mg/L	2	0.04	0.01		CRJ	03/04/2024 23:28	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	CRJ	03/04/2024 23:28	EPA 300.1 -1997, Rev. 1.0
Sulfate	19.9	mg/L	2	0.6	0.1		CRJ	03/04/2024 23:28	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	180	mg/L	1	50	20		ELT	02/23/2024 09:05	SM 2540C-2015

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 240640-004

Preparation:

Date Collected: 02/19/2024 12:28 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.77	mg/L	2	0.10	0.02		CRJ	03/05/2024 00:03	EPA 300.1 -1997, Rev. 1.0
Chloride	21.3	mg/L	2	0.04	0.01		CRJ	03/05/2024 00:03	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.15	mg/L	2	0.06	0.02		CRJ	03/05/2024 00:03	EPA 300.1 -1997, Rev. 1.0
Sulfate	57.8	mg/L	2	0.6	0.1		CRJ	03/05/2024 00:03	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	210	mg/L	1	50	20		ELT	02/23/2024 09:11	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: AD-12

Customer Description:

Lab Number: 240640-005

Preparation:

Date Collected: 02/19/2024 10:01 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.05	mg/L	2	0.10	0.02	J1	CRJ	03/05/2024 00:39	EPA 300.1 -1997, Rev. 1.0
Chloride	5.87	mg/L	2	0.04	0.01		CRJ	03/05/2024 00:39	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.11	mg/L	2	0.06	0.02		CRJ	03/05/2024 00:39	EPA 300.1 -1997, Rev. 1.0
Sulfate	3.1	mg/L	2	0.6	0.1		CRJ	03/05/2024 00:39	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	60	mg/L	1	50	20		ELT	02/23/2024 09:11	SM 2540C-2015

Customer Sample ID: AD-13

Customer Description:

Lab Number: 240640-006

Preparation:

Date Collected: 02/19/2024 09:44 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.23	mg/L	2	0.10	0.02		CRJ	03/05/2024 03:03	EPA 300.1 -1997, Rev. 1.0
Chloride	35.5	mg/L	2	0.04	0.01		CRJ	03/05/2024 03:03	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.42	mg/L	2	0.06	0.02		CRJ	03/05/2024 03:03	EPA 300.1 -1997, Rev. 1.0
Sulfate	70.5	mg/L	2	0.6	0.1		CRJ	03/05/2024 03:03	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	210	mg/L	1	50	20		ELT	02/23/2024 09:41	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 240640-007

Preparation:

Date Collected: 02/20/2024 13:30 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.14	mg/L	2	0.10	0.02		CRJ	03/05/2024 01:51	EPA 300.1 -1997, Rev. 1.0
Chloride	12.0	mg/L	2	0.04	0.01		CRJ	03/05/2024 01:51	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.15	mg/L	2	0.06	0.02		CRJ	03/05/2024 01:51	EPA 300.1 -1997, Rev. 1.0
Sulfate	3.4	mg/L	2	0.6	0.1		CRJ	03/05/2024 01:51	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	50	mg/L	1	50	20		ELT	02/23/2024 09:41	SM 2540C-2015

Customer Sample ID: AD-18

Customer Description:

Lab Number: 240640-008

Preparation:

Date Collected: 02/20/2024 09:29 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.03	mg/L	2	0.10	0.02	J1	CRJ	03/05/2024 04:50	EPA 300.1 -1997, Rev. 1.0
Chloride	4.67	mg/L	2	0.04	0.01		CRJ	03/05/2024 04:50	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	CRJ	03/05/2024 04:50	EPA 300.1 -1997, Rev. 1.0
Sulfate	8.1	mg/L	2	0.6	0.1		CRJ	03/05/2024 04:50	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	110	mg/L	1	50	20		ELT	02/23/2024 09:47	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 240640-009

Preparation:

Date Collected: 02/19/2024 11:44 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.52	mg/L	2	0.10	0.02		CRJ	03/05/2024 08:32	EPA 300.1 -1997, Rev. 1.0
Chloride	87.7	mg/L	25	0.5	0.1		CRJ	03/05/2024 04:15	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.55	mg/L	2	0.06	0.02		CRJ	03/05/2024 08:32	EPA 300.1 -1997, Rev. 1.0
Sulfate	291	mg/L	25	8	2		CRJ	03/05/2024 04:15	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	620	mg/L	1	50	20		ELT	02/23/2024 09:47	SM 2540C-2015

Customer Sample ID: AD-28

Customer Description:

Lab Number: 240640-010

Preparation:

Date Collected: 02/20/2024 12:34 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.07	mg/L	2	0.10	0.02	J1	CRJ	03/05/2024 10:19	EPA 300.1 -1997, Rev. 1.0
Chloride	4.54	mg/L	2	0.04	0.01		CRJ	03/05/2024 10:19	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.97	mg/L	2	0.06	0.02		CRJ	03/05/2024 10:19	EPA 300.1 -1997, Rev. 1.0
Sulfate	26.9	mg/L	2	0.6	0.1		CRJ	03/05/2024 10:19	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	90	mg/L	1	50	20		ELT	02/23/2024 09:53	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 240640-011

Preparation:

Date Collected: 02/19/2024 12:31 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.17	mg/L	2	0.10	0.02		CRJ	03/07/2024 13:46	EPA 300.1 -1997, Rev. 1.0
Chloride	15.6	mg/L	2	0.04	0.01		CRJ	03/07/2024 13:46	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.03	mg/L	2	0.06	0.02	J1	CRJ	03/07/2024 13:46	EPA 300.1 -1997, Rev. 1.0
Sulfate	118	mg/L	10	3.0	0.6		CRJ	03/05/2024 10:55	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	250	mg/L	1	50	20		ELT	02/23/2024 09:53	SM 2540C-2015

Customer Sample ID: AD-31

Customer Description:

Lab Number: 240640-012

Preparation:

Date Collected: 02/19/2024 11:42 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.25	mg/L	2	0.10	0.02		CRJ	03/05/2024 12:43	EPA 300.1 -1997, Rev. 1.0
Chloride	17.7	mg/L	2	0.04	0.01		CRJ	03/05/2024 12:43	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.09	mg/L	2	0.06	0.02		CRJ	03/05/2024 12:43	EPA 300.1 -1997, Rev. 1.0
Sulfate	70.9	mg/L	2	0.6	0.1		CRJ	03/05/2024 12:43	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	250	mg/L	1	50	20		ELT	02/23/2024 10:13	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 240640-013

Preparation:

Date Collected: 02/19/2024 10:56 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.33	mg/L	2	0.10	0.02		CRJ	03/05/2024 09:08	EPA 300.1 -1997, Rev. 1.0
Chloride	9.68	mg/L	2	0.04	0.01		CRJ	03/05/2024 09:08	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.25	mg/L	2	0.06	0.02		CRJ	03/05/2024 09:08	EPA 300.1 -1997, Rev. 1.0
Sulfate	48.4	mg/L	2	0.6	0.1		CRJ	03/05/2024 09:08	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	14	mg/L	1	20	5	J1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	150	mg/L	1	50	20		ELT	02/23/2024 10:13	SM 2540C-2015

Customer Sample ID: AD-33

Customer Description:

Lab Number: 240640-014

Preparation:

Date Collected: 02/19/2024 10:35 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.31	mg/L	2	0.10	0.02		CRJ	03/05/2024 15:42	EPA 300.1 -1997, Rev. 1.0
Chloride	9.41	mg/L	2	0.04	0.01		CRJ	03/05/2024 15:42	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.30	mg/L	2	0.06	0.02		CRJ	03/05/2024 15:42	EPA 300.1 -1997, Rev. 1.0
Sulfate	58.6	mg/L	2	0.6	0.1		CRJ	03/05/2024 15:42	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	160	mg/L	1	50	20		ELT	02/23/2024 10:25	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 240640-015

Preparation:

Date Collected: 02/19/2024 15:00 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.32	mg/L	2	0.10	0.02		CRJ	03/07/2024 13:10	EPA 300.1 -1997, Rev. 1.0
Chloride	9.39	mg/L	2	0.04	0.01		CRJ	03/07/2024 13:10	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.30	mg/L	2	0.06	0.02		CRJ	03/07/2024 13:10	EPA 300.1 -1997, Rev. 1.0
Sulfate	58.6	mg/L	2	0.6	0.1		CRJ	03/07/2024 13:10	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	170	mg/L	1	50	20		ELT	02/23/2024 10:36	SM 2540C-2015

Customer Sample ID: Field Blank

Customer Description:

Lab Number: 240640-016

Preparation:

Date Collected: 02/20/2024 12:32 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	<0.02	mg/L	2	0.10	0.02	U1	CRJ	03/05/2024 15:06	EPA 300.1 -1997, Rev. 1.0
Chloride	0.10	mg/L	2	0.04	0.01		CRJ	03/05/2024 15:06	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	CRJ	03/05/2024 15:06	EPA 300.1 -1997, Rev. 1.0
Sulfate	<0.1	mg/L	2	0.6	0.1	U1	CRJ	03/05/2024 15:06	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	40	mg/L	1	50	20	J1	ELT	02/23/2024 10:42	SM 2540C-2015





## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240640

Customer: Pirkey Power Station

Date Reported: 03/08/2024

### 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 Qualifier 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.

Dolan Chemical Laboratory (DCL)  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Contacts: Jonathan Barnhill (318-673-3803)  
 Michael Ohlinger (614-836-4164)

### Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Project Name: Pirkey - CCR			Date:			For Lab Use Only:																	
Contact Name: Leslie Fuerschbach			Date:			COC/Order #: 240640																	
Contact Phone: 318-423-3805			Date:			COC/Order #: 240640																	
Sampler(s): Matt Hamilton Kenny McDonald			Date:			COC/Order #: 240640																	
Sample Identification	Analysis Turnaround Time (in Calendar Days)			Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes														
	250 mL bottle, pH<2, HNO <sub>3</sub>	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C						Three (six every 10th) L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass vial or 250 mL PTFE lined bottle, HCL <sup>2</sup> , PH<2	40 mL Glass vial or 250 mL PTFE lined bottle, HCL <sup>2</sup> , PH<2												
AD-2	2/20/2024	1042	G	GW	1																		
AD-3	2/20/2024	1125	G	GW	1																		
AD-4	2/20/2024	931	G	GW	1																		
AD-7R	2/19/2024	1128	G	GW	1																		
AD-12	2/19/2024	901	G	GW	1																		
AD-13	2/19/2024	844	G	GW	1																		
AD-17	2/20/2024	1230	G	GW	1																		
AD-18	2/20/2024	829	G	GW	1																		
AD-22	2/19/2024	1044	G	GW	1																		
AD-28	2/20/2024	1134	G	GW	1																		
AD-30	2/19/2024	1131	G	GW	1																		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other													4	F4	1	4	2	2					
Six 1L Bottles must be collected for Radium for every 10th sample.																							
Special Instructions/CC Requirements & Comments:																							
Relinquished by: <i>Patt Hamilton</i>			Company: <i>Fsgk</i>			Date/Time: 2-21-24 160			Received by:			Date/Time:											
Relinquished by:			Company:			Date/Time:			Received by:			Date/Time:											
Relinquished by:			Company:			Date/Time:			Received in Laboratory by: <i>Mulvan De</i>			Date/Time: 2/22/24 0956											

TG-32

**Doan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Contacts: Jonathan Barnhill (318-673-3803)  
 Michael Ohlinger (614-838-4184)

Project Name: Pitkey - CCR  
 Contact Name: Leslie Fuerschbach  
 Contact Phone: 318-423-3805

Sampler(s): Matt Hamilton Kemy McDonald

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Sample Identification	Analysis Turnaround Time (in Calendar Days)						Date:	For Lab Use Only:						
	Sample Date	Sample Time	Sample Type (C-Comp, G-Greb)	Matrix	# of Cont.	Sampler(s) Inlets	Site Contact:	COC/Order #:  240640						
AD-31	2/19/2024	1042	G	GW	1	250 mL bottle, pH<2, HNO <sub>3</sub> Ba, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C	Three (six every 10th) 1 L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass Vial or bottle, HCL, pH<2				
AD-32	2/19/2024	956	G	GW	1	250 mL bottle, pH<2, HNO <sub>3</sub> Ba, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C	Three (six every 10th) 1 L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass Vial or bottle, HCL, pH<2				
AD-33	2/19/2024	935	G	GW	1	250 mL bottle, pH<2, HNO <sub>3</sub> Ba, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C	Three (six every 10th) 1 L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass Vial or bottle, HCL, pH<2				
DUPLICATE	2/20/2024	1400	G	GW	1	250 mL bottle, pH<2, HNO <sub>3</sub> Ba, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C	Three (six every 10th) 1 L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass Vial or bottle, HCL, pH<2				
FIELD BLANK	2/20/2024	1132	G	GW	1	250 mL bottle, pH<2, HNO <sub>3</sub> Ba, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C	Three (six every 10th) 1 L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass Vial or bottle, HCL, pH<2				
Preservation Used: 1= Ice; 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									4	F4	1	4	2	2

\* Six 1L Bottles must be collected for Radium for every 10th sample.

### Special Instructions/QC Requirements & Comments:

TG-32

Relinquished by: [Signature]  
 Relinquished by: [Signature]  
 Relinquished by:

Received by: [Signature]  
 Received by: [Signature]  
 Received in Laboratory by:

Date/Time: 2-21-24  
 Date/Time: 2/22/24 0950  
 Date/Time:

# AEP WATER & WASTE SAMPLE RECEIPT FORM

<u>Package Type</u>			<u>Delivery Type</u>				
<input checked="" type="radio"/> Cooler	<input type="radio"/> Box	<input type="radio"/> Bag	<input type="radio"/> Envelope	<input type="radio"/> PONY	<input type="radio"/> UPS	<input checked="" type="radio"/> FedEX	<input type="radio"/> USPS
				Other _____			
Plant/Customer <u>Pittkey Power Station</u>			Number of Plastic Containers: <u>16</u>				
Opened By <u>Missyha Williams</u>			Number of Glass Containers: _____				
Date/Time <u>02/22/24 9:50 AM</u>			Number of Mercury Containers: _____				
Were all temperatures within 0-6°C? <input checked="" type="radio"/> Y / <input type="radio"/> N or N/A Initial: <u>mbc</u> <input checked="" type="radio"/> on ice / <input type="radio"/> no ice (IR Gun Ser# <u>2213689000</u> , Expir. <u>03/24/2024</u> ) - If No, specify each deviation: _____							
Was container in good condition? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments _____							
Was Chain of Custody received? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments _____							
Requested turnaround: <u>28 days</u> If RUSH, who was notified? _____							
pH (15 min)	Cr <sup>6</sup> (pres ) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)	Hg-diss (pres ) (48 hr)			

Was COC filled out properly?  Y /  N Comments \_\_\_\_\_

Were samples labeled properly?  Y /  N Comments \_\_\_\_\_

Were correct containers used?  Y /  N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y /  N or N/A Initial & Date: mbc 02/22/24

**pH paper (circle one):** MQuant,PN1.09535.0001,LOT# \_\_\_\_\_ [OR] Lab Rat,PN4801,LOT# X000RWDG21 Exp 03/15/2025

- Was Add'l Preservative needed? Y /  N If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: \_\_\_\_\_

Lab ID# 240640 Initial & Date & Time : \_\_\_\_\_

Logged by WCG Comments: \_\_\_\_\_

Reviewed by \_\_\_\_\_

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

# Ion Chromatography Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tim Arnold

Name (printed)



Signature

Principle Chemist

Official Title

3/8/2024

Date

## Ion Chromatography Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** CCR  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 3/8/2024  
**Laboratory Job Number:** 240640  
**Prep Batch Number(s):** QC2403053

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	Yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	Yes	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	Yes	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## Ion Chromatography Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** CCR  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 3/8/2024  
**Laboratory Job Number:** 240640  
**Prep Batch Number(s):** QC2403053

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	



## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Ion Chromatography Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** CCR  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 3/8/2024  
**Laboratory Job Number:** 240640  
**Prep Batch Number(s):** QC2403053

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# TDS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

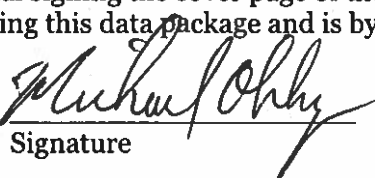
- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger

Name (printed)



Signature

Chemist

Official Title

3/8/2024

Date

## TDS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey - CCR  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 3/8/2024  
**Laboratory Job Number:** 240640  
**Prep Batch Number(s):** QC2402232

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	NA	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## TDS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey - CCR  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 3/8/2024  
**Laboratory Job Number:** 240640  
**Prep Batch Number(s):** QC2402232

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## TDS Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey - CCR

**Reviewer Name:** Michael Ohlinger

**LRC Date:** 3/8/2024

**Laboratory Job Number:** 240640

**Prep Batch Number(s):** QC2402232

Exception Report No.	Description

- <sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.
- <sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).
- <sup>3</sup> NA - Not applicable; NR - Not reviewed.
- <sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”



# Alkalinity Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

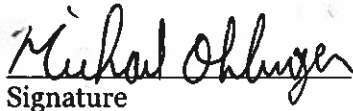
This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger  
Name (printed)

  
Signature

Chemist  
Official Title

3/8/2024  
Date

## Alkalinity Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 3/8/2024  
**Laboratory Job Number:** 240640  
**Prep Batch Number(s):** QC2402191

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Alkalinity Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 3/8/2024  
**Laboratory Job Number:** 240640  
**Prep Batch Number(s):** QC2402191

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 240669-001

Preparation:

Date Collected: 02/19/2024 09:18 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Arsenic	0.87	µg/L	1	0.10	0.03		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Barium	45.2	µg/L	1	0.20	0.05		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Beryllium	0.273	µg/L	1	0.050	0.007	M1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Boron	0.026	mg/L	1	0.050	0.007	J1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Cadmium	0.006	µg/L	1	0.020	0.004	J1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Calcium	1.51	mg/L	1	0.05	0.01		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Chromium	0.43	µg/L	1	0.30	0.07		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Cobalt	6.28	µg/L	1	0.020	0.005		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Lithium	0.0481	mg/L	1	0.00030	0.00007	M1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Magnesium	1.78	mg/L	1	0.100	0.006		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Potassium	2.31	mg/L	1	0.100	0.008		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Selenium	0.04	µg/L	1	0.50	0.04	J1	GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Sodium	10.9	mg/L	1	0.20	0.01		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Strontium	0.0187	mg/L	1	0.00200	0.00005		GES	03/05/2024 01:06	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/05/2024 01:06	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 240669-001-01

Preparation: Dissolved

Date Collected: 02/19/2024 09:18 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Arsenic	1.20	µg/L	1	0.10	0.03		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Barium	42.7	µg/L	1	0.20	0.05		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Beryllium	0.279	µg/L	1	0.050	0.007		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Boron	0.028	mg/L	1	0.050	0.007	J1	GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Cadmium	0.007	µg/L	1	0.020	0.004	J1	GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Calcium	1.44	mg/L	1	0.05	0.01		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Chromium	0.44	µg/L	1	0.30	0.07		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Cobalt	6.34	µg/L	1	0.020	0.005		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Iron	7.45	mg/L	1	0.020	0.003		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Lithium	0.0499	mg/L	1	0.00030	0.00007		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Magnesium	1.70	mg/L	1	0.100	0.006		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Manganese	0.0625	mg/L	1	0.00100	0.00008		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Molybdenum	0.1	µg/L	1	0.5	0.1	J1	GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Potassium	2.32	mg/L	1	0.100	0.008		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Sodium	11.0	mg/L	1	0.20	0.01		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Strontium	0.0166	mg/L	1	0.00200	0.00005		GES	03/05/2024 01:21	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/05/2024 01:21	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: B-3

Customer Description:

Lab Number: 240669-002

Preparation:

Date Collected: 02/20/2024 08:55 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Arsenic	0.33	µg/L	1	0.10	0.03		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Barium	62.5	µg/L	1	0.20	0.05		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Beryllium	1.72	µg/L	1	0.050	0.007		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Boron	0.032	mg/L	1	0.050	0.007	J1	GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Cadmium	0.015	µg/L	1	0.020	0.004	J1	GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Calcium	1.33	mg/L	1	0.05	0.01		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Chromium	0.36	µg/L	1	0.30	0.07		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Cobalt	5.83	µg/L	1	0.020	0.005		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Lithium	0.0728	mg/L	1	0.00030	0.00007		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Magnesium	1.38	mg/L	1	0.100	0.006		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Mercury	9	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Potassium	2.09	mg/L	1	0.100	0.008		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Selenium	0.06	µg/L	1	0.50	0.04	J1	GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Sodium	25.0	mg/L	1	0.20	0.01	M1	GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Strontium	0.0339	mg/L	1	0.00200	0.00005		GES	03/05/2024 01:27	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	03/05/2024 01:27	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: B-3

Customer Description:

Lab Number: 240669-002-01

Preparation: Dissolved

Date Collected: 02/20/2024 08:55 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Arsenic	0.05	µg/L	1	0.10	0.03	J1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Barium	52.3	µg/L	1	0.20	0.05		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Beryllium	1.11	µg/L	1	0.050	0.007		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Boron	0.034	mg/L	1	0.050	0.007	J1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Cadmium	0.013	µg/L	1	0.020	0.004	J1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Calcium	1.16	mg/L	1	0.05	0.01		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Cobalt	5.20	µg/L	1	0.020	0.005		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Iron	0.005	mg/L	1	0.020	0.003	J1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Lead	0.06	µg/L	1	0.20	0.05	J1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Lithium	0.0726	mg/L	1	0.00030	0.00007		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Magnesium	1.13	mg/L	1	0.100	0.006		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Manganese	0.0745	mg/L	1	0.00100	0.00008		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Mercury	7	ng/L	1	5	2		RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Potassium	2.11	mg/L	1	0.100	0.008		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Sodium	25.0	mg/L	1	0.20	0.01		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Strontium	0.0287	mg/L	1	0.00200	0.00005		GES	03/05/2024 01:42	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	03/05/2024 01:42	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 240669-003

Preparation:

Date Collected: 02/20/2024 10:23 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Arsenic	6.20	µg/L	1	0.10	0.03		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Barium	13.4	µg/L	1	0.20	0.05		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Beryllium	4.24	µg/L	1	0.050	0.007		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Boron	0.070	mg/L	1	0.050	0.007		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Cadmium	0.943	µg/L	1	0.020	0.004		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Calcium	36.8	mg/L	1	0.05	0.01		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Chromium	0.64	µg/L	1	0.30	0.07		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Cobalt	213	µg/L	1	0.020	0.005		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Lead	0.30	µg/L	1	0.20	0.05		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Lithium	0.0722	mg/L	1	0.00030	0.00007		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Magnesium	46.1	mg/L	1	0.100	0.006		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Potassium	2.38	mg/L	1	0.100	0.008		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Selenium	26.8	µg/L	1	0.50	0.04		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Sodium	7.89	mg/L	1	0.20	0.01		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Strontium	0.279	mg/L	1	0.00200	0.00005		GES	03/05/2024 01:47	EPA 200.8-1994, Rev. 5.4
Thallium	0.18	µg/L	1	0.20	0.02	J1	GES	03/05/2024 01:47	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 240669-003-01

Preparation: Dissolved

Date Collected: 02/20/2024 10:23 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.018	µg/L	1	0.100	0.008	J1	GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Arsenic	6.94	µg/L	1	0.10	0.03		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Barium	13.0	µg/L	1	0.20	0.05		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Beryllium	4.36	µg/L	1	0.050	0.007		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Boron	0.071	mg/L	1	0.050	0.007		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Cadmium	1.07	µg/L	1	0.020	0.004		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Calcium	41.8	mg/L	1	0.05	0.01		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Chromium	1.57	µg/L	1	0.30	0.07		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Cobalt	242	µg/L	1	0.020	0.005		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Iron	189	mg/L	10	0.20	0.03		GES	03/05/2024 10:51	EPA 200.8-1994, Rev. 5.4
Lead	0.38	µg/L	1	0.20	0.05		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Lithium	0.0732	mg/L	1	0.00030	0.00007		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Magnesium	52.0	mg/L	1	0.100	0.006		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Manganese	1.54	mg/L	1	0.00100	0.00008		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Potassium	2.50	mg/L	1	0.100	0.008		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Selenium	30.4	µg/L	1	0.50	0.04		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Sodium	9.06	mg/L	1	0.20	0.01		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Strontium	0.303	mg/L	1	0.00200	0.00005		GES	03/05/2024 01:52	EPA 200.8-1994, Rev. 5.4
Thallium	0.18	µg/L	1	0.20	0.02	J1	GES	03/05/2024 01:52	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: AD-26

Customer Description:

Lab Number: 240669-004

Preparation:

Date Collected: 02/20/2024 11:24 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.014	µg/L	1	0.100	0.008	J1	GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Arsenic	3.62	µg/L	1	0.10	0.03		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Barium	6.33	µg/L	1	0.20	0.05		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Beryllium	16.9	µg/L	50	2.5	0.4		GES	03/05/2024 02:03	EPA 200.8-1994, Rev. 5.4
Boron	0.134	mg/L	1	0.050	0.007		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Cadmium	3.15	µg/L	1	0.020	0.004		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Calcium	90.1	mg/L	1	0.05	0.01		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Chromium	1.34	µg/L	1	0.30	0.07		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Cobalt	185	µg/L	1	0.020	0.005		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Lead	0.95	µg/L	1	0.20	0.05		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Lithium	0.169	mg/L	50	0.015	0.004		GES	03/05/2024 02:03	EPA 200.8-1994, Rev. 5.4
Magnesium	79.1	mg/L	1	0.100	0.006		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Mercury	3	ng/L	1	5	2	J1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Potassium	3.12	mg/L	1	0.100	0.008		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Selenium	12.0	µg/L	1	0.50	0.04		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Sodium	82.4	mg/L	1	0.20	0.01		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Strontium	0.993	mg/L	1	0.00200	0.00005		GES	03/05/2024 01:57	EPA 200.8-1994, Rev. 5.4
Thallium	0.12	µg/L	1	0.20	0.02	J1	GES	03/05/2024 01:57	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: AD-26

Customer Description:

Lab Number: 240669-004-01

Preparation: Dissolved

Date Collected: 02/20/2024 11:24 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Arsenic	3.47	µg/L	1	0.10	0.03		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Barium	11.4	µg/L	1	0.20	0.05		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Beryllium	17.3	µg/L	50	2.5	0.4		GES	03/05/2024 02:13	EPA 200.8-1994, Rev. 5.4
Boron	0.126	mg/L	1	0.050	0.007		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Cadmium	2.92	µg/L	1	0.020	0.004		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Calcium	88.0	mg/L	1	0.05	0.01		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Chromium	1.32	µg/L	1	0.30	0.07		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Cobalt	172	µg/L	1	0.020	0.005		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Iron	2.89	mg/L	1	0.020	0.003		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Lead	0.81	µg/L	1	0.20	0.05		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Lithium	0.165	mg/L	50	0.015	0.004		GES	03/05/2024 02:13	EPA 200.8-1994, Rev. 5.4
Magnesium	76.3	mg/L	1	0.100	0.006		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Manganese	2.20	mg/L	1	0.00100	0.00008		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Potassium	3.38	mg/L	1	0.100	0.008		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Selenium	11.9	µg/L	1	0.50	0.04		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Sodium	77.3	mg/L	1	0.20	0.01		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Strontium	0.995	mg/L	1	0.00200	0.00005		GES	03/05/2024 02:08	EPA 200.8-1994, Rev. 5.4
Thallium	0.13	µg/L	1	0.20	0.02	J1	GES	03/05/2024 02:08	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 240669-005

Preparation:

Date Collected: 02/19/2024 14:30 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Arsenic	0.87	µg/L	1	0.10	0.03		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Barium	46.2	µg/L	1	0.20	0.05		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Beryllium	0.283	µg/L	1	0.050	0.007		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Boron	0.027	mg/L	1	0.050	0.007	J1	GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Cadmium	0.007	µg/L	1	0.020	0.004	J1	GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Calcium	1.53	mg/L	1	0.05	0.01		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Chromium	0.43	µg/L	1	0.30	0.07		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Cobalt	6.35	µg/L	1	0.020	0.005		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Lithium	0.0499	mg/L	1	0.00030	0.00007		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Magnesium	1.79	mg/L	1	0.100	0.006		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Potassium	2.30	mg/L	1	0.100	0.008		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Sodium	11.0	mg/L	1	0.20	0.01		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Strontium	0.0190	mg/L	1	0.00200	0.00005		GES	03/05/2024 03:25	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/05/2024 03:25	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 240669-005-01

Preparation: Dissolved

Date Collected: 02/19/2024 14:30 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Arsenic	1.55	µg/L	1	0.10	0.03		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Barium	47.0	µg/L	1	0.20	0.05		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Beryllium	0.317	µg/L	1	0.050	0.007		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Boron	0.027	mg/L	1	0.050	0.007	J1	GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Cadmium	0.005	µg/L	1	0.020	0.004	J1	GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Calcium	1.53	mg/L	1	0.05	0.01		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Chromium	0.40	µg/L	1	0.30	0.07		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Cobalt	6.66	µg/L	1	0.020	0.005		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Iron	8.64	mg/L	1	0.020	0.003		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Lithium	0.0516	mg/L	1	0.00030	0.00007		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Magnesium	1.87	mg/L	1	0.100	0.006		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Manganese	0.0717	mg/L	1	0.00100	0.00008		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Potassium	2.30	mg/L	1	0.100	0.008		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Sodium	10.9	mg/L	1	0.20	0.01		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Strontium	0.0182	mg/L	1	0.00200	0.00005		GES	03/05/2024 03:35	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/05/2024 03:35	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: Equipment Blank

Customer Description:

Lab Number: 240669-006

Preparation:

Date Collected: 02/20/2024 10:56 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Calcium	<0.01	mg/L	1	0.05	0.01	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Chromium	0.27	µg/L	1	0.30	0.07	J1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Cobalt	0.024	µg/L	1	0.020	0.005		GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.006	mg/L	1	0.100	0.006	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Potassium	<0.008	mg/L	1	0.100	0.008	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Sodium	<0.01	mg/L	1	0.20	0.01	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	GES	03/05/2024 03:45	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/05/2024 03:45	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: 240669

Customer: Pirkey Power Station

Date Reported: 03/19/2024

Customer Sample ID: Field Blank

Customer Description:

Lab Number: 240669-007

Preparation:

Date Collected: 02/19/2024 09:47 EST

Date Received: 02/23/2024 11:00 EST

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Calcium	<0.01	mg/L	1	0.05	0.01	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Chromium	0.31	µg/L	1	0.30	0.07		GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Cobalt	0.022	µg/L	1	0.020	0.005		GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00007	mg/L	1	0.00030	0.00007	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.006	mg/L	1	0.100	0.006	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	02/28/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Potassium	<0.008	mg/L	1	0.100	0.008	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Sodium	<0.01	mg/L	1	0.20	0.01	U1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Strontium	0.00007	mg/L	1	0.00200	0.00005	J1	GES	03/05/2024 03:50	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	03/05/2024 03:50	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: 240669**

**Customer: Pirkey Power Station**

**Date Reported: 03/19/2024**

### Data Qualifier Legend

**U1** - Not detected at or below method detection limit (MDL).

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

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

# Chain of Custody Record

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Jonathan Barnhill (318-673-3803)  
 Contacts: Michael Ohlinger (614-836-4184)

Program: Coal Combustion Residuals (CCR)

Site Contact: **19**

**19**

**20**

Date: **1**

COC/Order #:

For Lab Use Only:

Project Name: Pirkey - ASD Wells  
 Contact Name: Leslie Fuerschbach  
 Contact Phone: 318-423-3805  
 Sampler(s): Matt Hamilton, Kenny McDonald

Analysis Turnaround Time (in Calendar Days)

COC/Order #: **240669**

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials		250 mL bottle, pH<2, HNO <sub>3</sub>	Field-Filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-6°C	Three (six every 10th) L bottles, pH<2, HNO <sub>3</sub>	Field-Filter 250 mL PTFE lined bottle, HCL**, pH<2	250 mL PTFE lined bottle, HCL**, pH<2	Sample Specific Notes
						B, Ca, Li, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Mo, Se, TL and Na, K, Mg, Sr	B, Ca, Li, Sp, As, Ba, Be, Cd, Cr, Co, Fe, Mn, Mo, Pb, Se, TL and Na, K, Mg, Sr							
B-2	2/19/2024	818	G	GW	4		X	X				X	X	
B-3	2/20/2024	755	G	GW	4		X	X				X	X	
AD-25	2/20/2024	923	G	GW	4		X	X				X	X	
AD-26	2/20/2024	1024	G	GW	4		X	X				X	X	
DUPLICATE	2/19/2024	1330	G	GW	4		X	X				X	X	
EQUIPMENT BLANK	2/20/2024	956	G	GW	2		X	X				X	X	
FIELD BLANK	2/19/2024	847	G	GW	2		X	X				X	X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____; F= filter in field						4	F4	1	4	F2	2			

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

Relinquished by: *Matt Hamilton* Company: *Espe* Date/Time: *2-21-24* Received by: *Michael Ohlinger* Date/Time: *2/23/24 1100*

Relinquished by: *Matt Hamilton* Company: *Espe* Date/Time: *2-21-24* Received by: *Michael Ohlinger* Date/Time: *2/23/24 1100*

Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17

# AEP WATER & WASTE SAMPLE RECEIPT FORM

<u>Package Type</u> <input checked="" type="radio"/> Cooler <input type="radio"/> Box <input type="radio"/> Bag <input type="radio"/> Envelope			<u>Delivery Type</u> PONY    UPS <input checked="" type="radio"/> FedEX    USPS Other _____		
Plant/Customer <u>Pitkey</u>		Number of Plastic Containers: <u>12</u>			
Opened By <u>MGR/WCG</u>		Number of Glass Containers: <u>12</u>			
Date/Time <u>2/23/24 1100</u>		Number of Mercury Containers: <u>-</u>			
Were all temperatures within 0-6°C? Y / N or <input checked="" type="radio"/> N/A Initial: _____ on ice / <input checked="" type="radio"/> no ice (IR Gun Ser# <u>2213689000</u> , Expir. <u>03/24/2024</u> ) - If No, specify each deviation: _____					
Was container in good condition? <input checked="" type="radio"/> Y / N Comments _____					
Was Chain of Custody received? <input checked="" type="radio"/> Y / N Comments _____					
Requested turnaround: _____ If RUSH, who was notified? _____					
pH (15 min)		Cr <sup>+6</sup> (pres) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)	Hg-diss (pres) (48 hr)

Was COC filled out properly?  Y / N Comments \_\_\_\_\_

Were samples labeled properly?  Y / N Comments \_\_\_\_\_

Were correct containers used?  Y / N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y / N or N/A Initial & Date: MGR/WCG 2/23/24

**pH paper (circle one):** MQuant,PN1.09535.0001,LOT# \_\_\_\_\_ [OR] Lab Rat,PN4801,LOT# X000RWDG21 Exp 03/15/2025

- Was Add'l Preservative needed? Y /  N If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: Leslie F.

