HALEY ALDRICH

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ANNUAL REPORT ON

GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT LANDFILL A.B. BROWN GENERATING STATION POSEY COUNTY, INDIANA

by
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for
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Evansville, Indiana

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1. Annual Groundwater Monitoring Report Summary

1.1 CODE OF FEDERAL REGULATIONS TITLE 40 (40 CFR) § 257.90(e)(6) SUMMARY

A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the [coal combustion residual] CCR unit. At a minimum, the summary must specify all of the following.

1.1.1 40 CFR § 257.90(e)(6)(i) – Status of Monitoring Program at Start of Reporting Period

At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.

At the start of the current annual reporting period (1 January 2023), the Landfill at A.B. Brown Generating Station (ABB) was operating under an assessment monitoring program in compliance with Code of Federal Regulations Title 40 (40 CFR) § 257.95.

1.1.2 40 CFR § 257.90(e)(6)(ii) – Status of Monitoring Program at End of Reporting Period

At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in § 257.95.

At the end of the current annual reporting period (31 December 2023), the Landfill was operating under an assessment monitoring program in compliance with 40 CFR § 257.95.

1.1.3 40 CFR § 257.90(e)(6)(iii) – Statistically Significant Increases

If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to § 257.94(e).

1.1.3.1 40 CFR § 257.90(e)(6)(iii)(A)

Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase.

The Landfill was operating under an assessment monitoring program throughout 2023; therefore, no statistical evaluations were conducted on Appendix III constituents in 2023.

1.1.3.2 40 CFR § 257.90(e)(6)(iii)(B)

Provide the date when the assessment monitoring program was initiated for the CCR unit.

An assessment monitoring program was established on 15 August 2018 for the Landfill to meet the requirements of 40 CFR § 257.95. The Landfill has remained in assessment monitoring since that time.

1.1.4 40 CFR § 257.90(e)(6)(iv) – Statistically Significant Levels

If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to § 257.95(g) include all of the following.

1.1.4.1 40 CFR § 257.90(e)(6)(iv)(A) – Statistically Significant Level Constituents

Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase.

Statistical analyses of Appendix IV constituents were completed in 2023 following the November 2022 and May 2023 semiannual assessment monitoring events as described in § 257.93(h)(2). Statistically significant levels (SSLs) were not identified at any of the monitoring wells in 2023. A summary of the statistical analysis is included in Appendix A.

1.1.4.2 40 CFR § 257.90(e)(6)(iv)(B) – Initiation of the Assessment of Corrective Measures

Provide the date when the assessment of corrective measures was initiated for the CCR unit.

An assessment of corrective measures has not been initiated for this unit as no SSLs were identified through year end 2023 reporting period. The Landfill remained in assessment monitoring during 2023.

1.1.4.3 40 CFR § 257.90(e)(6)(iv)(C) – Assessment of Corrective Measures Public Meeting

Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit.

An assessment of corrective measures is not required and therefore has not been initiated for the Landfill during the 2023 reporting period; therefore, a public meeting was not held.

1.1.4.4 40 CFR § 257.90(e)(6)(iv)(D) – Completion of the Assessment of Corrective Measures

Provide the date when the assessment of corrective measures was completed for the CCR unit.

An assessment of corrective measures has not been completed for this unit since no SSLs have been identified during the 2023 reporting period. The Landfill remained in assessment monitoring during 2023.

1.1.5 40 CFR § 257.90(e)(6)(v) – Selection of Remedy

Whether a remedy was selected pursuant to § 257.97 during the current annual reporting period, and if so, the date of remedy selection.

Since an assessment of corrective measures has not been required, the selection of remedy under § 257.97 is not required.

1.1.6 40 CFR § 257.90(e)(6)(vi) – Remedial Activities

Whether remedial activities were initiated or are ongoing pursuant to § 257.98 during the current annual reporting period.

Remedial activities were not required in 2023; therefore, no demonstration or certification is applicable.

1.2 40 CFR § 257.90(a)

Except as provided for in § 257.100 for inactive CCR surface impoundments, all CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under § 257.90 through § 257.98.

The Landfill at ABB is subject to the groundwater monitoring and corrective action requirements described under 40 CFR § 257.90 through § 257.98 (the Rule). The remainder of this document addresses the requirement for the Owner/Operator to prepare an Annual Groundwater Monitoring and Corrective Action Report per § 257.90(e).

1.3 40 CFR § 257.90(e) – SUMMARY

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1).

This 2023 Annual Groundwater Monitoring and Corrective Action Report documents the activities completed during the 2023 reporting period for the Landfill as required by the Rule. Semiannual groundwater sampling and analysis was conducted per the requirements described in § 257.93, and the status of the groundwater monitoring program is provided in this report as required by § 257.95. Field forms pertaining to those sampling events are included in Appendix B and laboratory analytical reports are included in Appendix C.

1.3.1 Status of the Groundwater Monitoring Program

Semiannual groundwater sampling activities continued in 2023 to satisfy requirements of § 257.95(b) and 257.95(d)(1). Groundwater samples were collected from the monitoring wells at the Landfill on 12 May 2023 and again on 9 and 10 November 2023.

Statistical analyses of Appendix IV constituents collected during the November 2022 sampling event was completed on 9 March 2023, within 90-days following the receipt of laboratory analytical results on 9 December 2022, per the requirements of § 257.93(h)(2). Statistical analysis of Appendix IV constituents collected during the May 2023 sampling event was completed on 25 September 2023, within 90-days following the receipt of laboratory analytical results on 28 June 2023, per the requirements of § 257.93(h)(2). Statistical analysis of Appendix IV constituents collected during the November 2023 sampling event will be completed within the 2024 reporting period and will therefore be included in the 2024 annual report.

Intrawell statistical analysis was used to evaluate arsenic, cobalt, and lithium as a result of the Alternate Source Demonstration dated 24 July 2019. Statistical analysis of Appendix IV constituents during the 2023 reporting period continued to demonstrate that SSLs of Appendix IV constituents are not present in groundwater downgradient of the Landfill. Although SSLs were not identified, some concentrations remain above background, therefore in accordance with 257.95(f), the Landfill will continue with semiannual assessment monitoring.

1.3.2 Key Actions Completed

The following key actions were completed in 2023:

- 31 January 2023 – Prepared the 2022 Annual Groundwater Monitoring and Corrective Action Report (2022 Annual Report) including:
  - Pursuant to § 257.105(h)(1), the 2022 Annual Report was placed in the facility's operating record on 31 January 2023;
  - Pursuant to § 257.106(h)(1), the notification was sent to the relevant State Director and/or Tribal authority within 30 days of the 2022 Annual Report being placed in the facility's operating record [§ 257.106(d)];
  - Pursuant to § 257.107(h)(1), the 2022 Annual Report was posted to the CCR Website within 30 days of the 2022 Annual Report being placed in the facility's operating record [§ 257.107(d) and 257.107(h)(1)];
- 9 March 2023 – Completed statistical analysis of the November 2022 assessment monitoring laboratory analytical results received on 9 December 2022.
- 8 May 2023 – Measured static water levels in groundwater monitoring wells at the Site before beginning the May 2023 sampling event and again immediately prior to collecting each sample to evaluate groundwater flow direction and rate per the requirements of § 257.93(c).
- 12 May 2023 – Collected groundwater samples from monitoring wells at the Landfill for laboratory analysis in accordance with § 257.95.
- 25 September 2023 – Completed statistical analysis of May 2023 assessment monitoring laboratory analytical results received on 28 June 2023.
- 6 November 2023 – Measured static water levels in groundwater monitoring wells at the Site before beginning the November 2023 sampling event and again immediately prior to collecting each sample to evaluate groundwater flow direction and rate per the requirements of § 257.93(c).
- 9 to 10 November 2023 - Collected groundwater samples from monitoring wells at the Landfill for laboratory analysis in accordance with § 257.95.

1.3.3 Problems Encountered

Problems encountered during the May 2023 and November 2023 sampling events include:

- Following the November 2023 groundwater sampling event, laboratory analytical results for radium detected in sample CCR-LF-4 were identified to be elevated above typically observed concentrations after receipt of laboratory results on 28 December 2023. A confirmation sample for radium was collected on 12 January 2024 to verify if the concentrations observed were valid or erroneous due to laboratory analytical error or biased high due to elevated turbidity of the sample. Laboratory analysis of the confirmation sample was on-going at the end of the 2023 reporting period.
- No other problems were encountered at the Landfill during the 2023 reporting period.

1.3.4 Actions to Resolve Problems

Confirmation samples were collected for radium at monitoring well CCR-LF-4 on 12 January 2024 following the November 2023 sampling event to determine if error occurred during sampling or laboratory analysis of the initial sample per § 257.24(c)(3). Laboratory analysis of the confirmation samples is not yet complete at the end of the 2023 reporting period; therefore, confirmation sample results will be included in the statistical analysis of Appendix IV constituents from the November 2023 sampling event when it is completed in the 2024 reporting period and included in the 2024 annual report.

1.3.5 Project Key Activities for Upcoming Year

Key activities to be completed in 2024 include the following:

- Continue semiannual groundwater monitoring in accordance with § 257.95.
- Complete statistical analyses of the semiannual groundwater sampling results within 90-days of sampling and analysis as required by § 257.93(h)(2).

1.4 40 CFR § 257.90(e) – INFORMATION

At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available.

1.4.1 40 CFR § 257.90(e)(1)

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit.

As required by § 257.90(e)(1), a map showing the locations of the Landfill and associated upgradient and downgradient wells is presented as Figure 1. Groundwater elevation contours for the May 2023 event are presented in Figure 2. Groundwater elevation contours for the November 2023 event are presented in Figure 3.

1.4.2 40 CFR § 257.90(e)(2)

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken.

There was no installation or decommissioning of monitoring wells during 2023. Groundwater monitoring well location and construction details for the existing monitoring well network are summarized in Table 1.

1.4.3 40 CFR § 257.90(e)(3)

In addition to all the monitoring data obtained under § 257.90 through § 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs.

In accordance with § 257.95(b) and § 257.95(d)(1), two independent samples from each background and downgradient monitoring well were collected and analyzed. A summary table including the sample names, dates of sample collection, reason for sample collection (detection or assessment), and monitoring data obtained for the groundwater monitoring program for the Landfill is presented in Table 2.

1.4.4 40 CFR § 257.90(e)(4)

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels).

The results of the statistical analyses for the November 2022 and May 2023 sampling events continued to demonstrate that SSLs of Appendix IV constituents were not present in groundwater downgradient of the Landfill. Although SSLs were not present, two monitoring wells had Appendix IV constituent concentrations above background in May 2023; therefore, in accordance with 257.95(f), the Landfill will continue with semiannual assessment monitoring. Statistical analysis for the November 2023 sampling event is ongoing and will be completed within 90-days following the receipt of laboratory analytical results on 28 December 2023 to determine if a statistically significant increase over background has occurred.

1.4.5 40 CFR § 257.90(e)(5)

Other information required to be included in the annual report as specified in § 257.90 through § 257.98.

Other information including development of groundwater protection standards, recording of groundwater monitoring results in the operating record, and an evaluation of alternate sources was discussed in prior annual reports.

TABLES

TABLE 1

GROUNDWATER MONITORING WELL LOCATION AND CONSTRUCTION DETAILS

LANDFILL

A.B. BROWN GENERATING STATION

POSEY COUNTY, INDIANA

Well	Date Installed	Easting	Northing	Top of Pad Elevation (ft NAVD88)	Top of Riser Elevation (ft NAVD88)	Surface Grout (ft bgs)	Bentonite (ft bgs)	Sand Pack (ft bgs)	Screen Zone (ft bgs)	Screen Length (ft)	Well Radius (in)	Status
Background Monitoring Wells												
CCR-BK-1R	March 2016	2770919.15	974083.30	480.10	483.39	2.0 - 50.0	50.0 - 52.0	52.0 - 64.0	54.00 - 64.00	10	2	Active
CCR-BK-2	March 2016	2769728.14	972854.33	427.50	430.60	1.0 - 11.5	11.5 - 13.5	13.5 - 25.5	15.50 - 25.50	10	2	Active
Landfill Monitoring Wells												
CCR-LF-1	March 2016	2771247.76	970812.18	432.80	435.63	0.0 - 3.0	3.0 - 7.0	7.0 - 19.0	9.00 - 19.00	10	2	Active
CCR-LF-2	March 2016	2772205.05	970681.32	470.10	473.00	1.0 - 30.0	30.0 - 32.0	32.0 - 45.0	35.00 - 45.00	10	2	Active
CCR-LF-3	March 2016	2773138.97	970949.70	482.00	484.75	1.0 - 21.0	21.0 - 23.0	23.0 - 35.0	25.00 - 35.00	10	2	Active
CCR-LF-4	March 2016	2772876.83	972312.24	476.60	478.85	1.0 - 40.8	40.8 - 43.0	43.0 - 55.0	45.00 - 55.00	10	2	Active
CCR-LF-5	March 2016	2772003.91	972228.16	427.50	430.41	1.0 - 16.0	16.0 - 18.0	18.0 - 30.0	20.00 - 30.00	10	2	Active
CCR-LF-6	March 2016	2771046.15	972269.53	409.20	412.05	0.0 - 0.0	0.0 - 2.66	2.66 - 9.66	4.66 - 9.66	5	2	Active

Notes and Abbreviations:

bgs: below ground surface

ft: feet

in: inches

Datum of Elevations in NAVD 88

TABLE 2
SUMMARY OF GROUNDWATER QUALITY DATA - MAY AND NOVEMBER 2023
A.B. BROWN GENERATING STATION
LANDFILL
POSEY COUNTY, INDIANA

Location Group	Action Level	Background			
Location Name	GWPS	CCR-BK-1R	CCR-BK-1R	CCR-BK-2	CCR-BK-2
Sample Name		CCR-BK-1R-051123	CCR-BK-1R-110823	CCR-BK-2-051023	CCR-BK-2-110923
Sample Date		05/11/2023	11/08/2023	05/10/2023	11/09/2023
Lab Sample ID		180-156535-21	180-165101-18	180-156535-5	180-165230-1
Detection Monitoring - EPA Appendix III Constituents (mg/L)					
Boron, Total	NA	0.1 U	0.2 U	0.1 U	0.2 U
Calcium, Total	NA	**51**	**46**	**40**	**40**
Chloride	NA	**9**	**10**	**18**	**17**
Fluoride	4	**0.18 J+**	**0.17**	0.1 U	**0.15**
pH (lab) (pH units)	NA	**7.2 J**	**7.3 J**	**7 J**	**7.1 J**
Sulfate	NA	**39**	**37**	**22**	**21**
Total Dissolved Solids (TDS)	NA	**280**	**290**	**240**	**230**
Assessment Monitoring - EPA Appendix IV Constituents (mg/L)					
Antimony, Total	0.006	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic, Total	0.01	0.005 U	**0.00041 J**	0.005 U	0.001 U
Barium, Total	2	**0.074**	**0.087**	**0.032**	**0.032**
Beryllium, Total	0.004	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, Total	0.005	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, Total	0.1	**0.0017 J**	**0.0016 J**	0.005 U	0.002 U
Cobalt, Total	0.006	**0.00026 J**	0.0005 U	0.001 U	0.0005 U
Fluoride	4	**0.18 J+**	**0.17**	0.1 U	**0.15**
Lead, Total	0.015	0.001 U	**0.00041 J**	0.001 U	0.001 U
Lithium, Total	0.04	**0.0084**	**0.011**	**0.0022 J**	**0.0016 J**
Mercury, Total	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	0.1	**0.0014 J**	**0.0017 J**	0.005 U	0.005 U
Selenium, Total	0.05	0.005 U	0.005 U	0.005 U	0.005 U
Thallium, Total	0.002	0.001 U	0.001 U	0.001 U	0.001 U
Radiological (pCi/L)					
Radium-226	NA	**0.482 ± 0.333**	0.679 U ± 0.299	1 U ± 0.192	1 U ± 0.109
Radium-228	NA	1 U ± 0.633	1 U ± 0.379	1 U ± 0.347	1 U ± 0.455
Radium-226 & 228	5	**1.39 J ± 0.715**	0.959 UJ ± 0.483	5 U ± 0.397	**0.723 ± 0.468**
Field Parameters					
Temperature (Deg C)	NA	**17.03**	**25.20**	**17.84**	**23.79**
Dissolved Oxygen, Field (mg/L)	NA	**5.03**	**3.21**	**0.58**	**0.51**
Conductivity, Field (mS/cm)	NA	**0.44**	**0.43**	**0.38**	**0.38**
Oxidation Reduction Potential (ORP), Field (mv)	NA	**238**	**222**	**184**	**235**
Turbidity, Field (NTU)	NA	**4.8**	**2.4**	**0.0**	**0.0**
pH, Field (SU)	NA	**6.89**	**6.97**	**6.73**	**6.41**

Notes and Abbreviations:

CCR: Coal Combustion Residuals.
mg/L: milligram per liter.
pCi/L: picoCurie per liter.
Deg C: Degrees Celsius.
mS/cm: milliSiemen per centimeter.
mv: millivolts.
NTU: Nephelometric Turbidity Units.
SU: Standard Units (pH)
U: not detected, value is the laboratory reporting limit.
J: value is estimated.
J+: value is estimated with a potential high bias.
J-: value is estimated with a potential low bias.
USEPA: United States Environmental Protection Agency.
GWPS: Ground Water Protection Standard.
*Results in **bold** are detected.*
Shaded values indicate an exceedance of the GWPS.
USEPA. 2020. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. December 14. 40 CFR Part 257.
https://www.epa.gov/coalash/coal-ash-rule