Lab ID# 240669 Initial & Date & Time: MSD

Logged by MSD Comments: B-2 Hg broken in transit. dissolved. Removed from request.

Reviewed by MGR

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240642

Customer: Pirkey Power Station

Date Reported: 03/11/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 240642-001

Preparation:

Date Collected: 02/19/2024 09:18 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.04	mg/L	2	0.10	0.02	J1	CRJ	02/28/2024 21:46	EPA 300.1 -1997, Rev. 1.0
Chloride	5.72	mg/L	2	0.04	0.01		CRJ	02/28/2024 21:46	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.20	mg/L	2	0.06	0.02		CRJ	02/28/2024 21:46	EPA 300.1 -1997, Rev. 1.0
Sulfate	25.8	mg/L	2	0.6	0.1		CRJ	02/28/2024 21:46	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	11	mg/L	1	20	5	J1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	150	mg/L	1	50	20		ELT	02/23/2024 10:42	SM 2540C-2015

Customer Sample ID: B-3

Customer Description:

Lab Number: 240642-002

Preparation:

Date Collected: 02/20/2024 08:55 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.06	mg/L	2	0.10	0.02	J1	CRJ	02/28/2024 22:22	EPA 300.1 -1997, Rev. 1.0
Chloride	11.1	mg/L	2	0.04	0.01		CRJ	02/28/2024 22:22	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.06	mg/L	2	0.06	0.02		CRJ	02/28/2024 22:22	EPA 300.1 -1997, Rev. 1.0
Sulfate	45.5	mg/L	2	0.6	0.1		CRJ	02/28/2024 22:22	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	170	mg/L	1	50	20		ELT	02/23/2024 10:48	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240642

Customer: Pirkey Power Station

Date Reported: 03/11/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 240642-003

Preparation:

Date Collected: 02/20/2024 10:23 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.07	mg/L	2	0.10	0.02	J1	CRJ	02/28/2024 20:34	EPA 300.1 -1997, Rev. 1.0
Chloride	2.84	mg/L	2	0.04	0.01		CRJ	02/28/2024 20:34	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.36	mg/L	2	0.06	0.02		CRJ	02/28/2024 20:34	EPA 300.1 -1997, Rev. 1.0
Sulfate	719	mg/L	25	8	2		CRJ	02/28/2024 19:58	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	1120	mg/L	1	50	20		ELT	02/23/2024 10:48	SM 2540C-2015

Customer Sample ID: AD-26

Customer Description:

Lab Number: 240642-004

Preparation:

Date Collected: 02/20/2024 11:24 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.14	mg/L	5	0.25	0.05	J1	CRJ	02/28/2024 18:46	EPA 300.1 -1997, Rev. 1.0
Chloride	12.3	mg/L	5	0.10	0.03		CRJ	02/28/2024 18:46	EPA 300.1 -1997, Rev. 1.0
Fluoride	5.04	mg/L	5	0.15	0.05		CRJ	02/28/2024 18:46	EPA 300.1 -1997, Rev. 1.0
Sulfate	1260	mg/L	50	15	3		CRJ	02/28/2024 18:11	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	1570	mg/L	2	100	40		ELT	02/23/2024 10:53	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240642

Customer: Pirkey Power Station

Date Reported: 03/11/2024

Customer Sample ID: DUPLICATE

Customer Description:

Lab Number: 240642-005

Preparation:

Date Collected: 02/19/2024 14:30 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.04	mg/L	2	0.10	0.02	J1	CRJ	02/28/2024 16:23	EPA 300.1 -1997, Rev. 1.0
Chloride	6.10	mg/L	2	0.04	0.01		CRJ	02/28/2024 16:23	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.22	mg/L	2	0.06	0.02		CRJ	02/28/2024 16:23	EPA 300.1 -1997, Rev. 1.0
Sulfate	25.6	mg/L	2	0.6	0.1		CRJ	02/28/2024 16:23	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	14	mg/L	1	20	5	J1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	170	mg/L	2	100	40		ELT	02/23/2024 10:53	SM 2540C-2015

Customer Sample ID: FIELD BLANK

Customer Description:

Lab Number: 240642-006

Preparation:

Date Collected: 02/19/2024 09:47 EST

Date Received: 02/22/2024 09:50 EST

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	<0.02	mg/L	2	0.10	0.02	U1	CRJ	02/28/2024 17:35	EPA 300.1 -1997, Rev. 1.0
Chloride	<0.01	mg/L	2	0.04	0.01	U1	CRJ	02/28/2024 17:35	EPA 300.1 -1997, Rev. 1.0
Fluoride	<0.02	mg/L	2	0.06	0.02	U1	CRJ	02/28/2024 17:35	EPA 300.1 -1997, Rev. 1.0
Sulfate	<0.1	mg/L	2	0.6	0.1	U1	CRJ	02/28/2024 17:35	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	02/22/2024 14:07	SM 2320B-2011
TDS, Filterable Residue	<20	mg/L	1	50	20	U1	ELT	02/23/2024 10:59	SM 2540C-2015





## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 240642

Customer: Pirkey Power Station

Date Reported: 03/11/2024

### 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 Qualifier 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).

# Chain of Custody Record

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Jonathan Barnhill (318-673-3803)  
 Contacts: Michael Ohlinger (614-838-4184)

Program: Coal Combustion Residuals (CCR)

Site Contact: \_\_\_\_\_ Date: \_\_\_\_\_  
 For Lab Use Only:  
 COC/Order #: **240642**

Analysis Turnaround Time (in Calendar Days)		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	250 mL bottle, pH<2, HNO <sub>3</sub>	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C	Three (six every 10th*) L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass vial or 250 mL PTFE lined bottle, HCL, pH<2	40 mL Glass vial or 250 mL PTFE lined bottle, HCL, pH<2	Sample Specific Notes
							B, Ca, Li, Sb, As, Ba, Mn, Mo, Pb, Se, Tl, Sr	B, Ca, Li, Sb, As, Ba, Mn, Mo, Pb, Se, Tl, Sr	TDS, F, Cl, SO <sub>4</sub> , Br, and Alkalinity	Ra-226, Ra-228	Hg	Hg	
B-2		2/19/2024	818	G	GW	1			X				
B-3		2/20/2024	755	G	GW	1			X				
AD-25		2/20/2024	923	G	GW	1			X				
AD-26		2/20/2024	1024	G	GW	1			X				
DUPLICATE		2/19/2024	1330	G	GW	1			X				
FIELD BLANK		2/19/2024	847	G	GW	1			X				

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	250 mL bottle, pH<2, HNO <sub>3</sub>	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	1 L bottle, Cool, 0-5°C	Three (six every 10th*) L bottles, pH<2, HNO <sub>3</sub>	40 mL Glass vial or 250 mL PTFE lined bottle, HCL, pH<2	40 mL Glass vial or 250 mL PTFE lined bottle, HCL, pH<2	Sample Specific Notes
					B, Ca, Li, Sb, As, Ba, Mn, Mo, Pb, Se, Tl, Sr	B, Ca, Li, Sb, As, Ba, Mn, Mo, Pb, Se, Tl, Sr	TDS, F, Cl, SO <sub>4</sub> , Br, and Alkalinity	Ra-226, Ra-228	Hg	Hg	

Preservation Used: 1= Ice, 2= HCl, 3= H<sub>2</sub>SO<sub>4</sub>, 4=HNO<sub>3</sub>, 5=NaOH; 6= Other \_\_\_\_\_; F= filter in field \_\_\_\_\_  
 \* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments: \_\_\_\_\_

Relinquished by: <i>[Signature]</i>	Date/Time: 2/21/24	Received by: _____	Date/Time: _____
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____
Relinquished by: _____	Date/Time: _____	Received in Laboratory by: <i>[Signature]</i>	Date/Time: 2/22/24 0950

Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shireport, Rev. 1, 1/10/17

**AEP WATER & WASTE SAMPLE RECEIPT FORM**

<u>Package Type</u>		<u>Delivery Type</u>	
<input checked="" type="radio"/> Cooler	<input type="radio"/> Box <input type="radio"/> Bag <input type="radio"/> Envelope	<input type="radio"/> PONY <input type="radio"/> UPS <input checked="" type="radio"/> FedEX <input type="radio"/> USPS	Other _____
Plant/Customer <u>Pittker Power Station</u>		Number of Plastic Containers: <u>6</u>	
Opened By <u>Missyha Williams</u>		Number of Glass Containers: _____	
Date/Time <u>02/22/24 9:50 AM</u>		Number of Mercury Containers: _____	
Were all temperatures within 0-6°C? <input checked="" type="radio"/> Y / <input type="radio"/> N or N/A Initial: <u>mbk</u> <input checked="" type="radio"/> on ice / <input type="radio"/> no ice (IR Gun Ser# <u>2213689000</u> , Expir. <u>03/24/2024</u> ) - If No, specify each deviation: _____			
Was container in good condition? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments _____			
Was Chain of Custody received? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments _____			
Requested turnaround: <u>28 days</u> If RUSH, who was notified? _____			
pH (15 min)	Cr <sup>+6</sup> (pres) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)    Hg-diss (pres) (48 hr)

Was COC filled out properly?  Y /  N Comments \_\_\_\_\_

Were samples labeled properly?  Y /  N Comments \_\_\_\_\_

Were correct containers used?  Y /  N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y /  N or N/A Initial & Date: mbk 02/22/24

**pH paper (circle one):** MQuant,PN1.09535.0001,LOT# \_\_\_\_\_ [OR] Lab Rat,PN4801,LOT# X000RW0G21 Exp 03/15/2025

- Was Add'l Preservative needed? Y /  N If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: \_\_\_\_\_

Lab ID# 240642 Initial & Date & Time : \_\_\_\_\_

Logged by WCG Comments: \_\_\_\_\_

Reviewed by Mso \_\_\_\_\_

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 241410-001

Preparation:

Date Collected: 04/23/2024 09:21 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Arsenic	2.05	µg/L	1	0.10	0.03		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Barium	14.8	µg/L	1	0.20	0.05		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Beryllium	1.03	µg/L	5	0.25	0.04		GES	05/08/2024 08:29	EPA 200.8-1994, Rev. 5.4
Boron	3.18	mg/L	1	0.050	0.007		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Cadmium	0.135	µg/L	1	0.020	0.004		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Calcium	4.51	mg/L	1	0.05	0.02		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Chromium	0.54	µg/L	1	0.30	0.07		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Cobalt	33.0	µg/L	1	0.020	0.005		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Lead	0.65	µg/L	1	0.20	0.05		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Lithium	0.0739	mg/L	5	0.0015	0.0003		GES	05/08/2024 08:29	EPA 200.8-1994, Rev. 5.4
Magnesium	9.21	mg/L	1	0.100	0.009		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Mercury	56	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Potassium	1.43	mg/L	1	0.10	0.01		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Selenium	6.51	µg/L	1	0.50	0.04		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Sodium	111	mg/L	1	0.20	0.02		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Strontium	0.0635	mg/L	1	0.00200	0.00005		GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4
Thallium	0.13	µg/L	1	0.20	0.02	J1	GES	05/07/2024 19:31	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.55	pCi/L	0.13	0.16		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	91.9	%						
Radium-228	1.63	pCi/L	0.17	0.50		TTP	05/24/2024 13:03	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	83.4	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 241410-001-01

Preparation: Dissolved

Date Collected: 04/23/2024 09:21 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.023	µg/L	1	0.100	0.008	J1	GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Arsenic	2.06	µg/L	1	0.10	0.03		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Barium	15.5	µg/L	1	0.20	0.05		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Beryllium	1.10	µg/L	5	0.25	0.04		GES	05/08/2024 08:34	EPA 200.8-1994, Rev. 5.4
Cadmium	0.138	µg/L	1	0.020	0.004		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Chromium	0.54	µg/L	1	0.30	0.07		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Cobalt	34.1	µg/L	1	0.020	0.005		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Iron	0.198	mg/L	1	0.020	0.003		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Lead	0.73	µg/L	1	0.20	0.05		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Lithium	0.0784	mg/L	5	0.0015	0.0003		GES	05/08/2024 08:34	EPA 200.8-1994, Rev. 5.4
Manganese	0.112	mg/L	1	0.00100	0.00007		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Selenium	6.84	µg/L	1	0.50	0.04		GES	05/07/2024 19:36	EPA 200.8-1994, Rev. 5.4
Thallium	0.13	µg/L	1	0.20	0.02	J1	GES	05/07/2024 19:36	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-3

Customer Description:

Lab Number: 241410-002

Preparation:

Date Collected: 04/23/2024 12:04 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Arsenic	0.25	µg/L	1	0.10	0.03		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Barium	65.2	µg/L	1	0.20	0.05		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Beryllium	0.24	µg/L	5	0.25	0.04	J1	GES	05/08/2024 08:39	EPA 200.8-1994, Rev. 5.4
Boron	0.038	mg/L	1	0.050	0.007	J1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Cadmium	0.017	µg/L	1	0.020	0.004	J1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Calcium	4.32	mg/L	1	0.05	0.02		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Chromium	0.24	µg/L	1	0.30	0.07	J1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Cobalt	3.57	µg/L	1	0.020	0.005		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Lead	0.05	µg/L	1	0.20	0.05	J1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Lithium	0.0599	mg/L	5	0.0015	0.0003		GES	05/08/2024 08:39	EPA 200.8-1994, Rev. 5.4
Magnesium	1.93	mg/L	1	0.100	0.009		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Potassium	2.28	mg/L	1	0.10	0.01		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Selenium	0.06	µg/L	1	0.50	0.04	J1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Sodium	8.66	mg/L	1	0.20	0.02		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Strontium	0.0298	mg/L	1	0.00200	0.00005		GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	GES	05/07/2024 19:41	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.66	pCi/L	0.13	0.15		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	100	%						
Radium-228	1.15	pCi/L	0.15	0.46		TTP	05/24/2024 13:03	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	87.3	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-3

Customer Description:

Lab Number: 241410-002-01

Preparation: Dissolved

Date Collected: 04/23/2024 12:04 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.017	µg/L	1	0.100	0.008	J1	GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Arsenic	0.22	µg/L	1	0.10	0.03		GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Barium	67.0	µg/L	1	0.20	0.05		GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Beryllium	0.26	µg/L	5	0.25	0.04		GES	05/08/2024 08:45	EPA 200.8-1994, Rev. 5.4
Cadmium	0.017	µg/L	1	0.020	0.004	J1	GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Chromium	0.28	µg/L	1	0.30	0.07	J1	GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Cobalt	3.78	µg/L	1	0.020	0.005		GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Iron	1.21	mg/L	1	0.020	0.003		GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Lead	0.11	µg/L	1	0.20	0.05	J1	GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Lithium	0.0633	mg/L	5	0.0015	0.0003		GES	05/08/2024 08:45	EPA 200.8-1994, Rev. 5.4
Manganese	0.0427	mg/L	1	0.00100	0.00007		GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/07/2024 19:47	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	GES	05/07/2024 19:47	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 241410-003

Preparation:

Date Collected: 04/24/2024 10:31 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.014	µg/L	1	0.100	0.008	J1	GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Arsenic	0.44	µg/L	1	0.10	0.03		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Barium	97.2	µg/L	1	0.20	0.05		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Beryllium	0.64	µg/L	5	0.25	0.04		GES	05/08/2024 08:50	EPA 200.8-1994, Rev. 5.4
Boron	0.017	mg/L	1	0.050	0.007	J1	GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Cadmium	0.020	µg/L	1	0.020	0.004		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Calcium	2.26	mg/L	1	0.05	0.02		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Chromium	0.31	µg/L	1	0.30	0.07		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Cobalt	5.95	µg/L	1	0.020	0.005		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Lead	0.06	µg/L	1	0.20	0.05	J1	GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Lithium	0.0395	mg/L	5	0.0015	0.0003		GES	05/08/2024 08:50	EPA 200.8-1994, Rev. 5.4
Magnesium	1.18	mg/L	1	0.100	0.009		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Potassium	2.36	mg/L	1	0.10	0.01		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Sodium	8.05	mg/L	1	0.20	0.02		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Strontium	0.0189	mg/L	1	0.00200	0.00005		GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4
Thallium	0.07	µg/L	1	0.20	0.02	J1	GES	05/07/2024 19:52	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.67	pCi/L	0.13	0.18		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	106	%						
Radium-228	1.12	pCi/L	0.19	0.60		TTP	05/24/2024 13:03	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	79.0	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 241410-003-01

Preparation: Dissolved

Date Collected: 04/24/2024 10:31 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.014	µg/L	1	0.100	0.008	J1	GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Barium	96.5	µg/L	1	0.20	0.05		GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Beryllium	0.66	µg/L	5	0.25	0.04		GES	05/08/2024 08:55	EPA 200.8-1994, Rev. 5.4
Cadmium	0.011	µg/L	1	0.020	0.004	J1	GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Chromium	0.28	µg/L	1	0.30	0.07	J1	GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Cobalt	5.86	µg/L	1	0.020	0.005		GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Iron	0.025	mg/L	1	0.020	0.003		GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Lithium	0.0411	mg/L	5	0.0015	0.0003		GES	05/08/2024 08:55	EPA 200.8-1994, Rev. 5.4
Manganese	0.0497	mg/L	1	0.00100	0.00007		GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Selenium	0.05	µg/L	1	0.50	0.04	J1	GES	05/07/2024 19:57	EPA 200.8-1994, Rev. 5.4
Thallium	0.07	µg/L	1	0.20	0.02	J1	GES	05/07/2024 19:57	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 241410-004

Preparation:

Date Collected: 04/22/2024 10:25 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Arsenic	0.38	µg/L	1	0.10	0.03		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Barium	41.3	µg/L	1	0.20	0.05		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Beryllium	2.37	µg/L	5	0.25	0.04		GES	05/08/2024 09:00	EPA 200.8-1994, Rev. 5.4
Boron	0.049	mg/L	1	0.050	0.007	J1	GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Cadmium	0.310	µg/L	1	0.020	0.004		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Calcium	3.37	mg/L	1	0.05	0.02		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Cobalt	20.9	µg/L	1	0.020	0.005		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Lithium	0.0790	mg/L	5	0.0015	0.0003		GES	05/08/2024 09:00	EPA 200.8-1994, Rev. 5.4
Magnesium	5.03	mg/L	1	0.100	0.009		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Mercury	<4	ng/L	2	10	4	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Potassium	1.99	mg/L	1	0.10	0.01		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Selenium	1.00	µg/L	1	0.50	0.04		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Sodium	23.4	mg/L	1	0.20	0.02		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Strontium	0.0366	mg/L	1	0.00200	0.00005		GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4
Thallium	0.14	µg/L	1	0.20	0.02	J1	GES	05/07/2024 20:02	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.16	pCi/L	0.18	0.16		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	99.8	%						
Radium-228	1.46	pCi/L	0.18	0.55		TTP	05/24/2024 13:03	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	87.3	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 241410-004-01

Preparation: Dissolved

Date Collected: 04/22/2024 10:25 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Arsenic	0.37	µg/L	1	0.10	0.03		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Barium	41.7	µg/L	1	0.20	0.05		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Beryllium	1.96	µg/L	1	0.050	0.007		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Cadmium	0.318	µg/L	1	0.020	0.004		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Chromium	0.25	µg/L	1	0.30	0.07	J1	GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Cobalt	21.0	µg/L	1	0.020	0.005		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Iron	5.21	mg/L	1	0.020	0.003		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Lead	0.06	µg/L	1	0.20	0.05	J1	GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Lithium	0.0678	mg/L	1	0.00030	0.00006		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Manganese	0.0649	mg/L	1	0.00100	0.00007		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Selenium	1.03	µg/L	1	0.50	0.04		GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4
Thallium	0.14	µg/L	1	0.20	0.02	J1	GES	05/07/2024 20:07	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-8

Customer Description:

Lab Number: 241410-005

Preparation:

Date Collected: 04/23/2024 11:11 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.999	mg/L	1	0.050	0.007		GES	05/07/2024 20:12	EPA 200.8-1994, Rev. 5.4
Calcium	87.7	mg/L	1	0.05	0.02		GES	05/07/2024 20:12	EPA 200.8-1994, Rev. 5.4
Magnesium	6.27	mg/L	1	0.100	0.009		GES	05/07/2024 20:12	EPA 200.8-1994, Rev. 5.4
Potassium	1.19	mg/L	1	0.10	0.01		GES	05/07/2024 20:12	EPA 200.8-1994, Rev. 5.4
Sodium	11.5	mg/L	1	0.20	0.02		GES	05/07/2024 20:12	EPA 200.8-1994, Rev. 5.4
Strontium	0.526	mg/L	1	0.00200	0.00005		GES	05/07/2024 20:12	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-12

Customer Description:

Lab Number: 241410-006

Preparation:

Date Collected: 04/22/2024 10:44 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.009	µg/L	1	0.100	0.008	J1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Arsenic	0.09	µg/L	1	0.10	0.03	J1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Barium	19.3	µg/L	1	0.20	0.05		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Beryllium	0.121	µg/L	1	0.050	0.007		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Boron	0.015	mg/L	1	0.050	0.007	J1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Cadmium	0.007	µg/L	1	0.020	0.004	J1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Calcium	0.18	mg/L	1	0.05	0.02		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Chromium	0.34	µg/L	1	0.30	0.07		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Cobalt	1.08	µg/L	1	0.020	0.005		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Lithium	0.00462	mg/L	1	0.00030	0.00006		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Magnesium	0.342	mg/L	1	0.100	0.009		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Potassium	0.20	mg/L	1	0.10	0.01		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Selenium	0.31	µg/L	1	0.50	0.04	J1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Sodium	3.75	mg/L	1	0.20	0.02		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Strontium	0.00203	mg/L	1	0.00200	0.00005		GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/07/2024 20:17	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.83	pCi/L	0.15	0.14		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	106	%						
Radium-228	1.79	pCi/L	0.21	0.64		TTP	05/24/2024 13:03	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	74.6	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-12

Customer Description:

Lab Number: 241410-006-01

Preparation: Dissolved

Date Collected: 04/22/2024 10:44 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.037	µg/L	1	0.100	0.008	J1	GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Arsenic	0.07	µg/L	1	0.10	0.03	J1	GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Barium	19.5	µg/L	1	0.20	0.05		GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Beryllium	0.129	µg/L	1	0.050	0.007		GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Cadmium	0.007	µg/L	1	0.020	0.004	J1	GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Chromium	0.25	µg/L	1	0.30	0.07	J1	GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Cobalt	1.07	µg/L	1	0.020	0.005		GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Iron	0.020	mg/L	1	0.020	0.003		GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Lead	0.12	µg/L	1	0.20	0.05	J1	GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Lithium	0.00490	mg/L	1	0.00030	0.00006		GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Manganese	0.00313	mg/L	1	0.00100	0.00007		GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Selenium	0.26	µg/L	1	0.50	0.04	J1	GES	05/07/2024 21:34	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	05/07/2024 21:34	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 241410-007

Preparation:

Date Collected: 04/22/2024 09:20 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Arsenic	0.54	µg/L	1	0.10	0.03		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Barium	34.9	µg/L	1	0.20	0.05		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Beryllium	0.163	µg/L	1	0.050	0.007		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Boron	0.066	mg/L	1	0.050	0.007		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Calcium	10.6	mg/L	1	0.05	0.02		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Chromium	0.22	µg/L	1	0.30	0.07	J1	GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Cobalt	46.2	µg/L	1	0.020	0.005		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Lithium	0.135	mg/L	1	0.00030	0.00006		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Magnesium	13.2	mg/L	1	0.100	0.009		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Potassium	4.83	mg/L	1	0.10	0.01		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Sodium	19.9	mg/L	1	0.20	0.02		GES	05/08/2024 10:01	EPA 200.8-1994, Rev. 5.4
Strontium	0.0787	mg/L	1	0.00200	0.00005		GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	05/07/2024 21:39	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.65	pCi/L	0.15	0.23		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	92.6	%						
Radium-228	2.02	pCi/L	0.20	0.59		TTP	05/24/2024 13:03	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	86.1	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 241410-007-01

Preparation: Dissolved

Date Collected: 04/22/2024 09:20 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Arsenic	0.32	µg/L	1	0.10	0.03		GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Barium	33.9	µg/L	1	0.20	0.05		GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Beryllium	0.151	µg/L	1	0.050	0.007		GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Chromium	0.19	µg/L	1	0.30	0.07	J1	GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Cobalt	44.9	µg/L	1	0.020	0.005		GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Iron	33.8	mg/L	1	0.020	0.003		GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Lithium	0.133	mg/L	1	0.00030	0.00006		GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Manganese	0.447	mg/L	1	0.00100	0.00007		GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	05/07/2024 21:45	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-16

Customer Description:

Lab Number: 241410-008

Preparation:

Date Collected: 04/24/2024 12:04 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.013	mg/L	1	0.050	0.007	J1	GES	05/07/2024 21:50	EPA 200.8-1994, Rev. 5.4
Calcium	1.13	mg/L	1	0.05	0.02		GES	05/07/2024 21:50	EPA 200.8-1994, Rev. 5.4
Magnesium	2.37	mg/L	1	0.100	0.009		GES	05/07/2024 21:50	EPA 200.8-1994, Rev. 5.4
Potassium	1.53	mg/L	1	0.10	0.01		GES	05/07/2024 21:50	EPA 200.8-1994, Rev. 5.4
Sodium	13.5	mg/L	1	0.20	0.02		GES	05/08/2024 10:12	EPA 200.8-1994, Rev. 5.4
Strontium	0.0135	mg/L	1	0.00200	0.00005		GES	05/07/2024 21:50	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 241410-009

Preparation:

Date Collected: 04/23/2024 12:16 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Arsenic	0.09	µg/L	1	0.10	0.03	J1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Barium	47.6	µg/L	1	0.20	0.05		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Beryllium	0.221	µg/L	1	0.050	0.007		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Boron	0.020	mg/L	1	0.050	0.007	J1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Cadmium	0.011	µg/L	1	0.020	0.004	J1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Calcium	0.04	mg/L	1	0.05	0.02	J1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Chromium	0.37	µg/L	1	0.30	0.07		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Cobalt	1.99	µg/L	1	0.020	0.005		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Lithium	0.00705	mg/L	1	0.00030	0.00006		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Magnesium	0.899	mg/L	1	0.100	0.009		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Mercury	51	ng/L	4	20	8		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Potassium	0.15	mg/L	1	0.10	0.01		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Selenium	0.11	µg/L	1	0.50	0.04	J1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Sodium	3.85	mg/L	1	0.20	0.02		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Strontium	0.00224	mg/L	1	0.00200	0.00005		GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/07/2024 21:55	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.45	pCi/L	0.11	0.15		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	101	%						
Radium-228	1.35	pCi/L	0.15	0.44		TTP	05/24/2024 13:02	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	83.0	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 241410-009-01

Preparation: Dissolved

Date Collected: 04/23/2024 11:16 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Arsenic	0.05	µg/L	1	0.10	0.03	J1	GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Barium	46.3	µg/L	1	0.20	0.05		GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Beryllium	0.196	µg/L	1	0.050	0.007		GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Cadmium	0.010	µg/L	1	0.020	0.004	J1	GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Chromium	0.38	µg/L	1	0.30	0.07		GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Cobalt	1.95	µg/L	1	0.020	0.005		GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Iron	0.004	mg/L	1	0.020	0.003	J1	GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Lithium	0.00647	mg/L	1	0.00030	0.00006		GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Manganese	0.00240	mg/L	1	0.00100	0.00007		GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Selenium	0.09	µg/L	1	0.50	0.04	J1	GES	05/07/2024 22:00	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/07/2024 22:00	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-18

Customer Description:

Lab Number: 241410-010

Preparation:

Date Collected: 04/23/2024 11:58 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Arsenic	0.19	µg/L	1	0.10	0.03		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Barium	76.6	µg/L	1	0.20	0.05		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Beryllium	0.083	µg/L	1	0.050	0.007		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Boron	0.008	mg/L	1	0.050	0.007	J1	GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Cadmium	0.010	µg/L	1	0.020	0.004	J1	GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Calcium	0.19	mg/L	1	0.05	0.02		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Chromium	0.32	µg/L	1	0.30	0.07		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Cobalt	0.851	µg/L	1	0.020	0.005		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Lead	0.06	µg/L	1	0.20	0.05	J1	GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Lithium	0.0130	mg/L	1	0.00030	0.00006		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Magnesium	0.294	mg/L	1	0.100	0.009		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Mercury	8	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Potassium	0.74	mg/L	1	0.10	0.01		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Selenium	0.11	µg/L	1	0.50	0.04	J1	GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Sodium	5.64	mg/L	1	0.20	0.02		GES	05/08/2024 10:27	EPA 200.8-1994, Rev. 5.4
Strontium	0.00415	mg/L	1	0.00200	0.00005		GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	05/07/2024 22:05	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.42	pCi/L	0.11	0.18		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	104	%						
Radium-228	0.57	pCi/L	0.13	0.42		TTP	05/24/2024 13:02	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	85.9	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-18

Customer Description:

Lab Number: 241410-010-01

Preparation: Dissolved

Date Collected: 04/23/2024 11:58 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.020	µg/L	1	0.100	0.008	J1	GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Arsenic	0.07	µg/L	1	0.10	0.03	J1	GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Barium	80.5	µg/L	1	0.20	0.05		GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Beryllium	0.084	µg/L	1	0.050	0.007		GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Cadmium	0.011	µg/L	1	0.020	0.004	J1	GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Chromium	0.41	µg/L	1	0.30	0.07		GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Cobalt	0.921	µg/L	1	0.020	0.005		GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Iron	0.031	mg/L	1	0.020	0.003		GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Lead	0.07	µg/L	1	0.20	0.05	J1	GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Lithium	0.0135	mg/L	1	0.00030	0.00006		GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Manganese	0.00407	mg/L	1	0.00100	0.00007		GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Selenium	0.08	µg/L	1	0.50	0.04	J1	GES	05/07/2024 22:10	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	05/07/2024 22:10	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 241410-011

Preparation:

Date Collected: 04/22/2024 11:22 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Arsenic	3.54	µg/L	1	0.10	0.03		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Barium	16.2	µg/L	1	0.20	0.05		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Beryllium	7.53	µg/L	1	0.050	0.007	M1	GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Boron	0.064	mg/L	1	0.050	0.007		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Cadmium	1.22	µg/L	1	0.020	0.004		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Calcium	13.5	mg/L	1	0.05	0.02		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Chromium	0.43	µg/L	1	0.30	0.07		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Cobalt	99.3	µg/L	1	0.020	0.005	M1	GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Lead	0.23	µg/L	1	0.20	0.05		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Lithium	0.146	mg/L	1	0.00030	0.00006	M1	GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Magnesium	19.9	mg/L	1	0.100	0.009		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Mercury	66	ng/L	4	20	8		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Potassium	3.81	mg/L	1	0.10	0.01		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Selenium	11.9	µg/L	1	0.50	0.04		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Sodium	90.3	mg/L	5	1.0	0.1		GES	05/08/2024 10:37	EPA 200.8-1994, Rev. 5.4
Strontium	0.129	mg/L	1	0.00200	0.00005		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4
Thallium	0.20	µg/L	1	0.20	0.02		GES	05/07/2024 22:15	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.78	pCi/L	0.23	0.17		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	95.0	%						
Radium-228	1.24	pCi/L	0.14	0.40	O2, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	56.2	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 241410-011-01

Preparation: Dissolved

Date Collected: 04/22/2024 11:22 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.015	µg/L	1	0.100	0.008	J1	GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Arsenic	3.76	µg/L	1	0.10	0.03		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Barium	16.7	µg/L	1	0.20	0.05		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Beryllium	7.18	µg/L	1	0.050	0.007		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Cadmium	1.30	µg/L	1	0.020	0.004		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Chromium	0.44	µg/L	1	0.30	0.07		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Cobalt	106	µg/L	1	0.020	0.005		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Iron	17.8	mg/L	1	0.020	0.003		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Lead	0.23	µg/L	1	0.20	0.05		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Lithium	0.141	mg/L	1	0.00030	0.00006		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Manganese	0.347	mg/L	1	0.00100	0.00007		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Mercury	9	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Selenium	12.1	µg/L	1	0.50	0.04		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4
Thallium	0.24	µg/L	1	0.20	0.02		GES	05/07/2024 22:31	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-23

Customer Description:

Lab Number: 241410-012

Preparation:

Date Collected: 04/24/2024 12:05 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.207	mg/L	1	0.050	0.007		GES	05/08/2024 00:14	EPA 200.8-1994, Rev. 5.4
Calcium	0.22	mg/L	1	0.05	0.02		GES	05/08/2024 00:14	EPA 200.8-1994, Rev. 5.4
Magnesium	0.197	mg/L	1	0.100	0.009		GES	05/08/2024 00:14	EPA 200.8-1994, Rev. 5.4
Potassium	2.51	mg/L	1	0.10	0.01		GES	05/08/2024 00:14	EPA 200.8-1994, Rev. 5.4
Sodium	3.54	mg/L	1	0.20	0.02		GES	05/08/2024 12:25	EPA 200.8-1994, Rev. 5.4
Strontium	0.00254	mg/L	1	0.00200	0.00005		GES	05/08/2024 00:14	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-27

Customer Description:

Lab Number: 241410-013

Preparation:

Date Collected: 04/24/2024 09:30 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.037	mg/L	1	0.050	0.007	J1	GES	05/08/2024 00:19	EPA 200.8-1994, Rev. 5.4
Calcium	3.89	mg/L	1	0.05	0.02		GES	05/08/2024 00:19	EPA 200.8-1994, Rev. 5.4
Magnesium	4.97	mg/L	1	0.100	0.009		GES	05/08/2024 00:19	EPA 200.8-1994, Rev. 5.4
Potassium	1.87	mg/L	1	0.10	0.01		GES	05/08/2024 00:19	EPA 200.8-1994, Rev. 5.4
Sodium	8.79	mg/L	1	0.20	0.02		GES	05/08/2024 12:30	EPA 200.8-1994, Rev. 5.4
Strontium	0.0560	mg/L	1	0.00200	0.00005		GES	05/08/2024 00:19	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-28

Customer Description:

Lab Number: 241410-014

Preparation:

Date Collected: 04/23/2024 10:28 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Arsenic	0.12	µg/L	1	0.10	0.03		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Barium	121	µg/L	1	0.20	0.05		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Beryllium	0.770	µg/L	1	0.050	0.007		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Boron	0.290	mg/L	1	0.050	0.007		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Cadmium	0.055	µg/L	1	0.020	0.004		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Calcium	1.19	mg/L	1	0.05	0.02		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Chromium	0.38	µg/L	1	0.30	0.07		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Cobalt	13.0	µg/L	1	0.020	0.005		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Lead	0.07	µg/L	1	0.20	0.05	J1	GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Lithium	0.0179	mg/L	1	0.00030	0.00006		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Magnesium	2.81	mg/L	1	0.100	0.009		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Mercury	13	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Potassium	0.61	mg/L	1	0.10	0.01		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Selenium	0.33	µg/L	1	0.50	0.04	J1	GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Sodium	5.13	mg/L	1	0.20	0.02		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Strontium	0.0209	mg/L	1	0.00200	0.00005		GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	05/08/2024 00:24	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.56	pCi/L	0.13	0.22		ST	05/21/2024 09:02	SW-846 9315-1986, Rev. 0
Carrier Recovery	98.4	%						
Radium-228	0.99	pCi/L	0.19	0.60	02, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	75.8	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-28

Customer Description:

Lab Number: 241410-014-01

Preparation: Dissolved

Date Collected: 04/23/2024 10:28 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Arsenic	0.10	µg/L	1	0.10	0.03		GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Barium	124	µg/L	1	0.20	0.05		GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Beryllium	0.755	µg/L	1	0.050	0.007		GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Cadmium	0.052	µg/L	1	0.020	0.004		GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Chromium	0.22	µg/L	1	0.30	0.07	J1	GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Cobalt	13.0	µg/L	1	0.020	0.005		GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Iron	0.008	mg/L	1	0.020	0.003	J1	GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Lead	0.05	µg/L	1	0.20	0.05	J1	GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Lithium	0.0186	mg/L	1	0.00030	0.00006		GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Manganese	0.0382	mg/L	1	0.00100	0.00007		GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Mercury	5	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Selenium	0.27	µg/L	1	0.50	0.04	J1	GES	05/08/2024 00:29	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	05/08/2024 00:29	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 241410-015

Preparation:

Date Collected: 04/23/2024 09:43 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Arsenic	0.15	µg/L	1	0.10	0.03		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Barium	49.9	µg/L	1	0.20	0.05		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Beryllium	0.122	µg/L	1	0.050	0.007		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Boron	1.13	mg/L	1	0.050	0.007		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Cadmium	0.012	µg/L	1	0.020	0.004	J1	GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Calcium	0.38	mg/L	1	0.05	0.02		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Chromium	0.42	µg/L	1	0.30	0.07		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Cobalt	3.30	µg/L	1	0.020	0.005		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Lithium	0.00736	mg/L	1	0.00030	0.00006		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Magnesium	1.72	mg/L	1	0.100	0.009		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Mercury	23	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Potassium	0.70	mg/L	1	0.10	0.01		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Selenium	0.30	µg/L	1	0.50	0.04	J1	GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Sodium	56.1	mg/L	1	0.20	0.02		GES	05/08/2024 12:45	EPA 200.8-1994, Rev. 5.4
Strontium	0.00645	mg/L	1	0.00200	0.00005		GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	05/08/2024 00:34	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.21	pCi/L	0.08	0.16		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	92.4	%						
Radium-228	0.68	pCi/L	0.17	0.54	02, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	83.0	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 241410-015-01

Preparation: Dissolved

Date Collected: 04/23/2024 09:43 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Arsenic	0.11	µg/L	1	0.10	0.03		GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Barium	48.3	µg/L	1	0.20	0.05		GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Beryllium	0.124	µg/L	1	0.050	0.007		GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Cadmium	0.010	µg/L	1	0.020	0.004	J1	GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Chromium	0.32	µg/L	1	0.30	0.07		GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Cobalt	3.34	µg/L	1	0.020	0.005		GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Iron	0.005	mg/L	1	0.020	0.003	J1	GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Lithium	0.00741	mg/L	1	0.00030	0.00006		GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Manganese	0.0147	mg/L	1	0.00100	0.00007		GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Selenium	0.30	µg/L	1	0.50	0.04	J1	GES	05/08/2024 00:39	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	GES	05/08/2024 00:39	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-31

Customer Description:

Lab Number: 241410-016

Preparation:

Date Collected: 04/22/2024 12:20 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Arsenic	0.44	µg/L	1	0.10	0.03		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Barium	33.3	µg/L	1	0.20	0.05		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Beryllium	1.04	µg/L	5	0.25	0.04		GES	05/08/2024 12:56	EPA 200.8-1994, Rev. 5.4
Boron	0.022	mg/L	1	0.050	0.007	J1	GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Cadmium	0.064	µg/L	1	0.020	0.004		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Calcium	2.45	mg/L	1	0.05	0.02		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Chromium	0.55	µg/L	1	0.30	0.07		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Cobalt	9.38	µg/L	1	0.020	0.005		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Lead	0.31	µg/L	1	0.20	0.05		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Lithium	0.0792	mg/L	5	0.0015	0.0003		GES	05/08/2024 12:56	EPA 200.8-1994, Rev. 5.4
Magnesium	3.62	mg/L	1	0.100	0.009		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Mercury	430	ng/L	10	50	20		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Potassium	1.52	mg/L	1	0.10	0.01		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Selenium	0.51	µg/L	1	0.50	0.04		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Sodium	31.0	mg/L	5	1.0	0.1		GES	05/08/2024 12:56	EPA 200.8-1994, Rev. 5.4
Strontium	0.0357	mg/L	1	0.00200	0.00005		GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4
Thallium	0.09	µg/L	1	0.20	0.02	J1	GES	05/08/2024 00:44	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.42	pCi/L	0.11	0.16		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	93.2	%						
Radium-228	2.12	pCi/L	0.17	0.48	02, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	84.1	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-31

Customer Description:

Lab Number: 241410-016-01

Preparation: Dissolved

Date Collected: 04/22/2024 12:20 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.027	µg/L	1	0.100	0.008	J1	GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Arsenic	0.29	µg/L	1	0.10	0.03		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Barium	32.4	µg/L	1	0.20	0.05		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Beryllium	1.02	µg/L	5	0.25	0.04		GES	05/08/2024 13:01	EPA 200.8-1994, Rev. 5.4
Cadmium	0.063	µg/L	1	0.020	0.004		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Chromium	0.38	µg/L	1	0.30	0.07		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Cobalt	9.05	µg/L	1	0.020	0.005		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Iron	0.125	mg/L	1	0.020	0.003		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Lead	0.31	µg/L	1	0.20	0.05		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Lithium	0.0780	mg/L	5	0.0015	0.0003		GES	05/08/2024 13:01	EPA 200.8-1994, Rev. 5.4
Manganese	0.0230	mg/L	1	0.00100	0.00007		GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Mercury	17	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Selenium	0.44	µg/L	1	0.50	0.04	J1	GES	05/08/2024 00:49	EPA 200.8-1994, Rev. 5.4
Thallium	0.09	µg/L	1	0.20	0.02	J1	GES	05/08/2024 00:49	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 241410-017

Preparation:

Date Collected: 04/22/2024 11:33 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Arsenic	3.46	µg/L	1	0.10	0.03		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Barium	40.3	µg/L	1	0.20	0.05		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Beryllium	0.449	µg/L	1	0.050	0.007		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Boron	0.231	mg/L	1	0.050	0.007		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Cadmium	0.035	µg/L	1	0.020	0.004		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Calcium	5.63	mg/L	1	0.05	0.02		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Chromium	0.34	µg/L	1	0.30	0.07		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Cobalt	13.2	µg/L	1	0.020	0.005		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Lithium	0.0567	mg/L	1	0.00030	0.00006		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Magnesium	6.18	mg/L	1	0.100	0.009		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Mercury	180	ng/L	20	100	40		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Potassium	2.65	mg/L	1	0.10	0.01		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Selenium	0.48	µg/L	1	0.50	0.04	J1	GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Sodium	19.6	mg/L	1	0.20	0.02		GES	05/08/2024 13:06	EPA 200.8-1994, Rev. 5.4
Strontium	0.0806	mg/L	1	0.00200	0.00005		GES	05/08/2024 00:55	EPA 200.8-1994, Rev. 5.4
Thallium	0.07	µg/L	1	0.20	0.02	J1	GES	05/08/2024 00:55	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	0.12	0.21		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	92.3	%						
Radium-228	1.16	pCi/L	0.17	0.51	O2, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	83.0	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 241410-017-01

Preparation: Dissolved

Date Collected: 04/22/2024 11:33 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.018	µg/L	1	0.100	0.008	J1	GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Arsenic	2.44	µg/L	1	0.10	0.03		GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Barium	40.1	µg/L	1	0.20	0.05		GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Beryllium	0.472	µg/L	1	0.050	0.007		GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Cadmium	0.037	µg/L	1	0.020	0.004		GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Chromium	0.21	µg/L	1	0.30	0.07	J1	GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Cobalt	13.1	µg/L	1	0.020	0.005		GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Iron	10.9	mg/L	1	0.020	0.003	M1	GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Lead	0.07	µg/L	1	0.20	0.05	J1	GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Lithium	0.0569	mg/L	1	0.00030	0.00006	M1	GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Manganese	0.0827	mg/L	1	0.00100	0.00007		GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Selenium	0.47	µg/L	1	0.50	0.04	J1	GES	05/08/2024 01:00	EPA 200.8-1994, Rev. 5.4
Thallium	0.07	µg/L	1	0.20	0.02	J1	GES	05/08/2024 01:00	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-33

Customer Description:

Lab Number: 241410-018

Preparation:

Date Collected: 04/22/2024 12:13 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Arsenic	1.00	µg/L	1	0.10	0.03		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Barium	42.2	µg/L	1	0.20	0.05		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Beryllium	1.31	µg/L	1	0.050	0.007		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Boron	0.141	mg/L	1	0.050	0.007		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Cadmium	0.058	µg/L	1	0.020	0.004		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Calcium	2.08	mg/L	1	0.05	0.02		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Cobalt	11.0	µg/L	1	0.020	0.005		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Lead	0.27	µg/L	1	0.20	0.05		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Lithium	0.0199	mg/L	1	0.00030	0.00006		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Magnesium	4.36	mg/L	1	0.100	0.009		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Mercury	6600	ng/L	100	500	200		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Potassium	0.26	mg/L	1	0.10	0.01		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Selenium	3.18	µg/L	1	0.50	0.04		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Sodium	17.7	mg/L	1	0.20	0.02		GES	05/08/2024 14:23	EPA 200.8-1994, Rev. 5.4
Strontium	0.0350	mg/L	1	0.00200	0.00005		GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	05/08/2024 02:17	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.73	pCi/L	0.15	0.18		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	87.2	%						
Radium-228	0.88	pCi/L	0.12	0.38	02, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	89.1	%						

\* 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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-33

Customer Description:

Lab Number: 241410-018-01

Preparation: Dissolved

Date Collected: 04/22/2024 12:13 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.030	µg/L	1	0.100	0.008	J1	GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Arsenic	1.04	µg/L	1	0.10	0.03		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Barium	42.7	µg/L	1	0.20	0.05		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Beryllium	1.28	µg/L	1	0.050	0.007		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Cadmium	0.058	µg/L	1	0.020	0.004		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Cobalt	11.3	µg/L	1	0.020	0.005		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Iron	0.015	mg/L	1	0.020	0.003	J1	GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Lead	0.29	µg/L	1	0.20	0.05		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Lithium	0.0194	mg/L	1	0.00030	0.00006		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Manganese	0.00682	mg/L	1	0.00100	0.00007		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Mercury	890	ng/L	20	100	40		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Selenium	3.36	µg/L	1	0.50	0.04		GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	GES	05/08/2024 02:22	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-34

Customer Description:

Lab Number: 241410-019

Preparation:

Date Collected: 04/24/2024 11:11 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.057	mg/L	1	0.050	0.007		GES	05/08/2024 02:27	EPA 200.8-1994, Rev. 5.4
Calcium	40.5	mg/L	1	0.05	0.02		GES	05/08/2024 02:27	EPA 200.8-1994, Rev. 5.4
Magnesium	34.9	mg/L	1	0.100	0.009		GES	05/08/2024 02:27	EPA 200.8-1994, Rev. 5.4
Potassium	6.93	mg/L	1	0.10	0.01		GES	05/08/2024 02:27	EPA 200.8-1994, Rev. 5.4
Sodium	15.8	mg/L	1	0.20	0.02		GES	05/08/2024 14:33	EPA 200.8-1994, Rev. 5.4
Strontium	0.437	mg/L	1	0.00200	0.00005		GES	05/08/2024 02:27	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: AD-36

Customer Description:

Lab Number: 241410-020

Preparation:

Date Collected: 04/23/2024 10:20 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.053	mg/L	1	0.050	0.007		GES	05/08/2024 02:32	EPA 200.8-1994, Rev. 5.4
Calcium	0.75	mg/L	1	0.05	0.02		GES	05/08/2024 02:32	EPA 200.8-1994, Rev. 5.4
Magnesium	2.28	mg/L	1	0.100	0.009		GES	05/08/2024 02:32	EPA 200.8-1994, Rev. 5.4
Potassium	1.56	mg/L	1	0.10	0.01		GES	05/08/2024 02:32	EPA 200.8-1994, Rev. 5.4
Sodium	6.51	mg/L	1	0.20	0.02		GES	05/08/2024 14:38	EPA 200.8-1994, Rev. 5.4
Strontium	0.0113	mg/L	1	0.00200	0.00005		GES	05/08/2024 02:32	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: Duplicate 1

Customer Description:

Lab Number: 241410-021

Preparation:

Date Collected: 04/22/2024 15:00 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Arsenic	0.37	µg/L	1	0.10	0.03		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Barium	41.0	µg/L	1	0.20	0.05		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Beryllium	1.93	µg/L	1	0.050	0.007		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Boron	0.048	mg/L	1	0.050	0.007	J1	GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Cadmium	0.311	µg/L	1	0.020	0.004		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Calcium	3.32	mg/L	1	0.05	0.02		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Chromium	0.27	µg/L	1	0.30	0.07	J1	GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Cobalt	20.6	µg/L	1	0.020	0.005		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Lithium	0.0639	mg/L	1	0.00030	0.00006		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Magnesium	4.93	mg/L	1	0.100	0.009		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/06/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Potassium	1.99	mg/L	1	0.10	0.01		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Selenium	1.06	µg/L	1	0.50	0.04		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Sodium	25.9	mg/L	1	0.20	0.02		GES	05/08/2024 14:43	EPA 200.8-1994, Rev. 5.4
Strontium	0.0360	mg/L	1	0.00200	0.00005		GES	05/08/2024 02:37	EPA 200.8-1994, Rev. 5.4
Thallium	0.14	µg/L	1	0.20	0.02	J1	GES	05/08/2024 02:37	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: Duplicate 1

Customer Description:

Lab Number: 241410-021-01

Preparation: Dissolved

Date Collected: 04/22/2024 15:00 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Arsenic	0.37	µg/L	1	0.10	0.03		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Barium	40.1	µg/L	1	0.20	0.05		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Beryllium	1.99	µg/L	1	0.050	0.007		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Cadmium	0.313	µg/L	1	0.020	0.004		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Chromium	0.25	µg/L	1	0.30	0.07	J1	GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Cobalt	20.6	µg/L	1	0.020	0.005		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Iron	5.10	mg/L	1	0.020	0.003		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Lithium	0.0655	mg/L	1	0.00030	0.00006		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Manganese	0.0630	mg/L	1	0.00100	0.00007		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/06/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Selenium	1.00	µg/L	1	0.50	0.04		GES	05/08/2024 02:42	EPA 200.8-1994, Rev. 5.4
Thallium	0.14	µg/L	1	0.20	0.02	J1	GES	05/08/2024 02:42	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: Equipment Blank

Customer Description:

Lab Number: 241410-022

Preparation:

Date Collected: 04/23/2024 10:53 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.05	0.02	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Cobalt	0.007	µg/L	1	0.020	0.005	J1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	GES	05/08/2024 14:54	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	GES	05/08/2024 02:48	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 02:48	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

Customer Sample ID: Field Blank

Customer Description:

Lab Number: 241410-023

Preparation:

Date Collected: 04/23/2024 10:56 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Barium	0.10	µg/L	1	0.20	0.05	J1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.05	0.02	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Chromium	0.26	µg/L	1	0.30	0.07	J1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Cobalt	0.025	µg/L	1	0.020	0.005		GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	GES	05/08/2024 14:59	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	GES	05/08/2024 02:53	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 02:53	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: 241410

Customer: Pirkey Power Station

Date Reported: 06/11/2024

### 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 Qualifier 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.

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

O2 - Client did not provide additional bottles; therefore, the MS and duplicate are missing in this batch.

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

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Michael Ohlinger (614-936-4184)  
 Contacts: Dave Conover (614-936-4219)

Project Name: Pirkey PP CCR  
 Contact Name: Leslie Fuerschbach  
 Contact Phone: 318-673-2744

Sampler(s): Matt Hamilton Kenny McDonald

Analysis Turnaround Time (in Calendar Days)  
 (C Routine (28 days for Monitoring Wells))

Site Contact:

Date:

COC/Order #:

For Lab Use Only:

291410

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	Date:				Sample Specific Notes								
							250 mL bottle, pH<2, HNO <sub>3</sub>	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	Three (six every 10hr <sup>+</sup> ) 1 L bottles, pH<2, HNO <sub>3</sub>	250 mL Glass bottle, HCL <sup>++</sup> , pH<2		250 mL Glass bottle, HCL <sup>++</sup> , pH<2	250 mL bottle, pH<2, HNO <sub>3</sub>						
AD-27	4/24/2024	830	G	GW	1		X												
AD-28	4/23/2024	928	G	GW	7		X												
AD-30	4/23/2024	843	G	GW	7		X												
AD-31	4/22/2024	1120	G	GW	7		X												
AD-32	4/22/2024	1033	G	GW	7		X												
AD-33	4/22/2024	1113	G	GW	7		X												
AD-34	4/24/2024	1011	G	GW	1		X												
AD-36	4/23/2024	920	G	GW	1		X												
Duplicate 1	4/22/2024	1400	G	GW	4		X												
Equipment Blank	4/23/2024	953	G	GW	2		X												
Field Blank	4/23/2024	956	G	GW	2		X												

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

TG-32 needed

Relinquished by: <i>[Signature]</i>	Company: <i>E-516</i>	Date/Time: 4-25-24 15:00	Received by: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>
Relinquished by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>
Relinquished by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>	Received by: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Site Contact:

Date:

For Lab Use Only:

COC/Order #

241410

**Dolan Chemical Laboratory (DCL)**  
4001 Bixby Road  
Groveport, Ohio 43125

Michael Ohlinger (614-836-4184)

Contacts: Dave Conover (614-836-4219)

Project Name: Pirkey PP CCR

Contact Name: Leslie Fuerschbach

Contact Phone: 318-673-2744

Sampler(s): Matt Hamilton Kenny McDonald

Analysis Turnaround Time (in Calendar Days)  
☐ Routine (28 days for Monitoring Wells)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	Analytes					Sample Specific Notes
							Sb, As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Mg, Mo, Na, Pb, Se, Sr, Ti	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	Three (six every 10hr <sup>+</sup> ) 1 L bottles, pH<2, HNO <sub>3</sub>	Mercury	Dissolved Mercury	
AD-2	4/23/2024	821	G	GW	7		X	X	X	X	X	
AD-3	4/23/2024	1104	G	GW	7		X	X	X	X		
AD-4	4/24/2024	931	G	GW	7		X	X	X	X		
AD-7R	4/22/2024	925	G	GW	10		X	X	X	X		
AD-8	4/23/2024	1011	G	GW	1						X	
AD-12	4/22/2024	944	G	GW	7		X	X	X	X		
AD-13	4/22/2024	820	G	GW	7		X	X	X	X		
AD-16	4/24/2024	1104	G	GW	1						X	
AD-17	4/23/2024	1016	G	GW	7		X	X	X	X		
AD-18	4/23/2024	1058	G	GW	7		X	X	X	X		
AD-22	4/22/2024	1022	G	GW	7		X	X	X	X		
AD-23	4/24/2023	1105	G	GW	1						X	

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

**TG-32 needed**

Relinquished by: <i>[Signature]</i>	Company: <i>Esjk</i>	Date/Time: <i>4-25-24</i>	Received By: <i>[Signature]</i>	Date/Time: <i>4/29/24</i>
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: <i>[Signature]</i>	Date/Time: <i>4/29/24</i>



**AEP WATER & WASTE SAMPLE RECEIPT FORM**

<p><u>Package Type</u></p> <p><input checked="" type="radio"/> Cooler    <input type="radio"/> Box    <input type="radio"/> Bag    <input type="radio"/> Envelope</p>	<p><u>Delivery Type</u></p> <p>PONY    UPS    <input checked="" type="radio"/> FedEx    USPS</p> <p>Other _____</p>
Plant/Customer <u>Pitkey</u>	Number of Plastic Containers: <u>9A 24 4/29</u> <sup>M50</sup>
Opened By <u>MGR/M50</u>	Number of Glass Containers: _____
Date/Time <u>4/29/24</u>	Number of Mercury Containers: <u>32</u>
Were all temperatures within 0-6°C? Y / N or <input checked="" type="radio"/> N/A Initial: _____ on ice / <input checked="" type="radio"/> no ice (IR Gun Ser# <u>240009843</u> , Expir. <u>01/03/2026</u> ) - If No, specify each deviation: _____	
Was container in good condition? <input checked="" type="radio"/> Y / N Comments _____	
Was Chain of Custody received? <input checked="" type="radio"/> Y / N Comments _____	
Requested turnaround: <u>Routine</u> If <b>RUSH</b> , who was notified? _____	
pH (15 min)	Cr <sup>6</sup> (pres) (24 hr)
NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)
	Hg-diss (pres) (48 hr)

Was COC filled out properly?  Y / N Comments \_\_\_\_\_

Were samples labeled properly?  Y / N Comments \_\_\_\_\_

Were correct containers used?  Y / N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y / N or N/A Initial & Date: MGR 4/29/24 <sup>SS 4-30-24</sup>

**pH paper (circle one):** MQuant,PN1.09535.0001,LOT# \_\_\_\_\_ [OR] Lab Rat,PN4801,LOT# X000RWG21 Exp 11/15/2024

- Was Add'l Preservative needed? Y /  N If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: \_\_\_\_\_

Lab ID# 241416 Initial & Date & Time : \_\_\_\_\_

Logged by M50 Comments: \_\_\_\_\_

Reviewed by BPedro \_\_\_\_\_  
5/1/24 \_\_\_\_\_

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.



# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- NA R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tamisha T. Palmer

Name (printed)



Signature

Chemical Technician , Principal

Official Title

06/10/2024

Date

# Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 06/10/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24051607, PB24051608

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes, No	ER1
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes, No	ER1
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 06/10/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24051607, PB24051608

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 06/10/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24051607, PB24051608

Exception Report No.	Description
ER1	No duplicate was available for sample batch

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- NA R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tamisha Palmer

Name (printed)



Signature

Chemical Technician, Principal

Official Title

06/05/2024

Date

# Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 0528/2024, 06/05/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050221, PB24050222

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	



## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes, No	ER1
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes, No	ER2
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes, No	ER2
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes, No	ER2
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes, No	ER2
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	NA	
	I	Were analytical duplicates analyzed at the appropriate frequency?	NA	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	NA	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 0528/2024, 06/05/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050221, PB24050222

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 0528/2024, 06/05/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050221, PB24050222

Exception Report No.	Description
ER1	The RPD between the LCS and LCSD were outside the 25% criteria for PB24050222
ER2	Sample was repped and there was not enough sample available for MS,MSD

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

# ICP-MS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- NA R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Jonathan Barnhill

Name (printed)

Signature of the Laboratory Supervisor  
The use of a stamp or seal in a handwritten signature with  
the following text: "I am the Laboratory Supervisor for  
this laboratory."  
Subject: ICP-MS Laboratory Review Checklist  
Date: 05/29/2024

Signature

Lab Supervisor

Official Title

05/29/2024

Date

## ICP-MS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 05/29/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050205 PB24050207 QC2405069 QC2405077

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	No	ER1
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	No	ER3
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 05/29/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050205 PB24050207 QC2405069 QC2405077

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER2
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	Yes	
	I	Were ion abundance data within the method-required QC limits?	Yes	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	Yes	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	



## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## ICP-MS Laboratory Review Checklist

### Table 3. Exception Reports.

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 05/29/2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050205 PB24050207 QC2405069 QC2405077

Exception Report No.	Description
ER1	Linear Dynamic Range (LDR) study used to determine upper limit of analyte calibration.
ER2	CCB acceptance criteria is $CCB < 2.2 * MDL$ .
ER3	Matrix Spike failed for Be, Co & Li on sample 241410-011
ER3	Matrix Spike failed for Fe & Li on sample 241410-017-01

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# Mercury Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Susann Sulzmann      Susann Sulzmann      Senior Chemist      6-10-2024  
Name (printed)      Signature      Official Title      Date

## Mercury Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 06-10-2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050201, PB24050202, PB24050301

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	Yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Mercury Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 06-10-2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050201, PB24050202, PB24050301

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Mercury Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 06-10-2024  
**Laboratory Job Number:** 241410  
**Prep Batch Number(s):** PB24050201, PB24050202, PB24050301

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

<sup>3</sup> NA - Not applicable; NR - Not reviewed.