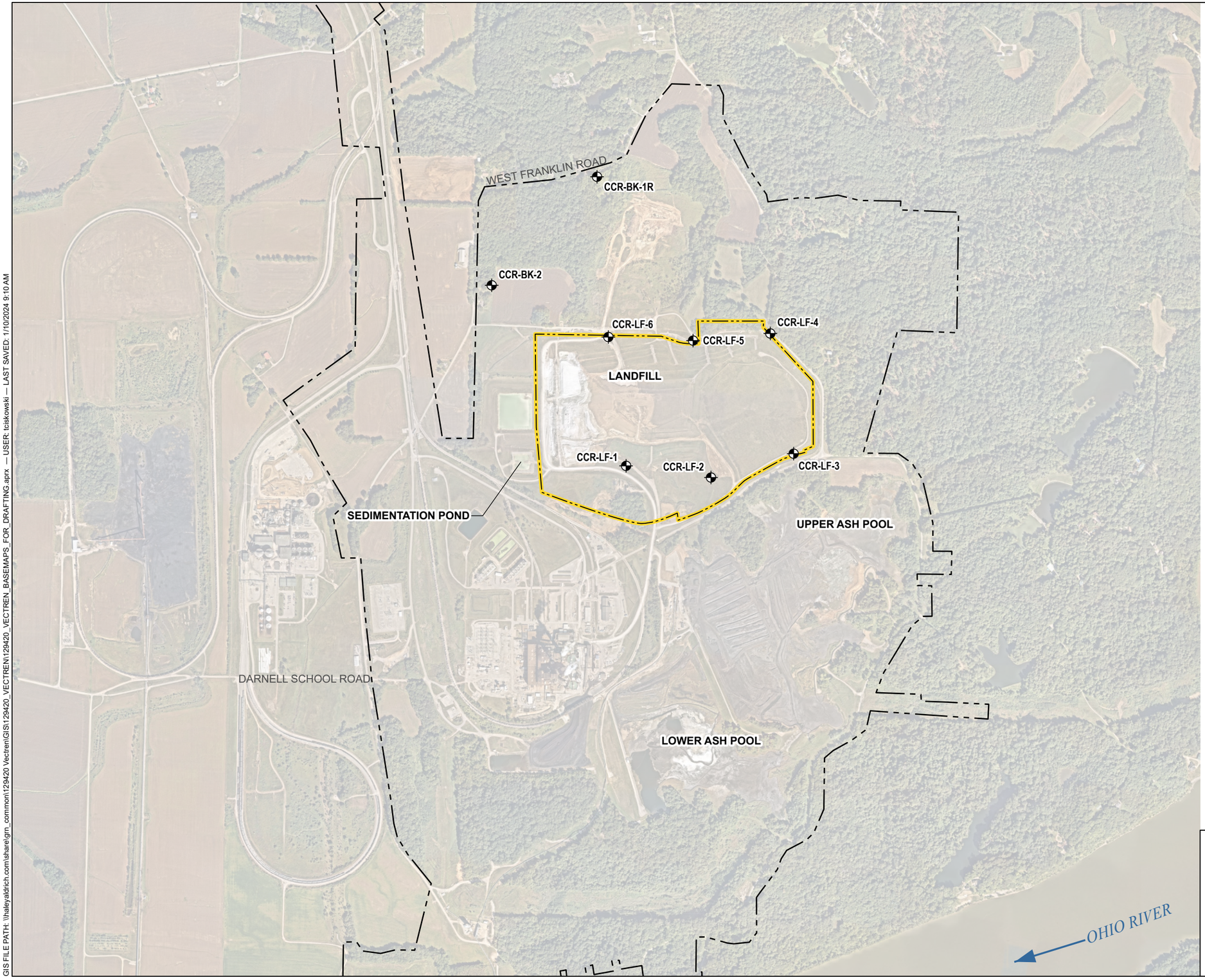
TABLE 2
SUMMARY OF GROUNDWATER QUALITY DATA - MAY AND NOVEMBER 2023
A.B. BROWN GENERATING STATION
LANDFILL
POSEY COUNTY, INDIANA

Location Group	Downgradient													
Location Name	CCR-LF-1	CCR-LF-1	CCR-LF-2	CCR-LF-2	CCR-LF-3	CCR-LF-3	CCR-LF-4	CCR-LF-4	CCR-LF-5	CCR-LF-5	CCR-LF-5	CCR-LF-6	CCR-LF-6	CCR-LF-6
Sample Name	CCR-LF-1-051223	CCR-LF-1-110923	CCR-LF-2-051223	CCR-LF-2-110923	CCR-LF-3-051223	CCR-LF-3-111023	CCR-LF-4-051223	CCR-LF-4-110923	CCR-LF-5-051223	CCR-LF-5-110923	DUP-1-110923	CCR-LF-6-051223	DUP3-051223	CCR-LF-6-110923
Sample Date	05/12/2023	11/09/2023	05/12/2023	11/09/2023	05/12/2023	11/10/2023	05/12/2023	11/09/2023	05/12/2023	11/09/2023	11/09/2023	05/12/2023	05/12/2023	11/09/2023
Lab Sample ID	180-156567-1	180-165229-4	180-156567-2	180-165229-5	180-156567-3	180-165229-7	180-156567-4	180-165229-1	180-156567-5	180-165229-3	180-165229-6	180-156567-6	180-156567-7	180-165229-2
Detection Monitoring - EPA Appendix III Constituents (mg/L)														
Boron, Total	**0.038 J**	2 U	**5.7**	**5.9**	**0.2**	**0.19 J**	**0.42**	**0.89**	**1.3**	**0.095 J**	**0.14 J**	**0.72**	**0.72**	**0.44**
Calcium, Total	**300**	**310**	**390**	**400**	**230**	**240**	**440**	**430**	**470**	**470**	**490**	**270**	**260**	**240**
Chloride	**21**	**19**	**380**	**350**	**23**	**23**	**150**	**150**	**350**	**300**	**300**	**25**	**22**	**28**
Fluoride	**0.28**	**0.26**	**0.41**	**0.26**	**0.26**	**0.17 J**	**0.29**	**1.9**	**0.19**	**0.17**	**0.16**	**0.36**	**0.31**	**0.35**
pH (lab) (pH units)	**7 J**	**6.9 J**	**6.7 J**	**6.9 J**	**7.3 J**	**7.3 J**	**6.8 J**	**6.9 J**	**7.2 J**	**7.2 J**	**7.2 J**	**7.3 J**	**7.3 J**	**7.3 J**
Sulfate	**1100**	**1100**	**14000**	**15000**	**1100**	**960**	**9400**	**9900**	**2500**	**2700**	**2700**	**830**	**740**	**690**
Total Dissolved Solids (TDS)	**1900**	**2000**	**23000**	**22000**	**1800**	**1700**	**15000 J**	**16000**	**4800**	**4800 J**	**4900**	**1400 J**	**1400**	**1300 J**
Assessment Monitoring - EPA Appendix IV Constituents (mg/L)														
Antimony, Total	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic, Total	**0.00031 J**	**0.00093 J**	**0.0016**	**0.0015**	**0.00032 J**	**0.00041 J**	**0.022**	**0.025**	**0.0008 J**	0.001 U	**0.00035 J**	**0.00033 J**	**0.00029 J**	0.001 U
Barium, Total	**0.023 J-**	**0.067**	**0.014 J-**	**0.012**	**0.016 J-**	**0.02**	**0.011 J-**	**0.013**	**0.025 J-**	**0.026**	**0.025**	**0.025 J-**	**0.024 J-**	**0.026**
Beryllium, Total	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, Total	0.001 U	0.001 U	**0.0056**	**0.0075**	0.001 U	0.001 U	0.001 U	0.001 U	**0.00037 J**	**0.00023 J**	**0.00024 J**	0.001 U	0.001 U	0.001 U
Chromium, Total	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Cobalt, Total	0.0005 U	0.0005 U	**0.011**	**0.013**	0.0005 U	0.0005 U	**0.0013**	**0.0014**	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	**0.0003 J**
Fluoride	**0.28**	**0.26**	**0.41**	**0.26**	**0.26**	**0.17 J**	**0.29**	**1.9**	**0.19**	**0.17**	**0.16**	**0.36**	**0.31**	**0.35**
Lead, Total	0.001 U	0.001 U	**0.00057 J**	**0.00086 J**	0.001 U	0.001 U	**0.00041 J**	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium, Total	**0.0041 J**	**0.0053**	**0.017**	**0.017**	**0.0018 J**	0.005 U	**0.076**	**0.087**	**0.019**	**0.021**	**0.02**	**0.014**	**0.013**	**0.014**
Mercury, Total	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00015 J**	**0.00016 J**	**0.00017 J**	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	**0.00072 J**	**0.0012 J**	**0.0027 J**	**0.0022 J**	**0.00074 J**	**0.001 J**	**0.026**	**0.024**	**0.00096 J**	**0.00072 J**	**0.00066 J**	**0.0012 J**	**0.0011 J**	**0.0013 J**
Selenium, Total	0.005 U	0.005 U	**0.0041 J**	**0.0066**	0.005 U	0.005 U	**0.00093 J**	**0.0025 J**	**0.0011 J**	0.005 U	0.005 U	**0.0016 J**	**0.0014 J**	**0.0023 J**
Thallium, Total	0.001 U	0.001 U	**0.00087 J**	**0.00078 J**	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Radiological (pCi/L)														
Radium-226	1 U ± 0.251	**0.562 ± 0.258**	1 U ± 0.348	**0.564 ± 0.292**	1 U ± 0.189	0.199 U ± 0.119	**3.25 ± 0.719**	**3.17 ± 0.588**	1 U ± 0.132	1 U ± 0.151	1 U ± 0.132	1 U ± 0.242	1 U ± 0.199	1 U ± 0.117
Radium-228	1 U ± 0.348	1 U ± 0.374	**3 ± 0.785**	**2.67 J ± 0.813**	1 U ± 0.395	1 U ± 0.425	**1.94 ± 0.696**	**2.38 ± 0.554**	**0.663 ± 0.389**	1.19 U ± 0.42	1 U ± 0.351	1 U ± 0.369	1 U ± 0.378	0.56 U ± 0.373
Radium-226 & 228	**0.724 ± 0.429**	**0.994 J ± 0.454**	**3.52 J+ ± 0.859**	**3.23 J ± 0.864**	**0.667 ± 0.438**	0.716 UJ ± 0.441	**5.19 ± 1**	**5.56 ± 0.808**	**0.663 J ± 0.411**	1.33 UJ ± 0.446	5 U ± 0.375	5 U ± 0.441	**0.639 ± 0.427**	5 UJ ± 0.391
Field Parameters														
Temperature (Deg C)	**18.40**	**25.93**	**18.14**	**23.71**	**18.33**	**22.93**	**19.52**	**23.45**	**16.98**	**24.06**	**24.06**	**16.31**	**16.31**	**25.24**
Dissolved Oxygen, Field (mg/L)	**3.37**	**1.02**	**0.00**	**0.05**	**6.81**	**3.99**	**0.02**	**0.05**	**0.00**	**0.00**	**0.00**	**1.04**	**1.04**	**0.34**
Conductivity, Field (mS/cm)	**2.31**	**2.43**	**24.40**	**23.90**	**2.08**	**2.06**	**13.90**	**16.70**	**5.34**	**5.72**	**5.72**	**1.65**	**1.65**	**1.59**
Oxidation Reduction Potential (ORP), Field (mv)	**208**	**196**	**125**	**131**	**205**	**220**	**-29**	**-20**	**160**	**64**	**64**	**177**	**177**	**160**
Turbidity, Field (NTU)	**0.0**	**0.0**	**0.0**	**14.3**	**0.0**	**0.0**	**59.9**	**0.0**	**42.2**	**5.2**	**5.2**	**4.7**	**4.7**	**0.0**
pH, Field (SU)	**6.60**	**6.58**	**6.31**	**6.40**	**6.91**	**6.94**	**6.51**	**6.32**	**6.71**	**6.78**	**6.78**	**6.89**	**6.89**	**6.97**

Notes and Abbreviations:

CCR: Coal Combustion Residuals.
mg/L: milligram per liter.
pCi/L: picoCurie per liter.
Deg C: Degrees Celsius.
mS/cm: milliSiemen per centimeter.
mv: millivolts.
NTU: Nephelometric Turbidity Units.
SU: Standard Units (pH)
U: not detected, value is the laboratory reporting limit.
J: value is estimated.
J+: value is estimated with a potential high bias.
J-: value is estimated with a potential low bias.
USEPA: United States Environmental Protection Agency.
GWPS: Ground Water Protection Standard.
*Results in **bold** are detected.*
Shaded values indicate an exceedance of the GWPS.
USEPA. 2020. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. December 14. 40 CFR Part 257.
https://www.epa.gov/coalash/coal-ash-rule

FIGURES



LEGEND

- MONITORING WELL
- PROPERTY BOUNDARY
- APPROXIMATE UNIT BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. AERIAL IMAGERY SOURCE: HEXAGON, 21 JULY 2023

N

0 1,100 2,200
SCALE IN FEET

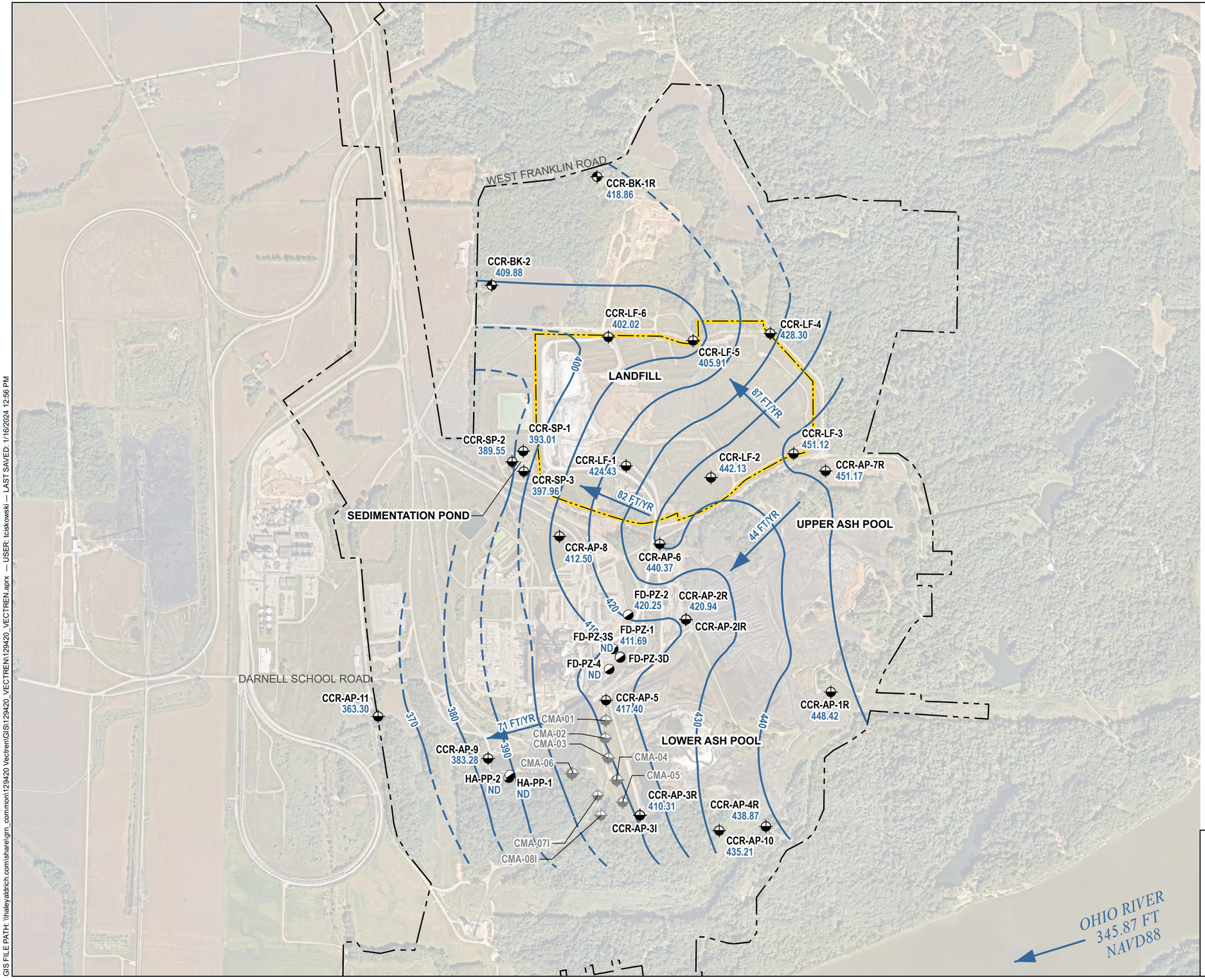
HALEY ALDRICH

LANDFILL
A.B. BROWN GENERATING STATION
POSEY COUNTY, INDIANA

GROUNDWATER MONITORING WELL LOCATIONS - LANDFILL

JANUARY 2024

FIGURE 2



LEGEND

- PIEZOMETER
- UPGRADIENT GROUNDWATER MONITORING WELL
- DOWNGRADIENT GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR, 10-FT INTERVAL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- PROPERTY BOUNDARY
- APPROXIMATE UNIT BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. WATER LEVELS GAGED 5 MAY 2023
3. OHIO RIVER STAGE MEASURED ON 5 MAY 2023 BY USGS GAGE 03322190 AT HENDERSON, KY, APPROXIMATELY 13.5 MILES UPSTREAM FROM A.B. BROWN GENERATING STATION
4. GROUNDWATER VELOCITY SHOWN IN FEET PER YEAR
5. $V = \frac{K(i)}{n_e}$

   V = GROUNDWATER VELOCITY (FT/YR)
   K = HYDRAULIC CONDUCTIVITY (FT/YR)
   i = GROUNDWATER GRADIENT
   n_e = EFFECTIVE POROSITY
6. SHADED WELLS WERE NOT INCLUDED IN WATER LEVEL GAGING
7. AERIAL IMAGERY SOURCE: HEXAGON, 21 JULY 20237

N

0 1,100 2,200
SCALE IN FEET

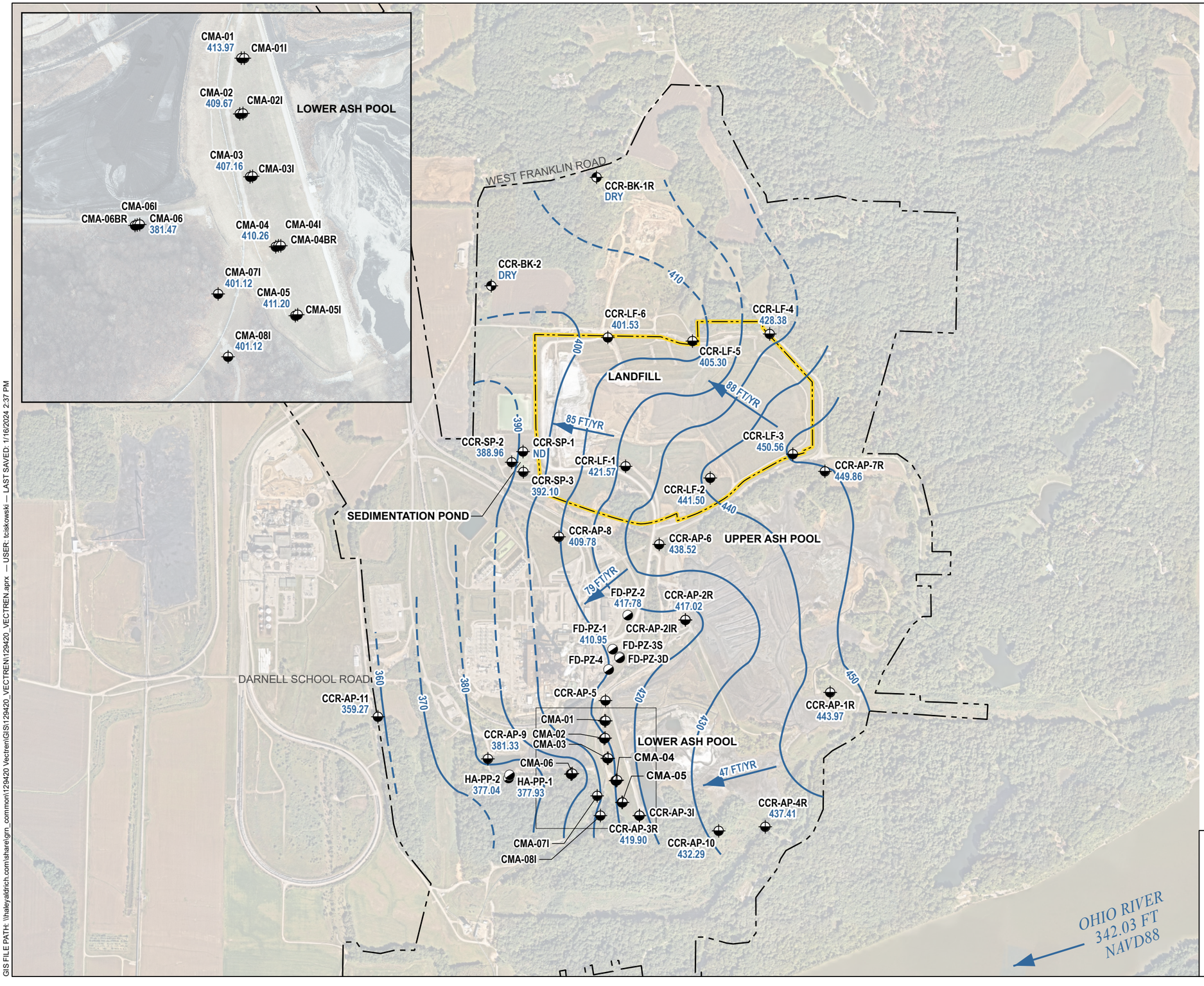
HALEY ALDRICH

LANDFILL
A.B. BROWN GENERATING STATION
POSEY COUNTY, INDIANA

WATER TABLE CONFIGURATION MAP
LANDFILL
5 MAY 2023

JANUARY 2024

FIGURE 2



LEGEND

- PIEZOMETER
- UPGRADIENT GROUNDWATER MONITORING WELL
- DOWNGRADIENT GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR, 10-FT INTERVAL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- PROPERTY BOUNDARY
- APPROXIMATE UNIT BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. WATER LEVELS GAGED 6 NOVEMBER 2023
3. OHIO RIVER STAGE MEASURED ON 6 NOVEMBER 2023 BY USGS GAGE 03322190 AT HENDERSON, KY, APPROXIMATELY 13.5 MILES UPSTREAM FROM A.B. BROWN GENERATING STATION.
4. GROUNDWATER VELOCITY SHOWN IN FEET PER YEAR
5. $V = \frac{k(i)}{n_e}$

   V = GROUNDWATER VELOCITY (FT/YR)
   K = HYDRAULIC CONDUCTIVITY (FT/YR)
   i = GROUNDWATER GRADIENT
   n_e = EFFECTIVE POROSITY
6. AERIAL IMAGERY SOURCE: HEXAGON, 21 JULY 2023.

N

0 1,100 2,200
SCALE IN FEET

HALEY ALDRICH

LANDFILL
A.B. BROWN GENERATING STATION
POSEY COUNTY, INDIANA

WATER TABLE CONFIGURATION MAP
LANDFILL
6 NOVEMBER 2023

JANUARY 2024

FIGURE 3

APPENDIX A
Summary of Statistical Analysis

HALEY & ALDRICH, INC.
6500 Rockside Road
Suite 200
Cleveland, OH 44131
216.739.0555

TECHNICAL MEMORANDUM

9 March 2023
File No. 129420

TO: Southern Indiana Gas and Electric Company

FROM: Haley & Aldrich, Inc.
Todd Plating, Sr. Project Manager
Steven F. Putrich, P.E., Project Principal

SUBJECT: Statistical Evaluation of the November 2022 Semi-annual Groundwater Assessment Monitoring Data
Southern Indiana Gas and Electric Company
Landfill
A.B. Brown Generating Station; Posey County, Indiana

Pursuant to Title 40 Code of Federal Regulations (40 CFR) § 257.93 and § 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the November 2022 semi-annual assessment monitoring event for the A.B. Brown Generating Station Landfill. Haley & Aldrich, Inc. (Haley & Aldrich) completed this statistical evaluation to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at statistically significant levels (SSL) greater than Groundwater Protection Standards (GWPS), consistent with the requirements in 40 CFR § 257.95.

Methods used during this statistical analysis are described in the *Statistical Data Analysis Plan for the A.B Brown Generating Station Landfill* (Haley & Aldrich, 2017). A summary of how applicable performance standards described in § 257.93 (g) were achieved include:

- § 257.93 (g) (1) – Data set distribution was evaluated using basic summary statistics, graphical methods, and the Shapiro-Wilks Test of Normality. Parametric methods were used where normal distributions were identified. Those data sets were evaluated for outliers using box plots, Dixon's test and Rosner's test. Outlier identification and data set distribution groups are summarized in Attachment A.
- § 257.93 (g) (2) – Not applicable
- § 257.93 (g) (3) – Not applicable

- § 257.93 (g) (4) – Levels of confidence and additional supporting information for the use of tolerance intervals and prediction limits are included in Attachment A.
- § 257.93 (g) (5) – Non-detect values were accounted for by simple substitution, where the detection limit replaced the non-detect result. Non-detect values are identified and summarized in Attachment A.
- § 257.93 (g) (6) – Time series plots for groundwater monitoring wells included in this evaluation were reviewed to identify potential seasonal variability. No additional statistics to account for seasonality of spatial variability were necessary.

Data from the groundwater sampling event for the downgradient monitoring wells (CCR-LF-1 through CCR-LF-6) were compared to the GWPS established from the background dataset for the upgradient monitoring wells (CCR-BK-1 and CCR-BK-2) for detected Appendix IV constituents. GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, regional screening level, or background concentration. The results of the assessment monitoring statistical evaluation are discussed below and provided in Attachment A.

Development of GWPS

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR §257.93(f) (1-4)). Haley & Aldrich certified the tolerance limit (TL) as the statistical method used for developing background concentration for the GWPS on 14 January 2019. As noted above, the GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, regional screening level, or background concentration. The most recent groundwater sampling result from each compliance well was compared to the GWPS to determine if additional statistical testing is warranted.

STATISTICAL EVALUATION

An interwell statistical evaluation was used to identify SSLs. An interwell evaluation compares the most recent values from downgradient compliance wells to a background dataset composed of upgradient well data. Because the CCR unit is in assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) constituents.

The parametric TL method was used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs utilize normally distributed data or data normalized via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using the background dataset for detected Appendix IV constituents using parametric TL. If an Appendix IV constituent concentration from the November 2022 sampling event was greater than the GWPS, the lower confidence limit (LCL) for the downgradient well constituent was used to evaluate if an SSL was indicated. The LCL is the lower end of the confidence interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

The UTLs were calculated from the background well dataset using Chemstat software after testing for outlier sample results that would warrant removal from the dataset based on likely error in sampling or measurement. Both visual and statistical outlier tests for the background data were performed using Chemstat and United States Environmental Protection Agency's ProUCL 5.1 software, and a visual inspection of the data was performed using box plots and distribution plots for the downgradient sample data. No sample data were identified as outliers that warranted removal from the dataset.

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample locations were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL calculation. The background concentrations were periodically updated per the document *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009* (Unified Guidance).

TREND SUMMARY

Mann Kendall trend analyses were performed on data sets of sufficient sample size. Results of the trend analysis are included on Attachment A. In summary, 81 percent of trends analyzed are identified as stable or decreasing.

RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the November 2022 assessment monitoring event were compared to their respective GWPS (Attachment A). A sample concentration greater than the GWPS is considered to represent an SSL. Based on previous compliance sampling events and statistical evaluations, interwell comparisons were used to evaluate constituents not subject to an Alternative Source Demonstration (ASD) in downgradient monitoring wells. Because a successful ASD was completed for cobalt, arsenic, and lithium, an intrawell statistical analysis was used to evaluate those constituents. Based on this statistical evaluation, an SSL greater than the GWPS was not identified at the Landfill, however, the Landfill will remain in Assessment Monitoring.

Attachment A – Summary of Assessment Monitoring Statistical Evaluation – November 2022

ATTACHMENT A
Summary of Assessment Monitoring Statistical Evaluation – November 2022

Attachment A
Assessment Monitoring Statistical Summary - November 2022
A.B. Brown Generating Station
Landfill
Prepared: 9 March 2023

														MCL Comparison						Inter-well Analysis					Intra-well Analysis		GWPS		
Location ID	Frequency of Detection	Percent Non-Detect	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Number of Non-Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Group	November 2022 Concentration (mg/L)	Detect?	Lower Confidence Limit (LCL)	Upper Tolerance Limit (mg/L)	SSI (Exceedance above Background at Individual Well)	Upper Prediction Limit	SSI (Exceedance above Background at Individual Well)	Groundwater Protection Standard (Higher of MCL/RSL or Upper Tolerance Limit) (mg/L)	Exceedance above GWPS at Individual Well	SSL
CCR Appendix-IV: Antimony, Total (mg/L)																													
CCR-BK-1	2/18	89%	0.002-0.002	0.00362	0.004	0.004	0.0009	0.000000629	0.0011216	0.621	0.006	mg/L	N	0	0	NA	NA	NA	Non-parametric				0.002				0.006		
CCR-BK-2	1/18	94%	0.002-0.002	0.00384	0.004	0.004	0.00096	2.494E-07	0.0007062	0.3686	0.006	mg/L	N	0	0	NA	NA	NA											
CCR-LF-1	3/17	82%	0.002-0.002	0.0035	0.004	0.004	0.00124	5.898E-07	0.0010862	0.6198	0.006	mg/L	N	0	0	NA	NA	NA		0.001	Y			N				N	No
CCR-LF-2	1/17	94%	0.002-0.05	0.01812	0.004	0.061	0.0042	0.0003336	0.02582	2.85	0.006	mg/L	N	0	10	NA	NA	NA		0.002	N			N				N	No
CCR-LF-3	2/17	88%	0.002-0.002	0.00374	0.004	0.004	0.0022	0.00000028	0.0007484	0.4006	0.006	mg/L	N	0	0	NA	NA	NA		0.002	N			N				N	No
CCR-LF-4	0/17	100%	0.002-0.02	0.01248	0.004	0.04		0.00012012	0.0155	2.486	0.006	mg/L	N	0	8	NA	NA	NA		0.002	N			N				N	No
CCR-LF-5	1/17	94%	0.002-0.02	0.00594	0.004	0.0166	0.0011	0.00003758	0.008668	2.916	0.006	mg/L	N	0	2	NA	NA	NA		0.002	N			N				N	No
CCR-LF-6	2/17	88%	0.002-0.002	0.00376	0.004	0.004	0.0022	0.000000226	0.0006724	0.3576	0.006	mg/L	N	0	0	NA	NA	NA		0.002	N			N				N	No
CCR Appendix-IV: Arsenic, Total (mg/L)																													
CCR-BK-1	12/19	37%	0.001-0.001	0.001882	0.002	0.0033	0.005	5.078E-07	0.0010076	1.0708	0.01	mg/L	N	0	0	Y	N	Stable	Non-parametric				0.0035				0.010		
CCR-BK-2	8/19	58%	0.001-0.001	0.0024	0.002	0.00581	0.007	1.4288E-06	0.0016904	1.4056	0.01	mg/L	N	0	0	N	N	Stable											
CCR-LF-1	14/19	26%	0.001-0.005	0.00222	0.00188	0.00524	0.0044	0.000002114	0.002056	1.8562	0.01	mg/L	N	0	0	Y	N	Stable	Normal	0.00500	N			Y	0.002	Y		N	No
CCR-LF-2	13/19	32%	0.01-0.025	0.01064	0.0044	0.0245	0.0124	0.0000715	0.011958	2.248	0.01	mg/L	N	0	2	Y	N	Stable	Non-parametric	0.00170	Y			N	0.025	N		N	No
CCR-LF-3	12/19	37%	0.001-0.005	0.00258	0.00124	0.01114	0.0176	0.000008552	0.004136	3.212	0.01	mg/L	N	0	0	Y	N	Stable	Non-parametric	0.00500	N			Y	0.009	N		N	No
CCR-LF-4	19/19	0%	-	0.037	0.036	0.0615	0.07	0.00011146	0.01493	0.8086	0.01	mg/L	Y	34	0	N	N	Increase	Normal	0.02400	Y			Y	0.041	N		Y	No
CCR-LF-5	11/19	42%	0.001-0.01	0.00462	0.002	0.0215	0.03	0.0000288	0.00759	3.286	0.01	mg/L	Y	2	0	Y	N	Stable	Non-parametric	0.00500	N			Y	0.015	N		N	No
CCR-LF-6	10/19	47%	0.001-0.005	0.00316	0.002	0.01141	0.0194	0.00001075	0.004636	2.94	0.01	mg/L	N	0	0	Y	N	Increase	Non-parametric	0.00500	N			Y	0.010	N		N	No
CCR Appendix-IV: Barium, Total (mg/L)																													
CCR-BK-1	19/19	0%	-	0.0816	0.076	0.1317	0.164	0.0003158	0.02512	0.6152	2	mg/L	N	0	0	Y	N	Stable	Non-parametric				0.150				2.000		
CCR-BK-2	19/19	0%	-	0.088	0.074	0.1283	0.3	0.0013382	0.05174	1.1758	2	mg/L	N	0	0	Y	N	Stable											
CCR-LF-1	19/19	0%	-	0.1014	0.084	0.2006	0.34	0.001977	0.06288	1.2394	2	mg/L	N	0	0	Y	N	Stable		0.035	Y			N				N	No
CCR-LF-2	15/19	21%	0.1-0.25	0.0784	0.026	0.245	0.042	0.007126	0.11938	3.044	2	mg/L	N	0	0	Y	N	Stable		0.015	Y			N				N	No
CCR-LF-3	19/19	0%	-	0.047	0.05	0.06	0.06	0.00004614	0.009606	0.4082	2	mg/L	N	0	0	N	N	Decrease		0.017	Y			N				N	No
CCR-LF-4	15/19	21%	0.01-0.1	0.0426	0.024	0.2	0.032	0.0015052	0.05486	2.57	2	mg/L	N	0	0	Y	N	Stable		0.011	Y			N				N	No
CCR-LF-5	19/19	0%	-	0.0532	0.052	0.0689	0.074	0.00003074	0.007842	0.2944	2	mg/L	N	0	0	N	N	Stable		0.024	Y			N				N	No
CCR-LF-6	19/19	0%	-	0.0494	0.036	0.1025	0.196	0.0006954	0.0373	1.5108	2	mg/L	N	0	0	Y	N	Increase		0.021	Y			N				N	No
CCR Appendix-IV: Beryllium, Total (mg/L)																													
CCR-BK-1	1/18	94%	0.001-0.001	0.001902	0.002	0.002	0.00024	8.358E-08	0.0004088	0.4298	0.004	mg/L	N	0	0	NA	NA	NA	Non-parametric				0.001				0.004		
CCR-BK-2	2/18	89%	0.001-0.001	0.001842	0.002	0.002	0.0008	1.0518E-07	0.0004586	0.498	0.004	mg/L	N	0	0	NA	NA	NA											
CCR-LF-1	0/17	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.004	mg/L	N	0	0	NA	NA	NA		0.001	N			N				N	No
CCR-LF-2	4/17	76%	0.001-0.025	0.00762	0.002	0.0305	0.00056	0.00008336	0.012912	3.392	0.004	mg/L	N	0	8	N	N	NA		0.001	N			N				N	No
CCR-LF-3	0/17	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.004	mg/L	N	0	0	NA	NA	NA		0.001	N			N				N	No
CCR-LF-4	5/17	71%	0.001-0.01	0.00472	0.002	0.02	0.00068	0.00002604	0.007216	3.062	0.004	mg/L	N	0	6	N	N	Stable		0.001	N			N				N	No
CCR-LF-5	1/17	94%	0.001-0.001	0.001904	0.002	0.002	0.00038	7.484E-08	0.000387	0.4062	0.004	mg/L	N	0	0	NA	NA	NA		0.001	N			N				N	No
CCR-LF-6	1/17	94%	0.001-0.001	0.001924	0.002	0.002	0.0007	4.82E-08	0.0003104	0.3228	0.004	mg/L	N	0	0	NA	NA	NA		0.001	N			N				N	No
CCR Appendix-IV: Cadmium, Total (mg/L)																													
CCR-BK-1	0/19	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA	Non-parametric				0.001				0.005		
CCR-BK-2	0/19	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA											
CCR-LF-1	0/19	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA		0.0010	N			N				N	No
CCR-LF-2	18/19	5%	0.025-0.025	0.01138	0.0086	0.02432	0.0198	0.00005118	0.010116	1.779	0.005	mg/L	Y	8	2	Y	N	Increase		0.0099	Y	0.0039		Y				N	No
CCR-LF-3	4/19	79%	0.001-0.001	0.001636	0.002	0.002	0.00046	2.576E-07	0.0007176	0.8778	0.005	mg/L	N	0	0	N	N	Stable		0.0010	N			N				N	No
CCR-LF-4	1/19	95%	0.001-0.01	0.0057	0.002	0.02	0.000184	0.0000281	0.007498	2.634	0.005	mg/L	N	0	8	NA	NA	NA		0.0010	N			N				N	No
CCR-LF-5	15/19	21%	0.001-0.01	0.00171	0.00046	0.0047	0.00078	0.000009714	0.004408	5.154	0.005	mg/L	N	0	2	Y	N	Increase		0.0002	Y			N				N	No
CCR-LF-6	14/19	26%	0.001-0.001	0.001258	0.00042	0.00311	0.0094	0.000002162	0.00208	3.308	0.005	mg/L	N	0	0	Y	N	Increase		0.0010	N			N				N	No
CCR Appendix-IV: Chromium, Total (mg/L)																													
CCR-BK-1	13/19	32%	0.002-0.002	0.00456	0.004	0.00738	0.0152	0.000004206	0.0029	1.2714	0.1	mg/L	N	0	0	Y	N	Stable	Non-parametric				0.009				0.100		
CCR-BK-2	6/19	68%	0.002-0.002	0.0056	0.004	0.0106	0.0174	0.00000632	0.003556	1.2682	0.1	mg/L	N	0	0	Y	N	Stable											
CCR-LF-1	11/19	42%	0.002-0.005	0.00448	0.004	0.01036	0.0124	0.000003906	0.002796	1.2506	0.1	mg/L	N	0	0	Y	N	Increase		0.0050	N			N				N	No
CCR-LF-2	7/19	63%	0.002-0.05	0.01828	0.004	0.049	0.0044	0.0003212	0.02534	2.774	0.1	mg/L	N	0	0	Y	N	Stable		0.0050	N			N				N	No
CCR-LF-3	14/19	26%	0.002-0.005	0.00468	0.004	0.00745	0.0068	1.5164E-06	0.0017414	0.7436	0.1	mg/L	N	0	0	N	N	Stable		0.0050	N			N				N	No
CCR-LF-4	4/19	79%	0.002-0.02	0.01146	0.004	0.04	0.0042	0.00011324	0.015048	2.628	0.1	mg/L	N	0	0	N	N	NA		0.0050	N			N				N	No
CCR-LF-5	9/19	53%	0.002-0.02	0.0077	0.004	0.0406	0.044	0.00007324	0.012104	3.146	0.1	mg/L	N	0	0	Y	N	Increase		0.0050	N			N				N	No
CCR-LF-6	4/19	79%	0.002-0.005	0.00482	0.004	0.0106	0.014	0.000004364	0.002954	1.2278	0.1	mg/L	N	0	0	Y	N	NA		0.0050	N			N				N	No
CCR Appendix-IV: Cobalt, Total (mg/L)																													
CCR-BK-1	15/19	21%	0.0005-0.0005	0.000727	0.0005	0.00226	0.0028	4.938E-07	0.0007027	0.9661	0.006	mg/L	N	0	0	Y	N	Decreasing	Non-parametric				0.0062				0.006		
CCR-BK-2	9/19	53%	0.0005-0.0005	0.000858	0.0005	0.00197	0.0062	0.000001843	0.001358	1.582	0.006	mg/L	Y	1	0	Y	N	Stable											
CCR-LF-1	13/19	32%	0.0005-0.001	0.000432	0.00049	0.001	0.001	7.567E-08	0.0002751	0.636	0.006	mg/L	N	0	0	N	N	Increase	Normal	0.00100	N			N	0.001	N		N	No
CCR-LF-2	19/19	0%	-	0.00965	0.01	0.0131	0.014	0.000005664	0.00238	0.2466	0.006	mg/L	Y	18	0	Y	N	Increase	Normal	0.01100	Y			Y	0.018	N		Y	No
CCR-LF-3	13/19	32%	0.0005-0.001	0.000469	0.00048	0.000748	0.00072	3.653E-08	0.0001911	0.4071	0.006	mg/L	N	0	0	N	N	Stable	Normal	0.00100	N			N	0.001	Y		N	No
CCR-LF-4	19/19	0%	-	0.00107	0.0011	0.0018	0.0018	1.544E-07	0.0003929	0.3657	0.006	mg/L	N	0	0	Y	N	Stable	Normal	0.00072	Y			N	0.003	N		N	No
CCR-LF-5	13/19	32%	0.0005-0.005	0.000831	0.00035	0.00347	0.0033	0.000001537	0.00124	1.492	0.006	mg/L	N	0	0	Y	N	Stable	Non-parametric	0.00100	N			N	0.005	N		N	No
CCR-LF-6	16/19	16%	0.0005-0.0005	0.00118	0.00033	0.002374	0.016	0.00001292	0.003594	3.048	0.006	mg/L	Y	1	0	Y	N	Stable	Normal	0.00026	Y			N	0.001	N		N	No
CCR Appendix-III/IV: Fluoride (mg/L)																													
CCR-BK-1	17/19	11%	0.23-0.23	0.642	0.66	0.743	0.76	0.005134	0.10134	0.3162	4	mg/L	N	0	0	Y	N	Stable	Non-parametric				0.380				4.000		
CCR-BK-2	17/19	11%	0.11-0.12	0.318	0.3	0.459	0.68	0.006022	0.10974	0.6882	4	mg/L	N	0	0	N	N	Stable											
CCR-LF-1	16/19	16%	0.1-0.14	0.452	0.46	0.606	0.64	0.006946	0.11786	0.5208	4	mg/L	N	0	0	N	N	Stable		0.22	Y			N				N	No
CCR-LF-2	3/19	84%	1-25	6.58	5	16	8.4	56.62	10.642	3.236	4	mg/L	Y	2	4	NA	NA	NA		0.52	Y			Y				N	No
CCR-LF-3	17/19	11%	0.1-0.25	0.444	0.42	0.68	0.68	0.010298	0.14352	0.6476	4	mg/L	N	0	0	N	N	Stable		0.23	Y			N				N	No
CCR-LF-4	8/19	58%	1-2.5	1.938	2	5	1.02	1.0818	1.4708	1.5172	4	mg/L	N	0	0	N	N	Stable		0.26	Y			N				N	No
CCR-LF-5	15/19	21%	0.5-1	0.608	0.46	1.15	0.76	0.08526	0.413	1.3596	4	mg/L	N	0	0	Y	N	Stable		0.17	Y			N				N	No
CCR-LF-6	19/19	0%	-	0.644	0.64	0.952	1.02	0.017778	0.18856	0.5864	4	mg/L	N	0	0	N	N	Stable		0.33	Y			N				N	No
CCR Appendix-IV: Lead, Total (mg/L)																													
CCR-BK-1	16/19	16%	0.001-0.001	0.0011	0.00104	0.00203	0.0022	0.000000282	0.0007508	1.3646	0.015	mg/L	N	0	0	N	N	Stable	Non-parametric				0.011				0.015		
CCR-BK-2	7/19	63%	0.001-0.001	0.0033	0.002	0.00806	0.022	0.000010912	0.004672	2.83	0.015	mg/L	N	0	0	Y	N	Stable											
CCR-LF-1	9/18	50%	0.001-0.001	0.00165	0.002	0.0026	0.0038	3.572E-07	0.0008454	1.0244	0.015	mg/L	N	0	0	Y	N	Stable		0.00100	N			N				N	No
CCR-LF-2	11/18	39%	0.001-0.025	0.00918	0.00196	0.0275	0.0028	0.00008596	0.013112	2.854	0.015	mg/L	N	0	2	Y	N	Stable		0.00140	Y			N				N	No
CCR-LF-3	2/18	89%	0.00047-0.001	0.001734	0.002	0.002	0.000148	1.9482E-07	0.0006242	0.7202	0.015	mg/L	N	0	0	NA	NA	NA		0.00100	N			N				N	No
CCR-LF-4	9/18	50%	0.001-0.01	0.01314	0.002	0.0545	0.158	0.0006596	0.03632	5.526	0.015	mg/L	Y	2	0	Y	N	Stable		0.00100	N			N				N	No
CCR-LF-5	8/18	56%	0.0004-0.01	0.00244	0.002	0.0068	0.0024	0.000009638	0.00439	3.6	0.015	mg/L	N	0	0	Y	N	Stable		0.00100	N			N				N	No
CCR-LF-6	4/18	78%	0.00024-0.001	0.001868	0.002	0.0031	0.0064	8.756E-07	0.0013234	1.4174	0.015	mg/L	N	0	0	Y	N	NA		0.00100	N			N				N	No