<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 241393-001

Preparation:

Date Collected: 04/23/2024 09:21 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.44	mg/L	2	0.10	0.02		CRJ	05/09/2024 18:59	EPA 300.1 -1997, Rev. 1.0
Chloride	31.2	mg/L	2	0.06	0.02		CRJ	05/09/2024 18:59	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.27	mg/L	2	0.06	0.02		CRJ	05/09/2024 18:59	EPA 300.1 -1997, Rev. 1.0
Sulfate	309	mg/L	10	3.0	0.6		CRJ	05/09/2024 15:09	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	570	mg/L	1	50	20		ELT	04/29/2024 06:46	SM 2540C-2015

Customer Sample ID: AD-3

Customer Description:

Lab Number: 241393-002

Preparation:

Date Collected: 04/23/2024 12:04 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.08	mg/L	2	0.10	0.02	J1	CRJ	05/09/2024 15:41	EPA 300.1 -1997, Rev. 1.0
Chloride	5.83	mg/L	2	0.06	0.02		CRJ	05/09/2024 15:41	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.05	mg/L	2	0.06	0.02	J1	CRJ	05/09/2024 15:41	EPA 300.1 -1997, Rev. 1.0
Sulfate	28.5	mg/L	2	0.6	0.1		CRJ	05/09/2024 15:41	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	160	mg/L	1	50	20		ELT	04/29/2024 06:54	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 241393-003

Preparation:

Date Collected: 04/24/2024 10:31 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.32	mg/L	2	0.10	0.02		CRJ	05/09/2024 16:14	EPA 300.1 -1997, Rev. 1.0
Chloride	3.97	mg/L	2	0.06	0.02		CRJ	05/09/2024 16:14	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.07	mg/L	2	0.06	0.02		CRJ	05/09/2024 16:14	EPA 300.1 -1997, Rev. 1.0
Sulfate	20.3	mg/L	2	0.6	0.1		CRJ	05/09/2024 16:14	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	140	mg/L	1	50	20		ELT	04/29/2024 06:54	SM 2540C-2015

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 241393-004

Preparation:

Date Collected: 04/22/2024 10:25 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.61	mg/L	2	0.10	0.02		CRJ	05/09/2024 16:47	EPA 300.1 -1997, Rev. 1.0
Chloride	20.6	mg/L	2	0.06	0.02		CRJ	05/09/2024 16:47	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.16	mg/L	2	0.06	0.02		CRJ	05/09/2024 16:47	EPA 300.1 -1997, Rev. 1.0
Sulfate	73.6	mg/L	2	0.6	0.1		CRJ	05/09/2024 16:47	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	220	mg/L	1	50	20		ELT	04/29/2024 06:54	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-8

Customer Description:

Lab Number: 241393-005

Preparation:

Date Collected: 04/23/2024 11:11 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.60	mg/L	2	0.10	0.02		CRJ	05/09/2024 18:26	EPA 300.1 -1997, Rev. 1.0
Chloride	4.81	mg/L	2	0.06	0.02		CRJ	05/09/2024 18:26	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.28	mg/L	2	0.06	0.02		CRJ	05/09/2024 18:26	EPA 300.1 -1997, Rev. 1.0
Sulfate	168	mg/L	10	3.0	0.6		CRJ	05/09/2024 17:53	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	126	mg/L	1	20	5		MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	390	mg/L	1	50	20		ELT	04/29/2024 06:54	SM 2540C-2015

Customer Sample ID: AD-12

Customer Description:

Lab Number: 241393-006

Preparation:

Date Collected: 04/22/2024 10:44 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.07	mg/L	2	0.10	0.02	J1	CRJ	05/09/2024 21:44	EPA 300.1 -1997, Rev. 1.0
Chloride	4.86	mg/L	2	0.06	0.02		CRJ	05/09/2024 21:44	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.08	mg/L	2	0.06	0.02		CRJ	05/09/2024 21:44	EPA 300.1 -1997, Rev. 1.0
Sulfate	4.2	mg/L	2	0.6	0.1		CRJ	05/09/2024 21:44	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	60	mg/L	1	50	20		ELT	04/29/2024 07:00	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 241393-007

Preparation:

Date Collected: 04/22/2024 09:20 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.27	mg/L	2	0.10	0.02		CRJ	05/09/2024 20:38	EPA 300.1 -1997, Rev. 1.0
Chloride	42.2	mg/L	10	0.3	0.1		CRJ	05/09/2024 20:05	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.34	mg/L	2	0.06	0.02		CRJ	05/09/2024 20:38	EPA 300.1 -1997, Rev. 1.0
Sulfate	84.9	mg/L	2	0.6	0.1		CRJ	05/09/2024 20:38	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	220	mg/L	1	50	20		ELT	04/29/2024 07:00	SM 2540C-2015

Customer Sample ID: AD-16

Customer Description:

Lab Number: 241393-008

Preparation:

Date Collected: 04/24/2024 12:04 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.18	mg/L	2	0.10	0.02		CRJ	05/10/2024 01:01	EPA 300.1 -1997, Rev. 1.0
Chloride	26.1	mg/L	2	0.06	0.02		CRJ	05/10/2024 01:01	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.09	mg/L	2	0.06	0.02		CRJ	05/10/2024 01:01	EPA 300.1 -1997, Rev. 1.0
Sulfate	14.8	mg/L	2	0.6	0.1		CRJ	05/10/2024 01:01	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	120	mg/L	1	50	20		ELT	04/29/2024 07:00	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 241393-009

Preparation:

Date Collected: 04/23/2024 11:16 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.10	mg/L	2	0.10	0.02		CRJ	05/10/2024 01:34	EPA 300.1 -1997, Rev. 1.0
Chloride	6.44	mg/L	2	0.06	0.02		CRJ	05/10/2024 01:34	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.09	mg/L	2	0.06	0.02		CRJ	05/10/2024 01:34	EPA 300.1 -1997, Rev. 1.0
Sulfate	2.1	mg/L	2	0.6	0.1		CRJ	05/10/2024 01:34	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	40	mg/L	1	50	20	J1	ELT	04/29/2024 07:00	SM 2540C-2015

Customer Sample ID: AD-18

Customer Description:

Lab Number: 241393-010

Preparation:

Date Collected: 04/23/2024 11:58 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.07	mg/L	2	0.10	0.02	J1	CRJ	05/10/2024 02:07	EPA 300.1 -1997, Rev. 1.0
Chloride	5.39	mg/L	2	0.06	0.02		CRJ	05/10/2024 02:07	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.02	mg/L	2	0.06	0.02	J1	CRJ	05/10/2024 02:07	EPA 300.1 -1997, Rev. 1.0
Sulfate	7.2	mg/L	2	0.6	0.1		CRJ	05/10/2024 02:07	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	90	mg/L	1	50	20		ELT	04/29/2024 07:08	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 241393-011

Preparation:

Date Collected: 04/22/2024 11:22 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.40	mg/L	2	0.10	0.02		CRJ	05/10/2024 04:19	EPA 300.1 -1997, Rev. 1.0
Chloride	70.5	mg/L	25	0.8	0.3		CRJ	05/10/2024 03:46	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.75	mg/L	2	0.06	0.02		CRJ	05/10/2024 04:19	EPA 300.1 -1997, Rev. 1.0
Sulfate	360	mg/L	25	8	2		CRJ	05/10/2024 03:46	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	610	mg/L	1	50	20		ELT	04/29/2024 07:08	SM 2540C-2015

Customer Sample ID: AD-23

Customer Description:

Lab Number: 241393-012

Preparation:

Date Collected: 04/24/2024 12:05 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.25	mg/L	2	0.10	0.02		CRJ	05/10/2024 02:40	EPA 300.1 -1997, Rev. 1.0
Chloride	8.65	mg/L	2	0.06	0.02		CRJ	05/10/2024 02:40	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.06	mg/L	2	0.06	0.02		CRJ	05/10/2024 02:40	EPA 300.1 -1997, Rev. 1.0
Sulfate	7.1	mg/L	2	0.6	0.1		CRJ	05/10/2024 02:40	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	70	mg/L	1	50	20		ELT	04/29/2024 07:08	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-27

Customer Description:

Lab Number: 241393-013

Preparation:

Date Collected: 04/24/2024 09:30 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.39	mg/L	2	0.10	0.02		CRJ	05/10/2024 05:25	EPA 300.1 -1997, Rev. 1.0
Chloride	14.4	mg/L	2	0.06	0.02		CRJ	05/10/2024 05:25	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.16	mg/L	2	0.06	0.02		CRJ	05/10/2024 05:25	EPA 300.1 -1997, Rev. 1.0
Sulfate	60.4	mg/L	2	0.6	0.1		CRJ	05/10/2024 05:25	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	200	mg/L	1	50	20		ELT	04/29/2024 07:08	SM 2540C-2015

Customer Sample ID: AD-28

Customer Description:

Lab Number: 241393-014

Preparation:

Date Collected: 04/23/2024 10:28 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.09	mg/L	2	0.10	0.02	J1	CRJ	05/10/2024 07:36	EPA 300.1 -1997, Rev. 1.0
Chloride	3.90	mg/L	2	0.06	0.02		CRJ	05/10/2024 07:36	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.79	mg/L	2	0.06	0.02		CRJ	05/10/2024 07:36	EPA 300.1 -1997, Rev. 1.0
Sulfate	24.7	mg/L	2	0.6	0.1		CRJ	05/10/2024 07:36	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	100	mg/L	1	50	20		ELT	04/29/2024 07:17	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 241393-015

Preparation:

Date Collected: 04/23/2024 09:43 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.16	mg/L	2	0.10	0.02		CRJ	05/10/2024 06:30	EPA 300.1 -1997, Rev. 1.0
Chloride	12.2	mg/L	2	0.06	0.02		CRJ	05/10/2024 06:30	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.05	mg/L	2	0.06	0.02	J1	CRJ	05/10/2024 06:30	EPA 300.1 -1997, Rev. 1.0
Sulfate	104	mg/L	10	3.0	0.6		CRJ	05/10/2024 05:58	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	220	mg/L	1	50	20		ELT	04/29/2024 07:17	SM 2540C-2015

Customer Sample ID: AD-31

Customer Description:

Lab Number: 241393-016

Preparation:

Date Collected: 04/22/2024 12:20 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.25	mg/L	2	0.10	0.02		CRJ	05/10/2024 13:57	EPA 300.1 -1997, Rev. 1.0
Chloride	16.8	mg/L	2	0.06	0.02		CRJ	05/10/2024 13:57	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.10	mg/L	2	0.06	0.02		CRJ	05/10/2024 13:57	EPA 300.1 -1997, Rev. 1.0
Sulfate	79.8	mg/L	2	0.6	0.1		CRJ	05/10/2024 13:57	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	250	mg/L	1	50	20		ELT	04/29/2024 07:17	SM 2540C-2015





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 241393-017

Preparation:

Date Collected: 04/22/2024 11:33 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.42	mg/L	2	0.10	0.02		CRJ	05/10/2024 15:03	EPA 300.1 -1997, Rev. 1.0
Chloride	10.6	mg/L	2	0.06	0.02		CRJ	05/10/2024 15:03	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.32	mg/L	2	0.06	0.02		CRJ	05/10/2024 15:03	EPA 300.1 -1997, Rev. 1.0
Sulfate	67.0	mg/L	2	0.6	0.1		CRJ	05/10/2024 15:03	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	190	mg/L	1	50	20		ELT	04/29/2024 07:17	SM 2540C-2015

Customer Sample ID: AD-33

Customer Description:

Lab Number: 241393-018

Preparation:

Date Collected: 04/22/2024 12:13 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.36	mg/L	2	0.10	0.02		CRJ	05/10/2024 19:26	EPA 300.1 -1997, Rev. 1.0
Chloride	9.97	mg/L	2	0.06	0.02		CRJ	05/10/2024 19:26	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.27	mg/L	2	0.06	0.02		CRJ	05/10/2024 19:26	EPA 300.1 -1997, Rev. 1.0
Sulfate	65.7	mg/L	2	0.6	0.1		CRJ	05/10/2024 19:26	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	180	mg/L	1	50	20		ELT	04/29/2024 07:24	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-34

Customer Description:

Lab Number: 241393-019

Preparation:

Date Collected: 04/24/2024 11:11 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.21	mg/L	5	0.25	0.05	J1	CRJ	05/10/2024 16:42	EPA 300.1 -1997, Rev. 1.0
Chloride	7.32	mg/L	5	0.15	0.05		CRJ	05/10/2024 16:42	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.69	mg/L	5	0.15	0.05		CRJ	05/10/2024 16:42	EPA 300.1 -1997, Rev. 1.0
Sulfate	1150	mg/L	50	15	3		CRJ	05/10/2024 16:09	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	1650	mg/L	1	50	20		ELT	04/29/2024 07:24	SM 2540C-2015

Customer Sample ID: AD-36

Customer Description:

Lab Number: 241393-020

Preparation:

Date Collected: 04/23/2024 10:20 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.59	mg/L	2	0.10	0.02		CRJ	05/10/2024 19:59	EPA 300.1 -1997, Rev. 1.0
Chloride	14.8	mg/L	2	0.06	0.02		CRJ	05/10/2024 19:59	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.08	mg/L	2	0.06	0.02		CRJ	05/10/2024 19:59	EPA 300.1 -1997, Rev. 1.0
Sulfate	2.9	mg/L	2	0.6	0.1		CRJ	05/10/2024 19:59	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	60	mg/L	1	50	20		ELT	04/29/2024 07:24	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241393

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: Duplicate 1

Customer Description:

Lab Number: 241393-021

Preparation:

Date Collected: 04/22/2024 15:00 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.61	mg/L	2	0.10	0.02		CRJ	05/10/2024 18:20	EPA 300.1 -1997, Rev. 1.0
Chloride	20.8	mg/L	2	0.06	0.02		CRJ	05/10/2024 18:20	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.15	mg/L	2	0.06	0.02		CRJ	05/10/2024 18:20	EPA 300.1 -1997, Rev. 1.0
Sulfate	76.5	mg/L	2	0.6	0.1		CRJ	05/10/2024 18:20	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	230	mg/L	1	50	20		ELT	04/29/2024 07:37	SM 2540C-2015

## 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

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.

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

**Dolan Chemical Laboratory (DCL)**  
 4001 Bkby Road  
 Groveport, Ohio 43125  
 Michael Ohlinger (614-836-4184)  
 Contacts: Dave Conover (614-836-4219)

Project Name: Pirkey PP Semi-Annual CCR  
 Contact Name: Leslie Fuerschbach  
 Contact Phone: 318-673-2744

Sampler(s): Matt Hamilton Kerry McDonald

Site Contact: \_\_\_\_\_ Date: \_\_\_\_\_  
 Analysis Turnaround Time (in Calendar Days)  
 Routine (28 days for Monitoring Wells)

<b>Mercury</b>	<b>Dissolved Mercury</b>	<b>F, Cl, SO4, Br, TDS, Alkalinity</b>	<b>Ra-226, Ra-228</b>
250 mL bottle, pH<2, HNO3	Field-filter 250 mL bottle, then pH<2, HNO3	1 L bottle, Cool, 0-6C	Three (six every 10th), L bottles, pH<2, HNO3

COC/Order #: **241393**  
 For Lab Use Only:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) initials	Mercury	Dissolved Mercury	F, Cl, SO4, Br, TDS, Alkalinity	Ra-226, Ra-228	Sample Specific Notes
AD-2	4/23/2024	821	G	GW	1				X		
AD-3	4/23/2024	1104	G	GW	1				X		
AD-4	4/24/2024	931	G	GW	1				X		
AD-7R	4/22/2024	925	G	GW	1				X		
AD-8	4/23/2024	1011	G	GW	1				X		
AD-12	4/22/2024	944	G	GW	1				X		
AD-13	4/22/2024	820	G	GW	1				X		
AD-16	4/24/2024	1104	G	GW	1				X		
AD-17	4/23/2024	1016	G	GW	1				X		
AD-18	4/23/2024	1058	G	GW	1				X		
AD-22	4/22/2024	1022	G	GW	1				X		
AD-23	4/24/2023	1105	G	GW	1				X		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other \_\_\_\_\_; F= filter in field

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments: **TG-32 needed**

Relinquished by: <i>John Tomlinson</i>	Company: <i>ESK</i>	Date/Time: <i>4/25/24</i>	Received by: _____	Date/Time: _____
Relinquished by: _____	Company: _____	Date/Time: _____	Received in Laboratory by: <i>Shirley</i>	Date/Time: <i>4/26/24</i>

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Michael Chillingier (614-836-4184)  
 Dave Conover (614-836-4219)

For Lab Use Only:

**Project Name:** Pirkey PP CCR  
**Contact Name:** Leslie Fuerschbach  
**Contact Phone:** 318-673-2744

**Analysis Turnaround Time (in Calendar Days)**  
 Routine (28 days for Monitoring Wells)

**Site Contact:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**COC/Order #:** \_\_\_\_\_

**Sampler(s):** Matt Hamilton Kenny McDonald

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	Mercury	Dissolved Mercury	F, Cl, SO4, Br, TDS, Alkalinity	Ra-226, Ra-228	Sample Specific Notes
AD-27	4/24/2024	830	G	GW	1		250 mL bottle, pH<2, HNO3	Field-filter 250 mL bottle, then pH<2, HNO3	1 L bottle, Cool, 0-8C	Three (six every 10th) L bottles, pH<2, HNO3	
AD-28	4/23/2024	928	G	GW	1				X		
AD-30	4/23/2024	843	G	GW	1				X		
AD-31	4/22/2024	1120	G	GW	1				X		
AD-32	4/22/2024	1033	G	GW	1				X		
AD-33	4/22/2024	1113	G	GW	1				X		
AD-34	4/24/2024	1011	G	GW	1				X		
AD-36	4/23/2024	920	G	GW	1				X		
Duplicate 1	4/22/2024	1400	G	GW	1				X		

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

TG-32 needed

Relinquished by: <i>[Signature]</i>	Company: <i>Ex</i>	Date/Time: 4-25-24	Received by: <i>[Signature]</i>	Date/Time: 4/26/24
Relinquished by: <i>[Signature]</i>	Company: <i>Ex</i>	Date/Time: 4-25-24	Received by: <i>[Signature]</i>	Date/Time: 4/26/24
Relinquished by: _____	Company: _____	Date/Time: _____	Received in Laboratory by: <i>[Signature]</i>	Date/Time: 4/16/24

# AEP WATER & WASTE SAMPLE RECEIPT FORM

<u>Package Type</u>		<u>Delivery Type</u>	
<input checked="" type="radio"/> Cooler	Box Bag Envelope	PONY UPS	<input checked="" type="radio"/> FedEx USPS
Other _____			
Plant/Customer <u>Pittkey</u>	Number of Plastic Containers: <u>21</u>		
Opened By <u>MSO</u>	Number of Glass Containers: <u>-</u>		
Date/Time <u>4/26/24 1000</u>	Number of Mercury Containers: <u>-</u>		
Were all temperatures within 0-6°C? <input checked="" type="radio"/> Y / N or N/A Initial: <u>MSO</u> <input checked="" type="radio"/> on ice / no ice (IR Gun Ser# <u>240009843</u> , Expir. <u>01/03/2026</u> ) - If No, specify each deviation: _____			
Was container in good condition? <input checked="" type="radio"/> Y / N Comments _____			
Was Chain of Custody received? <input checked="" type="radio"/> Y / N Comments _____			
Requested turnaround: <u>Routine</u> If RUSH, who was notified? _____			
pH (15 min)	Cr <sup>6</sup> (pres) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr) Hg-diss (pres) (48 hr)

Was COC filled out properly?  Y / N Comments \_\_\_\_\_

Were samples labeled properly?  Y / N Comments \_\_\_\_\_

Were correct containers used?  Y / N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y / N or N/A Initial & Date: MSO 4/26/24

**pH paper (circle one):** MQuant.PN1.09535.0001.LOT# \_\_\_\_\_ [OR] Lab Rat.PN4801 LOT# X000RWDG21 Exp 11/15/2024

- Was Add'l Preservative needed? Y /  N If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: \_\_\_\_\_

Lab ID# 241393 Initial & Date & Time : \_\_\_\_\_

Logged by MSO Comments: \_\_\_\_\_

Reviewed by WCG \_\_\_\_\_

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.



# Ion Chromatography Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

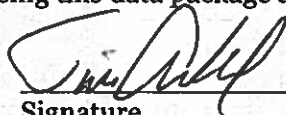
- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tim Arnold

Name (printed)



Signature

Principle Chemist

Official Title

05/13/2024

Date

## Ion Chromatography Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Wells  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 05/13/2024  
**Laboratory Job Number:** 241393  
**Prep Batch Number(s):** QC2405096

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	Yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	Yes	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	Yes	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	



## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Ion Chromatography Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Wells  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 05/13/2024  
**Laboratory Job Number:** 241393  
**Prep Batch Number(s):** QC2405096

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



# TDS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sandra Williams	<i>Sandra D. Williams</i>	Chemist	06/04/2024
Name (printed)	Signature	Official Title	Date

## TDS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 06/04/2024  
**Laboratory Job Number:** 241393  
**Prep Batch Number(s):** QC2405010

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	NA	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## TDS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 05/06/2024  
**Laboratory Job Number:** 241393  
**Prep Batch Number(s):** QC2405010

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	



## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



# Alkalinity Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

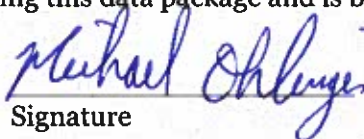
- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger

Name (printed)



Signature

Chemist

Official Title

06/05/2024

Date

## Alkalinity Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey Plant Semi-Annual CCR

**Reviewer Name:** Michael Ohlinger

**LRC Date:** 06/05/2024

**Laboratory Job Number:** 241393

**Prep Batch Number(s):** QC2404238

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Alkalinity Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey Plant Semi-Annual CCR

**Reviewer Name:** Michael Ohlinger

**LRC Date:** 06/05/2024

**Laboratory Job Number:** 241393

**Prep Batch Number(s):** QC2404238

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	







# Water Analysis Report

Dolan Chemical Laboratory  
 4001 Bixby Road  
 Groveport, OH 43125  
 Phone: 614-836-4221  
 Audinet: 210-4221

Job ID: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 241411-001

Preparation:

Date Collected: 04/22/2024 09:47 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Arsenic	2.33	µg/L	1	0.10	0.03		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Barium	46.6	µg/L	1	0.20	0.05		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Beryllium	0.391	µg/L	1	0.050	0.007		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Boron	0.024	mg/L	1	0.050	0.007	J1	GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Calcium	1.43	mg/L	1	0.05	0.02		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Chromium	0.39	µg/L	1	0.30	0.07		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Cobalt	6.73	µg/L	1	0.020	0.005		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Lithium	0.0484	mg/L	1	0.00030	0.00006		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Magnesium	1.88	mg/L	1	0.100	0.009		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Potassium	2.13	mg/L	1	0.10	0.01		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Selenium	0.05	µg/L	1	0.50	0.04	J1	GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Sodium	11.0	mg/L	1	0.20	0.02		GES	05/08/2024 15:04	EPA 200.8-1994, Rev. 5.4
Strontium	0.0136	mg/L	1	0.00200	0.00005		GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 02:58	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.32	pCi/L	0.10	0.15		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	93.7	%						
Radium-228	0.20	pCi/L	0.15	0.50	02, P2	TTP	06/05/2024 13:38	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 241411-001-01

Preparation: Dissolved

Date Collected: 04/22/2024 09:47 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Arsenic	2.25	µg/L	1	0.10	0.03		GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Barium	45.9	µg/L	1	0.20	0.05		GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Beryllium	0.382	µg/L	1	0.050	0.007		GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Chromium	0.27	µg/L	1	0.30	0.07	J1	GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Cobalt	6.42	µg/L	1	0.020	0.005		GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Iron	8.88	mg/L	1	0.020	0.003		GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Lithium	0.0478	mg/L	1	0.00030	0.00006	M1	GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Manganese	0.0637	mg/L	1	0.00100	0.00007		GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/06/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Selenium	0.04	µg/L	1	0.50	0.04	J1	GES	05/08/2024 03:03	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 03:03	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: B-3

Customer Description:

Lab Number: 241411-002

Preparation:

Date Collected: 04/24/2024 11:00 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.010	µg/L	1	0.100	0.008	J1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Arsenic	0.21	µg/L	1	0.10	0.03		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Barium	59.1	µg/L	1	0.20	0.05		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Beryllium	1.12	µg/L	1	0.050	0.007		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Boron	0.037	mg/L	1	0.050	0.007	J1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Cadmium	0.014	µg/L	1	0.020	0.004	J1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Calcium	2.23	mg/L	1	0.05	0.02		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Chromium	0.24	µg/L	1	0.30	0.07	J1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Cobalt	4.86	µg/L	1	0.020	0.005		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Lithium	0.0658	mg/L	1	0.00030	0.00006		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Magnesium	1.45	mg/L	1	0.100	0.009		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Potassium	2.20	mg/L	1	0.10	0.01		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Sodium	37.7	mg/L	1	0.20	0.02		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Strontium	0.0639	mg/L	1	0.00200	0.00005		GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	GES	05/08/2024 16:57	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.23	pCi/L	0.10	0.24		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	90.1	%						
Radium-228	1.25	pCi/L	0.18	0.54	02, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	77.0	%						

\* 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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: B-3

Customer Description:

Lab Number: 241411-002-01

Preparation: Dissolved

Date Collected: 04/24/2024 11:00 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.014	µg/L	1	0.100	0.008	J1	GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Arsenic	0.09	µg/L	1	0.10	0.03	J1	GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Barium	50.2	µg/L	1	0.20	0.05		GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Beryllium	0.778	µg/L	1	0.050	0.007		GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Cadmium	0.010	µg/L	1	0.020	0.004	J1	GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Chromium	0.47	µg/L	1	0.30	0.07		GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Cobalt	3.91	µg/L	1	0.020	0.005		GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Iron	0.012	mg/L	1	0.020	0.003	J1	GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Lithium	0.0633	mg/L	1	0.00030	0.00006		GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Manganese	0.0770	mg/L	1	0.00100	0.00007		GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/06/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/08/2024 17:02	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 17:02	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 241411-003

Preparation:

Date Collected: 04/24/2024 10:33 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Arsenic	14.8	µg/L	1	0.10	0.03		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Barium	11.5	µg/L	1	0.20	0.05		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Beryllium	4.92	µg/L	1	0.050	0.007		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Boron	0.057	mg/L	1	0.050	0.007		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Cadmium	1.32	µg/L	1	0.020	0.004		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Calcium	48.6	mg/L	1	0.05	0.02		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Chromium	0.75	µg/L	1	0.30	0.07		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Cobalt	290	µg/L	1	0.020	0.005		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Lead	0.35	µg/L	1	0.20	0.05		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Lithium	0.0687	mg/L	1	0.00030	0.00006		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Magnesium	61.5	mg/L	1	0.100	0.009		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Potassium	2.31	mg/L	1	0.10	0.01		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Selenium	56.2	µg/L	1	0.50	0.04		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Sodium	7.89	mg/L	1	0.20	0.02		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Strontium	0.315	mg/L	1	0.00200	0.00005		GES	05/08/2024 17:07	EPA 200.8-1994, Rev. 5.4
Thallium	0.18	µg/L	1	0.20	0.02	J1	GES	05/08/2024 17:07	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	0.15	0.16		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	96.4	%						
Radium-228	0.92	pCi/L	0.16	0.49	O2, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	77.4	%						

\* 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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 241411-003-01

Preparation: Dissolved

Date Collected: 04/24/2024 10:33 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Arsenic	15.7	µg/L	1	0.10	0.03		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Barium	11.7	µg/L	1	0.20	0.05		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Beryllium	4.93	µg/L	1	0.050	0.007		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Cadmium	1.40	µg/L	1	0.020	0.004		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Chromium	0.71	µg/L	1	0.30	0.07		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Cobalt	321	µg/L	1	0.020	0.005		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Iron	205	mg/L	10	0.20	0.03		GES	05/09/2024 13:50	EPA 200.8-1994, Rev. 5.4
Lead	0.35	µg/L	1	0.20	0.05		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Lithium	0.0683	mg/L	1	0.00030	0.00006		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Manganese	2.01	mg/L	1	0.00100	0.00007		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/06/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Selenium	58.6	µg/L	1	0.50	0.04		GES	05/08/2024 17:12	EPA 200.8-1994, Rev. 5.4
Thallium	0.18	µg/L	1	0.20	0.02	J1	GES	05/08/2024 17:12	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: AD-26

Customer Description:

Lab Number: 241411-004

Preparation:

Date Collected: 04/24/2024 09:44 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Arsenic	7.84	µg/L	1	0.10	0.03		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Barium	11.0	µg/L	1	0.20	0.05		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Beryllium	10.7	µg/L	5	0.25	0.04		GES	05/09/2024 11:30	EPA 200.8-1994, Rev. 5.4
Boron	0.129	mg/L	1	0.050	0.007		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Cadmium	3.90	µg/L	1	0.020	0.004		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Calcium	95.3	mg/L	1	0.05	0.02		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Chromium	1.71	µg/L	1	0.30	0.07		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Cobalt	223	µg/L	1	0.020	0.005		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Lead	0.91	µg/L	1	0.20	0.05		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Lithium	0.126	mg/L	5	0.0015	0.0003		GES	05/09/2024 11:30	EPA 200.8-1994, Rev. 5.4
Magnesium	91.5	mg/L	1	0.100	0.009		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Mercury	7	ng/L	1	5	2		RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Potassium	6.38	mg/L	1	0.10	0.01		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Selenium	24.7	µg/L	1	0.50	0.04		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Sodium	68.7	mg/L	1	0.20	0.02		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Strontium	1.09	mg/L	1	0.00200	0.00005		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4
Thallium	0.29	µg/L	1	0.20	0.02		GES	05/08/2024 17:17	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.18	pCi/L	0.19	0.20		ST	05/21/2024 11:31	SW-846 9315-1986, Rev. 0
Carrier Recovery	94.1	%						
Radium-228	-0.30	pCi/L	0.20	0.69	02, P2	TTP	06/05/2024 13:38	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	64.4	%						

\* 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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: AD-26

Customer Description:

Lab Number: 241411-004-01

Preparation: Dissolved

Date Collected: 04/24/2024 09:44 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Arsenic	7.99	µg/L	1	0.10	0.03		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Barium	11.2	µg/L	1	0.20	0.05		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Beryllium	6.99	µg/L	1	0.050	0.007		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Cadmium	4.02	µg/L	1	0.020	0.004		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Chromium	1.80	µg/L	1	0.30	0.07		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Cobalt	228	µg/L	1	0.020	0.005		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Iron	92.3	mg/L	10	0.20	0.03		GES	05/09/2024 13:55	EPA 200.8-1994, Rev. 5.4
Lead	0.89	µg/L	1	0.20	0.05		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Lithium	0.0820	mg/L	1	0.00030	0.00006		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Manganese	2.38	mg/L	1	0.00100	0.00007		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/06/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Selenium	25.8	µg/L	1	0.50	0.04		GES	05/08/2024 17:23	EPA 200.8-1994, Rev. 5.4
Thallium	0.28	µg/L	1	0.20	0.02		GES	05/08/2024 17:23	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 241411-005

Preparation:

Date Collected: 04/22/2024 13:15 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Arsenic	2.40	µg/L	1	0.10	0.03		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Barium	47.2	µg/L	1	0.20	0.05		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Beryllium	0.399	µg/L	1	0.050	0.007		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Boron	0.026	mg/L	1	0.050	0.007	J1	GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Calcium	1.51	mg/L	1	0.05	0.02		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Chromium	0.35	µg/L	1	0.30	0.07		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Cobalt	7.09	µg/L	1	0.020	0.005		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Lithium	0.0458	mg/L	1	0.00030	0.00006		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Magnesium	1.99	mg/L	1	0.100	0.009		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Potassium	2.36	mg/L	1	0.10	0.01		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Selenium	0.07	µg/L	1	0.50	0.04	J1	GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Sodium	11.2	mg/L	1	0.20	0.02		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Strontium	0.0142	mg/L	1	0.00200	0.00005		GES	05/08/2024 17:28	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 17:28	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 241411-005-01

Preparation: Dissolved

Date Collected: 04/22/2024 13:15 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Arsenic	2.33	µg/L	1	0.10	0.03		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Barium	44.1	µg/L	1	0.20	0.05		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Beryllium	0.368	µg/L	1	0.050	0.007		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Chromium	0.38	µg/L	1	0.30	0.07		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Cobalt	6.26	µg/L	1	0.020	0.005		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Iron	8.60	mg/L	1	0.020	0.003		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Lithium	0.0463	mg/L	1	0.00030	0.00006		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Manganese	0.0604	mg/L	1	0.00100	0.00007		GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/06/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Selenium	0.04	µg/L	1	0.50	0.04	J1	GES	05/08/2024 17:33	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 17:33	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

Customer Sample ID: Equipment Blank

Customer Description:

Lab Number: 241411-006

Preparation:

Date Collected: 04/24/2024 10:10 EDT

Date Received: 04/29/2024 10:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.05	0.02	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Chromium	0.28	µg/L	1	0.30	0.07	J1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Cobalt	0.013	µg/L	1	0.020	0.005	J1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	05/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	GES	05/08/2024 17:38	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	GES	05/08/2024 17:38	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: 241411

Customer: Pirkey Power Station

Date Reported: 06/12/2024

### 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 Qualifier 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.

O2 - Client did not provide additional bottles; therefore, the MS and duplicate are missing in this batch.