Attachment A
Assessment Monitoring Statistical Summary - November 2022
A.B. Brown Generating Station
Landfill
Prepared: 9 March 2023

														MCL Comparison						Inter-well Analysis					Intra-well Analysis		GWPS		
Location ID	Frequency of Detection	Percent Non-Detect	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Number of Non-Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Group	November 2022 Concentration (mg/L)	Detect?	Lower Confidence Limit (LCL)	Upper Tolerance Limit (mg/L)	SSI (Exceedance above Background at Individual Well)	Upper Prediction Limit	SSI (Exceedance above Background at Individual Well)	Groundwater Protection Standard (Higher of MCL/RSL or Upper Tolerance Limit) (mg/L)	Exceedance above GWPS at Individual Well	SSL
CCR Appendix-IV: Lithium, Total (mg/L)																													
CCR-BK-1	5/19	74%	0.005-0.05	0.0241	0.0065	0.05	0.0086	0.0005172	0.02274	0.9445	0.04	mg/L	N	0	8	N	N	NA	Non-parametric				0.050				0.050		
CCR-BK-2	4/19	79%	0.005-0.05	0.0285	0.05	0.05	0.0043	0.0005428	0.0233	0.8168	0.04	mg/L	N	0	10	N	N	NA											
CCR-LF-1	10/19	47%	0.0059-0.05	0.0223	0.008	0.05	0.01	0.0004755	0.0218	0.9778	0.04	mg/L	N	0	7	N	N	Decrease	Non-parametric	0.0080	N			N	0.050	N		N	No
CCR-LF-2	14/19	26%	0.005-0.25	0.0431	0.025	0.142	0.041	0.00321	0.05665	1.314	0.04	mg/L	Y	1	4	Y	N	Stable	Non-parametric	0.0170	Y			N	0.250	N		N	No
CCR-LF-3	3/19	84%	0.005-0.05	0.0251	0.0098	0.05	0.018	0.000484	0.022	0.8755	0.04	mg/L	N	0	8	N	N	NA	Non-parametric	0.0080	N			N	0.050	N		N	No
CCR-LF-4	19/19	0%	-	0.0841	0.087	0.111	0.12	0.0003392	0.01842	0.2191	0.04	mg/L	Y	18	0	N	N	Decrease	Normal	0.0820	Y			Y	0.154	N		Y	No
CCR-LF-5	18/19	5%	0.05-0.05	0.0247	0.023	0.0329	0.031	0.00005034	0.007095	0.2874	0.04	mg/L	N	0	1	Y	N	Stable	Non-parametric	0.0220	Y			N	0.050	N		N	No
CCR-LF-6	19/19	0%	-	0.0186	0.019	0.023	0.023	0.00000869	0.002948	0.1582	0.04	mg/L	N	0	0	N	N	Stable	Normal	0.0130	Y			N	0.029	N		N	No
CCR Appendix-IV: Mercury, Total (mg/L)																													
CCR-BK-1	0/18	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.452E-22	1.7042E-11	8.52E-08	0.002	mg/L	N	0	0	NA	NA	NA	Non-parametric				0.0002				0.002		
CCR-BK-2	2/18	89%	0.0002-0.0002	0.000388	0.0004	0.0004	0.0004	1.0794E-09	0.00004646	0.239	0.002	mg/L	N	0	0	NA	NA	NA											
CCR-LF-1	1/18	94%	0.0002-0.0002	0.000392	0.0004	0.0004	0.00026	5.288E-10	0.00003252	0.16584	0.002	mg/L	N	0	0	NA	NA	NA		0.0002	N			N				N	No
CCR-LF-2	1/18	94%	0.0002-0.0002	0.000394	0.0004	0.0004	0.00028	3.886E-10	0.00002788	0.14174	0.002	mg/L	N	0	0	NA	NA	NA		0.0001	Y			N				N	No
CCR-LF-3	0/18	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.452E-22	1.7042E-11	8.52E-08	0.002	mg/L	N	0	0	NA	NA	NA		0.0002	N			N				N	No
CCR-LF-4	0/18	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.452E-22	1.7042E-11	8.52E-08	0.002	mg/L	N	0	0	NA	NA	NA		0.0002	N			N				N	No
CCR-LF-5	12/18	33%	0.0002-0.0002	0.000304	0.0003	0.00046	0.00064	8.562E-09	0.00013086	0.8606	0.002	mg/L	N	0	0	N	N	Stable		0.0003	Y			Y				N	No
CCR-LF-6	0/18	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.452E-22	1.7042E-11	8.52E-08	0.002	mg/L	N	0	0	NA	NA	NA		0.0002	N			N				N	No
CCR Appendix-IV: Molybdenum, Total (mg/L)																													
CCR-BK-1	17/19	11%	0.005-0.005	0.00177	0.0013	0.005	0.0034	0.000001806	0.001344	0.7578	0.1	mg/L	N	0	0	N	N	Decrease	Non-parametric				0.005				0.100		
CCR-BK-2	9/19	53%	0.005-0.005	0.00315	0.005	0.005	0.0025	0.000004218	0.002054	0.6522	0.1	mg/L	N	0	0	N	N	Stable											
CCR-LF-1	17/19	11%	0.005-0.005	0.00154	0.0012	0.005	0.0016	0.000001566	0.001251	0.8139	0.1	mg/L	N	0	0	Y	N	Decrease		0.0013	Y			N				N	No
CCR-LF-2	13/19	32%	0.05-0.13	0.0218	0.0031	0.058	0.0048	0.001136	0.0337	1.543	0.1	mg/L	N	0	1	Y	N	Stable		0.0024	Y			N				N	No
CCR-LF-3	17/19	11%	0.005-0.005	0.00209	0.0014	0.00506	0.0056	0.000002303	0.001518	0.7261	0.1	mg/L	N	0	0	Y	N	Stable		0.0050	N			N				N	No
CCR-LF-4	18/19	5%	0.005-0.005	0.0212	0.022	0.0272	0.029	0.00003058	0.00553	0.2614	0.1	mg/L	N	0	0	Y	N	Stable		0.0270	Y			Y				N	No
CCR-LF-5	11/19	42%	0.005-0.05	0.00498	0.001	0.0095	0.0023	0.000123	0.01109	2.226	0.1	mg/L	N	0	0	Y	N	Stable		0.0050	N			N				N	No
CCR-LF-6	15/19	21%	0.005-0.005	0.00222	0.0012	0.00516	0.0066	0.000003881	0.00197	0.8868	0.1	mg/L	N	0	0	N	N	Stable		0.0014	Y			N				N	No
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																													
CCR-BK-1	12/19	37%	0.121-0.509	1.048	0.914	2.09	4.92	0.4864	0.9862	1.8812	5	pCi/L	N	0	0	Y	N	Increase	Non-parametric				3.1				5.00		
CCR-BK-2	4/19	79%	-0.0961-2.74	1.268	0.434	5.598	6.26	1.6788	1.8324	2.89	5	pCi/L	N	0	0	N	N	Stable											
CCR-LF-1	19/19	0%	-	2.4	1.494	4.92	16.14	5.608	3.348	2.8	5	pCi/L	Y	2	0	Y	N	Stable		1.2	Y			N				N	No
CCR-LF-2	19/19	0%	-	4.42	4.34	6.142	7.74	0.7574	1.2308	0.5574	5	pCi/L	N	0	0	Y	N	Increase		2.8	Y			N				N	No
CCR-LF-3	11/19	42%	0.188-1.68	1.198	0.966	2.816	2.72	0.2928	0.7652	1.2768	5	pCi/L	N	0	0	Y	N	Stable		1.4	Y			N				N	No
CCR-LF-4	19/19	0%	-	9.56	9.24	13.984	16.28	4.344	2.948	0.6168	5	pCi/L	Y	14	0	N	N	Stable		6.8	Y	4.18		Y				N	No
CCR-LF-5	5/19	74%	-0.0225-1.39	0.976	0.492	3.198	5.56	0.828	1.2868	2.636	5	pCi/L	N	0	0	NA	NA	NA		1.4	N			N				N	No
CCR-LF-6	6/19	68%	0.101-0.996	1.414	0.604	3.652	13.06	3.982	2.822	3.994	5	pCi/L	Y	2	0	NA	NA	NA		1.0	N			N				N	No
CCR Appendix-IV: Selenium, Total (mg/L)																													
CCR-BK-1	3/19	84%	0.005-0.005	0.00858	0.01	0.01	0.00134	0.000005494	0.003314	0.7724	0.05	mg/L	N	0	0	NA	NA	NA	Non-parametric				0.005				0.050		
CCR-BK-2	2/19	89%	0.005-0.005	0.0091	0.01	0.01	0.00196	0.00000355	0.002664	0.5856	0.05	mg/L	N	0	0	NA	NA	NA											
CCR-LF-1	4/18	78%	0.005-0.005	0.00826	0.01	0.01	0.0026	0.000005494	0.003316	0.8032	0.05	mg/L	N	0	0	NA	NA	NA		0.0050	N			N				N	No
CCR-LF-2	12/18	33%	0.05-0.13	0.046	0.0061	0.14	0.0112	0.002286	0.06764	2.944	0.05	mg/L	N	0	12	Y	N	Stable		0.0022	Y			N				N	No
CCR-LF-3	10/18	44%	0.005-0.005	0.0065	0.0046	0.01	0.0048	0.000005206	0.003226	0.9928	0.05	mg/L	N	0	0	N	N	Stable		0.0050	N			N				N	No
CCR-LF-4	3/18	83%	0.005-0.05	0.0286	0.01	0.1	0.0014	0.0007556	0.03888	2.724	0.05	mg/L	N	0	8	NA	NA	NA		0.0050	N			N				N	No
CCR-LF-5	1/18	94%	0.005-0.05	0.0145	0.01	0.0325	0.00108	0.0002232	0.02114	2.914	0.05	mg/L	N	0	2	NA	NA	NA		0.0050	N			N				N	No
CCR-LF-6	4/18	78%	0.005-0.005	0.00848	0.01	0.01	0.0046	0.000004384	0.002962	0.699	0.05	mg/L	N	0	0	NA	NA	NA		0.0012	Y			N				N	No
CCR Appendix-IV: Thallium, Total (mg/L)																													
CCR-BK-1	2/18	89%	0.001-0.001	0.001812	0.002	0.002	0.00054	1.485E-07	0.000545	0.6016	0.002	mg/L	N	0	0	NA	NA	NA	Non-parametric				0.001				0.002		
CCR-BK-2	3/18	83%	0.001-0.001	0.001714	0.002	0.002	0.00038	0.000000211	0.0006498	0.758	0.002	mg/L	N	0	0	NA	NA	NA											
CCR-LF-1	2/17	88%	0.001-0.001	0.001838	0.002	0.002	0.00112	1.1804E-07	0.0004858	0.529	0.002	mg/L	N	0	0	NA	NA	NA		0.0006	Y			N				N	No
CCR-LF-2	10/17	41%	0.001-0.025	0.00858	0.0015	0.0305	0.00192	0.00008706	0.013196	3.076	0.002	mg/L	N	0	10	N	N	Stable		0.0010	Y			N				N	No
CCR-LF-3	6/17	65%	0.001-0.001	0.001416	0.002	0.002	0.0008	3.346E-07	0.000818	1.1556	0.002	mg/L	N	0	0	N	N	Stable		0.0010	N			N				N	No
CCR-LF-4	4/17	76%	0.001-0.01	0.00582	0.002	0.02	0.0004	0.00003216	0.00802	2.758	0.002	mg/L	N	0	8	N	N	Stable		0.0010	N			N				N	No
CCR-LF-5	3/17	82%	0.001-0.01	0.00276	0.002	0.0083	0.0006	0.000009806	0.004428	3.218	0.002	mg/L	N	0	2	NA	NA	NA		0.0010	N			N				N	No
CCR-LF-6	4/17	76%	0.001-0.001	0.001614	0.002	0.002	0.00064	2.542E-07	0.000713	0.884	0.002	mg/L	N	0	0	NA	NA	NA		0.0003	Y			N				N	No

Notes:
1 - Groundwater protection standards compared against lower confidence limit to determine statistically significant levels
CCR - Coal Combustion Residuals
MCL - maximum concentration limit
mg/L - milligrams per liter
NA - not applicable
pCi/L - picocurie per liter
RSL - Regional Screening Level
SSI - Statistically Significant Increase
SSL - Statistically Signficant Level

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TECHNICAL MEMORANDUM

25 September 2023
File No. 0129420-027

TO: Southern Indiana Gas and Electric Company

FROM: Haley & Aldrich, Inc.
Todd Plating, Senior Project Manager
Steven F. Putrich, P.E., Project Principal

SUBJECT: Statistical Evaluation of the May 2023 Semi-Annual Groundwater Assessment Monitoring Data
Southern Indiana Gas and Electric Company
Landfill
A.B. Brown Generating Station; Posey County, Indiana

Pursuant to Title 40 Code of Federal Regulations (40 CFR) § 257.93 and § 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the May 2023 semi-annual assessment monitoring event for the A.B. Brown Generating Station Landfill. Haley & Aldrich, Inc. (Haley & Aldrich) completed this statistical evaluation to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at statistically significant levels (SSL) greater than the Groundwater Protection Standards (GWPS), consistent with the requirements in 40 CFR § 257.95.

Methods used during this statistical analysis are described in Haley & Aldrich's 2017 *Statistical Data Analysis Plan for the A.B Brown Generating Station Landfill*. Applicable performance standards described in 40 CFR § 257.93 (g) are summarized below:

- 40 CFR § 257.93 (g) (1) – Data set distribution was evaluated using basic summary statistics, graphical methods, and the Shapiro-Wilks Test of Normality. Parametric methods were used where normal distributions were identified. Those data sets were evaluated for outliers using box plots, Dixon's test and Rosner's test. Outlier identification and data set distribution groups are summarized in Attachment A.
- 40 CFR § 257.93 (g) (2) – Not applicable
- 40 CFR § 257.93 (g) (3) – Not applicable

- 40 CFR § 257.93 (g) (4) – Levels of confidence and additional supporting information for the use of tolerance intervals and prediction limits are included in Attachment A.
- 40 CFR § 257.93 (g) (5) – Non-detect values were accounted for by simple substitution, where the detection limit replaced the non-detect result. Non-detect values are identified and summarized in Attachment A.
- 40 CFR § 257.93 (g) (6) – Time series plots for groundwater monitoring wells included in this evaluation were reviewed to identify potential seasonal variability. No additional statistics to account for seasonality of spatial variability were necessary.

Data from the groundwater sampling event for the downgradient monitoring wells (CCR-LF-1 through CCR-LF-6) were compared to the GWPS established from the background dataset for the upgradient monitoring wells (CCR-BK-1 and CCR-BK-2) for detected Appendix IV constituents. GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, regional screening level, or background concentration. The results of the assessment monitoring statistical evaluation are discussed below and provided in Attachment A.

Development of Groundwater Protection Standards

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR §257.93(f) (1-4)). Haley & Aldrich certified the tolerance limit (TL) as the statistical method used for developing background concentration for the GWPS on 14 January 2019. As noted above, the GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level, regional screening level, or background concentration. The most recent groundwater sampling result from each compliance well was compared to the GWPS to determine if additional statistical testing is warranted.

STATISTICAL EVALUATION

An interwell statistical evaluation was used to identify SSLs. An interwell evaluation compares the most recent values from downgradient compliance wells to a background dataset composed of upgradient well data. Because the CCR unit is in assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) constituents.

The parametric TL method was used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs utilize normally distributed data or data normalized via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using the background dataset for detected Appendix IV constituents using parametric TL. If an Appendix IV constituent concentration from the May 2023 sampling event was greater than the GWPS, the lower confidence limit (LCL) for the downgradient well constituent was used to evaluate if an SSL was indicated. The LCL is the lower end of the confidence interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

The UTLs were calculated from the background well dataset using Chemstat software after testing for outlier sample results that would warrant removal from the dataset based on likely error in sampling or measurement. Both visual and statistical outlier tests for the background data were performed using Chemstat and United States Environmental Protection Agency's ProUCL 5.1 software, and a visual inspection of the data was performed using box plots and distribution plots for the downgradient sample data. No sample data were identified as outliers that warranted removal from the dataset.

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample locations were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL calculation. The background concentrations were periodically updated per the document *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009*.

TREND SUMMARY

Mann-Kendall trend analyses were performed on data sets of sufficient sample size. In summary, 81 percent of trends analyzed are identified as stable or decreasing. Results of the trend analysis are included on Attachment A.

RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the May 2023 assessment monitoring event were compared to their respective GWPS (Attachment A). A sample concentration greater than the GWPS is considered to represent an SSL. Based on previous compliance sampling events and statistical evaluations, interwell comparisons were used to evaluate constituents not subject to an Alternative Source Demonstration (ASD) in downgradient monitoring wells. Because a successful ASD was completed for cobalt, arsenic, and lithium, an intra-well statistical analysis was used to evaluate those constituents. Based on this statistical evaluation, an SSL greater than the GWPS was not identified at the Landfill, however, the Landfill will remain in Assessment Monitoring.

Enclosure

Attachment A – Assessment Monitoring Statistical Analysis Summary

ATTACHMENT A
Assessment Monitoring Statistical Analysis Summary

Attachment A
Assessment Monitoring Statistical Summary - May 2023
A.B. Brown Generating Station
Landfill
Prepared: 25 September 2023

													MCL Comparison					Inter-well Analysis				Intra-well Analysis **		GWPS		
Location ID	**Frequency of Detection**	**Percent Non-Detect**	**Range of Non-Detect**	**Mean**	**50th Percentile (Median)**	**95th Percentile**	**Maximum Detect**	**Variance**	**Standard Deviation**	**Coefficient of Variance**	**CCR MCL/RSL**	**Report Result Unit**	**Detection Exceedances (Y/N)**	**Number of Detection Exceedances**	**Outlier Detected**	**Outlier Removed**	**Trend**	**Distribution Group***	**May 2023 Concentration (mg/L)**	**Detect?**	**Upper Tolerance Limit (mg/L)**	**Lower Confidence Level (LCL) (mg/L)**	**SSI (Exceedance above Background at Individual Well)**	**Upper Prediction Limit**	**SSI (Exceedance above Background at Individual Well)**	**Groundwater Protection Standard (Higher of MCL/RSL or Upper Tolerance Limit) (mg/L)**	**Exceedance above GWPS at Individual Well**	**SSL**
CCR Appendix-IV: Antimony, Total (mg/L)																											
CCR-BK-1	2/19	89%	0.002-0.002	0.00364	0.004	0.004	0.0009	5.988E-07	0.0010944	0.6026	0.006	mg/L	N	0	NA	NA	NA	Non-parametric			0.002					0.006		
CCR-BK-2	1/19	95%	0.002-0.002	0.00384	0.004	0.004	0.00096	2.366E-07	0.000688	0.3582	0.006	mg/L	N	0	NA	NA	NA											
CCR-LF-1	3/18	83%	0.002-0.002	0.00354	0.004	0.004	0.00124	5.628E-07	0.001061	0.6008	0.006	mg/L	N	0	NA	NA	NA		0.002	N			N				N	No
CCR-LF-2	1/18	94%	0.002-0.05	0.01734	0.004	0.055	0.0042	0.0003198	0.0253	2.916	0.006	mg/L	N	0	NA	NA	NA		0.002	N			N				N	No
CCR-LF-3	2/18	89%	0.002-0.002	0.00376	0.004	0.004	0.0022	0.000000266	0.0007292	0.3888	0.006	mg/L	N	0	NA	NA	NA		0.002	N			N				N	No
CCR-LF-4	0/18	100%	0.002-0.02	0.012	0.004	0.04		0.0001152	0.015178	2.53	0.006	mg/L	N	0	NA	NA	NA		0.002	N			N				N	No
CCR-LF-5	1/18	94%	0.002-0.02	0.00584	0.004	0.013	0.0011	0.00003552	0.00843	2.888	0.006	mg/L	N	0	NA	NA	NA		0.002	N			N				N	No
CCR-LF-6	2/18	89%	0.002-0.002	0.00378	0.004	0.004	0.0022	2.146E-07	0.0006552	0.3474	0.006	mg/L	N	0	NA	NA	NA		0.002	N			N				N	No
CCR Appendix-IV: Arsenic, Total (mg/L)																											
CCR-BK-1	12/20	40%	0.001-0.005	0.00228	0.002	0.00525	0.005	0.000002086	0.002044	1.7858	0.01	mg/L	N	0	Y	N	Stable	Non-parametric			0.0035					0.010		
CCR-BK-2	8/20	60%	0.001-0.005	0.00278	0.002	0.00715	0.007	0.00000276	0.00235	1.6874	0.01	mg/L	N	0	N	N	Stable											
CCR-LF-1	15/20	25%	0.001-0.005	0.00214	0.00178	0.00468	0.0044	0.000002068	0.002034	1.9042	0.01	mg/L	N	0	Y	N	Stable	Normal	0.00031	Y			N	0.002	N		N	No
CCR-LF-2	14/20	30%	0.01-0.025	0.01026	0.0039	0.0215	0.0124	0.00006918	0.011764	2.29	0.01	mg/L	N	0	Y	N	Stable	Non-parametric	0.00160	Y			N	0.025	N		N	No
CCR-LF-3	13/20	35%	0.001-0.005	0.00248	0.00118	0.01038	0.0176	0.000008204	0.00405	3.268	0.01	mg/L	N	0	Y	N	Stable	Non-parametric	0.00032	Y			N	0.009	N		N	No
CCR-LF-4	20/20	0%	-	0.0372	0.037	0.0605	0.07	0.00010696	0.014626	0.7846	0.01	mg/L	Y	36	N	N	Increase	Normal	0.02200	Y			Y	0.041	N		Y	No
CCR-LF-5	12/20	40%	0.001-0.01	0.00446	0.002	0.0205	0.03	0.00002754	0.007422	3.322	0.01	mg/L	Y	2	Y	N	Stable	Non-parametric	0.00080	Y			N	0.015	N		N	No
CCR-LF-6	11/20	45%	0.001-0.005	0.00304	0.002	0.01047	0.0194	0.000010352	0.00455	3.004	0.01	mg/L	N	0	Y	N	Stable	Non-parametric	0.00033	Y			N	0.010	N		N	No
CCR Appendix-IV: Barium, Total (mg/L)																											
CCR-BK-1	20/20	0%	-	0.085	0.076	0.1488	0.164	0.0004066	0.02852	0.671	2	mg/L	N	0	Y	N	Stable	Non-parametric			0.150					2.000		
CCR-BK-2	20/20	0%	-	0.0868	0.073	0.1081	0.3	0.0012836	0.05066	1.1674	2	mg/L	N	0	Y	N	Stable											
CCR-LF-1	20/20	0%	-	0.0988	0.083	0.1842	0.34	0.0019506	0.06246	1.2656	2	mg/L	N	0	Y	N	Stable		0.023	Y			N				N	No
CCR-LF-2	16/20	20%	0.1-0.25	0.076	0.026	0.215	0.042	0.006822	0.1168	3.078	2	mg/L	N	0	Y	N	Stable		0.014	Y			N				N	No
CCR-LF-3	20/20	0%	-	0.0464	0.05	0.06	0.06	0.00004928	0.009928	0.4288	2	mg/L	N	0	N	N	Decrease		0.016	Y			N				N	No
CCR-LF-4	16/20	20%	0.01-0.1	0.0416	0.023	0.2	0.032	0.0014384	0.05364	2.576	2	mg/L	N	0	Y	N	Stable		0.011	Y			N				N	No
CCR-LF-5	20/20	0%	-	0.0532	0.052	0.0683	0.074	0.00002944	0.007672	0.289	2	mg/L	N	0	N	N	Stable		0.025	Y			N				N	No
CCR-LF-6	20/20	0%	-	0.0494	0.037	0.0915	0.196	0.0006598	0.03632	1.4706	2	mg/L	N	0	Y	N	Increase		0.025	Y			N				N	No
CCR Appendix-IV: Beryllium, Total (mg/L)																											
CCR-BK-1	1/19	95%	0.001-0.001	0.001908	0.002	0.002	0.00024	7.932E-08	0.0003982	0.4176	0.004	mg/L	N	0	NA	NA	NA	Non-parametric			0.001					0.004		
CCR-BK-2	2/19	89%	0.001-0.001	0.00185	0.002	0.002	0.0008	1.0014E-07	0.0004476	0.4836	0.004	mg/L	N	0	NA	NA	NA											
CCR-LF-1	0/18	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.004	mg/L	N	0	NA	NA	NA		0.001	N			N				N	No
CCR-LF-2	4/18	78%	0.001-0.025	0.0073	0.002	0.0275	0.00056	0.00007946	0.012606	3.452	0.004	mg/L	N	0	N	N	NA		0.001	N			N				N	No
CCR-LF-3	0/18	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.004	mg/L	N	0	NA	NA	NA		0.001	N			N				N	No
CCR-LF-4	5/18	72%	0.001-0.01	0.00456	0.002	0.02	0.00068	0.00002474	0.007036	3.084	0.004	mg/L	N	0	N	N	Stable		0.001	N			N				N	No
CCR-LF-5	1/18	94%	0.001-0.001	0.00191	0.002	0.002	0.00038	7.082E-08	0.0003764	0.394	0.004	mg/L	N	0	NA	NA	NA		0.001	N			N				N	No
CCR-LF-6	1/18	94%	0.001-0.001	0.001928	0.002	0.002	0.0007	4.56E-08	0.000302	0.3134	0.004	mg/L	N	0	NA	NA	NA		0.001	N			N				N	No
CCR Appendix-IV: Cadmium, Total (mg/L)																											
CCR-BK-1	0/20	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	NA	NA	NA	Non-parametric			0.001					0.005		
CCR-BK-2	0/20	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	NA	NA	NA											
CCR-LF-1	0/20	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	NA	NA	NA		0.0010	N			N				N	No
CCR-LF-2	19/20	5%	0.025-0.025	0.01136	0.0087	0.0213	0.0198	0.00004854	0.009854	1.734	0.005	mg/L	Y	10	Y	N	Increase		0.0056	Y		0.0039	Y				N	No
CCR-LF-3	4/20	80%	0.001-0.001	0.001654	0.002	0.002	0.00046	2.476E-07	0.0007036	0.8512	0.005	mg/L	N	0	N	N	Stable		0.0010	N			N				N	No
CCR-LF-4	1/20	95%	0.001-0.01	0.0055	0.002	0.02	0.000184	0.000027	0.007348	2.668	0.005	mg/L	N	0	NA	NA	NA		0.0010	N			N				N	No
CCR-LF-5	16/20	20%	0.001-0.01	0.001662	0.00047	0.0029	0.00078	0.00000924	0.004298	5.172	0.005	mg/L	N	0	Y	N	Increase		0.0004	Y			N				N	No
CCR-LF-6	14/20	30%	0.001-0.001	0.001294	0.00043	0.00237	0.0094	0.000002066	0.002032	3.14	0.005	mg/L	N	0	Y	N	Increase		0.0010	N			N				N	No
CCR Appendix-IV: Chromium, Total (mg/L)																											
CCR-BK-1	14/20	30%	0.002-0.002	0.0045	0.004	0.00646	0.0152	0.000004022	0.002836	1.2596	0.1	mg/L	N	0	Y	N	Stable	Non-parametric			0.009					0.100		
CCR-BK-2	6/20	70%	0.002-0.005	0.00582	0.004	0.01037	0.0174	0.000006466	0.003596	1.2344	0.1	mg/L	N	0	Y	N	Stable											
CCR-LF-1	11/20	45%	0.002-0.005	0.00444	0.004	0.01012	0.0124	0.000003712	0.002724	1.2254	0.1	mg/L	N	0	Y	N	Increase		0.0020	N			N				N	No
CCR-LF-2	7/20	65%	0.002-0.05	0.01756	0.004	0.043	0.0044	0.0003096	0.02488	2.834	0.1	mg/L	N	0	Y	N	Stable		0.0020	N			N				N	No
CCR-LF-3	14/20	30%	0.002-0.005	0.00466	0.004	0.00715	0.0068	0.00000145	0.001703	0.7324	0.1	mg/L	N	0	N	N	Stable		0.0020	N			N				N	No
CCR-LF-4	4/20	80%	0.002-0.02	0.01108	0.004	0.04	0.0042	0.00010878	0.01475	2.662	0.1	mg/L	N	0	N	N	NA		0.0020	N			N				N	No
CCR-LF-5	9/20	55%	0.002-0.02	0.0075	0.004	0.0402	0.044	0.00006982	0.011818	3.148	0.1	mg/L	N	0	Y	N	Increase		0.0020	N			N				N	No
CCR-LF-6	4/20	80%	0.002-0.005	0.00478	0.004	0.0102	0.014	0.000004156	0.002882	1.2084	0.1	mg/L	N	0	Y	N	NA		0.0020	N			N				N	No
CCR Appendix-IV: Cobalt, Total (mg/L)																											
CCR-BK-1	16/20	20%	0.0005-0.0005	0.000704	0.0005	0.00223	0.0028	4.787E-07	0.0006919	0.9828	0.006	mg/L	N	0	Y	N	Decreasing	Non-parametric			0.0062					0.006		
CCR-BK-2	9/20	55%	0.0005-0.001	0.000865	0.0005	0.001735	0.0062	0.000001747	0.001322	1.528	0.006	mg/L	Y	1	Y	N	Stable											
CCR-LF-1	13/20	35%	0.0005-0.001	0.000436	0.000495	0.001	0.001	7.191E-08	0.0002682	0.6153	0.006	mg/L	N	0	N	N	Increase	Normal	0.00050	N			N	0.001	N		N	No
CCR-LF-2	20/20	0%	-	0.00972	0.0105	0.01305	0.014	0.000005456	0.002336	0.2403	0.006	mg/L	Y	19	Y	N	Increase	Normal	0.01100	Y			Y	0.018	N		Y	No
CCR-LF-3	13/20	35%	0.0005-0.001	0.000471	0.00049	0.000734	0.00072	3.465E-08	0.0001861	0.3952	0.006	mg/L	N	0	N	N	Stable	Normal	0.00050	N			N	0.001	N		N	No
CCR-LF-4	20/20	0%	-	0.00109	0.0011	0.0018	0.0018	1.488E-07	0.0003857	0.3553	0.006	mg/L	N	0	Y	N	Stable	Normal	0.00130	Y			N	0.003	N		N	No
CCR-LF-5	13/20	35%	0.0005-0.005	0.000815	0.000425	0.003385	0.0033	0.000001462	0.001209	1.484	0.006	mg/L	N	0	Y	N	Stable	Non-parametric	0.00050	N			N	0.005	N		N	No
CCR-LF-6	16/20	20%	0.0005-0.0005	0.00115	0.00033	0.001617	0.016	0.00001226	0.003502	3.057	0.006	mg/L	Y	1	Y	N	Increase	Normal	0.00050	N			N	0.001	N		N	No
CCR Appendix-III/IV: Fluoride (mg/L)																											
CCR-BK-1	18/20	10%	0.23-0.23	0.628	0.66	0.741	0.76	0.006796	0.11658	0.3718	4	mg/L	N	0	Y	N	Stable	Non-parametric			0.380					4.000		
CCR-BK-2	17/20	15%	0.1-0.12	0.312	0.29	0.433	0.68	0.006056	0.11006	0.7032	4	mg/L	N	0	N	N	Stable											
CCR-LF-1	17/20	15%	0.1-0.14	0.458	0.48	0.602	0.64	0.00687	0.11722	0.5118	4	mg/L	N	0	N	N	Stable		0.28	Y			N				N	No
CCR-LF-2	4/20	80%	1-25	6.28	5	12	8.4	54.52	10.442	3.322	4	mg/L	Y	2	NA	NA	NA		0.41	Y			Y				N	No
CCR-LF-3	18/20	10%	0.1-0.25	0.448	0.44	0.68	0.68	0.009914	0.1408	0.63	4	mg/L	N	0	N	N	Stable		0.26	Y			N				N	No
CCR-LF-4	9/20	55%	1-2.5	1.87	2	5	1.02	1.0712	1.4638	1.5646	4	mg/L	N	0	N	N	Decrease		0.29	Y			N				N	No
CCR-LF-5	16/20	20%	0.5-1	0.596	0.46	1.05	0.76	0.08214	0.4054	1.36	4	mg/L	N	0	Y	N	Stable		0.19	Y			N				N	No
CCR-LF-6	20/20	0%	-	0.646	0.64	0.944	1.02	0.01701	0.18444	0.5702	4	mg/L	N	0	N	N	Stable		0.36	Y			N				N	No
CCR Appendix-IV: Lead, Total (mg/L)																											
CCR-BK-1	16/20	20%	0.001-0.001	0.001146	0.00115	0.00201	0.0022	2.872E-07	0.0007578	1.3232	0.015	mg/L	N	0	N	N	Stable	Non-parametric			0.011					0.015		
CCR-BK-2	7/20	65%	0.001-0.001	0.00324	0.002	0.00642	0.022	0.000010392	0.00456	2.818	0.015	mg/L	N	0	Y	N	Stable											
CCR-LF-1	9/19	53%	0.001-0.001	0.001668	0.002	0.00244	0.0038	0.000000341	0.000826	0.9898	0.015	mg/L	N	0	Y	N	Stable		0.00100	N			N				N	No
CCR-LF-2	12/19	37%	0.001-0.025	0.00876	0.00192	0.0245	0.0028	0.00008298	0.012882	2.94	0.015	mg/L	N	0	Y	N	Stable		0.00057	Y			N				N	No
CCR-LF-3	2/19	89%	0.00047-0.001	0.001748	0.002	0.002	0.000148	1.861E-07	0.00061	0.6982	0.015	mg/L	N	0	NA	NA	NA		0.00100	N			N				N	No
CCR-LF-4	10/19	47%	0.001-0.01	0.0125	0.002	0.0407	0.158	0.0006278	0.03544	5.672	0.015	mg/L	Y	2	Y	N	Stable		0.00041	Y			N				N	No
CCR-LF-5	8/19	58%	0.0004-0.01	0.00242	0.002	0.00504	0.0024	0.000009122	0.004272	3.536	0.015	mg/L	N	0	Y	N	Stable		0.00100	N			N				N	No
CCR-LF-6	4/19	79%	0.00024-0.001	0.001874	0.002	0.00266	0.0064	8.288E-07	0.0012874	1.3738	0.015	mg/L	N	0	Y	N	NA		0.00100	N			N				N	No