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

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

Dolan Chemical Laboratory (DCL)  
4001 Bixby Road  
Groveport, Ohio 43125

Michael Ollinger (614-836-4184)  
Contacts: Dave Canover (614-836-4219)

### Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Site Contact:

Date:

COC/Order #:

For Lab Use Only:

Project Name: Pitkey PP ASD  
Contact Name: Leslie Fuentschbach  
Contact Phone: 318-673-2744

Analysis Turnaround Time (in Calendar Days)  
☉ Routine (28 days for Monitoring Wells)

250 mL bottle, pH<2, HNO<sub>3</sub>  
Field-filter 250 mL bottle, then pH<2, HNO<sub>3</sub>  
Three (six every 10hr) 1 L bottles, pH<2, HNO<sub>3</sub>  
250 mL Glass bottle, HCL<sup>+</sup>, pH<2  
250 mL Glass bottle, HCL<sup>+</sup>, pH<2

29/4/11

Sampler(s): Matt Hamilton Kenny McDonald

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials						Sample Specific Notes:
						Sb, As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Mg, Mo, Na, Pb, Se, Sr, Ti	Dissolved Sb, As, Ba, Be, Cd, Cr, Co, Fe, Li, Mn, Mo, Pb, Se, Ti	Ra-226, Ra-228	Mercury	Dissolved Mercury		
B-2	4/22/2024	847	G	GW	10	X	X	X	X	X		
B-3	4/24/2024	1002	G	GW	7	X	X	X	X	X		
AD-25	4/24/2024	933	G	GW	7	X	X	X	X	X		
AD-26	4/24/2024	844	G	GW	7	X	X	X	X	X		
Duplicate	4/22/2024	1215	G	GW	7	X	X	X	X	X		
Equipment Blank	4/24/2024	910	G	GW	2	X			X			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other \_\_\_\_\_; F= filter in field  
\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

**TG-32 needed**

Relinquished by: <i>[Signature]</i>	Company: <i>ELX</i>	Date/Time: <i>4/28/24</i>	Received by: <i>[Signature]</i>	Date/Time: <i>4/29/24</i>
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: <i>[Signature]</i>	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Date/Time:

**AEP WATER & WASTE SAMPLE RECEIPT FORM**

<u>Package Type</u>			<u>Delivery Type</u>				
<input checked="" type="radio"/> Cooler	Box	Bag	Envelope	PONY	UPS	<input checked="" type="radio"/> FedEx	USPS
Other _____			Other _____				
Plant/Customer <u>P. Hrey</u>			Number of Plastic Containers: <u>28</u>				
Opened By <u>MSO/MBH</u>			Number of Glass Containers: <u>1</u>				
Date/Time <u>4/29/24</u>			Number of Mercury Containers: <u>11</u>				
Were all temperatures within 0-6°C? Y / N or <input checked="" type="radio"/> N/A Initial: _____ on ice <input checked="" type="radio"/> no ice (IR Gun Ser# <u>240009843</u> , Expir. <u>01/03/2026</u> ) - If No, specify each deviation: _____							
Was container in good condition? <input checked="" type="radio"/> Y / N Comments _____							
Was Chain of Custody received? <input checked="" type="radio"/> Y / N Comments _____							
Requested turnaround: <u>Rather</u> If RUSH, who was notified? _____							
pH (15 min)	Cr <sup>6</sup> (pres) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)	Hg-diss (pres) (48 hr)			

Was COC filled out properly?  Y / N Comments \_\_\_\_\_

Were samples labeled properly?  Y / N Comments \_\_\_\_\_

Were correct containers used?  Y / N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y / N or N/A Initial & Date: MBH 4/29/24 SS 4-30-24

pH paper (circle one): MQuant.PN1.09535.0001,LOT# \_\_\_\_\_ [OR] Lab Rat,PN4801,LOT# X000RWDG21 Exp 11/15/2024

- Was Add'l Preservative needed? Y /  N - If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: \_\_\_\_\_

Lab ID# 241411 Initial & Date & Time : \_\_\_\_\_

Logged by MSO Comments: \_\_\_\_\_

Reviewed by Becky Peddit \_\_\_\_\_

5/1/24 \_\_\_\_\_

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tamisha T. Palmer		Chemical Technician, Principal	06/10/2024
Name (printed)	Signature	Official Title	Date



## Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 06/10/2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24051607

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	



## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	No	ER1
	I	Were analytical duplicates analyzed at the appropriate frequency?	No	ER1
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	NA	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 06/10/2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24051607

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

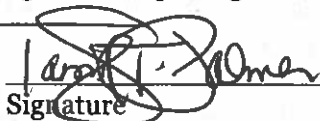
- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tamisha Palmer

Name (printed)



Signature

Chemical Technician, Principal

Official Title

06/05/2024

Date

## Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 0528/2024, 06/05/2024  
**Laboratory Job Number:** 241410, 241411  
**Prep Batch Number(s):** PB24050221, PB24050222

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes, No	ER1
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes, No	ER2
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes, No	ER2
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes, No	ER2
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes, No	ER2
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	NA	
	I	Were analytical duplicates analyzed at the appropriate frequency?	NA	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	NA	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 0528/2024, 06/05/2024  
**Laboratory Job Number:** 241410, 241411  
**Prep Batch Number(s):** PB24050221, PB24050222

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	



## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Plant  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 0528/2024, 06/05/2024  
**Laboratory Job Number:** 241410, 241411  
**Prep Batch Number(s):** PB24050221, PB24050222

Exception Report No.	Description
ER1	The RPD between the LCS and LCSD were outside the 25% criteria for PB24050222
ER2	Sample was reprepped and there was not enough sample available for MS,MSD

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.

<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

<sup>3</sup> NA - Not applicable; NR - Not reviewed.

<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

# ICP-MS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- NA R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Jonathan Barnhill

Name (printed)

Signature of the official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Signature

Lab Supervisor

Official Title

5/29/2024

Date

## ICP-MS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 5/29/2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24050207 PB24050213 QC2405069 QC2405077 QC2405087

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	No	ER1
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	No	ER3
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 5/29/2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24050207 PB24050213 QC2405069 QC2405077 QC2405087

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER2
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	Yes	
	I	Were ion abundance data within the method-required QC limits?	Yes	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	Yes	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Jonathan Barnhill  
**LRC Date:** 5/29/2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24050207 PB24050213 QC2405069 QC2405077 QC2405087

Exception Report No.	Description
ER1	Linear Dynamic Range (LDR) study used to determine upper limit of analyte calibration.
ER2	CCB acceptance criteria is $CCB < 2.2 * MDL$ .
ER3	Matrix Spike Failed for Li on sample 241411-001-01.

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



# Mercury Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Susann Sulzmann      Susann Sulzmann      Senior Chemist      6-10-2024  
Name (printed)      Signature      Official Title      Date

## Mercury Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 06-10-2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24050201, PB24050202, PB24050301

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	Yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Mercury Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 06-10-2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24050201, PB24050202, PB24050301

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# Mercury Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 06-10-2024  
**Laboratory Job Number:** 241411  
**Prep Batch Number(s):** PB24050201, PB24050202, PB24050301

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

<sup>3</sup> NA - Not applicable; NR - Not reviewed.

<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241394

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 241394-001

Preparation:

Date Collected: 04/22/2024 09:47 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.08	mg/L	2	0.10	0.02	J1	CRJ	05/14/2024 03:57	EPA 300.1 -1997, Rev. 1.0
Chloride	6.50	mg/L	2	0.06	0.02		CRJ	05/14/2024 03:57	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.19	mg/L	2	0.06	0.02		CRJ	05/14/2024 03:57	EPA 300.1 -1997, Rev. 1.0
Sulfate	24.6	mg/L	2	0.6	0.1		CRJ	05/14/2024 03:57	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	150	mg/L	1	50	20		ELT	04/29/2024 07:37	SM 2540C-2015

Customer Sample ID: B-3

Customer Description:

Lab Number: 241394-002

Preparation:

Date Collected: 04/24/2024 11:02 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.10	mg/L	2	0.10	0.02		CRJ	05/14/2024 03:25	EPA 300.1 -1997, Rev. 1.0
Chloride	11.3	mg/L	2	0.06	0.02		CRJ	05/14/2024 03:25	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.07	mg/L	2	0.06	0.02		CRJ	05/14/2024 03:25	EPA 300.1 -1997, Rev. 1.0
Sulfate	54.1	mg/L	2	0.6	0.1		CRJ	05/14/2024 03:25	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	23	mg/L	1	20	5		MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	170	mg/L	1	50	20		ELT	04/29/2024 07:45	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241394

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 241394-003

Preparation:

Date Collected: 04/24/2024 10:33 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.11	mg/L	2	0.10	0.02		CRJ	05/14/2024 02:19	EPA 300.1 -1997, Rev. 1.0
Chloride	3.24	mg/L	2	0.06	0.02		CRJ	05/14/2024 02:19	EPA 300.1 -1997, Rev. 1.0
Fluoride	1.44	mg/L	2	0.06	0.02		CRJ	05/14/2024 02:19	EPA 300.1 -1997, Rev. 1.0
Sulfate	962	mg/L	25	8	2		CRJ	05/14/2024 01:46	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	1470	mg/L	1	50	20		ELT	04/29/2024 07:45	SM 2540C-2015

Customer Sample ID: AD-26

Customer Description:

Lab Number: 241394-004

Preparation:

Date Collected: 04/24/2024 09:44 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.29	mg/L	5	0.25	0.05		CRJ	05/14/2024 00:40	EPA 300.1 -1997, Rev. 1.0
Chloride	16.5	mg/L	5	0.15	0.05		CRJ	05/14/2024 00:40	EPA 300.1 -1997, Rev. 1.0
Fluoride	3.71	mg/L	5	0.15	0.05		CRJ	05/14/2024 00:40	EPA 300.1 -1997, Rev. 1.0
Sulfate	1490	mg/L	50	15	3		CRJ	05/14/2024 00:07	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	1900	mg/L	2	100	40		ELT	04/29/2024 07:45	SM 2540C-2015





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 241394

Customer: Pirkey Power Station

Date Reported: 06/05/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 241394-005

Preparation:

Date Collected: 04/22/2024 13:15 EDT

Date Received: 04/26/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.08	mg/L	2	0.10	0.02	J1	CRJ	05/13/2024 23:01	EPA 300.1 -1997, Rev. 1.0
Chloride	6.51	mg/L	2	0.06	0.02		CRJ	05/13/2024 23:01	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.21	mg/L	2	0.06	0.02		CRJ	05/13/2024 23:01	EPA 300.1 -1997, Rev. 1.0
Sulfate	24.9	mg/L	2	0.6	0.1		CRJ	05/13/2024 23:01	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	04/29/2024 15:40	SM 2320B-2011
TDS, Filterable Residue	120	mg/L	2	100	40		ELT	04/29/2024 07:56	SM 2540C-2015

## 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 Qualifier 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).

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Michael Ohlinger (614-836-4184)  
 Dave Conover (614-836-4219)

Project Name: Pikey PP ASD  
 Contact Name: Leslie Fuenschbach  
 Contact Phone: 318-673-2744

Sampler(s): Matt Hamilton Kenny McDonald

Analysis Turnaround Time (in Calendar Days)  
 ☑ Routine (28 days for Monitoring Wells)

Site Contact:

Date:

COC/Order #:

For Lab Use Only:

241394

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	Mercury			Dissolved Mercury			F, Cl, SO4, Br, TDS, Alkalinity			Ra-226, Ra-228			Sample Specific Notes	
							250 mL bottle, pH<2, HNO3	Field-filter 250 mL bottle, then pH<2, HNO3	1 L bottle, Cool, 0-6C	Three (six every 10hr) L bottles, pH<2, HNO3										
B-2	4/22/2024	847	G	GW	1						X									
B-3	4/24/2024	1002	G	GW	1					X										
AD-25	4/24/2024	933	G	GW	1					X										
AD-26	4/24/2024	844	G	GW	1					X										
Duplicate	4/22/2024	1215	G	GW	1					X										

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other \_\_\_\_\_; F= filter in field

4 F4 1 4

Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

TG-32 needed

Relinquished by: <i>[Signature]</i>	Company: <i>Espe</i>	Date/Time: <i>4-25-24</i>	Received by: _____	Date/Time: _____
-------------------------------------	----------------------	---------------------------	--------------------	------------------

Relinquished by: _____	Company: _____	Date/Time: _____	Received in Laboratory by: <i>[Signature]</i>	Date/Time: <i>4/26/24</i>
------------------------	----------------	------------------	---	---------------------------

Relinquished by: _____	Company: _____	Date/Time: _____	Received in Laboratory by: <i>[Signature]</i>	Date/Time: <i>4/26/24</i>
------------------------	----------------	------------------	---	---------------------------

**AEP WATER & WASTE SAMPLE RECEIPT FORM**

<u>Package Type</u> <input checked="" type="radio"/> Cooler <input type="radio"/> Box <input type="radio"/> Bag <input type="radio"/> Envelope			<u>Delivery Type</u> PONY <input checked="" type="radio"/> UPS <input checked="" type="radio"/> FedEx    USPS Other _____		
Plant/Customer <u>Pickney</u>		Number of Plastic Containers: <u>5</u>			
Opened By <u>Mso/Mgh</u>		Number of Glass Containers: <u>-</u>			
Date/Time <u>4/26/24 1000</u>		Number of Mercury Containers: <u>-</u>			
Were all temperatures within 0-6°C? <input checked="" type="radio"/> Y / N or N/A Initial: <u>Mgh</u> <input checked="" type="radio"/> on ice / no ice (IR Gun Ser# <u>240009843</u> , Expir. <u>01/03/2026</u> ) - If No, specify each deviation: _____					
Was container in good condition? <input checked="" type="radio"/> Y / N Comments _____					
Was Chain of Custody received? <input checked="" type="radio"/> Y / N Comments _____					
Requested turnaround: <u>Routine</u> If RUSH, who was notified? _____					
pH (15 min)		Cr <sup>6</sup> (pres) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)	Hg-diss (pres) (48 hr)

Was COC filled out properly?  Y / N Comments \_\_\_\_\_

Were samples labeled properly?  Y / N Comments \_\_\_\_\_

Were correct containers used?  Y / N Comments \_\_\_\_\_

Was pH checked & Color Coding done?  Y / N or N/A Initial & Date: Mgh 4/26/24

pH paper (circle one): MQuant,PN1.09535.0001,LOT# \_\_\_\_\_ (OR) Lab Rat,PN4801,LOT# X000RWDG21 Exp 11/15/2024

- Was Add'l Preservative needed? Y /  N If Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was the customer contacted? If Yes: Person Contacted: \_\_\_\_\_

Lab ID# 241394 Initial & Date & Time : \_\_\_\_\_

Logged by Mso Comments: \_\_\_\_\_

Reviewed by WCG \_\_\_\_\_

**REMINDER:** Document the pertinent sample integrity information and deviations in sample receipt (as noted above) in the "Notes" field in the LIMS to be included on the report to the customer.

# Ion Chromatography Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

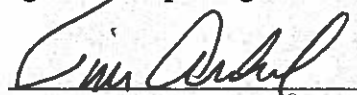
This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tim Arnold  
Name (printed)

  
Signature

Principle Chemist  
Official Title

05/15/2024  
Date

## Ion Chromatography Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Wells  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 05/15/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2405103

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	Yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	Yes	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	Yes	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## Ion Chromatography Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Wells  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 05/15/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2405103

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



# Ion Chromatography Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Wells  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 05/15/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2405103

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# TDS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- NA R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sandra Williams

Name (printed)

*Sandra D. Williams*

Signature

Chemist

Official Title

06/04/2024

Date

## TDS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 06/04/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2405010

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	NA	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## TDS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 05/06/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2405010

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# TDS Laboratory Review Checklist

## Table 3. Exception Reports.

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 06/04/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2405010

Exception Report No.	Description

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



# Alkalinity Laboratory Review Checklist

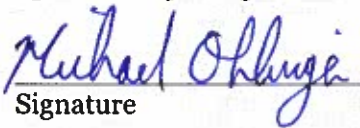
## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger            Chemist      06/05/2024  
Name (printed)      Signature      Official Title      Date



## Alkalinity Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Plant ASD  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 06/05/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2404238

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Alkalinity Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey Plant ASD

**Reviewer Name:** Michael Ohlinger

**LRC Date:** 06/05/2024

**Laboratory Job Number:** 241394

**Prep Batch Number(s):** QC2404238

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# Alkalinity Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Plant ASD  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 06/05/2024  
**Laboratory Job Number:** 241394  
**Prep Batch Number(s):** QC2404238

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<0.5*MQL.

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 242840-001

Preparation:

Date Collected: 09/17/2024 08:58 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.04	µg/L	5	0.50	0.04	U1	ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Arsenic	0.9	µg/L	5	0.5	0.2		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Barium	14.8	µg/L	5	1.0	0.3		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Beryllium	1.03	µg/L	5	0.25	0.04		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Boron	3.09	mg/L	5	0.25	0.04		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Cadmium	0.12	µg/L	5	0.10	0.02		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Calcium	3.9	mg/L	5	0.3	0.1		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Chromium	0.9	µg/L	5	1.5	0.4	J1	ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Cobalt	29.6	µg/L	5	0.10	0.03		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Lead	0.8	µg/L	5	1.0	0.3	J1	ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Lithium	0.0851	mg/L	5	0.0015	0.0003		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Magnesium	7.87	mg/L	5	0.50	0.05		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Mercury	41	ng/L	2	10	4		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	2.0	µg/L	5	2.5	0.5	J1	ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Potassium	1.56	mg/L	5	0.50	0.05		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Selenium	3.5	µg/L	5	2.5	0.2		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Sodium	113	mg/L	5	1.0	0.1		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Strontium	0.0557	mg/L	5	0.0100	0.0003		ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	ELT	09/26/2024 12:39	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.67	pCi/L	0.14	0.23		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	81.6	%						
Radium-228	2.18	pCi/L	0.15	0.43	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	79.3	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 242840-001-01

Preparation: Dissolved

Date Collected: 09/17/2024 08:58 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.04	µg/L	5	0.50	0.04	U1	ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Arsenic	1.2	µg/L	5	0.5	0.2		ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Barium	15.7	µg/L	5	1.0	0.3		ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Beryllium	0.87	µg/L	10	0.50	0.07		ELT	10/04/2024 20:55	EPA 200.8-1994, Rev. 5.4
Cadmium	0.16	µg/L	5	0.10	0.02		ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Chromium	<0.4	µg/L	5	1.5	0.4	U1	ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Cobalt	33.1	µg/L	5	0.10	0.03		ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Iron	0.84	mg/L	5	0.10	0.02		ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Lead	0.7	µg/L	5	1.0	0.3	J1	ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Lithium	0.0772	mg/L	10	0.0030	0.0006		ELT	10/04/2024 20:55	EPA 200.8-1994, Rev. 5.4
Manganese	0.122	mg/L	5	0.0050	0.0004		ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.5	µg/L	5	2.5	0.5	U1	ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Selenium	4.3	µg/L	5	2.5	0.2		ELT	10/01/2024 22:59	EPA 200.8-1994, Rev. 5.4
Thallium	0.1	µg/L	5	1.0	0.1	J1	ELT	10/01/2024 22:59	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-3

Customer Description:

Lab Number: 242840-002

Preparation:

Date Collected: 09/17/2024 12:01 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Arsenic	0.57	µg/L	1	0.10	0.03		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Barium	60.5	µg/L	1	0.20	0.05		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 13:46	EPA 200.8-1994, Rev. 5.4
Boron	0.052	mg/L	1	0.050	0.007		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Cadmium	0.014	µg/L	1	0.020	0.004	J1	ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Calcium	4.67	mg/L	1	0.05	0.02		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Chromium	0.40	µg/L	1	0.30	0.07		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Cobalt	4.77	µg/L	1	0.020	0.005		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Lead	0.10	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Lithium	0.082	mg/L	50	0.015	0.003		ELT	09/26/2024 13:46	EPA 200.8-1994, Rev. 5.4
Magnesium	2.42	mg/L	1	0.100	0.009		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Potassium	2.52	mg/L	1	0.10	0.01		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Sodium	9.68	mg/L	1	0.20	0.02		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Strontium	0.0304	mg/L	1	0.00200	0.00005		ELT	09/25/2024 18:26	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 18:26	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	0.14		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	94.7	%						
Radium-228	2.14	pCi/L	0.17	0.52	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	71.7	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-3

Customer Description:

Lab Number: 242840-002-01

Preparation: Dissolved

Date Collected: 09/17/2024 12:01 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Arsenic	0.28	µg/L	1	0.10	0.03		ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Barium	55.7	µg/L	1	0.20	0.05		ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 13:51	EPA 200.8-1994, Rev. 5.4
Cadmium	0.015	µg/L	1	0.020	0.004	J1	ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Chromium	0.29	µg/L	1	0.30	0.07	J1	ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Cobalt	4.37	µg/L	1	0.020	0.005		ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Iron	3.13	mg/L	1	0.020	0.003		ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Lead	0.06	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Lithium	0.080	mg/L	50	0.015	0.003		ELT	09/26/2024 13:51	EPA 200.8-1994, Rev. 5.4
Manganese	0.0554	mg/L	1	0.00100	0.00007		ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 18:32	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 242840-003

Preparation:

Date Collected: 09/17/2024 10:35 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Arsenic	0.46	µg/L	1	0.10	0.03		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Barium	120	µg/L	1	0.20	0.05		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Beryllium	0.4	µg/L	50	2.5	0.4	J1	ELT	09/26/2024 13:56	EPA 200.8-1994, Rev. 5.4
Boron	0.016	mg/L	1	0.050	0.007	J1	ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Cadmium	0.022	µg/L	1	0.020	0.004		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Calcium	2.58	mg/L	1	0.05	0.02		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Chromium	0.57	µg/L	1	0.30	0.07		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Cobalt	3.52	µg/L	1	0.020	0.005		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Lead	0.07	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Lithium	0.030	mg/L	50	0.015	0.003		ELT	09/26/2024 13:56	EPA 200.8-1994, Rev. 5.4
Magnesium	0.635	mg/L	1	0.100	0.009		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Mercury	4	ng/L	1	5	2	J1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Potassium	2.22	mg/L	1	0.10	0.01		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Sodium	6.50	mg/L	1	0.20	0.02		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Strontium	0.0190	mg/L	1	0.00200	0.00005		ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4
Thallium	0.10	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 18:37	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.68	pCi/L	0.12	0.16		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	90.5	%						
Radium-228	2.78	pCi/L	0.16	0.46	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	76.9	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 242840-003-01

Preparation: Dissolved

Date Collected: 09/17/2024 10:35 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Arsenic	0.13	µg/L	1	0.10	0.03		ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Barium	99.3	µg/L	1	0.20	0.05		ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 14:01	EPA 200.8-1994, Rev. 5.4
Cadmium	0.016	µg/L	1	0.020	0.004	J1	ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Chromium	0.41	µg/L	1	0.30	0.07		ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Cobalt	2.63	µg/L	1	0.020	0.005		ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Iron	1.77	mg/L	1	0.020	0.003		ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Lithium	0.029	mg/L	50	0.015	0.003		ELT	09/26/2024 14:01	EPA 200.8-1994, Rev. 5.4
Manganese	0.0222	mg/L	1	0.00100	0.00007		ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 18:42	EPA 200.8-1994, Rev. 5.4
Thallium	0.10	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 18:42	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 242840-004

Preparation:

Date Collected: 09/16/2024 10:05 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Arsenic	0.66	µg/L	1	0.10	0.03		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Barium	57.9	µg/L	1	0.20	0.05		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Beryllium	2.0	µg/L	50	2.5	0.4	J1	ELT	09/26/2024 14:06	EPA 200.8-1994, Rev. 5.4
Boron	0.241	mg/L	1	0.050	0.007		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Cadmium	0.336	µg/L	1	0.020	0.004		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Calcium	2.68	mg/L	1	0.05	0.02		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Chromium	0.30	µg/L	1	0.30	0.07		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Cobalt	16.0	µg/L	1	0.020	0.005		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Lithium	0.053	mg/L	50	0.015	0.003		ELT	09/26/2024 14:06	EPA 200.8-1994, Rev. 5.4
Magnesium	4.42	mg/L	1	0.100	0.009		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Mercury	23	ng/L	1	5	2		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Potassium	1.52	mg/L	1	0.10	0.01		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Selenium	0.64	µg/L	1	0.50	0.04		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Sodium	19.7	mg/L	1	0.20	0.02		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Strontium	0.0298	mg/L	1	0.00200	0.00005		ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4
Thallium	0.11	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 18:47	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.34	pCi/L	0.18	0.20		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	87.8	%						
Radium-228	3.43	pCi/L	0.16	0.43	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	76.6	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 242840-004-01

Preparation: Dissolved

Date Collected: 09/16/2024 10:05 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Arsenic	0.21	µg/L	1	0.10	0.03		ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Barium	59.9	µg/L	1	0.20	0.05		ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Beryllium	1.6	µg/L	50	2.5	0.4	J1	ELT	09/26/2024 14:11	EPA 200.8-1994, Rev. 5.4
Cadmium	0.312	µg/L	1	0.020	0.004		ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Chromium	0.27	µg/L	1	0.30	0.07	J1	ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Cobalt	16.4	µg/L	1	0.020	0.005		ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Iron	3.31	mg/L	1	0.020	0.003		ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Lead	0.09	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Lithium	0.053	mg/L	50	0.015	0.003		ELT	09/26/2024 14:11	EPA 200.8-1994, Rev. 5.4
Manganese	0.0483	mg/L	1	0.00100	0.00007		ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Mercury	12	ng/L	1	5	2		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4
Thallium	0.10	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 18:52	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-8

Customer Description:

Lab Number: 242840-005

Preparation:

Date Collected: 09/18/2024 11:07 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	1.61	mg/L	1	0.050	0.007		ELT	09/25/2024 18:57	EPA 200.8-1994, Rev. 5.4
Calcium	61.6	mg/L	1	0.05	0.02		ELT	09/25/2024 18:57	EPA 200.8-1994, Rev. 5.4
Magnesium	4.79	mg/L	1	0.100	0.009		ELT	09/25/2024 18:57	EPA 200.8-1994, Rev. 5.4
Potassium	1.34	mg/L	1	0.10	0.01		ELT	09/25/2024 18:57	EPA 200.8-1994, Rev. 5.4
Sodium	16.3	mg/L	1	0.20	0.02		ELT	09/25/2024 18:57	EPA 200.8-1994, Rev. 5.4
Strontium	0.366	mg/L	1	0.00200	0.00005		ELT	09/25/2024 18:57	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-12

Customer Description:

Lab Number: 242840-006

Preparation:

Date Collected: 09/16/2024 10:34 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.011	µg/L	1	0.100	0.008	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Arsenic	0.09	µg/L	1	0.10	0.03	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Barium	16.6	µg/L	1	0.20	0.05		ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 14:16	EPA 200.8-1994, Rev. 5.4
Boron	0.018	mg/L	1	0.050	0.007	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Cadmium	0.007	µg/L	1	0.020	0.004	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Calcium	0.23	mg/L	1	0.05	0.02		ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Chromium	0.43	µg/L	1	0.30	0.07		ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Cobalt	1.06	µg/L	1	0.020	0.005		ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Lithium	0.006	mg/L	50	0.015	0.003	J1	ELT	09/26/2024 14:16	EPA 200.8-1994, Rev. 5.4
Magnesium	0.326	mg/L	1	0.100	0.009		ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Mercury	2	ng/L	1	5	2	J1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Potassium	0.19	mg/L	1	0.10	0.01		ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Selenium	0.19	µg/L	1	0.50	0.04	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Sodium	3.66	mg/L	1	0.20	0.02		ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Strontium	0.00189	mg/L	1	0.00200	0.00005	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 20:04	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.78	pCi/L	0.12	0.12		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	102	%						
Radium-228	2.06	pCi/L	0.15	0.44	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	75.7	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-12

Customer Description:

Lab Number: 242840-006-01

Preparation: Dissolved

Date Collected: 09/16/2024 10:34 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.011	µg/L	1	0.100	0.008	J1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Arsenic	0.05	µg/L	1	0.10	0.03	J1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Barium	5.36	µg/L	1	0.20	0.05		ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 14:21	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Chromium	0.34	µg/L	1	0.30	0.07		ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Cobalt	0.279	µg/L	1	0.020	0.005		ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Iron	0.018	mg/L	1	0.020	0.003	J1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Lithium	0.005	mg/L	50	0.015	0.003	J1	ELT	09/26/2024 14:21	EPA 200.8-1994, Rev. 5.4
Manganese	0.00064	mg/L	1	0.00100	0.00007	J1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Selenium	0.14	µg/L	1	0.50	0.04	J1	ELT	09/25/2024 20:09	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	ELT	09/25/2024 20:09	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 242840-007

Preparation:

Date Collected: 09/16/2024 09:13 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Arsenic	1.53	µg/L	1	0.10	0.03		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Barium	34.0	µg/L	1	0.20	0.05		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 14:26	EPA 200.8-1994, Rev. 5.4
Boron	0.052	mg/L	1	0.050	0.007		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Calcium	8.21	mg/L	1	0.05	0.02		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Chromium	0.28	µg/L	1	0.30	0.07	J1	ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Cobalt	35.6	µg/L	1	0.020	0.005		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Lithium	0.155	mg/L	50	0.015	0.003		ELT	09/26/2024 14:26	EPA 200.8-1994, Rev. 5.4
Magnesium	9.26	mg/L	1	0.100	0.009		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Potassium	4.36	mg/L	1	0.10	0.01		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Sodium	14.5	mg/L	1	0.20	0.02		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Strontium	0.0794	mg/L	1	0.00200	0.00005		ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	ELT	09/25/2024 20:14	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.77	pCi/L	0.13	0.15		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	91.1	%						
Radium-228	1.36	pCi/L	0.13	0.40	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	77.9	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 242840-007-01

Preparation: Dissolved

Date Collected: 09/16/2024 09:13 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Arsenic	1.41	µg/L	1	0.10	0.03		ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Barium	35.6	µg/L	1	0.20	0.05		ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Beryllium	0.117	µg/L	1	0.050	0.007		ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Chromium	0.25	µg/L	1	0.30	0.07	J1	ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Cobalt	38.1	µg/L	1	0.020	0.005		ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Iron	32.6	mg/L	1	0.020	0.003		ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Lithium	0.113	mg/L	1	0.00030	0.00006		ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Manganese	0.319	mg/L	1	0.00100	0.00007		ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	ELT	09/25/2024 20:19	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-16

Customer Description:

Lab Number: 242840-008

Preparation:

Date Collected: 09/17/2024 12:19 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.015	mg/L	1	0.050	0.007	J1	ELT	09/25/2024 20:24	EPA 200.8-1994, Rev. 5.4
Calcium	0.95	mg/L	1	0.05	0.02		ELT	09/25/2024 20:24	EPA 200.8-1994, Rev. 5.4
Magnesium	1.88	mg/L	1	0.100	0.009		ELT	09/25/2024 20:24	EPA 200.8-1994, Rev. 5.4
Potassium	1.07	mg/L	1	0.10	0.01		ELT	09/25/2024 20:24	EPA 200.8-1994, Rev. 5.4
Sodium	17.9	mg/L	1	0.20	0.02		ELT	09/25/2024 20:24	EPA 200.8-1994, Rev. 5.4
Strontium	0.0121	mg/L	1	0.00200	0.00005		ELT	09/25/2024 20:24	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 242840-009

Preparation:

Date Collected: 09/17/2024 10:55 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.009	µg/L	1	0.100	0.008	J1	ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Arsenic	0.22	µg/L	1	0.10	0.03		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Barium	158	µg/L	1	0.20	0.05		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Beryllium	0.501	µg/L	1	0.050	0.007		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Boron	0.029	mg/L	1	0.050	0.007	J1	ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Cadmium	0.038	µg/L	1	0.020	0.004		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Calcium	0.41	mg/L	1	0.05	0.02		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Chromium	0.35	µg/L	1	0.30	0.07		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Cobalt	7.63	µg/L	1	0.020	0.005		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Lead	0.11	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Lithium	0.0167	mg/L	1	0.00030	0.00006		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Magnesium	2.65	mg/L	1	0.100	0.009		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Mercury	135	ng/L	4	20	8		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Potassium	0.56	mg/L	1	0.10	0.01		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Selenium	0.20	µg/L	1	0.50	0.04	J1	ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Sodium	7.43	mg/L	1	0.20	0.02		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Strontium	0.0102	mg/L	1	0.00200	0.00005		ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 20:29	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.10	pCi/L	0.15	0.13		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	99.3	%						
Radium-228	2.26	pCi/L	0.14	0.41	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	85.2	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 242840-009-01

Preparation: Dissolved

Date Collected: 09/17/2024 10:55 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Arsenic	0.04	µg/L	1	0.10	0.03	J1	ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Barium	133	µg/L	1	0.20	0.05		ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Beryllium	0.296	µg/L	1	0.050	0.007		ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Cadmium	0.028	µg/L	1	0.020	0.004		ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Chromium	0.44	µg/L	1	0.30	0.07		ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Cobalt	6.22	µg/L	1	0.020	0.005		ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Iron	0.008	mg/L	1	0.020	0.003	J1	ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Lead	0.07	µg/L	1	0.20	0.05	J1	ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Lithium	0.0160	mg/L	1	0.00030	0.00006		ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Manganese	0.0147	mg/L	1	0.00100	0.00007		ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Mercury	63	ng/L	1	5	2		RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/25/2024 20:35	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 20:35	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-18

Customer Description:

Lab Number: 242840-010

Preparation:

Date Collected: 09/18/2024 08:44 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.016	µg/L	1	0.100	0.008	J1	ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Arsenic	1.58	µg/L	1	0.10	0.03		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Barium	78.2	µg/L	1	0.20	0.05		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 14:32	EPA 200.8-1994, Rev. 5.4
Boron	0.010	mg/L	1	0.050	0.007	J1	ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Cadmium	0.013	µg/L	1	0.020	0.004	J1	ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Calcium	0.32	mg/L	1	0.05	0.02		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Chromium	1.02	µg/L	1	0.30	0.07		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Cobalt	1.28	µg/L	1	0.020	0.005		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Lead	0.37	µg/L	1	0.20	0.05		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Lithium	0.021	mg/L	50	0.015	0.003		ELT	09/26/2024 14:32	EPA 200.8-1994, Rev. 5.4
Magnesium	0.401	mg/L	1	0.100	0.009		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Mercury	13	ng/L	1	5	2		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Potassium	0.93	mg/L	1	0.10	0.01		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Selenium	0.19	µg/L	1	0.50	0.04	J1	ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Sodium	5.74	mg/L	1	0.20	0.02		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Strontium	0.00557	mg/L	1	0.00200	0.00005		ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 20:40	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.54	pCi/L	0.10	0.17		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	110	%						
Radium-228	1.46	pCi/L	0.15	0.47	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	77.4	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-18

Customer Description:

Lab Number: 242840-010-01

Preparation: Dissolved

Date Collected: 09/18/2024 08:44 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.008	µg/L	1	0.100	0.008	J1	ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Arsenic	0.08	µg/L	1	0.10	0.03	J1	ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Barium	20.4	µg/L	1	0.20	0.05		ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.4	µg/L	50	2.5	0.4	U1	ELT	09/26/2024 12:49	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Chromium	0.28	µg/L	1	0.30	0.07	J1	ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Cobalt	0.281	µg/L	1	0.020	0.005		ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Iron	0.043	mg/L	1	0.020	0.003		ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Lithium	<0.003	mg/L	50	0.015	0.003	U1	ELT	09/26/2024 12:49	EPA 200.8-1994, Rev. 5.4
Manganese	0.00124	mg/L	1	0.00100	0.00007		ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Mercury	2	ng/L	1	5	2	J1	RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Selenium	0.04	µg/L	1	0.50	0.04	J1	ELT	09/25/2024 20:55	EPA 200.8-1994, Rev. 5.4
Thallium	0.07	µg/L	1	0.20	0.02	J1	ELT	09/25/2024 20:55	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 242840-011

Preparation:

Date Collected: 09/16/2024 10:59 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Arsenic	1.11	µg/L	1	0.10	0.03		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Barium	17.0	µg/L	1	0.20	0.05		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Beryllium	2.56	µg/L	1	0.050	0.007		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Boron	0.028	mg/L	1	0.050	0.007	J1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Cadmium	0.531	µg/L	1	0.020	0.004		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Calcium	12.3	mg/L	1	0.05	0.02	M1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Chromium	0.40	µg/L	1	0.30	0.07		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Cobalt	74.3	µg/L	1	0.020	0.005	M1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Lithium	0.125	mg/L	1	0.00030	0.00006	M1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Magnesium	16.7	mg/L	1	0.100	0.009	M1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Mercury	93	ng/L	4	20	8		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Potassium	3.68	mg/L	1	0.10	0.01		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Selenium	2.37	µg/L	1	0.50	0.04		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Sodium	97.4	mg/L	1	0.20	0.02	M1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Strontium	0.0950	mg/L	1	0.00200	0.00005		ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4
Thallium	0.16	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 16:20	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.57	pCi/L	0.11	0.12		ST	10/09/2024 10:42	SW-846 9315-1986, Rev. 0
Carrier Recovery	87.2	%						
Radium-228	2.19	pCi/L	0.17	0.52	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	65.3	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 242840-011-01

Preparation: Dissolved

Date Collected: 09/16/2024 10:59 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.009	µg/L	1	0.100	0.008	J1	ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Arsenic	1.16	µg/L	1	0.10	0.03		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Barium	16.8	µg/L	1	0.20	0.05		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Beryllium	2.36	µg/L	1	0.050	0.007		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Cadmium	0.528	µg/L	1	0.020	0.004		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Chromium	0.39	µg/L	1	0.30	0.07		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Cobalt	75.7	µg/L	1	0.020	0.005		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Iron	42.5	mg/L	50	1.0	0.2		ELT	10/01/2024 23:10	EPA 200.8-1994, Rev. 5.4
Lead	0.10	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Lithium	0.124	mg/L	1	0.00030	0.00006		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Manganese	0.361	mg/L	1	0.00100	0.00007		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Mercury	58	ng/L	1	5	2		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Selenium	2.24	µg/L	1	0.50	0.04		ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4
Thallium	0.16	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 16:35	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-23

Customer Description:

Lab Number: 242840-012

Preparation:

Date Collected: 09/18/2024 10:48 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.229	mg/L	1	0.050	0.007		ELT	09/26/2024 16:40	EPA 200.8-1994, Rev. 5.4
Calcium	0.20	mg/L	1	0.05	0.02		ELT	09/26/2024 16:40	EPA 200.8-1994, Rev. 5.4
Magnesium	0.195	mg/L	1	0.100	0.009		ELT	09/26/2024 16:40	EPA 200.8-1994, Rev. 5.4
Potassium	3.06	mg/L	1	0.10	0.01		ELT	09/26/2024 16:40	EPA 200.8-1994, Rev. 5.4
Sodium	3.76	mg/L	1	0.20	0.02		ELT	09/26/2024 16:40	EPA 200.8-1994, Rev. 5.4
Strontium	0.00221	mg/L	1	0.00200	0.00005		ELT	09/26/2024 16:40	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-27

Customer Description:

Lab Number: 242840-013

Preparation:

Date Collected: 09/18/2024 11:58 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.052	mg/L	1	0.050	0.007		ELT	09/26/2024 16:45	EPA 200.8-1994, Rev. 5.4
Calcium	3.80	mg/L	1	0.05	0.02		ELT	09/26/2024 16:45	EPA 200.8-1994, Rev. 5.4
Magnesium	5.04	mg/L	1	0.100	0.009		ELT	09/26/2024 16:45	EPA 200.8-1994, Rev. 5.4
Potassium	2.13	mg/L	1	0.10	0.01		ELT	09/26/2024 16:45	EPA 200.8-1994, Rev. 5.4
Sodium	9.63	mg/L	1	0.20	0.02		ELT	09/26/2024 16:45	EPA 200.8-1994, Rev. 5.4
Strontium	0.0580	mg/L	1	0.00200	0.00005		ELT	09/26/2024 16:45	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-28

Customer Description:

Lab Number: 242840-014

Preparation:

Date Collected: 09/17/2024 10:06 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.011	µg/L	1	0.100	0.008	J1	ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Arsenic	0.15	µg/L	1	0.10	0.03		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Barium	124	µg/L	1	0.20	0.05		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Beryllium	0.617	µg/L	1	0.050	0.007		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Boron	0.375	mg/L	1	0.050	0.007		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Cadmium	0.057	µg/L	1	0.020	0.004		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Calcium	1.39	mg/L	1	0.05	0.02		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Chromium	0.38	µg/L	1	0.30	0.07		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Cobalt	13.8	µg/L	1	0.020	0.005		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Lead	0.10	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Lithium	0.0267	mg/L	1	0.00030	0.00006		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Magnesium	3.01	mg/L	1	0.100	0.009		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Mercury	16	ng/L	1	5	2		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Potassium	0.82	mg/L	1	0.10	0.01		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Selenium	0.22	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Sodium	7.09	mg/L	1	0.20	0.02		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Strontium	0.0204	mg/L	1	0.00200	0.00005		ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 16:50	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.32	pCi/L	0.18	0.18		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	92.9	%						
Radium-228	1.68	pCi/L	0.15	0.47	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	79.6	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-28

Customer Description:

Lab Number: 242840-014-01

Preparation: Dissolved

Date Collected: 09/17/2024 10:06 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.009	µg/L	1	0.100	0.008	J1	ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Arsenic	0.03	µg/L	1	0.10	0.03	J1	ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Barium	108	µg/L	1	0.20	0.05		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Beryllium	0.361	µg/L	1	0.050	0.007		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Cadmium	0.045	µg/L	1	0.020	0.004		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Chromium	0.36	µg/L	1	0.30	0.07		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Cobalt	11.5	µg/L	1	0.020	0.005		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Iron	0.039	mg/L	1	0.020	0.003		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Lithium	0.0257	mg/L	1	0.00030	0.00006		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Manganese	0.0440	mg/L	1	0.00100	0.00007		ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Mercury	8	ng/L	1	5	2		RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Selenium	0.05	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 16:55	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 16:55	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 242840-015

Preparation:

Date Collected: 09/17/2024 10:25 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Arsenic	0.14	µg/L	1	0.10	0.03		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Barium	57.8	µg/L	1	0.20	0.05		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Beryllium	0.078	µg/L	1	0.050	0.007		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Boron	1.35	mg/L	1	0.050	0.007		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Cadmium	0.009	µg/L	1	0.020	0.004	J1	ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Calcium	0.49	mg/L	1	0.05	0.02		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Chromium	0.50	µg/L	1	0.30	0.07		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Cobalt	3.26	µg/L	1	0.020	0.005		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Lithium	0.0103	mg/L	1	0.00030	0.00006		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Magnesium	1.64	mg/L	1	0.100	0.009		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Mercury	19	ng/L	1	5	2		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Potassium	0.77	mg/L	1	0.10	0.01		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Selenium	0.22	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Sodium	59.7	mg/L	1	0.20	0.02		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Strontium	0.00725	mg/L	1	0.00200	0.00005		ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 17:00	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.51	pCi/L	0.12	0.23		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	88.5	%						
Radium-228	0.60	pCi/L	0.15	0.50	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	76.7	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 242840-015-01

Preparation: Dissolved

Date Collected: 09/17/2024 09:25 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Arsenic	0.08	µg/L	1	0.10	0.03	J1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Barium	39.6	µg/L	1	0.20	0.05		ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Beryllium	0.038	µg/L	1	0.050	0.007	J1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Cadmium	0.018	µg/L	1	0.020	0.004	J1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Chromium	0.50	µg/L	1	0.30	0.07		ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Cobalt	2.40	µg/L	1	0.020	0.005		ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Iron	0.007	mg/L	1	0.020	0.003	J1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Lithium	0.0104	mg/L	1	0.00030	0.00006		ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Manganese	0.00991	mg/L	1	0.00100	0.00007		ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Mercury	10	ng/L	1	5	2		RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Selenium	0.16	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 17:06	EPA 200.8-1994, Rev. 5.4
Thallium	0.04	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 17:06	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-31

Customer Description:

Lab Number: 242840-016

Preparation:

Date Collected: 09/16/2024 12:36 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.010	µg/L	1	0.100	0.008	J1	ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Arsenic	0.61	µg/L	1	0.10	0.03		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Barium	36.2	µg/L	1	0.20	0.05		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Beryllium	1.00	µg/L	10	0.50	0.07		ELT	10/04/2024 21:00	EPA 200.8-1994, Rev. 5.4
Boron	0.026	mg/L	1	0.050	0.007	J1	ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Cadmium	0.065	µg/L	1	0.020	0.004		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Calcium	2.38	mg/L	1	0.05	0.02		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Chromium	1.18	µg/L	1	0.30	0.07		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Cobalt	9.20	µg/L	1	0.020	0.005		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Lead	0.54	µg/L	1	0.20	0.05		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Lithium	0.0857	mg/L	10	0.0030	0.0006		ELT	10/04/2024 21:00	EPA 200.8-1994, Rev. 5.4
Magnesium	3.43	mg/L	1	0.100	0.009		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Mercury	740	ng/L	10	50	20		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Potassium	1.67	mg/L	1	0.10	0.01		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Selenium	0.37	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Sodium	28.6	mg/L	1	0.20	0.02		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Strontium	0.0344	mg/L	1	0.00200	0.00005		ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4
Thallium	0.10	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 17:11	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.81	pCi/L	0.13	0.14		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	105	%						
Radium-228	3.14	pCi/L	0.19	0.52	B1, L1, O2	TTP	10/16/2024 16:22	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	87.5	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-31

Customer Description:

Lab Number: 242840-016-01

Preparation: Dissolved

Date Collected: 09/16/2024 12:36 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Arsenic	0.14	µg/L	1	0.10	0.03		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Barium	30.2	µg/L	1	0.20	0.05		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Beryllium	0.556	µg/L	1	0.050	0.007		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Cadmium	0.054	µg/L	1	0.020	0.004		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Chromium	0.30	µg/L	1	0.30	0.07		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Cobalt	8.17	µg/L	1	0.020	0.005		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Iron	0.207	mg/L	1	0.020	0.003		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Lead	0.24	µg/L	1	0.20	0.05		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Lithium	0.0700	mg/L	1	0.00030	0.00006		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Manganese	0.0221	mg/L	1	0.00100	0.00007		ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Mercury	53	ng/L	1	5	2		RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Selenium	0.08	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 17:16	EPA 200.8-1994, Rev. 5.4
Thallium	0.08	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 17:16	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 242840-017

Preparation:

Date Collected: 09/16/2024 11:32 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.015	µg/L	1	0.100	0.008	J1	ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Arsenic	6.08	µg/L	1	0.10	0.03		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Barium	35.5	µg/L	1	0.20	0.05		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Beryllium	0.191	µg/L	1	0.050	0.007		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Boron	0.175	mg/L	1	0.050	0.007		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Cadmium	0.013	µg/L	1	0.020	0.004	J1	ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Calcium	6.10	mg/L	1	0.05	0.02		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Chromium	0.40	µg/L	1	0.30	0.07		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Cobalt	14.3	µg/L	1	0.020	0.005		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Lithium	0.0693	mg/L	1	0.00030	0.00006		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Magnesium	6.86	mg/L	1	0.100	0.009		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Mercury	380	ng/L	20	100	40		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Potassium	3.05	mg/L	1	0.10	0.01		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Selenium	0.28	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Sodium	17.9	mg/L	1	0.20	0.02		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Strontium	0.0811	mg/L	1	0.00200	0.00005		ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4
Thallium	0.06	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 18:12	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	1.02	pCi/L	0.17	0.20		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	78.7	%						
Radium-228	0.16	pCi/L	0.14	0.48	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	77.8	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 242840-017-01

Preparation: Dissolved

Date Collected: 09/16/2024 11:32 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Arsenic	2.48	µg/L	1	0.10	0.03		ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Barium	33.6	µg/L	1	0.20	0.05		ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Beryllium	0.153	µg/L	1	0.050	0.007		ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Cadmium	0.013	µg/L	1	0.020	0.004	J1	ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Cobalt	13.2	µg/L	1	0.020	0.005		ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Iron	13.5	mg/L	1	0.020	0.003		ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Lithium	0.0697	mg/L	1	0.00030	0.00006		ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Manganese	0.108	mg/L	1	0.00100	0.00007		ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Mercury	4	ng/L	1	5	2	J1	RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Selenium	0.05	µg/L	1	0.50	0.04	J1	ELT	09/26/2024 18:28	EPA 200.8-1994, Rev. 5.4
Thallium	0.09	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 18:28	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-33

Customer Description:

Lab Number: 242840-018

Preparation:

Date Collected: 09/16/2024 12:25 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Arsenic	0.54	µg/L	1	0.10	0.03		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Barium	43.2	µg/L	1	0.20	0.05		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Beryllium	1.30	µg/L	1	0.050	0.007		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Boron	0.122	mg/L	1	0.050	0.007		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Cadmium	0.049	µg/L	1	0.020	0.004		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Calcium	1.54	mg/L	1	0.05	0.02		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Chromium	0.39	µg/L	1	0.30	0.07		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Cobalt	9.82	µg/L	1	0.020	0.005		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Lead	0.28	µg/L	1	0.20	0.05		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Lithium	0.0224	mg/L	1	0.00030	0.00006		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Magnesium	3.75	mg/L	1	0.100	0.009		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Mercury	6500	ng/L	100	500	200		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Potassium	0.28	mg/L	1	0.10	0.01		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Selenium	1.73	µg/L	1	0.50	0.04		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Sodium	16.5	mg/L	1	0.20	0.02		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Strontium	0.0288	mg/L	1	0.00200	0.00005		ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4
Thallium	0.06	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 18:33	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.82	pCi/L	0.16	0.25		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	81.2	%						
Radium-228	1.52	pCi/L	0.18	0.58	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	77.6	%						

\* 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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-33

Customer Description:

Lab Number: 242840-018-01

Preparation: Dissolved

Date Collected: 09/16/2024 12:25 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	0.013	µg/L	1	0.100	0.008	J1	ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Arsenic	0.26	µg/L	1	0.10	0.03		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Barium	47.3	µg/L	1	0.20	0.05		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Beryllium	1.19	µg/L	1	0.050	0.007		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Cadmium	0.055	µg/L	1	0.020	0.004		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Chromium	0.36	µg/L	1	0.30	0.07		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Cobalt	10.4	µg/L	1	0.020	0.005		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Iron	0.022	mg/L	1	0.020	0.003		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Lead	0.31	µg/L	1	0.20	0.05		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Lithium	0.0226	mg/L	1	0.00030	0.00006		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Manganese	0.00636	mg/L	1	0.00100	0.00007		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Mercury	760	ng/L	20	100	40		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Selenium	0.81	µg/L	1	0.50	0.04		ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 18:38	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: AD-34

Customer Description:

Lab Number: 242840-019

Preparation:

Date Collected: 09/18/2024 10:15 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	<0.07	mg/L	10	0.50	0.07	U1	ELT	10/02/2024 00:32	EPA 200.8-1994, Rev. 5.4
Calcium	43.0	mg/L	10	0.5	0.2		ELT	10/02/2024 00:32	EPA 200.8-1994, Rev. 5.4
Magnesium	39.9	mg/L	10	1.00	0.09		ELT	10/02/2024 00:32	EPA 200.8-1994, Rev. 5.4
Potassium	7.9	mg/L	10	1.0	0.1		ELT	10/02/2024 00:32	EPA 200.8-1994, Rev. 5.4
Sodium	16.1	mg/L	10	2.0	0.2		ELT	10/02/2024 00:32	EPA 200.8-1994, Rev. 5.4
Strontium	0.441	mg/L	10	0.0200	0.0005		ELT	10/02/2024 00:32	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-36

Customer Description:

Lab Number: 242840-020

Preparation:

Date Collected: 09/18/2024 10:10 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Boron	0.082	mg/L	1	0.050	0.007		ELT	09/26/2024 18:48	EPA 200.8-1994, Rev. 5.4
Calcium	0.77	mg/L	1	0.05	0.02		ELT	09/26/2024 18:48	EPA 200.8-1994, Rev. 5.4
Magnesium	2.33	mg/L	1	0.100	0.009		ELT	09/26/2024 18:48	EPA 200.8-1994, Rev. 5.4
Potassium	1.87	mg/L	1	0.10	0.01		ELT	09/26/2024 18:48	EPA 200.8-1994, Rev. 5.4
Sodium	6.68	mg/L	1	0.20	0.02		ELT	09/26/2024 18:48	EPA 200.8-1994, Rev. 5.4
Strontium	0.0114	mg/L	1	0.00200	0.00005		ELT	09/26/2024 18:48	EPA 200.8-1994, Rev. 5.4

Customer Sample ID: Duplicate 1

Customer Description:

Lab Number: 242840-021

Preparation:

Date Collected: 09/16/2024 12:00 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Arsenic	1.17	µg/L	1	0.10	0.03		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Barium	17.3	µg/L	1	0.20	0.05		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Beryllium	2.48	µg/L	1	0.050	0.007		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Boron	0.028	mg/L	1	0.050	0.007	J1	ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Cadmium	0.552	µg/L	1	0.020	0.004		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Calcium	12.5	mg/L	1	0.05	0.02		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Chromium	0.32	µg/L	1	0.30	0.07		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Cobalt	76.5	µg/L	1	0.020	0.005		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Lead	0.11	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Lithium	0.117	mg/L	1	0.00030	0.00006		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Magnesium	17.0	mg/L	1	0.100	0.009		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Mercury	84	ng/L	1	5	2		RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Potassium	3.78	mg/L	1	0.10	0.01		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Selenium	2.63	µg/L	1	0.50	0.04		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Sodium	101	mg/L	1	0.20	0.02		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Strontium	0.0950	mg/L	1	0.00200	0.00005		ELT	09/26/2024 18:53	EPA 200.8-1994, Rev. 5.4
Thallium	0.16	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 18:53	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: Duplicate 1

Customer Description:

Lab Number: 242840-021-01

Preparation: Dissolved

Date Collected: 09/16/2024 12:00 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Arsenic	1.25	µg/L	1	0.10	0.03		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Barium	17.4	µg/L	1	0.20	0.05		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Beryllium	2.46	µg/L	1	0.050	0.007		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Cadmium	0.550	µg/L	1	0.020	0.004		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Cobalt	80.2	µg/L	1	0.020	0.005		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Iron	41.1	mg/L	50	1.0	0.2		ELT	10/01/2024 23:20	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Lithium	0.126	mg/L	1	0.00030	0.00006		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Manganese	0.376	mg/L	1	0.00100	0.00007		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Mercury	61	ng/L	1	5	2		RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Selenium	2.43	µg/L	1	0.50	0.04		ELT	09/26/2024 18:58	EPA 200.8-1994, Rev. 5.4
Thallium	0.16	µg/L	1	0.20	0.02	J1	ELT	09/26/2024 18:58	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: Equipment Blank

Customer Description:

Lab Number: 242840-022

Preparation:

Date Collected: 09/17/2024 09:50 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.05	0.02	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Chromium	0.22	µg/L	1	0.30	0.07	J1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Cobalt	<0.005	µg/L	1	0.020	0.005	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Lithium	0.00037	mg/L	1	0.00030	0.00006		ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	ELT	09/26/2024 19:03	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	ELT	09/26/2024 19:03	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: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: Field Blank

Customer Description:

Lab Number: 242840-023

Preparation:

Date Collected: 09/17/2024 09:51 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.05	0.02	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Cobalt	<0.005	µg/L	1	0.020	0.005	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Lithium	0.00011	mg/L	1	0.00030	0.00006	J1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	ELT	09/26/2024 19:09	EPA 200.8-1994, Rev. 5.4

242840-015

Comments:

Third Radium bottle, label wore off.



## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242840

Customer: Pirkey Power Station

Date Reported: 11/07/2024

### 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 Qualifier 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.

**B1** - Analyte detected in method blank (MB) at or above the method criteria.

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

**L1** - The associated laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) recovery was outside acceptance limits.

**O2** - Insufficient sample was received to perform the MS and duplicate analyses with this sample batch.

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Site Contact: 18				Date: 1 6			COC/Order #:	For Lab Use Only:
						250 mL bottle, pH<2, HNO <sub>3</sub>	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	Three (six every 10th) 1 L bottles, pH<2, HNO <sub>3</sub>	250 mL Glass bottle, HCl <sup>++</sup> , pH<2	250 mL Glass bottle, HCl <sup>++</sup> , pH<2	250 mL bottle, pH<2, HNO <sub>3</sub>	Sample Specific Notes		
AD-2	9/17/2024	758	G	GW	7	Mo, Na, Pb, Se, Sr, Ti	Man, Mo, Pb, Se, Ti	Ra-226, Ra-228	250 mL Glass bottle, HCl <sup>++</sup> , pH<2	250 mL Glass bottle, HCl <sup>++</sup> , pH<2	250 mL bottle, pH<2, HNO <sub>3</sub>		2428010	
AD-3	9/17/2024	1101	G	GW	7	Gd, Cr, Co, K, Li, Mg, Sr, As, B, Ba, Be, Ca, Cd, Cu, Fe, Ni, Pb, Se, Sr, Ti, Zn	Dissolved Sb, As, Ba, Bi, Cd, Cr, Co, Fe, Li, Mn, Mo, Pb, Se, Ti							
AD-4	9/17/2024	935	G	GW	7									
AD-7R	9/16/2024	905	G	GW	7									
AD-8	9/18/2024	1007	G	GW	1									
AD-12	9/16/2024	934	G	GW	7									
AD-13	9/16/2024	813	G	GW	7									
AD-16	9/17/2024	1119	G	GW	1									
AD-17	9/17/2024	955	G	GW	7									
AD-18	9/18/2024	744	G	GW	7									
AD-22	9/18/2024	959	G	GW	10									
AD-23	9/18/2024	948	G	GW	1									
						F4				2		F2		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ; F= filter in field

\* Six 1L Bottles must be collected for Radium for every 10th sample.

**Special Instructions/QC Requirements & Comments:**

**TG-32 needed**

Relinquished by: <i>Tom Lombor</i>	Company:	Date/Time: 9-15-24	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: <i>Matthew Oshy</i>	Date/Time: 9/13/24 1500



2 of 2

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
**Contacts:** Michael Ohlinger (614-836-4184)  
 Dave Conover (614-836-4219)

**Project Name:** Pirkey PP CCR  
**Contact Name:** Leslie Fuerschbach  
**Contact Phone:** 318-673-2744

**Sampler(s):** Matt Hamilton Kenny McDonald

**Site Contact:** 18 14 2 1 6  
**Date:** 1 6  
**COC/Order #:** 292840  
**For Lab Use Only:**

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Analysis Turnaround Time (in Calendar Days) (C= Routine (28 days for Monitoring Wells))						Sample Specific Notes
						250 mL bottle, pH<2, HNO <sub>3</sub>	Field-filter 250 mL bottle, then pH<2, HNO <sub>3</sub>	Three (six every 10th*) 1 L bottles, pH<2, HNO <sub>3</sub>	250 mL Glass bottle, HCL <sup>o</sup> , pH<2	250 mL Glass bottle, pH<2, HNO <sub>3</sub>	250 mL bottle, pH<2, HNO <sub>3</sub>	
AD-27	9/18/2024	1058	G	GW	1	Sb, As, B, Ba, Be, Ca, Cd, Cr, Co, K, Li, Mg, Mo, Na, Pb, Se, Sr, Ti	Dissolved Sb, As, Ba, Be, Cd, Cr, Co, Te, Tl, Mn, Mo, Pb, Se, Sr, Ti	Ra-226, Ra-228	Mercury	Dissolved Mercury	B, Ca, K, Mg, Na, Sr	
AD-28	9/17/2024	906	G	GW	7	X	X	X	X	X	X	
AD-30	9/17/2024	825	G	GW	7	X	X	X	X	X	X	
AD-31	9/16/2024	1136	G	GW	7	X	X	X	X	X	X	
AD-32	9/16/2024	1032	G	GW	7	X	X	X	X	X	X	
AD-33	9/16/2024	1125	G	GW	7	X	X	X	X	X	X	
AD-34	9/18/2024	915	G	GW	1						X	
AD-36	9/18/2024	910	G	GW	1						X	
Duplicate 1	9/18/2024	1100	G	GW	4	X	X		X	X		
Equipment Blank	9/17/2024	850	G	GW	2	X	X		X	X		
Field Blank	9/17/2024	851	G	GW	2	X	X		X	X		
						4	F4	4	2	F2	4	

**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ; F= filter in field  
 \* Six 1L Bottles must be collected for Radium for every 10th sample.

**Special Instructions/QC Requirements & Comments:**

**TG-32 needed**

Relinquished by: *John Tomules* Date/Time: 9-15-24 Received by: 14cc Date/Time: 9/23/24 1500  
 Relinquished by: *Esk* Date/Time: Received by: Date/Time:  
 Relinquished by: Date/Time: Received in Laboratory by: *Matthew O'Leary* Date/Time: 9/23/24 1500

Form COC-04, AEP Chain of Custody (COC) Record for Coal Combustion Residual (CCR) Sampling - Shreveport, Rev. 1, 1/10/17



# WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102

Sample Receipt Form Rev.8.08.23.24

<u>Package Type</u>			<u>Delivery Type</u>			
<input checked="" type="radio"/> Cooler	<input type="radio"/> Box	<input type="radio"/> Bag	<input type="radio"/> Envelope	UPS	<input checked="" type="radio"/> FedEX	<input type="radio"/> USPS
				Other _____		
Plant/Customer <u>PirKey PPCCR</u>			Total # of Containers RECEIVED in Job: <u>115</u>			
Opened By <u>BLB</u>						
Date/Time <u>9.23.24 3:30pm</u>						
Were all temperatures within 0-6°C? Y / N or <input checked="" type="radio"/> N/A (Temps) Initial: <u>BLB</u>			on ice / <input checked="" type="radio"/> no ice			
If No, specify each deviation(s) on back of form.			(IR Gun Ser# 240009843, Expir. 01-03-2026)			
Was container in good condition? Y / <input checked="" type="radio"/> N			Comments <u>Suspect AD-30 label is unreadable</u>			
Was Chain of Custody received? <input checked="" type="radio"/> Y / N			Comments _____			
Requested turnaround: <u>Routine</u>			If RUSH, who was notified?			
pH (15 min)	Cr <sup>6</sup> (pres ) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)	Hg-diss (pres ) (48 hr)		

Was pH checked & Color Coding done?  Y / N or N/A (pH) Initial & Date: JLD/MGK 9.23.24  
TTP

**\*\*pH paper** mfr: LabRat, PN 4801, LOT#X000RWDG21 exp 11-30-25 **\*\* 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?	<input checked="" type="radio"/> Y / N	Comments _____
Were samples labeled properly?	<input checked="" type="radio"/> Y / N	Comments _____
Were correct containers used?	<input checked="" type="radio"/> Y / N	Comments _____
Was the customer contacted?	If Yes: Person Contacted: _____	
	Initial & Date & Time : _____	
Lab ID# <u>242745</u>	Comments: _____	
Logged by <u>MSJ</u>	_____	
(Record Test Count on back of form)	_____	
	_____	
	_____	
Total # of Containers LISTED on COC: <u>115</u>	_____	

## WATER & WASTE SAMPLE RECEIPT FORM (CONT)

Form SOP-7102

Sample Receipt Form Rev 8.08.23.24

**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 #: 242840

Initial/ Date: MSD 9/23/24

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
21	242840 -001		21
15	-001-01		Ⓟ 15
21	-002		21
15	-002-01		15
21	-003		21
15	-003-01		15
21	-004		21
15	-004-01		15
6	-005		6
21	-006		21
15	-006-01		15
21	-007		21
15	-007-01		15
6	-008		6
21	-009		21
15	-009-01		15
21	-010		21
15	-010-01		15
21	-011		21
15	-011-01		15
6	-012		6
6	-013		6
21	-014		21
15	-014-01		15

Ⓟ 9/24/24



See previous page

2 of 2



# WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102

Sample Receipt Form Rev.8.05.23.24

Package Type			Delivery Type		
Cooler	Box	Bag Envelope	UPS	FedEX	USPS
			Other _____		
Plant/Customer _____			Total # of Containers RECEIVED in Job: _____		
Opened By _____					
Date/Time _____					
Were all temperatures within 0-6°C? Y / N or N/A (Temps) Initial: _____ on ice / no ice					
If No, specify each deviation(s) on back of form. (IR Gun Ser# 240009843, Expir. 01-03-2026)					
Was container in good condition? Y / N Comments _____					
Was Chain of Custody received? Y / N Comments _____					
Requested turnaround: _____ If RUSH, who was notified?					
pH (15 min)	Cr <sup>6</sup> (pres ) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)	Hg-diss (pres ) (48 hr)	

Was pH checked & Color Coding done? Y / N or N/A (pH) Initial & Date: \_\_\_\_\_

**\*\*pH paper** mfr: LabRat,PN 4801,LOT#X000RWDG21 exp 11-30-25 **\*\* 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: _____	
	Initial & Date & Time : _____	
Lab ID# _____	Comments: _____	
Logged by _____	_____	
(Record Test Count on back of form)	_____	
	_____	
	_____	
Total # of Containers	_____	
LISTED on COC: _____		



# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tamisha T. Palmer  Chemical Tech. Principal 10/16/2024  
Name (printed) Signature Official Title Date

## Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** ~~Welsh Power~~ (P) 10/17/24 ~~Perkey Power~~  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092408, PB24092409

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes, No	ER1
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** ~~Welsh Power~~ B10117/24 Pirkey Power  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092408, PB24092409

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** ~~Welsh Power~~ Bid 17/24 Pirkey Power  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092408, PB24092409