Attachment A
Assessment Monitoring Statistical Summary - May 2023
A.B. Brown Generating Station
Landfill
Prepared: 25 September 2023

													MCL Comparison					Inter-well Analysis					Intra-well Analysis **		GWPS		
Location ID	Frequency of Detection	Percent Non-Detect	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Outlier Detected	Outlier Removed	Trend	Distribution Group*	May 2023 Concentration (mg/L)	Detect?	Upper Tolerance Limit (mg/L)	Lower Confidence Level (LCL) (mg/L)	SSI (Exceedance above Background at Individual Well)	Upper Prediction Limit	SSI (Exceedance above Background at Individual Well)	Groundwater Protection Standard (Higher of MCL/RSL or Upper Tolerance Limit) (mg/L)	Exceedance above GWPS at Individual Well	SSL
CCR Appendix-IV: Lithium, Total (mg/L)																											
CCR-BK-1	6/20	70%	0.005-0.05	0.0233	0.00745	0.05	0.0086	0.0005023	0.02241	0.9621	0.04	mg/L	N	0	N	N	NA	Non-parametric			0.050					0.050		
CCR-BK-2	5/20	75%	0.005-0.05	0.0272	0.02975	0.05	0.0043	0.0005489	0.02343	0.861	0.04	mg/L	N	0	N	N	NA											
CCR-LF-1	11/20	45%	0.0059-0.05	0.0214	0.008	0.05	0.01	0.000467	0.02161	1.01	0.04	mg/L	N	0	N	N	Decrease	Non-parametric	0.0041	Y			N	0.050	N		N	No
CCR-LF-2	15/20	25%	0.005-0.25	0.0418	0.025	0.136	0.041	0.003075	0.05545	1.327	0.04	mg/L	Y	1	Y	N	Stable	Non-parametric	0.0170	Y			N	0.250	N		N	No
CCR-LF-3	4/20	80%	0.005-0.05	0.024	0.0089	0.05	0.018	0.0004857	0.02204	0.9198	0.04	mg/L	N	0	N	N	NA	Non-parametric	0.0018	Y			N	0.050	N		N	No
CCR-LF-4	20/20	0%	-	0.0837	0.0845	0.1105	0.12	0.0003246	0.01802	0.2154	0.04	mg/L	Y	19	N	N	Decrease	Normal	0.0760	Y			Y	0.154	N		Y	No
CCR-LF-5	19/20	5%	0.05-0.05	0.0244	0.0225	0.03195	0.031	0.00004931	0.007022	0.2878	0.04	mg/L	N	0	Y	N	Stable	Non-parametric	0.0190	Y			N	0.050	N		N	No
CCR-LF-6	20/20	0%	-	0.0184	0.019	0.023	0.023	0.00000905	0.00305	0.1658	0.04	mg/L	N	0	N	N	Decrease	Normal	0.0140	Y			N	0.029	N		N	No
CCR Appendix-IV: Mercury, Total (mg/L)																											
CCR-BK-1	0/19	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.6024E-22	1.7902E-11	8.952E-08	0.002	mg/L	N	0	NA	NA	NA	Non-parametric			0.0002					0.002		
CCR-BK-2	2/19	89%	0.0002-0.0002	0.00039	0.0004	0.0004	0.0004	1.0242E-09	0.00004526	0.2324	0.002	mg/L	N	0	NA	NA	NA											
CCR-LF-1	1/19	95%	0.0002-0.0002	0.000392	0.0004	0.0004	0.00026	5.018E-10	0.00003168	0.16138	0.002	mg/L	N	0	NA	NA	NA		0.0002	N			N				N	No
CCR-LF-2	1/19	95%	0.0002-0.0002	0.000394	0.0004	0.0004	0.00028	3.688E-10	0.00002716	0.13796	0.002	mg/L	N	0	NA	NA	NA		0.0002	N			N				N	No
CCR-LF-3	0/19	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.6024E-22	1.7902E-11	8.952E-08	0.002	mg/L	N	0	NA	NA	NA		0.0002	N			N				N	No
CCR-LF-4	0/19	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.6024E-22	1.7902E-11	8.952E-08	0.002	mg/L	N	0	NA	NA	NA		0.0002	N			N				N	No
CCR-LF-5	13/19	32%	0.0002-0.0002	0.000304	0.0003	0.000436	0.00064	8.1E-09	0.00017228	0.8376	0.002	mg/L	N	0	N	N	Stable		0.0002	Y			N				N	No
CCR-LF-6	0/19	100%	0.0002-0.0002	0.0004	0.0004	0.0004		1.6024E-22	1.7902E-11	8.952E-08	0.002	mg/L	N	0	NA	NA	NA		0.0002	N			N				N	No
CCR Appendix-IV: Molybdenum, Total (mg/L)																											
CCR-BK-1	18/20	10%	0.005-0.005	0.00175	0.00135	0.005	0.0034	0.000001718	0.001311	0.747	0.1	mg/L	N	0	N	N	Decrease	Non-parametric			0.005					0.100		
CCR-BK-2	9/20	55%	0.005-0.005	0.00324	0.005	0.005	0.0025	0.000004168	0.002041	0.6298	0.1	mg/L	N	0	N	N	Stable											
CCR-LF-1	18/20	10%	0.005-0.005	0.0015	0.00115	0.005	0.0016	0.000001517	0.001232	0.8229	0.1	mg/L	N	0	Y	N	Decrease		0.0007	Y			N				N	No
CCR-LF-2	14/20	30%	0.05-0.13	0.0209	0.0029	0.054	0.0048	0.001094	0.03308	1.584	0.1	mg/L	N	0	Y	N	Stable		0.0027	Y			N				N	No
CCR-LF-3	18/20	10%	0.005-0.005	0.00202	0.0014	0.00503	0.0056	0.000002273	0.001508	0.7454	0.1	mg/L	N	0	Y	N	Stable		0.0007	Y			N				N	No
CCR-LF-4	19/20	5%	0.005-0.005	0.0214	0.022	0.0271	0.029	0.00003015	0.005491	0.2566	0.1	mg/L	N	0	Y	N	Increase		0.0260	Y			Y				N	No
CCR-LF-5	12/20	40%	0.005-0.05	0.00478	0.00098	0.00725	0.0023	0.0001173	0.01083	2.266	0.1	mg/L	N	0	Y	N	Stable		0.0010	Y			N				N	No
CCR-LF-6	16/20	20%	0.005-0.005	0.00217	0.0012	0.00508	0.0066	0.000003729	0.001931	0.8897	0.1	mg/L	N	0	N	N	Stable		0.0012	Y			N				N	No
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																											
CCR-BK-1	13/20	35%	0.121-0.509	1.136	0.939	2.888	4.92	0.5344	1.0338	1.8216	5	pCi/L	N	0	Y	N	Increase	Non-parametric			3.1					5.00		
CCR-BK-2	4/20	80%	-0.0961-5	1.704	0.53	6.448	6.26	3.45	2.626	3.082	5	pCi/L	N	0	N	N	Stable											
CCR-LF-1	20/20	0%	-	2.34	1.492	3.6	16.14	5.342	3.268	2.788	5	pCi/L	Y	2	Y	N	Stable		0.7	Y			N				N	No
CCR-LF-2	20/20	0%	-	4.54	4.37	7.074	7.74	0.8864	1.3314	0.5856	5	pCi/L	N	0	Y	N	Increase		3.5	Y			Y				N	No
CCR-LF-3	12/20	40%	0.188-1.68	1.206	1.006	2.752	2.72	0.2782	0.746	1.2376	5	pCi/L	N	0	Y	N	Stable		0.7	Y			N				N	No
CCR-LF-4	20/20	0%	-	9.6	9.42	13.716	16.28	4.138	2.876	0.5994	5	pCi/L	Y	16	N	N	Stable		5.2	Y		4.24	Y				N	No
CCR-LF-5	6/20	70%	-0.0225-1.39	0.994	0.588	2.918	5.56	0.7886	1.2558	2.526	5	pCi/L	N	0	NA	NA	NA		0.7	Y			N				N	No
CCR-LF-6	6/20	70%	0.101-5	1.842	0.612	10.152	13.06	5.574	3.338	3.624	5	pCi/L	Y	2	NA	NA	NA		5.0	N			N				N	No
CCR Appendix-IV: Selenium, Total (mg/L)																											
CCR-BK-1	3/20	85%	0.005-0.005	0.00866	0.01	0.01	0.00134	0.000005262	0.003244	0.7496	0.05	mg/L	N	0	NA	NA	NA	Non-parametric			0.005					0.050		
CCR-BK-2	2/20	90%	0.005-0.005	0.00914	0.01	0.01	0.00196	0.000003388	0.002602	0.5692	0.05	mg/L	N	0	NA	NA	NA											
CCR-LF-1	4/19	79%	0.005-0.005	0.00834	0.01	0.01	0.0026	0.000005276	0.003248	0.7784	0.05	mg/L	N	0	NA	NA	NA		0.0050	N			N				N	No
CCR-LF-2	13/19	32%	0.05-0.13	0.044	0.0068	0.124	0.0112	0.0022	0.06632	3.018	0.05	mg/L	N	0	Y	N	Stable		0.0041	Y			N				N	No
CCR-LF-3	10/19	47%	0.005-0.005	0.00668	0.0048	0.01	0.0048	0.000005238	0.003236	0.9684	0.05	mg/L	N	0	N	N	Stable		0.0050	N			N				N	No
CCR-LF-4	4/19	79%	0.005-0.05	0.0272	0.01	0.1	0.00186	0.000733	0.03828	2.822	0.05	mg/L	N	0	NA	NA	NA		0.0009	Y			N				N	No
CCR-LF-5	2/19	89%	0.005-0.05	0.01386	0.01	0.0235	0.0022	0.000215	0.02074	2.994	0.05	mg/L	N	0	NA	NA	NA		0.0011	Y			N				N	No
CCR-LF-6	5/19	74%	0.005-0.005	0.0082	0.01	0.01	0.0046	0.000004858	0.003118	0.7608	0.05	mg/L	N	0	NA	NA	NA		0.0016	Y			N				N	No
CCR Appendix-IV: Thallium, Total (mg/L)																											
CCR-BK-1	2/19	89%	0.001-0.001	0.001822	0.002	0.002	0.00054	1.4136E-07	0.0005318	0.5838	0.002	mg/L	N	0	NA	NA	NA	Non-parametric			0.001					0.002		
CCR-BK-2	3/19	84%	0.001-0.001	0.00173	0.002	0.002	0.00038	2.018E-07	0.0006352	0.7346	0.002	mg/L	N	0	NA	NA	NA											
CCR-LF-1	2/18	89%	0.001-0.001	0.001846	0.002	0.002	0.00112	0.000000112	0.0004734	0.5128	0.002	mg/L	N	0	NA	NA	NA		0.0010	N			N				N	No
CCR-LF-2	11/18	39%	0.001-0.025	0.0082	0.00162	0.0275	0.00192	0.00008334	0.01291	3.15	0.002	mg/L	N	0	N	N	Stable		0.0009	Y			N				N	No
CCR-LF-3	6/18	67%	0.001-0.001	0.001448	0.002	0.002	0.0008	3.246E-07	0.0008058	1.1128	0.002	mg/L	N	0	N	N	Increase		0.0010	N			N				N	No
CCR-LF-4	4/18	78%	0.001-0.01	0.0056	0.002	0.02	0.0004	0.0000307	0.007838	2.796	0.002	mg/L	N	0	N	N	Stable		0.0010	N			N				N	No
CCR-LF-5	3/18	83%	0.001-0.01	0.00272	0.002	0.0065	0.0006	0.000009262	0.004304	3.176	0.002	mg/L	N	0	NA	NA	NA		0.0010	N			N				N	No
CCR-LF-6	4/18	78%	0.001-0.001	0.001634	0.002	0.002	0.00064	2.438E-07	0.0006982	0.8542	0.002	mg/L	N	0	NA	NA	NA		0.0010	N			N				N	No

Notes:
* - Determined using the Shapiro-Wilks statistical test at a 5% significance level and a residual probability plot.
** - Intra-well analysis is used to assess constituents identified in a certified alternate source demonstration for the A.B. Brown Generating Station Landfill (Haley & Aldrich, 2019)
CCR - Coal Combustion Residuals
MCL - Maximum Concentration Limit
mg/L - Miligrams per Liter
NA - Not Applicable
pCi/L - Picocuries per Liter
RSL - Regional Screening Level
SSI - Statistically Significant Increase
SSL - Statistically Significant Level