Exception Report No.	Description
ER1	RPD greater than 25%; Both the sample and duplicate were below report limit for batch PB24092409

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sunita Timsina

Name (printed)

  
Signature

Chemist Associate

Official Title

10/16/2024

Date

# Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092407

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	No	ER1
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	NA	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092407

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	





# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sunita Timsina  
Name (printed)

  
Signature

Chemist Associate  
Official Title

10/23/2024  
Date

# Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242840-016  
**Prep Batch Number(s):** PB24100412

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	No	ER1
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	NA	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242840-016  
**Prep Batch Number(s):** PB24100412

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



## ICP-MS Laboratory Review Checklist

### Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Elizabeth L. Tinapple	Elizabeth L. Tinapple	<small>Digitally signed by Elizabeth L. Tinapple Date: 2024.10.14 09:02:09 -0400</small>	Chemist	10/14/2024
Name (printed)	Signature		Official Title	Date



## ICP-MS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Elizabeth L. Tinapple  
**LRC Date:** 10/14/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092405 PB24092502 QC2409160 QC2409174 QC2410020 QC2410051

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	No	ER1
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	No	ER3
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Elizabeth L. Tinapple  
**LRC Date:** 10/14/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092405 PB24092502 QC2409160 QC2409174 QC2410020 QC2410051

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER2
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	Yes	
	I	Were ion abundance data within the method-required QC limits?	Yes	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	Yes	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Elizabeth L. Tinapple  
**LRC Date:** 10/14/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092405 PB24092502 QC2409160 QC2409174 QC2410020 QC2410051

Exception Report No.	Description
ER1	Linear Dynamic Range (LDR) study used to determine upper limit of analyte calibration.
ER2	CCB acceptance criteria is $CCB < 2.2 * MDL$ .
ER3	Matrix Spike failed for Ca, Co, Li, Mg, and Na on sample 242840-011

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# Mercury Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Susann Sulzmann S. Sulzmann      Senior Chemist      10-14-24  
Name (printed)      Signature      Official Title      Date

## Mercury Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 10-14-2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24093003,-004,-005,-102

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## Mercury Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 10-14-2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24093003,-004,-005,-102

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?		
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Mercury Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 10-14-2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24093003,-004,-005,-102

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-2

Customer Description:

Lab Number: 242807-001

Preparation:

Date Collected: 09/17/2024 08:58 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.38	mg/L	2	0.10	0.02		CRJ	09/24/2024 19:28	EPA 300.1 -1997, Rev. 1.0
Chloride	29.4	mg/L	2	0.06	0.02		CRJ	09/24/2024 19:28	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.18	mg/L	2	0.06	0.02		CRJ	09/24/2024 19:28	EPA 300.1 -1997, Rev. 1.0
Sulfate	281	mg/L	10	3.0	0.6		CRJ	09/24/2024 18:55	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	510	mg/L	1	50	20		BHB	09/20/2024 12:17	SM 2540C-2015

Customer Sample ID: AD-3

Customer Description:

Lab Number: 242807-002

Preparation:

Date Collected: 09/17/2024 12:01 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.08	mg/L	2	0.10	0.02	J1	CRJ	09/24/2024 18:22	EPA 300.1 -1997, Rev. 1.0
Chloride	6.36	mg/L	2	0.06	0.02		CRJ	09/24/2024 18:22	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.07	mg/L	2	0.06	0.02		CRJ	09/24/2024 18:22	EPA 300.1 -1997, Rev. 1.0
Sulfate	30.2	mg/L	2	0.6	0.1		CRJ	09/24/2024 18:22	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	6	mg/L	1	20	5	J1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	140	mg/L	1	50	20		BHB	09/20/2024 12:24	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-4

Customer Description:

Lab Number: 242807-003

Preparation:

Date Collected: 09/17/2024 10:35 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.19	mg/L	2	0.10	0.02		CRJ	09/24/2024 22:46	EPA 300.1 -1997, Rev. 1.0
Chloride	3.95	mg/L	2	0.06	0.02		CRJ	09/24/2024 22:46	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.02	mg/L	2	0.06	0.02	J1	CRJ	09/24/2024 22:46	EPA 300.1 -1997, Rev. 1.0
Sulfate	18.4	mg/L	2	0.6	0.1		CRJ	09/24/2024 22:46	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	130	mg/L	1	50	20		BHB	09/20/2024 12:30	SM 2540C-2015

Customer Sample ID: AD-7R

Customer Description:

Lab Number: 242807-004

Preparation:

Date Collected: 09/16/2024 10:05 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	1.21	mg/L	2	0.10	0.02		CRJ	09/24/2024 20:34	EPA 300.1 -1997, Rev. 1.0
Chloride	24.5	mg/L	2	0.06	0.02		CRJ	09/24/2024 20:34	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.12	mg/L	2	0.06	0.02		CRJ	09/24/2024 20:34	EPA 300.1 -1997, Rev. 1.0
Sulfate	43.3	mg/L	2	0.6	0.1		CRJ	09/24/2024 20:34	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	190	mg/L	1	50	20		BHB	09/20/2024 12:37	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-8

Customer Description:

Lab Number: 242807-005

Preparation:

Date Collected: 09/18/2024 11:07 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	1.01	mg/L	2	0.10	0.02		CRJ	09/24/2024 21:40	EPA 300.1 -1997, Rev. 1.0
Chloride	17.5	mg/L	2	0.06	0.02		CRJ	09/24/2024 21:40	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.40	mg/L	2	0.06	0.02		CRJ	09/24/2024 21:40	EPA 300.1 -1997, Rev. 1.0
Sulfate	116	mg/L	10	3.0	0.6		CRJ	09/24/2024 21:07	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	63	mg/L	1	20	5		MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	290	mg/L	1	50	20		BHB	09/20/2024 12:37	SM 2540C-2015

Customer Sample ID: AD-12

Customer Description:

Lab Number: 242807-006

Preparation:

Date Collected: 09/16/2024 10:34 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.08	mg/L	2	0.10	0.02	J1	CRJ	09/25/2024 00:57	EPA 300.1 -1997, Rev. 1.0
Chloride	4.45	mg/L	2	0.06	0.02		CRJ	09/25/2024 00:57	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.07	mg/L	2	0.06	0.02		CRJ	09/25/2024 00:57	EPA 300.1 -1997, Rev. 1.0
Sulfate	3.1	mg/L	2	0.6	0.1		CRJ	09/25/2024 00:57	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	60	mg/L	1	50	20		BHB	09/20/2024 12:43	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-13

Customer Description:

Lab Number: 242807-007

Preparation:

Date Collected: 09/16/2024 09:13 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.21	mg/L	2	0.10	0.02		CRJ	09/24/2024 23:52	EPA 300.1 -1997, Rev. 1.0
Chloride	29.0	mg/L	2	0.06	0.02		CRJ	09/24/2024 23:52	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.35	mg/L	2	0.06	0.02		CRJ	09/24/2024 23:52	EPA 300.1 -1997, Rev. 1.0
Sulfate	54.1	mg/L	2	0.6	0.1		CRJ	09/24/2024 23:52	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	38	mg/L	1	20	5		MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	210	mg/L	1	50	20		BHB	09/20/2024 12:43	SM 2540C-2015

Customer Sample ID: AD-16

Customer Description:

Lab Number: 242807-008

Preparation:

Date Collected: 09/17/2024 12:19 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.28	mg/L	2	0.10	0.02		CRJ	09/25/2024 04:15	EPA 300.1 -1997, Rev. 1.0
Chloride	32.5	mg/L	2	0.06	0.02		CRJ	09/25/2024 04:15	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.08	mg/L	2	0.06	0.02		CRJ	09/25/2024 04:15	EPA 300.1 -1997, Rev. 1.0
Sulfate	11.0	mg/L	2	0.6	0.1		CRJ	09/25/2024 04:15	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	120	mg/L	1	50	20		BHB	09/20/2024 12:50	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-17

Customer Description:

Lab Number: 242807-009

Preparation:

Date Collected: 09/17/2024 10:55 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.23	mg/L	2	0.10	0.02		CRJ	09/25/2024 04:48	EPA 300.1 -1997, Rev. 1.0
Chloride	22.2	mg/L	2	0.06	0.02		CRJ	09/25/2024 04:48	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.20	mg/L	2	0.06	0.02		CRJ	09/25/2024 04:48	EPA 300.1 -1997, Rev. 1.0
Sulfate	3.4	mg/L	2	0.6	0.1		CRJ	09/25/2024 04:48	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	60	mg/L	1	50	20		BHB	09/20/2024 12:50	SM 2540C-2015

Customer Sample ID: AD-18

Customer Description:

Lab Number: 242807-010

Preparation:

Date Collected: 09/18/2024 08:44 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.07	mg/L	2	0.10	0.02	J1	CRJ	09/25/2024 05:21	EPA 300.1 -1997, Rev. 1.0
Chloride	5.92	mg/L	2	0.06	0.02		CRJ	09/25/2024 05:21	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.02	mg/L	2	0.06	0.02	J1	CRJ	09/25/2024 05:21	EPA 300.1 -1997, Rev. 1.0
Sulfate	10.2	mg/L	2	0.6	0.1		CRJ	09/25/2024 05:21	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	130	mg/L	1	50	20		BHB	09/20/2024 12:50	SM 2540C-2015





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-22

Customer Description:

Lab Number: 242807-011

Preparation:

Date Collected: 09/16/2024 10:59 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.72	mg/L	2	0.10	0.02		CRJ	09/25/2024 07:32	EPA 300.1 -1997, Rev. 1.0
Chloride	108	mg/L	25	0.8	0.3		CRJ	09/25/2024 07:00	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.22	mg/L	2	0.06	0.02		CRJ	09/25/2024 07:32	EPA 300.1 -1997, Rev. 1.0
Sulfate	276	mg/L	25	8	2		CRJ	09/25/2024 07:00	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	620	mg/L	1	50	20		BHB	09/20/2024 12:56	SM 2540C-2015

Customer Sample ID: AD-23

Customer Description:

Lab Number: 242807-012

Preparation:

Date Collected: 09/18/2024 10:48 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.24	mg/L	2	0.10	0.02		CRJ	09/25/2024 05:54	EPA 300.1 -1997, Rev. 1.0
Chloride	9.03	mg/L	2	0.06	0.02		CRJ	09/25/2024 05:54	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.05	mg/L	2	0.06	0.02	J1	CRJ	09/25/2024 05:54	EPA 300.1 -1997, Rev. 1.0
Sulfate	7.1	mg/L	2	0.6	0.1		CRJ	09/25/2024 05:54	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	60	mg/L	1	50	20		BHB	09/20/2024 12:56	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-27

Customer Description:

Lab Number: 242807-013

Preparation:

Date Collected: 09/18/2024 11:58 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.33	mg/L	2	0.10	0.02		CRJ	09/25/2024 08:38	EPA 300.1 -1997, Rev. 1.0
Chloride	12.7	mg/L	2	0.06	0.02		CRJ	09/25/2024 08:38	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.15	mg/L	2	0.06	0.02		CRJ	09/25/2024 08:38	EPA 300.1 -1997, Rev. 1.0
Sulfate	60.6	mg/L	2	0.6	0.1		CRJ	09/25/2024 08:38	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	200	mg/L	1	50	20		BHB	09/20/2024 12:56	SM 2540C-2015

Customer Sample ID: AD-28

Customer Description:

Lab Number: 242807-014

Preparation:

Date Collected: 09/17/2024 10:06 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.10	mg/L	2	0.10	0.02		CRJ	09/25/2024 10:50	EPA 300.1 -1997, Rev. 1.0
Chloride	5.15	mg/L	2	0.06	0.02		CRJ	09/25/2024 10:50	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.54	mg/L	2	0.06	0.02		CRJ	09/25/2024 10:50	EPA 300.1 -1997, Rev. 1.0
Sulfate	26.8	mg/L	2	0.6	0.1		CRJ	09/25/2024 10:50	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	120	mg/L	1	50	20		BHB	09/20/2024 13:04	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-30

Customer Description:

Lab Number: 242807-015

Preparation:

Date Collected: 09/17/2024 09:25 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.20	mg/L	2	0.10	0.02		CRJ	09/25/2024 09:44	EPA 300.1 -1997, Rev. 1.0
Chloride	16.8	mg/L	2	0.06	0.02		CRJ	09/25/2024 09:44	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.04	mg/L	2	0.06	0.02	J1	CRJ	09/25/2024 09:44	EPA 300.1 -1997, Rev. 1.0
Sulfate	110	mg/L	10	3.0	0.6		CRJ	09/25/2024 09:11	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	250	mg/L	1	50	20		BHB	09/20/2024 13:04	SM 2540C-2015

Customer Sample ID: AD-31

Customer Description:

Lab Number: 242807-016

Preparation:

Date Collected: 09/16/2024 12:36 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.24	mg/L	2	0.10	0.02		CRJ	09/25/2024 16:56	EPA 300.1 -1997, Rev. 1.0
Chloride	17.7	mg/L	2	0.06	0.02		CRJ	09/25/2024 16:56	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.09	mg/L	2	0.06	0.02		CRJ	09/25/2024 16:56	EPA 300.1 -1997, Rev. 1.0
Sulfate	73.2	mg/L	2	0.6	0.1		CRJ	09/25/2024 16:56	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	260	mg/L	1	50	20		BHB	09/20/2024 13:04	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-32

Customer Description:

Lab Number: 242807-017

Preparation:

Date Collected: 09/16/2024 11:32 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.33	mg/L	2	0.10	0.02		CRJ	09/25/2024 18:02	EPA 300.1 -1997, Rev. 1.0
Chloride	11.6	mg/L	2	0.06	0.02		CRJ	09/25/2024 18:02	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.30	mg/L	2	0.06	0.02		CRJ	09/25/2024 18:02	EPA 300.1 -1997, Rev. 1.0
Sulfate	59.7	mg/L	2	0.6	0.1		CRJ	09/25/2024 18:02	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	9	mg/L	1	20	5	J1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	190	mg/L	1	50	20		BHB	09/20/2024 13:10	SM 2540C-2015

Customer Sample ID: AD-33

Customer Description:

Lab Number: 242807-018

Preparation:

Date Collected: 09/16/2024 12:25 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.37	mg/L	2	0.10	0.02		CRJ	09/25/2024 22:25	EPA 300.1 -1997, Rev. 1.0
Chloride	10.1	mg/L	2	0.06	0.02		CRJ	09/25/2024 22:25	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.20	mg/L	2	0.06	0.02		CRJ	09/25/2024 22:25	EPA 300.1 -1997, Rev. 1.0
Sulfate	54.4	mg/L	2	0.6	0.1		CRJ	09/25/2024 22:25	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	170	mg/L	1	50	20		BHB	09/20/2024 13:10	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-34

Customer Description:

Lab Number: 242807-019

Preparation:

Date Collected: 09/18/2024 10:15 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.20	mg/L	5	0.25	0.05	J1	CRJ	09/25/2024 19:41	EPA 300.1 -1997, Rev. 1.0
Chloride	7.20	mg/L	5	0.15	0.05		CRJ	09/25/2024 19:41	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.54	mg/L	5	0.15	0.05		CRJ	09/25/2024 19:41	EPA 300.1 -1997, Rev. 1.0
Sulfate	1160	mg/L	50	15	3		CRJ	09/25/2024 19:08	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	1620	mg/L	1	50	20		BHB	09/20/2024 13:10	SM 2540C-2015

Customer Sample ID: AD-36

Customer Description:

Lab Number: 242807-020

Preparation:

Date Collected: 09/18/2024 10:10 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.64	mg/L	2	0.10	0.02		CRJ	09/25/2024 22:58	EPA 300.1 -1997, Rev. 1.0
Chloride	15.7	mg/L	2	0.06	0.02		CRJ	09/25/2024 22:58	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.08	mg/L	2	0.06	0.02		CRJ	09/25/2024 22:58	EPA 300.1 -1997, Rev. 1.0
Sulfate	2.8	mg/L	2	0.6	0.1		CRJ	09/25/2024 22:58	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	50	mg/L	1	50	20		BHB	09/20/2024 13:16	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242807

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: Duplicate 1

Customer Description:

Lab Number: 242807-021

Preparation:

Date Collected: 09/16/2024 12:00 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.72	mg/L	2	0.10	0.02		CRJ	09/25/2024 21:19	EPA 300.1 -1997, Rev. 1.0
Chloride	106	mg/L	25	0.8	0.3		CRJ	09/25/2024 20:46	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.21	mg/L	2	0.06	0.02		CRJ	09/25/2024 21:19	EPA 300.1 -1997, Rev. 1.0
Sulfate	273	mg/L	25	8	2		CRJ	09/25/2024 20:46	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	630	mg/L	1	50	20		BHB	09/20/2024 13:35	SM 2540C-2015

## 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 Qualifier 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.

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
**Contacts: Michael Ohlinger (614-836-4184)**  
**Dave Conover (614-836-4219)**

Project Name: Pirkey PP Semi-Annual CCR  
 Contact Name: Leslie Fuerschbach  
 Contact Phone: 318-673-2744

Sampler(s): Matt Hamilton    Kenny McDonald

# Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Site Contact: \_\_\_\_\_ Date: \_\_\_\_\_  
 For Lab Use Only:  
 COC/Order #: **242807**

Analysis Turnaround Time (in Calendar Days)  
 ☉ Routine (28 days for Monitoring Wells)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Initials	250 mL bottle, pH<2, HNO3	Field-filter 250 mL bottle, then pH<2, HNO3	1 L bottle, Cool, 0-6C	Three (six every 10th*) L bottles, pH<2, HNO3	Date	COC/Order #	Sample Specific Notes
AD-2	9/17/2024	758	G	GW	1								
AD-3	9/17/2024	1101	G	GW	1								
AD-4	9/17/2024	935	G	GW	1								
AD-7R	9/18/2024	905	G	GW	1								
AD-8	9/18/2024	1007	G	GW	1								
AD-12	9/18/2024	934	G	GW	1								
AD-13	9/18/2024	813	G	GW	1								
AD-16	9/17/2024	1119	G	GW	1								
AD-17	9/17/2024	955	G	GW	1								
AD-18	9/18/2024	744	G	GW	1								
AD-22	9/18/2024	959	G	GW	1								
AD-23	9/19/2024	948	G	GW	1								
							4	F4	1	4			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other \_\_\_\_\_; F= filter in field  
 \* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

**TG-32 needed**

Relinquished by: <i>[Signature]</i>	Company: <i>Es&amp;K</i>	Date/Time: 9-15-24	Received by: <i>[Signature]</i>	Date/Time: 9/20/24
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: <i>[Signature]</i>	Date/Time: 9/20/24



# Chain of Custody Record

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Michael Ohlinger (614-836-4184)  
 Contacts: Dave Conover (614-836-4219)

Program : Coal Combustion Residuals (CCR)

Site Contact:

Date:

For Lab Use Only:

COC/Order #:

Project Name: Pitkey PP CCR  
 Contact Name: Leslie Fuerschbach  
 Contact Phone: 318-673-2744

Analysis Turnaround Time (in Calendar Days)  
 ☞ Routine (28 days for Monitoring Wells)

250 mL bottle, pH<2, HNO3  
 Field-filter 250 mL bottle, then pH<2, HNO3  
 1 L bottle, Cool, 0-6C  
 Three (six every 10th\*) L bottles, pH<2, HNO3

Sampler(s): Matt Hamilton Kerry McDonald

Sampler(s) Initials

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cnt.	Mercury	Dissolved Mercury	F, Cl, SO4, Br, TDS, Alkalinity	Ra-226, Ra-228	Sample Specific Notes:
AD-27	9/18/2024	1058	G	GW	1			X		
AD-28	9/17/2024	906	G	GW	1			X		
AD-30	9/17/2024	825	G	GW	1			X		
AD-31	9/18/2024	1136	G	GW	1			X		
AD-32	9/18/2024	1032	G	GW	1			X		
AD-33	9/18/2024	1125	G	GW	1			X		
AD-34	9/18/2024	915	G	GW	1			X		
AD-36	9/18/2024	910	G	GW	1			X		
Duplicate 1	9/18/2024	1100	G	GW	1			X		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ; F= filter in field

4 F4 1 4

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

TG-32 needed

Relinquished by: *[Signature]* Company: *ESV* Date/Time: *9-19-24 1400* Received by: *[Signature]* Date/Time: *9/20/24 10:20*

Relinquished by: *[Signature]* Company: *ESV* Date/Time: *9-19-24* Received by: *[Signature]* Date/Time: *9/20/24*

Relinquished by: *[Signature]* Company: *ESV* Date/Time: *9/20/24* Received by: *[Signature]* Date/Time: *9/20/24*



# Alkalinity Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

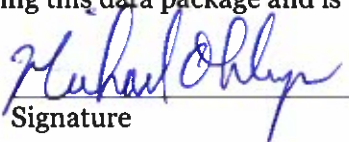
This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger  
Name (printed)

  
Signature

Chemist  
Official Title

10/23/2024  
Date

## Alkalinity Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Plant  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242807  
**Prep Batch Number(s):** QC2409144

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Alkalinity Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Plant  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242807  
**Prep Batch Number(s):** QC2409144

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



# Ion Chromatography Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tim Arnold

Name (printed)



Signature

Prin. Chemist

Official Title

10/23/2024

Date



## Ion Chromatography Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PP Semi-annual CCR  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242807  
**Prep Batch Number(s):** QC2409161

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	Yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	Yes	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	Yes	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	



## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Ion Chromatography Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PP Semi-annual CCR  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242807  
**Prep Batch Number(s):** QC2409161

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Ion Chromatography Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey PP Semi-annual CCR

**Reviewer Name:** Tim Arnold

**LRC Date:** 10/23/2024

**Laboratory Job Number:** 242807

**Prep Batch Number(s):** QC2409161

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

<sup>3</sup> NA - Not applicable; NR - Not reviewed.

<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# TDS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- NA R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sandra Williams	<i>Sandra D. Williams</i>	Chemist	10-23-2024
Name (printed)	Signature	Official Title	Date

## TDS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PS  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 10-23-2024  
**Laboratory Job Number:** 242807  
**Prep Batch Number(s):** QC2409152

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	NA	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## TDS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PS  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 10-23-20204  
**Laboratory Job Number:** 242807  
**Prep Batch Number(s):** QC2409152

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	



## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	





# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 242842-001

Preparation:

Date Collected: 09/16/2024 09:33 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Arsenic	2.30	µg/L	1	0.10	0.03		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Barium	50.0	µg/L	1	0.20	0.05		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Beryllium	0.46	µg/L	10	0.50	0.07	J1	ELT	10/03/2024 15:25	EPA 200.8-1994, Rev. 5.4
Boron	0.023	mg/L	1	0.050	0.007	J1	ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Calcium	1.29	mg/L	1	0.05	0.02		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Chromium	0.33	µg/L	1	0.30	0.07		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Cobalt	6.09	µg/L	1	0.020	0.005		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Lithium	0.0557	mg/L	10	0.0030	0.0006		ELT	10/03/2024 15:25	EPA 200.8-1994, Rev. 5.4
Magnesium	1.66	mg/L	1	0.100	0.009		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Potassium	2.06	mg/L	1	0.10	0.01		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Selenium	0.04	µg/L	1	0.50	0.04	J1	ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Sodium	10.1	mg/L	1	0.20	0.02		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Strontium	0.0127	mg/L	1	0.00200	0.00005		ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	ELT	10/01/2024 20:21	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.82	pCi/L	0.14	0.15	P1	ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	94.4	%						
Radium-228	0.99	pCi/L	0.11	0.36	B1	TTP	10/02/2024 16:34	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	88.6	%						

\* 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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 242842-001-01

Preparation: Dissolved

Date Collected: 09/16/2024 09:33 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Arsenic	2.17	µg/L	1	0.10	0.03		ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Barium	48.2	µg/L	1	0.20	0.05		ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Beryllium	0.47	µg/L	10	0.50	0.07	J1	ELT	10/03/2024 15:20	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Chromium	0.23	µg/L	1	0.30	0.07	J1	ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Cobalt	6.02	µg/L	1	0.020	0.005		ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Iron	7.66	mg/L	1	0.020	0.003		ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Lithium	0.0547	mg/L	10	0.0030	0.0006		ELT	10/03/2024 15:20	EPA 200.8-1994, Rev. 5.4
Manganese	0.0574	mg/L	1	0.00100	0.00007		ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	10/01/2024 20:36	EPA 200.8-1994, Rev. 5.4
Thallium	0.05	µg/L	1	0.20	0.02	J1	ELT	10/01/2024 20:36	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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: B-3

Customer Description:

Lab Number: 242842-002

Preparation:

Date Collected: 09/18/2024 09:16 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Arsenic	2.04	µg/L	1	0.10	0.03		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Barium	58.0	µg/L	1	0.20	0.05		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Beryllium	1.01	µg/L	10	0.50	0.07		ELT	10/03/2024 15:41	EPA 200.8-1994, Rev. 5.4
Boron	0.036	mg/L	1	0.050	0.007	J1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Cadmium	0.008	µg/L	1	0.020	0.004	J1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Calcium	2.35	mg/L	1	0.05	0.02		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Chromium	0.20	µg/L	1	0.30	0.07	J1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Cobalt	5.28	µg/L	1	0.020	0.005		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Lithium	0.0839	mg/L	10	0.0030	0.0006		ELT	10/03/2024 15:41	EPA 200.8-1994, Rev. 5.4
Magnesium	1.45	mg/L	1	0.100	0.009		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Potassium	2.07	mg/L	1	0.10	0.01		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Sodium	32.4	mg/L	1	0.20	0.02		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Strontium	0.0705	mg/L	1	0.00200	0.00005		ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4
Thallium	0.03	µg/L	1	0.20	0.02	J1	ELT	10/01/2024 20:41	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.61	pCi/L	0.13	0.20		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	77.4	%						
Radium-228	1.30	pCi/L	0.12	0.34		TTP	10/03/2024 16:33	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	99.7	%						

\* 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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: B-3

Customer Description:

Lab Number: 242842-002-01

Preparation: Dissolved

Date Collected: 09/18/2024 09:16 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Arsenic	1.98	µg/L	1	0.10	0.03		ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Barium	58.3	µg/L	1	0.20	0.05		ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Beryllium	0.95	µg/L	10	0.50	0.07		ELT	10/03/2024 15:46	EPA 200.8-1994, Rev. 5.4
Cadmium	0.008	µg/L	1	0.020	0.004	J1	ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Chromium	0.15	µg/L	1	0.30	0.07	J1	ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Cobalt	5.34	µg/L	1	0.020	0.005		ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Iron	9.98	mg/L	1	0.020	0.003		ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Lithium	0.0797	mg/L	10	0.0030	0.0006		ELT	10/03/2024 15:46	EPA 200.8-1994, Rev. 5.4
Manganese	0.106	mg/L	1	0.00100	0.00007		ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	10/01/2024 20:46	EPA 200.8-1994, Rev. 5.4
Thallium	0.02	µg/L	1	0.20	0.02	J1	ELT	10/01/2024 20:46	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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 242842-003

Preparation:

Date Collected: 09/18/2024 12:20 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.08	µg/L	10	1.00	0.08	U1	ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Arsenic	4.8	µg/L	10	1.0	0.3		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Barium	13.4	µg/L	10	2.0	0.5		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Beryllium	6.81	µg/L	10	0.50	0.07		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Boron	0.08	mg/L	10	0.50	0.07	J1	ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Cadmium	0.62	µg/L	10	0.20	0.04		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Calcium	20.8	mg/L	10	0.5	0.2		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Chromium	<0.7	µg/L	10	3.0	0.7	U1	ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Cobalt	127	µg/L	10	0.20	0.05		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Lead	2.0	µg/L	10	2.0	0.5		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Lithium	0.0861	mg/L	10	0.0030	0.0006		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Magnesium	28.2	mg/L	10	1.00	0.09		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<1	µg/L	10	5	1	U1	ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Potassium	2.3	mg/L	10	1.0	0.1		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Selenium	22.3	µg/L	10	5.0	0.4		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Sodium	5.5	mg/L	10	2.0	0.2		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Strontium	0.176	mg/L	10	0.0200	0.0005		ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4
Thallium	<0.2	µg/L	10	2.0	0.2	U1	ELT	10/03/2024 15:51	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	0.93	pCi/L	0.14	0.14		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	101	%						
Radium-228	1.55	pCi/L	0.26	0.84		TTP	10/03/2024 16:33	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	44.6	%						

\* 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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 242842-003-01

Preparation: Dissolved

Date Collected: 09/18/2024 12:20 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.08	µg/L	10	1.00	0.08	U1	ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Arsenic	3.2	µg/L	10	1.0	0.3		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Barium	13.5	µg/L	10	2.0	0.5		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Beryllium	3.58	µg/L	10	0.50	0.07		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Cadmium	0.49	µg/L	10	0.20	0.04		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Chromium	<0.7	µg/L	10	3.0	0.7	U1	ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Cobalt	104	µg/L	10	0.20	0.05		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Iron	113	mg/L	10	0.20	0.03		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Lead	<0.5	µg/L	10	2.0	0.5	U1	ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Lithium	0.0831	mg/L	10	0.0030	0.0006		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Manganese	0.689	mg/L	10	0.0100	0.0007		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<1	µg/L	10	5	1	U1	ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Selenium	13.1	µg/L	10	5.0	0.4		ELT	10/03/2024 15:56	EPA 200.8-1994, Rev. 5.4
Thallium	<0.2	µg/L	10	2.0	0.2	U1	ELT	10/03/2024 15:56	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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-26

Customer Description:

Lab Number: 242842-004

Preparation:

Date Collected: 09/18/2024 12:33 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.08	µg/L	10	1.00	0.08	U1	ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Arsenic	8.0	µg/L	10	1.0	0.3		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Barium	11.4	µg/L	10	2.0	0.5		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Beryllium	12.2	µg/L	10	0.50	0.07		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Boron	0.22	mg/L	10	0.50	0.07	J1	ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Cadmium	2.50	µg/L	10	0.20	0.04		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Calcium	109	mg/L	10	0.5	0.2		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Chromium	4.7	µg/L	10	3.0	0.7		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Cobalt	200	µg/L	10	0.20	0.05		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Lead	0.7	µg/L	10	2.0	0.5	J1	ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Lithium	0.100	mg/L	10	0.0030	0.0006		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Magnesium	112	mg/L	10	1.00	0.09		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Mercury	2	ng/L	1	5	2	J1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<1	µg/L	10	5	1	U1	ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Potassium	5.7	mg/L	10	1.0	0.1		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Selenium	26.5	µg/L	10	5.0	0.4		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Sodium	72.8	mg/L	10	2.0	0.2		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Strontium	1.15	mg/L	10	0.0200	0.0005		ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4
Thallium	<0.2	µg/L	10	2.0	0.2	U1	ELT	10/03/2024 16:01	EPA 200.8-1994, Rev. 5.4

## Radiochemistry

Parameter	Result	Units	UNC*(+/-)	MDA*	Data Qualifiers	Analyst	Analysis Date	Method
Radium-226	2.08	pCi/L	0.22	0.22		ST	10/04/2024 08:52	SW-846 9315-1986, Rev. 0
Carrier Recovery	93.8	%						
Radium-228	2.19	pCi/L	0.15	0.41		TTP	10/03/2024 16:33	SW-846 9320-2014, Rev. 1.0
Carrier Recovery	85.4	%						

\* 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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: AD-26

Customer Description:

Lab Number: 242842-004-01

Preparation: Dissolved

Date Collected: 09/18/2024 12:33 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.08	µg/L	10	1.00	0.08	U1	ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Arsenic	6.8	µg/L	10	1.0	0.3		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Barium	10.0	µg/L	10	2.0	0.5		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Beryllium	7.94	µg/L	10	0.50	0.07		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Cadmium	5.25	µg/L	10	0.20	0.04		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Chromium	<0.7	µg/L	10	3.0	0.7	U1	ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Cobalt	296	µg/L	10	0.20	0.05		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Iron	148	mg/L	10	0.20	0.03		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Lead	<0.5	µg/L	10	2.0	0.5	U1	ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Lithium	0.160	mg/L	10	0.0030	0.0006		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Manganese	2.26	mg/L	10	0.0100	0.0007		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RPL	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<1	µg/L	10	5	1	U1	ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Selenium	30.2	µg/L	10	5.0	0.4		ELT	10/03/2024 16:06	EPA 200.8-1994, Rev. 5.4
Thallium	0.3	µg/L	10	2.0	0.2	J1	ELT	10/03/2024 16:06	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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 242842-005

Preparation:

Date Collected: 09/16/2024 13:17 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Arsenic	2.42	µg/L	1	0.10	0.03		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Barium	50.4	µg/L	1	0.20	0.05		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Beryllium	0.47	µg/L	10	0.50	0.07	J1	ELT	10/03/2024 17:34	EPA 200.8-1994, Rev. 5.4
Boron	0.022	mg/L	1	0.050	0.007	J1	ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Calcium	1.31	mg/L	1	0.05	0.02		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Chromium	0.31	µg/L	1	0.30	0.07		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Cobalt	6.28	µg/L	1	0.020	0.005		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Lithium	0.0557	mg/L	10	0.0030	0.0006		ELT	10/03/2024 17:34	EPA 200.8-1994, Rev. 5.4
Magnesium	1.72	mg/L	1	0.100	0.009		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Potassium	2.15	mg/L	1	0.10	0.01		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Selenium	0.07	µg/L	1	0.50	0.04	J1	ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Sodium	10.6	mg/L	1	0.20	0.02		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Strontium	0.0126	mg/L	1	0.00200	0.00005		ELT	10/01/2024 22:24	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	ELT	10/01/2024 22:24	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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 242842-005-01

Preparation: Dissolved

Date Collected: 09/16/2024 13:17 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Arsenic	2.28	µg/L	1	0.10	0.03		ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Barium	45.5	µg/L	1	0.20	0.05		ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Beryllium	0.42	µg/L	10	0.50	0.07	J1	ELT	10/03/2024 17:49	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Chromium	0.35	µg/L	1	0.30	0.07		ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Cobalt	5.91	µg/L	1	0.020	0.005		ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Iron	7.11	mg/L	1	0.020	0.003		ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Lead	0.08	µg/L	1	0.20	0.05	J1	ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Lithium	0.0557	mg/L	10	0.0030	0.0006		ELT	10/03/2024 17:49	EPA 200.8-1994, Rev. 5.4
Manganese	0.0514	mg/L	1	0.00100	0.00007		ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	0.2	µg/L	1	0.5	0.1	J1	ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	10/01/2024 22:39	EPA 200.8-1994, Rev. 5.4
Thallium	0.06	µg/L	1	0.20	0.02	J1	ELT	10/01/2024 22:39	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: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

Customer Sample ID: Equipment Blank

Customer Description:

Lab Number: 242842-006

Preparation:

Date Collected: 09/16/2024 09:26 EDT

Date Received: 09/23/2024 15:00 EDT

## Metals

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Antimony	<0.008	µg/L	1	0.100	0.008	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Arsenic	<0.03	µg/L	1	0.10	0.03	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Barium	<0.05	µg/L	1	0.20	0.05	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Beryllium	<0.007	µg/L	1	0.050	0.007	U1	ELT	10/03/2024 17:54	EPA 200.8-1994, Rev. 5.4
Boron	<0.007	mg/L	1	0.050	0.007	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Cadmium	<0.004	µg/L	1	0.020	0.004	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Calcium	<0.02	mg/L	1	0.05	0.02	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Chromium	0.21	µg/L	1	0.30	0.07	J1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Cobalt	<0.005	µg/L	1	0.020	0.005	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Lead	<0.05	µg/L	1	0.20	0.05	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Lithium	<0.00006	mg/L	1	0.00030	0.00006	U1	ELT	10/03/2024 17:54	EPA 200.8-1994, Rev. 5.4
Magnesium	<0.009	mg/L	1	0.100	0.009	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Mercury	<2	ng/L	1	5	2	U1	RLP	10/01/2024 00:00	EPA 245.7-2005, Rev. 2.0
Molybdenum	<0.1	µg/L	1	0.5	0.1	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Potassium	<0.01	mg/L	1	0.10	0.01	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Selenium	<0.04	µg/L	1	0.50	0.04	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Sodium	<0.02	mg/L	1	0.20	0.02	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Strontium	<0.00005	mg/L	1	0.00200	0.00005	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4
Thallium	<0.02	µg/L	1	0.20	0.02	U1	ELT	10/01/2024 22:44	EPA 200.8-1994, Rev. 5.4

242842-005

Comments:

No radium received (on COC)



## Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242842

Customer: Pirkey Power Station

Date Reported: 11/07/2024

### 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 Qualifier 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.