APPENDIX B
Field Forms

HALEY ALDRICH

GROUNDWATER LEVEL MONITORING REPORT

Form FMG 5.1-01
Rev (06-09-09

Project:	AB Brown Generating Station	Client: SIGECO	**File Number:** 0129420-037-001-01
Location:	Evansville, SC	Weather: Rain / Overcast	Project Manager: Neal Kochis
Reference:	Top of Casing	Units: ft	Field Representative: F. Reed, A.Wykel
Method:	Dip	Comments: None	

CCR Unit	Monitoring Well ID	Date	Time	Well Dry? (Y/N)	Depth to Water (ft)	Depth to top of pump	Well Bottom (Measured)	Well Bottom (From Table)	Riser Elevation (ft)	Water Elevation (ft)	Remarks	Measured By
AshPond	CCR-BK-1R	5/8/2023	1256	N	61.24	60.49	67.05	64.00	483.39	422.15		AW
	CCR-BK-2	5/8/2023	1240	N	17.62	25.06	-	25.50	430.60	412.98		AW
	CCR-AP-1R	5/8/2023	1451	N	16.28	33.71	-	37.00	467.57	451.29		AW
	CCR-AP-2IR	5/8/2023	830	N	35.83	86.34	-	93.00	468.88	433.05		AW
	CCR-AP-2R	5/8/2023	840	N	44.46	49.52	-	53.30	468.13	423.67		AW
	CCR-AP-3R	5/8/2023	910	N	39.79	40.54	-	47.00	449.13	409.34		AW
	CCR-AP-3I	5/8/2023	1055	N	28.84	69.27	-	77.50	450.35	421.51		AW
	CCR-AP-4	5/8/2023	1509	N	33.93	44.54	-	48.00	475.38	441.45		AW
	CCR-AP-5R	5/8/2023	1103	N	35.80	44.41	-	-	453.14	417.34		AW
	CCR-AP-6	5/8/2023	1330	N	18.53	38.26	-	39.00	461.57	443.04		AW
	CCR-AP-7	5/8/2023	1320	N	34.83	49.77	-	-	488.57	453.74		AW
	CCR-AP-8	5/8/2023	1348	N	1.47	12.83	-	16.20	417.17	415.70		AW
	CCR-AP-9	5/8/2023	1403	N	9.23	26.96	-	35.20	392.51	383.28		AW
	CCR-AP-10	5/8/2023	1510	N	36.25	40.47	-	43.20	474.34	438.09		AW
	CCR-AP-11	5/8/2023	1540	N	10.34	NA	25.21	-	376.72	366.38		AW
	FD-PZ-1	5/8/2023	1600	N	7.25	NA	17.73	-	418.94	411.69		AW
	FD-PZ-2	5/8/2023	1655	N	3.12	NA	33.23	-	423.34	420.22		AW
	MH-1	-	-	-	-	-	-	-	-	-		AW
	MH-2	-	-	-	-	-	-	-	-	-		AW
Landfill	CCR-LF-1	5/8/2023	1147	N	8.37	18.29	-	19.00	435.63	427.26		AW
	CCR-LF-2	5/8/2023	1130	N	27.97	44.34	-	45.00	473.00	445.03		AW
	CCR-LF-3	5/8/2023	1138	N	30.88	34.15	-	35.00	484.75	453.87		AW
	CCR-LF-4	5/8/2023	1307	N	48.30	54.34	-	55.00	478.85	430.55		AW
	CCR-LF-5	5/8/2023	1222	N	21.59	29.93	-	30.00	430.41	408.82		AW
	CCR-LF-6	5/8/2023	1217	N	7.18	8.79	-	9.66	412.05	404.87		AW
Sed Pond	CCR-SP-1	5/8/2023	1205	N	10.89	16.46	-	20.00	403.51	392.62		AW
	CCR-SP-2	5/8/2023	1200	N	14.05	15.26	-	20.00	403.23	389.18		AW
	CCR-SP-3	5/8/2023	1208	N	5.94	15.71	-	20.00	403.57	397.63		AW

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	A. Wykel
CONTRACTOR	N/A	**SAMPLING DATE**	05/12/23

Sampling Data:		Well Depth as Built:	19.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-1	Well Depth Measured:	NA ft	Initial Depth To Water:	8.40 ft	Field Parameter Device:	Horiba U-52
Start time:	10:55	Depth To Top Of Screen:	9.0 ft	Depth Of Pump Intake:	18.29 ft	Tubing Present In Well:	[X] Yes [ ] No
Finish Time:	11:45	Depth To Bottom Of Scree	19.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min)	Purge Rate (ml/min)	Cumulative Purge Vol. (liters)	Temp-erature (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
11:00	9.15	150	150	0	18.98	6.75	2.25	6.34	17.5	196	
11:05	9.81	100	100	0.5	18.40	6.63	2.29	4.61	7.4	200	
11:10	10.28	100	100	1.0	18.52	6.61	2.30	4.36	0.4	202	
11:15	10.62	100	100	1.5	18.47	6.60	2.30	3.81	0.0	204	water is clear
11:20	10.86	100	100	2.0	18.41	6.60	2.30	3.64	0.0	207	
11:25	11.09	100	100	2.5	18.48	6.60	2.31	3.37	0.0	208	**STABLE**
											Sample time: 11:30
											Sample ID: CCR-LF-1-051223

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	A. Wykel
CONTRACTOR	N/A	**SAMPLING DATE**	05/12/23

Sampling Data:

		Well Depth as Built:	45.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-2	Well Depth Measured:	NA ft	Initial Depth To Water:	28.06 ft	Field Parameter Device:	Horiba U-52
Start time:	7:05	Depth To Top Of Screen:	35.0 ft	Depth Of Pump Intake:	44.34 ft	Tubing Present In Well:	[X] Yes [ ] No
Finish Time:	9:10	Depth To Bottom Of Scree	45 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min)	Purge Rate (ml/min)	Cumulative Purge Vol. (liters)	Temp-erature (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
7:10	28.11	100	100	0.0	20.11	6.63	22.5	2.87	0.0	221	water is clear
7:15	28.11	100	100	0.5	19.02	6.39	24.2	1.00	0.0	152	
7:20	28.12	100	100	1.0	18.41	6.33	24.3	0.38	0.0	136	
7:25	28.12	100	100	1.5	18.16	6.32	24.3	0.16	0.0	136	
7:35	28.13	100	100	2.5	18.09	6.31	24.3	0.01	0.0	127	
7:39	28.13	100	100	3.0	18.10	6.31	24.4	0.00	0.0	128	
7:42	28.13	100	100	3.3	18.14	6.31	24.4	0.00	0.0	128	**STABLE**
											Sample Time: 7:45
											Sample ID: CCR-LF-2-051223
											MS/MSD

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	A. Wykel
CONTRACTOR	N/A	**SAMPLING DATE**	05/12/23

Sampling Data:

Well ID:	CCR-LF-2	Well Depth as Built:	45.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Start time:	9:35	Well Depth Measured:	NA ft	Initial Depth To Water:	30.96 ft	Field Parameter Device:	Horiba U-52
Finish Time:	10:35	Depth To Top Of Screen:	35.0 ft	Depth Of Pump Intake:	34.15 ft	Tubing Present In Well:	[X] Yes [ ] No
		Depth To Bottom Of Scree	45.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min)	Purge Rate (ml/min)	Cumulative Purge Vol. (liters)	Temp-erature (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
9:35	31.05	150	150	0.0	19.24	7.11	2.47	8.09	7.1	163	
9:40	31.07	150	150	0.75	18.65	7.00	2.24	7.39	0.0	181	
9:45	31.08	150	150	1.5	18.41	6.94	2.12	6.96	0.0	193	
9:50	31.1	150	150	2.25	18.28	6.92	2.09	6.81	0.0	199	
9:55	31.12	150	150	3.0	18.33	6.91	2.09	6.81	0.0	205	**STABLE**
											Sample Time: 10:00
											Sample ID: CCR-LF-3-051223

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	F. Reed
CONTRACTOR	N/A	**SAMPLING DATE**	05/12/23

Sampling Data:		Well Depth as Built:	55.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-4	Well Depth Measured:	55 ft	Initial Depth To Water:	48.36 ft	Field Parameter Device:	Horiba U-52
Start time:	10:05	Depth To Top Of Screen:	45.0 ft	Depth Of Pump Top:	54.34 ft	Tubing Present In Well:	[X] Yes [ ] No
Finish Time:	11:55	Depth To Bottom Of Scree	55.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min)	Purge Rate (ml/min)	Cumulative Purge Vol. (liters)	Temp-erature (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
10:20	48.56	120	120	0.1	20.02	6.57	13.4	2.43	76.8	50	
10:25	48.81	200	200	1.4	18.74	6.53	14.3	0.54	80.0	-5	
10:30	49.02	200	200	2.1	18.35	6.51	14.3	0.24	73.6	-17	
10:35	49.21	160	160	3.5	18.42	6.51	14.2	0.11	72.4	-23	
10:40	49.37	160	160	4.0	18.44	6.51	14.2	0.07	69.9	-25	
10:45	49.53	100	100	4.5	18.79	6.50	14.1	0.09	68.3	-27	
10:50	49.67	100	100	5.0	18.94	6.50	14.1	0.10	65.7	-27	
10:55	49.85	100	100	5.6	19.05	6.50	14.0	0.08	64.0	-28	
11:00	49.99	100	100	6.0	19.21	6.50	14.0	0.06	63.2	-28	
11:05	50.11	100	100	6.5	19.35	6.51	13.9	0.04	61.9	-29	
11:10	50.20	100	100	7.0	19.52	6.51	13.9	0.02	59.9	-29	**STABLE**
											Depth to water after sampling: 51.07'
											Sample Time: 11:15
											Sample ID: CCR-LF-4-051223

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	F. Reed
CONTRACTOR	N/A	**SAMPLING DATE**	05/12/23

Sampling Data:		Well Depth as Built:	30.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-5	Well Depth Measured:	30 ft	Initial Depth To Water:	21.55 ft	Field Parameter Device:	Horiba U-52
Start time:	8:35	Depth To Top Of Screen:	20.0 ft	Depth Of Pump Top:	29.93 ft	Tubing Present In Well:	[X] Yes [ ] No
Finish Time:	9:55	Depth To Bottom Of Scree	30.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min)	Purge Rate (ml/min)	Cumulative Purge Vol. (liters)	Temp-erature (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
8:50	21.66	200	200	0.2	17.23	6.79	4.91	1.46	89.2	183	
8:55	21.71	200	200	1.1	17.1	6.78	4.62	0.62	122	179	
9:00	21.74	200	200	2.0	16.99	6.76	4.51	0.26	80.5	176	
9:05	21.74	200	200	3.0	16.92	6.74	4.57	0.13	75.7	175	
9:10	21.75	200	200	4.0	16.96	6.72	4.86	0.09	57.5	172	
9:15	21.74	200	200	5.0	16.96	6.72	5.03	0.04	49.3	166	
9:20	21.74	200	200	6.0	16.97	6.71	5.17	0.00	45.4	163	
9:25	21.74	200	200	7.0	16.96	6.70	5.28	0.00	45.5	161	
9:30	21.75	200	200	8.0	16.98	6.71	5.34	0.00	42.2	160	**STABLE**
											Depth to water after sampling: 21.65
											Sample Time: 9:35
											Sample ID: CCR-LF-5-051223

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	F. Reed
CONTRACTOR	N/A	**SAMPLING DATE**	05/12/23

Sampling Data:		Well Depth as Built:	10.00 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-6	Well Depth Measured:	9.66 ft	Initial Depth To Water:	7.68 ft	Field Parameter Device:	Horiba U-52
Start time:	6:45	Depth To Top Of Screen:	4.66 ft	Depth Of Pump Top:	8.79 ft	Tubing Present In Well:	[X] Yes [ ] No
Finish Time:	8:30	Depth To Bottom Of Scree	9.66 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min)	Purge Rate (ml/min)	Cumulative Purge Vol. (liters)	Temp-erature (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
6:50	7.76	160	160	0.9	17.57	6.53	1.29	1.25	32.2	200	
6:55	7.76	200	200	1.8	17.45	6.70	1.34	1.15	27.0	197	
7:00	7.73	200	200	2.9	16.90	6.78	1.42	1.14	18.0	193	
7:05	7.73	200	200	4.0	16.61	6.82	1.48	1.1	15.4	191	
7:10	7.72	200	200	5.0	16.49	6.83	1.51	1.12	15.8	190	
7:15	7.73	200	200	5.9	16.52	6.85	1.54	1.06	11.1	187	
7:20	7.72	200	200	6.8	16.50	6.87	1.56	0.93	7.9	184	
7:25	7.74	200	200	7.8	16.49	6.88	1.58	0.96	13.4	183	
7:30	7.73	200	200	8.6	16.46	6.87	1.60	0.99	12.5	182	
7:35	7.73	200	200	9.9	16.44	6.88	1.62	0.99	9.6	180	
7:40	7.73	200	200	11.0	16.41	6.88	1.63	1.02	7.3	178	
7:45	7.72	200	200	11.9	16.31	6.89	1.65	1.04	4.7	177	
											Depth to water after sampling: 7.69'
											Sample Time: 7:50
											Sample ID: CCR-LF-6-051223
											Field Dup: DUP3-051223

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

HALEY ALDRICH

GROUNDWATER LEVEL MONITORING REPORT

Form FMG 5.1-01
Rev (06-09-09

Project:	AB Brown	Client: SIGECO	File Number: 0129420-027
Location:	Evansville, IN	Weather: Partly Cloudy, 65 °F	Project Manager: Neal Kochis
Reference:	Top of Casing	Units: ft	Field Representative: F. Reed, R. Elwer
Method:	Dip	Comments:	

CCR Unit	Monitoring Well ID	Date	Time	Well Dry? (Y/N)	Depth to Water (ft)	Depth to top of pump	Well Bottom (Measured)	Well Bottom (From Table)	Riser Elevation (ft)	Water Elevation (ft)	Remarks	Measured By
AshPond	CCR-BK-1R	11/6/2023	10:32	Y	-	60.49	-	64.00	483.39	-	Water level below the top of the pump	F.Reed
	CCR-BK-2	11/6/2023	10:40	Y	-	25.06	NA	25.50	430.60	-	Water level below the top of the pump	F. Reed
	CCR-AP-1R	11/6/2023	11:11	N	20.73	33.71	-	39.87	467.57	446.84	Dedicated Pump	F.Reed
	CCR-AP-2I	11/6/2023	13:44	N	39.95	86.34	-	64.78	465.79	425.84	Dedicated Pump	F.Reed
	CCR-AP-2R	11/6/2023	13:43	N	48.38	49.52	-	56.03	468.13	419.75	Dedicated Pump	F.Reed
	CCR-AP-3R	11/6/2023	13:05	N	-	40.64	46.03	47.00	449.13	-	Water level below the top of the pump	F.Reed
	CCR-AP-3I	11/6/2023	13:00	N	30.45	69.27	-	77.50	450.35	419.90	Dedicated Pump	F.Reed
	CCR-AP-4	11/6/2023	11:20	N	35.39	44.54	-	50.58	475.38	439.99	Dedicated Pump	F.Reed
	CCR-AP-5R	11/6/2023	13:38	N	36.91	44.41	-	47.14	453.14	416.23	No bolts, well box filled with water	F.Reed
	CCR-AP-6	11/6/2023	10:06	N	20.38	38.26	-	41.67	461.57	441.19	Taken from the original survey height	F.Reed
	CCR-AP-7R	11/6/2023	10:12	N	36.14	49.77	-	56.07	488.57	452.43	Dedicated Pump	F.Reed
	CCR-AP-8	11/6/2023	9:58	N	4.19	12.83	-	19.37	417.17	412.98	Dedicated Pump	F.Reed
	CCR-AP-9	11/6/2023	9:20	N	10.14	26.96	33.55	35.20	392.51	392.51	Dedicated Pump	F.Reed
	CCR-AP-10	11/6/2023	11:23	N	39.17	40.47	-	46.04	474.34	435.17	Dedicated Pump	F.Reed
	CCR-AP-11	11/6/2023	10:50	N	14.37	N/A	25.27	25.27	376.72	362.35	No Pump	R. Elwer
	FD-PZ-1	11/6/2023	13:30	N	7.99	N/A	17.33	-	418.94	410.95	No Pump	R. Elwer
	FD-PZ-2	11/6/2023	12:22	N	5.59	N/A	33.18	-	423.34	417.75	No Pump	F.Reed
	FD-PZ-4	11/6/2023	12:45	N	10.58	N/A	22.85	-	419.19	408.61	No Pump	F.Reed
	HA-PP-1	11/6/2023	15:22	N	3.19	N/A	-	-	381.82	378.63	No Pump	F. Reed
	HA-PP-2	11/6/2023	15:25	N	3.83	N/A	-	-	381.51	377.68	No Pump	F. Reed
	CMA-01S	11/6/2023	13:31	N	31.92	N/A	-	47.31	445.87	413.95	No Pump	F. Reed
	CMA-01I	11/6/2023	13:32	N	32.83	N/A	-	72.45	446.25	413.42	No Pump	F. Reed
	CMA-02S	11/6/2023	13:28	N	26.96	N/A	-	50.85	436.63	409.67	No Pump	F. Reed
	CMA-02I	11/6/2023	13:29	N	26.55	N/A	-	76.18	436.51	409.96	No Pump	F. Reed
	CMA-03S	11/6/2023	13:26	N	29.13	N/A	-	50.95	436.29	407.16	No Pump	F. Reed
	CMA-03I	11/6/2023	13:27	N	28.83	N/A	-	76.65	436.16	407.33	No Pump	F. Reed
	CMA-04S	11/6/2023	13:19	N	25.63	N/A	-	46.98	435.89	410.26	No Pump	F. Reed
	CMA-04I	11/6/2023	13:21	N	28.19	N/A	-	76.56	436.21	408.02	No Pump	F. Reed
	CMA-04BR	11/6/2023	13:24	N	19.71	N/A	-	108.21	436.54	416.83	No Pump	F. Reed

HALEY ALDRICH

GROUNDWATER LEVEL MONITORING REPORT

Form FMG 5.1-01
Rev (06-09-09

Project:	AB Brown	Client: SIGECO	File Number: 0129420-027
Location:	Evansville, IN	Weather: Partly Cloudy, 65 °F	Project Manager: Neal Kochis
Reference:	Top of Casing	Units: ft	Field Representative: F. Reed, R. Elwer
Method:	Dip	Comments:	