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

B1 - Analyte detected in method blank (MB) at or above the method criteria.

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
 Michael Ohlinger (614-836-4184)  
 Contacts: Dave Conover (614-836-4218)

### Chain of Custody Record

Program: Coal Combustion Residuals (CCR)

Site Contact: 18 W 21  
 Date: 1  
 For Lab Use Only:  
 COC/Order #: 242842

Project Name: Pirkey PP ASD

Contact Name: Leslie Fuerschbach

Contact Phone: 318-673-2744

Sampler(s): Matt Hamilton, Kenny McDonald

Analysis Turnaround Time (in Calendar Days)

☑ Routine (28 days for Monitoring Wells)

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sampler(s) Inlets						Sample Specific Notes
						250 mL bottle, pH<2, HNO3	Field-filter 250 mL bottle, then pH<2, HNO3	Three (six every 10th) 1 L bottles, pH<2, HNO3	250 mL Glass bottle, HCL**, pH<2	250 mL Glass bottle, HCL**, pH<2	250 mL Glass bottle, HCL**, pH<2	
B-2	9/16/2024	833	G	GW	10	X	X	X	X	X	Disolved Mercury	
B-3	9/19/2024	816	G	GW	7	X	X	X	X	X	Mercury	
AD-25	9/18/2024	1120	G	GW	7	X	X	X	X	X	Ra-226, Ra-228	
AD-26	9/19/2024	1133	G	GW	7	X	X	X	X	X		
Duplicate	9/19/2024	1217	G	GW	7	X	X	X	X	X		
Equipment Blank	9/19/2024	826	G	GW	2	X						

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other \_\_\_\_\_; F= filter in field

\* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

TG-32 needed

Relinquished by: <i>Tom London</i>	Company: <i>Egsk</i>	Date/Time: 9-19-24	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: <i>Mercury Only</i>	Date/Time: 9/23/27 1500



# WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102

Sample Receipt Form Rev 8.0S 23 24

<u>Package Type</u>		<u>Delivery Type</u>	
<input checked="" type="radio"/> Cooler	<input type="radio"/> Box <input type="radio"/> Bag <input type="radio"/> Envelope	<input type="radio"/> UPS	<input checked="" type="radio"/> FedEX <input type="radio"/> USPS
Plant/Customer <u>Pirkey PPASD</u>		Total # of Containers RECEIVED in Job: <u>37</u>	
Opened By <u>BLB</u>		missing radium duplicate bottles <u>BLB</u>	
Date/Time <u>9.23.24 3:30pm</u>			
Were all temperatures within 0-6°C? Y / N or <input checked="" type="radio"/> N/A (Temps) Initial: <u>BLB</u> on ice / <input checked="" type="radio"/> no ice			
If No, specify each deviation(s) on back of form. (IR Gun Ser# 240009843, Expir. 01-03-2026)			
Was container in good condition? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments			
Was Chain of Custody received? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments			
Requested turnaround: <u>Routine</u> If RUSH, who was notified?			
pH (15 min)	Cr <sup>6</sup> (pres ) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr) Hg-diss (pres ) (48 hr)

Was pH checked & Color Coding done?  Y /  N or N/A (pH) Initial & Date: JLD/TIP / MGK 9.23.24

**\*\*pH paper:** mfr: LabRat, PN 4801, LOT#X000RWDG21 exp 11-30-25 **\*\* 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?	<input checked="" type="radio"/> Y / <input type="radio"/> N	Comments _____
Were samples labeled properly?	<input checked="" type="radio"/> Y / <input type="radio"/> N	Comments _____
Were correct containers used?	<input checked="" type="radio"/> Y / <input type="radio"/> N	Comments _____
Was the customer contacted?	If Yes: Person Contacted: _____	
	Initial & Date & Time: _____	
Lab ID# <u>242842</u>	Comments: _____	
Logged by <u>Moo</u>	_____	
(Record Test Count on back of form)	_____	
	_____	
Total # of Containers LISTED on COC: <u>40 (-3 ed bottles missing)</u>		



## WATER & WASTE SAMPLE RECEIPT FORM (CONT)

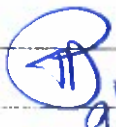
Form SOP-7102

Sample Receipt Form Rev 8.08.23.24

**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 # : 242842

Initial/ Date: MSO 9/23/24

Login Test Count from COC	LIMS Sample ID (or COC Sample Name)	Comments /Nonconformities	Peer Review Test Count from COC
21	242842 -001		21
15	-001-01		15
21	-002		21
15	-002-01		15
21	-003		21
15	-003-01		15
21	-004		21
15	-004-01		15
21 - 2 Rad = 19	-005		21
15 - <del>25</del> <sup>MSO</sup> 9/23/24	-005-01		15
19	-006		19
			 9/24/24

# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tamisha T. Palmer  Chemical Tech. Principal 10/16/2024  
Name (printed) Signature Official Title Date

## Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** ~~Welsh Power~~ (P) 10/17/24 Pirkey Power  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092408, PB24092409

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes, No	ER1
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** ~~Welsh Power~~ B10117/24 Pirkey Power  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092408, PB24092409

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** ~~Welsh Power~~ TR1017/24 Pirkey Power  
**Reviewer Name:** Tamisha Palmer  
**LRC Date:** 10/16/2024  
**Laboratory Job Number:** 242840  
**Prep Batch Number(s):** PB24092408, PB24092409

Exception Report No.	Description
ER1	RPD greater than 25%; Both the sample and duplicate were below report limit for batch PB24092409

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).

<sup>3</sup> NA - Not applicable; NR - Not reviewed.

<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# Radium Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sunita Timsina      Sunita Timsina      Chemist Associate      11/05/24  
Name (printed)      Signature      Official Title      Date



## Radium Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 11/05/2024  
**Laboratory Job Number:** 242842  
**Prep Batch Number(s):** PB2092407, PB24092607

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	No	ER1
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	NA	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Radium Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 11/05/2024  
**Laboratory Job Number:** 242842  
**Prep Batch Number(s):** PB2092407, PB24092607

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Radium Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# Radium Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Power Station  
**Reviewer Name:** Sunita Timsina  
**LRC Date:** 11/05/2024  
**Laboratory Job Number:** 242842  
**Prep Batch Number(s):** PB2092407, PB24092607

<b>Exception Report No.</b>	<b>Description</b>
ER1	Analyte detected in method blank (MB) at or above the method criteria.

---

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

## ICP-MS Laboratory Review Checklist

### Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Elizabeth L. Tinapple	Elizabeth L Tinapple	<small>Digitally signed by Elizabeth L Tinapple Date: 2024.10.14 09:25:20 -0400</small>	Chemist	10/14/2024
Name (printed)	Signature		Official Title	Date

## ICP-MS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Elizabeth L. Tinapple  
**LRC Date:** 10/14/2024  
**Laboratory Job Number:** 242842  
**Prep Batch Number(s):** PB24092605 QC2410020 QC2410038

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	No	ER1
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	



## ICP-MS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Elizabeth L. Tinapple  
**LRC Date:** 10/14/2024  
**Laboratory Job Number:** 242842  
**Prep Batch Number(s):** PB24092605 QC2410020 QC2410038

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER2
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	Yes	
	I	Were ion abundance data within the method-required QC limits?	Yes	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	Yes	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## ICP-MS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## ICP-MS Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey CCR  
**Reviewer Name:** Elizabeth L. Tinapple  
**LRC Date:** 10/14/2024  
**Laboratory Job Number:** 242842  
**Prep Batch Number(s):** PB24092605 QC2410020 QC2410038

Exception Report No.	Description
ER1	Linear Dynamic Range (LDR) study used to determine upper limit of analyte calibration.
ER2	CCB acceptance criteria is $CCB < 2.2 * MDL$ .

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."

# Mercury Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Susann Sulzmann      *S. Sulzmann*      Senior Chemist      10-21-24  
Name (printed)                      Signature                      Official Title                      Date

## Mercury Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 10-21-24  
**Laboratory Job Number:** 243842  
**Prep Batch Number(s):** PB24093005

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Mercury Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey  
**Reviewer Name:** Susann Sulzmann  
**LRC Date:** 10-21-24  
**Laboratory Job Number:** 243842  
**Prep Batch Number(s):** PB24093005

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Mercury Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



# Mercury Laboratory Review Checklist

## Table 3. Exception Reports.

Laboratory Name: American Electric Power Dolan Chemical Laboratory  
Project Name: Pirkey  
Reviewer Name: Susann Sulzmann  
LRC Date: 10-21-24  
Laboratory Job Number: 243842  
Prep Batch Number(s): PB24093005

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

- <sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- <sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).
- <sup>3</sup> NA - Not applicable; NR - Not reviewed.
- <sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242808

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: B-2

Customer Description:

Lab Number: 242808-001

Preparation:

Date Collected: 09/16/2024 09:33 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.08	mg/L	2	0.10	0.02	J1	CRJ	09/24/2024 01:08	EPA 300.1 -1997, Rev. 1.0
Chloride	6.43	mg/L	2	0.06	0.02		CRJ	09/24/2024 01:08	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.18	mg/L	2	0.06	0.02		CRJ	09/24/2024 01:08	EPA 300.1 -1997, Rev. 1.0
Sulfate	21.8	mg/L	2	0.6	0.1		CRJ	09/24/2024 01:08	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	170	mg/L	1	50	20	S7	BHB	09/20/2024 13:35	SM 2540C-2015

Customer Sample ID: B-3

Customer Description:

Lab Number: 242808-002

Preparation:

Date Collected: 09/18/2024 09:16 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.10	mg/L	2	0.10	0.02		CRJ	09/24/2024 00:35	EPA 300.1 -1997, Rev. 1.0
Chloride	11.3	mg/L	2	0.06	0.02		CRJ	09/24/2024 00:35	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.06	mg/L	2	0.06	0.02		CRJ	09/24/2024 00:35	EPA 300.1 -1997, Rev. 1.0
Sulfate	51.7	mg/L	2	0.6	0.1		CRJ	09/24/2024 00:35	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	31	mg/L	1	20	5		MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	200	mg/L	1	50	20	S7	BHB	09/20/2024 13:35	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242808

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: AD-25

Customer Description:

Lab Number: 242808-003

Preparation:

Date Collected: 09/18/2024 12:20 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.12	mg/L	2	0.10	0.02		CRJ	09/23/2024 23:29	EPA 300.1 -1997, Rev. 1.0
Chloride	2.56	mg/L	2	0.06	0.02		CRJ	09/23/2024 23:29	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.71	mg/L	2	0.06	0.02		CRJ	09/23/2024 23:29	EPA 300.1 -1997, Rev. 1.0
Sulfate	479	mg/L	25	8	2		CRJ	09/23/2024 21:50	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	740	mg/L	1	50	20		BHB	09/20/2024 13:42	SM 2540C-2015

Customer Sample ID: AD-26

Customer Description:

Lab Number: 242808-004

Preparation:

Date Collected: 09/18/2024 12:33 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.30	mg/L	5	0.25	0.05		CRJ	09/23/2024 22:56	EPA 300.1 -1997, Rev. 1.0
Chloride	21.0	mg/L	5	0.15	0.05		CRJ	09/23/2024 22:56	EPA 300.1 -1997, Rev. 1.0
Fluoride	4.86	mg/L	5	0.15	0.05		CRJ	09/23/2024 22:56	EPA 300.1 -1997, Rev. 1.0
Sulfate	1300	mg/L	50	15	3		CRJ	09/23/2024 21:17	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	1860	mg/L	2	100	40		BHB	09/20/2024 13:42	SM 2540C-2015



# Water Analysis Report

Dolan Chemical Laboratory  
4001 Bixby Road  
Groveport, OH 43125  
Phone: 614-836-4221  
Audinet: 210-4221

Job ID: 242808

Customer: Pirkey Power Station

Date Reported: 10/23/2024

Customer Sample ID: Duplicate

Customer Description:

Lab Number: 242808-005

Preparation:

Date Collected: 09/16/2024 13:17 EDT

Date Received: 09/20/2024 10:00 EDT

## Ion Chromatography

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Bromide	0.08	mg/L	2	0.10	0.02	J1	CRJ	09/23/2024 20:44	EPA 300.1 -1997, Rev. 1.0
Chloride	6.35	mg/L	2	0.06	0.02		CRJ	09/23/2024 20:44	EPA 300.1 -1997, Rev. 1.0
Fluoride	0.18	mg/L	2	0.06	0.02		CRJ	09/23/2024 20:44	EPA 300.1 -1997, Rev. 1.0
Sulfate	22.0	mg/L	2	0.6	0.1		CRJ	09/23/2024 20:44	EPA 300.1 -1997, Rev. 1.0

## Wet Chemistry

Parameter	Result	Units	Dilution	RL	MDL	Data Qualifiers	Analyst	Analysis Date	Method
Alkalinity, as CaCO3	<5	mg/L	1	20	5	U1	MGK	09/23/2024 19:17	SM 2320B-2011
TDS, Filterable Residue	160	mg/L	1	50	20		BHB	09/20/2024 13:42	SM 2540C-2015

## 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 Qualifier 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).

S7 - Sample did not achieve constant weight.

**Dolan Chemical Laboratory (DCL)**  
 4001 Bixby Road  
 Groveport, Ohio 43125  
**Contacts:** Michael Ohlinger (614-836-4184)  
 Dave Conover (614-836-4219)

Project Name: Pirkey PP ASD  
 Contact Name: Leslie Fuerschbach  
 Contact Phone: 318-673-2744

Sampler(s): Matt Hamilton Kenny McDonald

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Site Contact:				Date:	COC/Order #	For Lab Use Only:
						250 mL bottle, pH<2, HNO3	Field-filter 250 mL bottle, then pH<2, HNO3	1 L bottle, Cool, 0-6C	Three (six every 10th) L bottles, pH<2, HNO3			
B-2	9/18/2024	833	G	GW	1	Mercury	Disolved Mercury	TDS, Alkalinity	Ra-226, Ra-228			242828
B-3	9/18/2024	816	G	GW	1							
AD-25	9/18/2024	1120	G	GW	1							
AD-26	9/18/2024	1133	G	GW	1							
Duplicate	9/18/2024	1217	G	GW	1							
						4	F4	1	4			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ; F= filter in field  
 \* Six 1L Bottles must be collected for Radium for every 10th sample.

Special Instructions/QC Requirements & Comments:

**TG-32 needed**

Relinquished by: <i>[Signature]</i>	Company: <i>East</i>	Date/Time: 9.18.24	Received by: <i>[Signature]</i>	Date/Time: 9/20/24
Relinquished by:	Company:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: <i>[Signature]</i>	Date/Time: 9/20/24



# WATER & WASTE SAMPLE RECEIPT FORM

Form SOP-7102

Sample Receipt Form Rev. 8.05.23.24

<u>Package Type</u>			<u>Delivery Type</u>			
<input checked="" type="radio"/> Cooler	<input type="radio"/> Box	<input type="radio"/> Bag	<input type="radio"/> Envelope	UPS	<input checked="" type="radio"/> FedEX	<input type="radio"/> USPS
Other _____						
Plant/Customer <u>PirKey PP Semi-Annual CCR</u>			Total # of Containers RECEIVED in Job: <u>215</u>			
Opened By <u>BLB</u>						
Date/Time <u>9.20.24 10:10 am</u>						
Were all temperatures within 0-6°C? <input checked="" type="radio"/> Y / <input type="radio"/> N or N/A (Temps) Initial: <u>BLB</u>			<input checked="" type="radio"/> on ice / <input type="radio"/> no ice			
If No, specify each deviation(s) on back of form.			(IR Gun Ser# <u>240009849</u> , Expir. <u>01-03-2026</u> )			
Was container in good condition? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments			<u>221821056</u> <u>10/12/24</u>			
Was Chain of Custody received? <input checked="" type="radio"/> Y / <input type="radio"/> N Comments			<u>MJD</u> <u>9/16/24</u>			
Requested turnaround: <u>Routine</u>			If RUSH, who was notified?			
pH (15 min)	Cr <sup>6</sup> (pres) (24 hr)	NO <sub>2</sub> or NO <sub>3</sub> (48 hr)	ortho-PO <sub>4</sub> (48 hr)	Hg-diss (pres) (48 hr)		

MJD 9/20/24

Was pH checked & Color Coding done?  Y /  N or N/A (pH) Initial & Date: ELT/MGK 9.20.24

**\*\*pH paper:** mfr: LabRat, PN 4801, LOT#X000RWDG21 exp. 11-30-25 **\*\* Note changes to pH paper in comments below**

Was Add'l Preservative needed? Y /  N Yes: By whom & when: \_\_\_\_\_ (See Prep Book)

(Dissolved) Is sample filtration requested? Y /  N Comments \_\_\_\_\_ (See Prep Book)

Was COC filled out properly?	<input checked="" type="radio"/> Y / <input type="radio"/> N	Comments _____
Were samples labeled properly?	<input checked="" type="radio"/> Y / <input type="radio"/> N	Comments _____
Were correct containers used?	<input checked="" type="radio"/> Y / <input type="radio"/> N	Comments _____
Was the customer contacted?	If Yes: Person Contacted: _____	
	Initial & Date & Time: _____	
Lab ID# <u>242808</u>	Comments: _____	
Logged by <u>MJD</u>	_____	
(Record Test Count on back of form)	_____	
	_____	
	_____	
Total # of Containers LISTED on COC: <u>5</u>	_____	

# Alkalinity Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

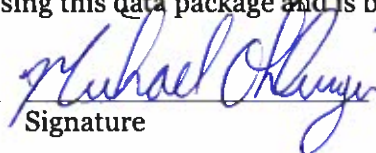
This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Michael Ohlinger  
Name (printed)

  
Signature

Chemist  
Official Title

10/23/2024  
Date



## Alkalinity Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Plant  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242808  
**Prep Batch Number(s):** QC2409144

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	



## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Alkalinity Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey Plant  
**Reviewer Name:** Michael Ohlinger  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242808  
**Prep Batch Number(s):** QC2409144

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## Alkalinity Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	



# Ion Chromatography Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Tim Arnold		Prin. Chemist	10/23/2024
Name (printed)	Signature	Official Title	Date

## Ion Chromatography Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory

**Project Name:** Pirkey PP Semi-annual CCR

**Reviewer Name:** Tim Arnold

**LRC Date:** 10/23/2024

**Laboratory Job Number:** 242808

**Prep Batch Number(s):** QC2409149

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	Yes	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	Yes	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	Yes	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	Yes	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	Yes	
	I	Were MS/MSD analyzed at the appropriate frequency?	Yes	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Were MS/MSD RPDs within laboratory QC limits?	Yes	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## Ion Chromatography Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PP Semi-annual CCR  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242808  
**Prep Batch Number(s):** QC2409149

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	Yes	
	I	Was the number of standards recommended in the method used for all analytes?	Yes	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	Yes	
	I	Are ICAL data available for all instruments used?	Yes	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	Yes	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	Yes	
	I	Were percent differences for each analyte within the method-required QC limits?	Yes	
	I	Was the ICAL curve verified for each analyte?	Yes	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	No	ER1
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	



## Ion Chromatography Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

## Ion Chromatography Laboratory Review Checklist

**Table 3. Exception Reports.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PP Semi-annual CCR  
**Reviewer Name:** Tim Arnold  
**LRC Date:** 10/23/2024  
**Laboratory Job Number:** 242808  
**Prep Batch Number(s):** QC2409149

Exception Report No.	Description
ER1	CCB acceptance criteria is CCB<MQL.

<sup>1</sup> Items identified by the letter “R” must be available as a hard copy or as a .pdf file. Items identified by the letter “S” should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is “No” or “NR.”

# TDS Laboratory Review Checklist

## Municipal Solid Waste Laboratory Review Checklist

This data package consists of:

- This signature page, and the laboratory review checklist consisting of Table 1, Reportable Data (which includes the reportable data identified on this page), Table 2, Supporting Data, and Table 3, Exception Reports.
- R1 Field chain-of-custody documentation
- R2 Sample identification cross-reference
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - (a) Items specified in NELAC Chapter 5 for reporting results, e.g., Section 5.5.10 in 2003 NELAC Standard
  - (b) Dilution factors
  - (c) Preparation methods
  - (d) Cleanup methods
  - (e) If required for the project, tentatively identified compounds (TICs)
- R4 Surrogate recovery data including:
  - (a) Calculated recovery (%R)
  - (b) The laboratory's surrogate QC limits
- R5 Test reports/summary forms for blank samples
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - (a) LCS spiking amounts
  - (b) Calculated %R for each analyte
  - (c) The laboratory's LCS QC limits
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - (a) Samples associated with the MS/MSD clearly identified
  - (b) MS/MSD spiking amounts
  - (c) Concentration of each MS/MSD analyte measured in the parent and spiked samples
  - (d) Calculated %Rs and relative percent differences (RPDs)
  - (e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - (a) The amount of analyte measured in the duplicate
  - (b) The calculated RPD
  - (c) The laboratory's QC limits for analytical duplicates
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix
- R10 Other problems or anomalies
- The Exception Report for every item for which the result is "No" or "NR" (Not Reviewed)

**Release Statement:** I am responsible for the release of this laboratory data package. This data package as been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

**Check, if applicable:**  This laboratory is an in-house laboratory controlled by the person responding to rule. The official signing the cover page of the rule-required report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Sandra Williams

*Sandra S. Williams*

Chemist

10-23-2024

Name (printed)

Signature

Official Title

Date

## TDS Laboratory Review Checklist

**Table 1. Reportable Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PS  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 10-23-2024  
**Laboratory Job Number:** 242808  
**Prep Batch Number(s):** QC2409152

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
R1	O, I	<b>Chain-of-custody (COC)</b>		
	I	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	Yes	
	I	Were all departures from standard conditions described in an exception report?	NA	
R2	O, I	<b>Sample and quality control (QC) identification</b>		
	I	Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	Yes	
	I	Are all laboratory ID numbers cross-referenced to the corresponding QC data?	Yes	
R3	O, I	<b>Test reports</b>		
	I	Were all samples prepared and analyzed within holding times?	Yes	
	I	Other than those results < MQL, were all other raw values bracketed by calibration standards?	NA	
	I	Were calculations checked by a peer or supervisor?	Yes	
	I	Were all analyte identifications checked by a peer or supervisor?	Yes	
	I	Were sample quantitation limits reported for all analytes not detected?	Yes	
	I	Were all results for soil and sediment samples reported on a dry weight basis?	NA	
	I	Was % moisture (or solids) reported for all soil and sediment samples?	NA	
	I	If required for the project, TICs reported?	NA	
R4	O	<b>Surrogate recovery data</b>		
	I	Were surrogates added prior to extraction?	NA	
	I	Were surrogate percent recoveries in all samples within the laboratory QC limits?	NA	
R5	O, I	<b>Test reports/summary forms for blank samples</b>		
	I	Were appropriate type(s) of blanks analyzed?	Yes	
	I	Were blanks analyzed at the appropriate frequency?	Yes	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
	I	Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	Yes	
	I	Were blank concentrations < MQL?	Yes	
R6	O, I	<b>Laboratory control samples (LCS):</b>		
	I	Were all COCs included in the LCS?	Yes	
	I	Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	Yes	
	I	Were LCSs analyzed at the required frequency?	Yes	
	I	Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	Yes	
	I	Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	Yes	
	I	Was the LCSD RPD within QC limits?	Yes	
R7	O, I	<b>Matrix spike (MS) and matrix spike duplicate (MSD) data</b>		
	I	Were the project/method specified analytes included in the MS and MSD?	NA	
	I	Were MS/MSD analyzed at the appropriate frequency?	NA	
	I	Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	NA	
	I	Were MS/MSD RPDs within laboratory QC limits?	NA	
R8	O, I	<b>Analytical duplicate data</b>		
	I	Were appropriate analytical duplicates analyzed for each matrix?	Yes	
	I	Were analytical duplicates analyzed at the appropriate frequency?	Yes	
	I	Were RPDs or relative standard deviations within the laboratory QC limits?	Yes	
R9	O, I	<b>Method quantitation limits (MQLs):</b>		
	I	Are the MQLs for each method analyte included in the laboratory data package?	Yes	
	I	Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	Yes	
	I	Are unadjusted MQLs included in the laboratory data package?	Yes	
R10	O, I	<b>Other problems/anomalies</b>		
	I	Are all known problems/anomalies/special conditions noted in this LRC and ER?	Yes	
	I	Were all necessary corrective actions performed for the reported data?	Yes	
	I	Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	Yes	

## TDS Laboratory Review Checklist

**Table 2. Supporting Data.**

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PS  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 10-23-20204  
**Laboratory Job Number:** 242808  
**Prep Batch Number(s):** QC2409152

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S1	O, I	<b>Initial calibration (ICAL)</b>		
	I	Were response factors and/or relative response factors for each analyte within QC limits?	NA	
	I	Were percent RSDs or correlation coefficient criteria met?	NA	
	I	Was the number of standards recommended in the method used for all analytes?	NA	
	I	Were all points generated between the lowest and highest standard used to calculate the curve?	NA	
	I	Are ICAL data available for all instruments used?	NA	
	I	Has the initial calibration curve been verified using an appropriate second source standard?	NA	
S2	O, I	<b>Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):</b>		
	I	Was the CCV analyzed at the method-required frequency?	NA	
	I	Were percent differences for each analyte within the method-required QC limits?	NA	
	I	Was the ICAL curve verified for each analyte?	NA	
	I	Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	NA	
S3	O	<b>Mass spectral tuning:</b>		
	I	Was the appropriate compound for the method used for tuning?	NA	
	I	Were ion abundance data within the method-required QC limits?	NA	
S4	O	<b>Internal standards (IS):</b>		
	I	Were IS area counts and retention times within the method-required QC limits?	NA	
S5	O, I	<b>Raw data (NELAC section 1 appendix A glossary, and section 5.)</b>		
	I	Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	Yes	
	I	Were data associated with manual integrations flagged on the raw data?	NA	

## TDS Laboratory Review Checklist

Item <sup>1</sup>	Analytes <sup>2</sup>	Description	Result (Yes, No, NA, NR) <sup>3</sup>	Exception Report No. <sup>4</sup>
S6	O	<b>Dual column confirmation</b>		
	I	Did dual column confirmation results meet the method-required QC?	NA	
S7	O	<b>Tentatively identified compounds (TICs):</b>		
	I	If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?	NA	
S8	I	<b>Interference Check Sample (ICS) results:</b>		
	I	Were percent recoveries within method QC limits?	NA	
S9	I	<b>Serial dilutions, post digestion spikes, and method of standard additions</b>		
	I	Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	NA	
S10	O, I	<b>Method detection limit (MDL) studies</b>		
	I	Was a MDL study performed for each reported analyte?	Yes	
	I	Is the MDL either adjusted or supported by the analysis of DCSs?	Yes	
S11	O, I	<b>Proficiency test reports:</b>		
	I	Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	Yes	
S12	O, I	<b>Standards documentation</b>		
	I	Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	Yes	
S13	O, I	<b>Compound/analyte identification procedures</b>		
	I	Are the procedures for compound/analyte identification documented?	Yes	
S14	O, I	<b>Demonstration of analyst competency (DOC)</b>		
	I	Was DOC conducted consistent with NELAC Chapter 5C?	Yes	
	I	Is documentation of the analyst's competency up-to-date and on file?	Yes	
S15	O, I	<b>Verification/validation documentation for methods (NELAC Chap 5n 5)</b>		
	I	Are all the methods used to generate the data documented, verified, and validated, where applicable?	Yes	
S16	O, I	<b>Laboratory standard operating procedures (SOPs):</b>		
	I	Are laboratory SOPs current and on file for each method performed?	Yes	

# TDS Laboratory Review Checklist

## Table 3. Exception Reports.

**Laboratory Name:** American Electric Power Dolan Chemical Laboratory  
**Project Name:** Pirkey PS  
**Reviewer Name:** Sandra Williams  
**LRC Date:** 10-23-2024  
**Laboratory Job Number:** 242808  
**Prep Batch Number(s):** QC2409152

Exception Report No.	Description

<sup>1</sup> Items identified by the letter "R" must be available as a hard copy or as a .pdf file. Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.  
<sup>2</sup> O - organic analyses; I - inorganic analyses (including general chemistry constituents, when applicable).  
<sup>3</sup> NA - Not applicable; NR - Not reviewed.  
<sup>4</sup> Exception Report identification number; an Exception Report should be completed for an item if the result is "No" or "NR."