CCR Unit	Monitoring Well ID	Date	Time	Well Dry? (Y/N)	Depth to Water (ft)	Depth to top of pump	Well Bottom (Measured)	Well Bottom (From Table)	Riser Elevation (ft)	Water Elevation (ft)	Remarks	Measured By
Ash Pond	CMA-05S	11/6/2023	13:14	N	25.06	N/A	43.01	42.96	436.26	411.20	No Pump	F. Reed
	CMA-05I	11/6/2023	13:16	N	25.56	N/A	-	67.16	436.52	410.96	No Pump	F. Reed
	CMA-06S	11/6/2023	9:36	N	10.92	N/A	34.12	33.94	392.08	381.16	No Pump	F. Reed
	CMA-06I	11/6/2023	9:39	N	8.68	N/A	59.71	59.55	392.22	383.54	No Pump	F. Reed
	CMA-06BR	11/6/2023	9:41	N	9.45	N/A	79.82	70.55	392.44	382.99	No Pump	F. Reed
	CMA-07I	11/6/2023	11:42	N	22.28	N/A	47.65	47.42	419.95	397.67	No Pump	R. Elwer
	CMA-08I	11/6/2023	11:36	N	42.13	N/A	53.04	52.85	443.25	401.12	No Pump	F. Reed
Landfill	CCR-LF-1	11/6/2023	14:06	N	11.23	18.29	-	19.00	435.63	424.40	Dedicated Pump	F.Reed
	CCR-LF-2	11/6/2023	13:55	N	28.60	44.34	-	45.00	473.00	444.40	Dedicated Pump	F.Reed
	CCR-LF-3	11/6/2023	14:00	N	31.44	34.15	-	35.00	484.75	453.31	Dedicated Pump	F.Reed
	CCR-LF-4	11/6/2023	10:25	N	48.22	54.34	-	55.00	478.85	430.63	Dedicated Pump	F.Reed
	CCR-LF-5	11/6/2023	14:24	N	22.20	29.93	-	30.00	430.41	408.21	Dedicated Pump	F.Reed
	CCR-LF-6	11/6/2023	14:20	N	7.67	8.79	-	9.66	412.05	404.38	Pump gets caught on lid when closing well	F.Reed
Sed Pond	CCR-SP-1	11/6/2023	14:53	N	11.80	16.46	-	20.00	403.51	391.71	Dedicated Pump	F.Reed
	CCR-SP-2	11/6/2023	14:45	N	14.64	15.26	-	20.00	403.23	388.59	PVC bent over pump, had to pry the pump out	F.Reed
	CCR-SP-3	11/6/2023	-	N	-	15.71	-	20.00	403.57	-	Well casing damaged, see photos	F.Reed

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	F. Reed
CONTRACTOR	N/A	**SAMPLING DATE**	11/06/23

Sampling Data:

Well ID:	CCR-LF-1	Well Depth as Built:	19.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Start time:	13:25	Well Depth Measured:	N/A ft	Initial Depth To Water:	11.36 ft	Field Parameter Device:	Horiba U-52
Finish Time:	14:50	Depth To Top Of Screen:	9.0 ft	Depth Of Pump Intake:	18.64 ft	Tubing Present In Well:	☑ Yes ☐ No
		Depth To Bottom Of Scree	19.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min) or (gal/min)	Purge Rate (ml/min) or (gal/min)	Cumulative Purge Vol. (liters) or (gal)	Temp-erature (°F) or (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
13:30	11.81		100	0.1	27.14	6.87	2.65	1.78	4.9	199	
13:35	12.01		100	0.9	26.52	6.6	2.53	1.26	5	202	
13:40	12.12		100	1.6	26.3	6.57	2.49	1	4.8	199	
13:45	12.25		100	2.1	26.15	6.55	2.47	0.89	2.6	196	
13:50	12.37		100	2.5	26.13	6.56	2.47	0.86	0.3	194	
13:55	12.44		100	3.1	26.09	6.56	2.46	0.84	0	193	
14:00	12.66		100	3.9	26.04	6.56	2.46	0.82	0	193	
14:05	12.81		100	4.2	26.01	6.57	2.44	0.94	0	193	
14:10	12.98		100	4.8	25.99	6.57	2.43	1.04	0	194	
14:15	13.15		100	5.2	25.95	6.58	2.43	1.05	0	194	Sample Time: 14:20
14:20	13.26		100	5.9	25.93	6.58	2.43	1.02	0	196	Sample ID: CCR-LF-1-110923

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	R. Elwer
CONTRACTOR	N/A	**SAMPLING DATE**	11/09/23

Sampling Data:

		Well Depth as Built:	45.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-2	Well Depth Measured:	N/A ft	Initial Depth To Water:	29.05 ft	Field Parameter Device:	Horiba U-52
Start time:	14:55	Depth To Top Of Screen:	35.0 ft	Depth Of Pump Intake:	44.28 ft	Tubing Present In Well:	☑ Yes ☐ No
Finish Time:	16:05	Depth To Bottom Of Scree	45 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min) or (gal/min)	Purge Rate (ml/min) or (gal/min)	Cumulative Purge Vol. (liters) or (gal)	Temp-erature (°F) or (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
15:04	29.05		180	0.1	25.21	6.6	24.9	3.14	0.9	249	
15:09	29.11		180	1.4	24.08	6.44	24.6	0.54	50.5	193	
15:14	29.15		180	2.1	23.91	6.42	23.8	0.22	52.5	168	
15:19	29.15		180	3.4	23.81	6.41	23.7	0.13	34.7	154	
15:24	29.15		180	4	23.78	6.41	23.8	0.08	21	142	
15:29	29.15		180	4.5	23.75	6.41	23.8	0.07	15.4	139	
15:34	29.15		180	5.1	23.75	6.41	23.8	0.06	15	134	Sample Time: 15:39
15:39	29.15		180	5.9	23.71	6.4	23.9	0.05	14.3	131	Sample ID: CCR-LF-2-110923

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	F. Reed
CONTRACTOR	N/A	**SAMPLING DATE**	11/10/23

Sampling Data:

		Well Depth as Built:	35.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-3	Well Depth Measured:	N/A ft	Initial Depth To Water:	31.84 ft	Field Parameter Device:	Horiba U-52
Start time:	7:45	Depth To Top Of Screen:	25.0 ft	Depth Of Pump Intake:	34.35 ft	Tubing Present In Well:	☑ Yes ☐ No
Finish Time:	9:00	Depth To Bottom Of Scree	35.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min) or (gal/min)	Purge Rate (ml/min) or (gal/min)	Cumulative Purge Vol. (liters) or (gal)	Temp-erature (°F) or (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
7:52	31.92		180	0.1	21.65	6.27	3.06	4.1	42.6	243	
7:57	31.97		180	1	22.31	6.81	2.31	4.05	29.9	220	
8:02	32.04		180	1.8	22.42	6.87	2.14	4.06	18.6	216	
8:07	32.05		180	2.4	22.56	6.92	2.08	4.18	12.8	216	
8:12	32.05		180	3.1	22.69	6.93	2.07	4.12	9.4	217	
8:17	32.07		180	3.9	22.8	6.94	2.06	4.06	2.5	218	
8:22	32.08		180	4.8	22.89	6.94	2.06	4.04	0	220	Sample Time: 08:27
8:27	32.08		180	6	22.93	6.94	2.06	3.99	0	220	Sample ID: CCR-LF-3-111023

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	F. Reed
CONTRACTOR	N/A	**SAMPLING DATE**	11/09/23

Sampling Data:		Well Depth as Built:	55.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-4	Well Depth Measured:	N/A ft	Initial Depth To Water:	48.46 ft	Field Parameter Device:	Horiba U-52
Start time:	7:30	Depth To Top Of Screen:	45.0 ft	Depth Of Pump Intake:	54.34 ft	Tubing Present In Well:	☑ Yes ☐ No
Finish Time:	9:25	Depth To Bottom Of Scree	55.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min) or (gal/min)	Purge Rate (ml/min) or (gal/min)	Cumulative Purge Vol. (liters) or (gal)	Temp-erature (°F) or (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
7:40	48.86		200	0.75	23.11	5.64	16.2	1.27	24.1	53	
7:45	48.98		200	2	23.09	5.94	16.7	0.47	12.9	12	
7:50	49.15		160	2.5	23.02	6.13	16.8	0.2	10	-6	
7:55	49.38		160	3.5	23.16	6.21	16.8	0.14	30.9	-11	Flow rate change to 2 CPM at 100 mL/min
8:00	49.66		100	4.1	23.18	6.24	16.8	0.16	32.9	-13	
8:05	49.88		100	4.9	23.22	6.26	16.8	0.15	34.3	-14	
8:10	50.04		100	5.25	23.24	6.28	16.8	0.15	32.1	-15	
8:15	50.2		100	6	23.23	6.29	16.8	0.12	26.6	-16	
8:20	50.35		100	6.5	23.24	6.3	16.8	0.11	20.5	-17	
8:25	50.5		100	7	23.23	6.3	16.7	0.1	15.4	-17	
8:30	50.7		100	7.5	23.21	6.31	16.7	0.09	12.5	-18	Sample Time: 08:55
8:35	50.82		100	8	23.21	6.31	16.7	0.08	9.9	-18	Sample ID: CCR-LF-4-110923
8:40	50.97		100	8.75	23.21	6.32	16.7	0.07	4.9	-19	
8:45	51.1		100	9.25	23.27	6.32	16.7	0.06	0.3	-19	Last 3 tubidity readings <5 NTU, Less than 4' of water
8:50	51.24		100	9.9	23.45	6.32	16.7	0.05	0	-20	column in the well

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	F. Reed
CONTRACTOR	N/A	**SAMPLING DATE**	11/09/23

Sampling Data:		Well Depth as Built:	30.0 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Well ID:	CCR-LF-5	Well Depth Measured:	30 ft	Initial Depth To Water:	22.32 ft	Field Parameter Device:	Horiba U-52
Start time:	11:25	Depth To Top Of Screen:	20.0 ft	Depth Of Pump Intake:	29.91 ft	Tubing Present In Well:	☑ Yes ☐ No
Finish Time:	13:10	Depth To Bottom Of Scree	30.0 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min) or (gal/min)	Purge Rate (ml/min) or (gal/min)	Cumulative Purge Vol. (liters) or (gal)	Temp-erature (°F) or (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
11:30	22:42		200	0.2	25.3	7.05	5.03	1.71	9	237	
11:35	22:42		200	1.1	24.46	6.81	4.47	0.3	21.7	216	
11:40	22:42		200	1.9	24.38	6.81	4.38	0.13	20.9	200	
11:45	22:42		200	2.7	24.29	6.81	4.44	0.07	15	189	
11:50	22:42		200	3.4	24.12	6.81	4.52	0.04	17.8	182	
11:55	22:42		200	4.4	24.19	6.82	4.79	0.01	17.7	168	
12:00	22:42		200	5.5	24.19	6.81	5.04	0	14.5	130	
12:05	22:42		200	6.3	24.14	6.8	5.21	0	11.4	39	
12:10	22:43		200	7.2	24.15	6.79	5.41	0	9.4	37	
12:15	22:44		200	8.1	24.21	6.79	5.51	0	8.4	48	
12:20	22:44		200	9.1	24.21	6.79	5.59	0	7.8	54	Sample Time: 12:30
12:25	22:44		200	10	24.15	6.79	5.66	0	7.1	60	Sample ID: CCR-LF-5-110923
12:30	22:44		200	11	24.06	6.78	5.72	0	5.2	64	
											Field Dup Sample Time: 12:40
											Field Dup ID: DUP-1-110923

well volume = 3.14 (PI) x radius² x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

LOW FLOW SAMPLING FORM

PROJECT	A.B. Brown Generating Station	**H&A FILE NO.**	129420
LOCATION	Evansville, Indiana	**PROJECT MGR.**	Neal Kochis
CLIENT	Southern Indiana Gas and Electric Company	**FIELD REP.**	R. Elwer
CONTRACTOR	N/A	**SAMPLING DATE**	11/09/23

Sampling Data:

Well ID:	CCR-LF-6	Well Depth as Built:	10.00 ft	Well Diameter:	2.0 in	Purging Device:	Bladder
Start time:	9:30	Well Depth Measured:	9.66 ft	Initial Depth To Water:	7.73 ft	Field Parameter Device:	Horiba U-52
Finish Time:	11:15	Depth To Top Of Screen:	4.66 ft	Depth Of Pump Intake:	8.95 ft	Tubing Present In Well:	☑ Yes ☐ No
		Depth To Bottom Of Scree	9.66 ft	Measuring Point:	Top of Casing (TOC)	Tubing Type:	Polyethylene

Elapsed Time (24 hour)	Depth To Water From Casing (ft)	Pump Setting (ml/min) or (gal/min)	Purge Rate (ml/min) or (gal/min)	Cumulative Purge Vol. (liters) or (gal)	Temp-erature (°F) or (°C)	pH	Conduct-ivity (ms/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments
Stabilized within →		[100 mL/min] to [500 mL/min]		-	NA	[+/- 0.1]	[+/- 3%]	[+/- 10%]	[+/- 10%]	[+/- 10]	
9:37	7.73		200	0.2	25.7	6.94	1.29	0.86	24	231	
9:42	7.73		200	1.3	25.44	6.84	1.33	0.4	20.9	222	
9:47	7.73		200	2.4	25.3	6.84	1.39	0.28	12.7	210	
9:52	7.73		200	3.7	25.28	6.85	1.44	0.26	7.4	197	
9:57	7.73		200	4.7	25.28	6.91	1.5	0.29	4	185	
10:02	7.73		200	5.8	25.25	6.92	1.52	0.31	1.3	177	
10:07	7.73		200	7	25.2	6.96	1.56	0.31	0	169	MS/MSD
10:12	7.73		200	8.1	25.21	6.96	1.57	0.33	0	164	Sample Time: 10:17
10:17	7.73		200	9.1	25.24	6.97	1.59	0.34	0	160	Sample ID: CCR-LF-6-110923

well volume = 3.14 (PI) x radius^2 x height of water column. 2 in well = 0.163 gal/ft, 3 in = 0.367 gal/ft 4 in = 0.653 gal/ft, 6 in = 1.469 gal/ft, 1 cu. ft. = 7.48 gal, 1 gal = 3.785 L, 1L = 0.264 gal, 0.5L/min = 0.132 gal/min

APPENDIX C
Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Todd Plating
Haley & Aldrich, Inc.
400 Augusta Street
Suite 100
Greenville, South Carolina 29601

Generated 1/16/2024 1:33:04 PM Revision 1

JOB DESCRIPTION

AB Brown Generating Station
Landfill

JOB NUMBER

180-156567-1

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh PA 15238

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization

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Revision 1

Authorized for release by
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Table of Contents

Job Narrative
180-156567-1

REVISION
The report being provided is a revision of the original report sent on 6/28/2023. The report (revision 1) is being revised due to to change the site location from Sedimentation Pond to Landfill.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/13/2023 9:19 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.7°C, 1.8°C and 2.8°C

Gas Flow Proportional Counter
Method 9315_Ra226: Radium-226 batch 612692
The LCS recovered at (74%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (70-125%) per method requirements. The LCS passes, no further action is required

(LCS 160-612692/2-A)

Method 9315_Ra226: Radium-226 batch 612692
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
CCR-LF-1-051223 (180-156567-1), CCR-LF-2-051223 (180-156567-2), CCR-LF-2-051223 (180-156567-2[DU]), CCR-LF-3-051223 (180-156567-3), CCR-LF-4-051223 (180-156567-4), CCR-LF-5-051223 (180-156567-5), CCR-LF-6-051223 (180-156567-6), DUP3-051223 (180-156567-7), (LCS 160-612692/2-A) and (MB 160-612692/1-A)

Method 9320_Ra228: Radium-228 batch 612695
The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: CCR-LF-2-051223 (180-156567-2[DU]). Analytical results are reported with the detection limit achieved.

Method 9320_Ra228: Radium-228 batch 612695
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Rad
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Job Narrative
180-156567-2

REVISION
The report being provided is a revision of the original report sent on 6/28/2023. The report (revision 1) is being revised due to to change the site location from Sedimentation Pond to Landfill.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/13/2023 9:19 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.7°C, 1.8°C and 2.8°C

HPLC/IC
Method 9056A_ORGFM_28D: The following samples were diluted due to the nature of the sample matrix: CCR-LF-1-051223 (180-156567-1), CCR-LF-2-051223 (180-156567-2), CCR-LF-2-051223 (180-156567-2[MS]), CCR-LF-2-051223 (180-156567-2[MSD]), CCR-LF-3-051223 (180-156567-3), CCR-LF-4-051223 (180-156567-4), CCR-LF-5-051223 (180-156567-5), (180-156567-D-2), (180-156567-D-2 MS) and (180-156567-D-2 MSD) at 2.5, 2.5, 25.0, 25.0, 25.0, 25.0, 25.0, 25.0, 2.5, 10.0 and 5.0. Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: Due to the high concentration of sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 180-435178 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 9056A_ORGFM_28D: The continuing calibration blank (CCB) for analytical batch 180-435178 contained sulfate above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6020A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 180-437190 and analytical batch 180-438772 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 6020A: The post digestion spike % recovery for arsenic and molybdenum associated with batch 180-438772 was outside of control limits. The associated samples are: CCR-LF-2-051223 (180-156567-2), CCR-LF-2-051223 (180-156567-2[MS]), CCR-LF-2-051223 (180-156567-2[MSD]), CCR-LF-5-051223 (180-156567-5), CCR-LF-6-051223 (180-156567-6), DUP3-051223 (180-156567-7), (180-156567-E-2-E), (180-156567-E-2-F MS), (180-156567-F-2-E MSD), (180-156567-E-2-E PDS) and (180-156567-E-2-E SD ^5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2540C_Calcd: A stable sample weight was not achieved following 4 cycles of heating, cooling, and desiccation. Sample weight 3 used to calculate analyte concentration.

CCR-LF-4-051223 (180-156567-4) and CCR-LF-6-051223 (180-156567-6)

Job ID: 180-156567-2 (Continued) Eurofins Pittsburgh

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Rad

Qualifier	Qualifier Description
G	The Sample MDC is greater than the requested RL.
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Laboratory: Eurofins Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-25-23
California	State	2891	04-30-24
Connecticut	State	PH-0688	06-25-23
Florida	NELAP	E871008	06-25-23
Georgia	State	PA 02-00416	06-25-23
Illinois	NELAP	004375	10-18-23
Kansas	NELAP	E-10350	06-25-23
Kentucky (UST)	State	162013	04-30-23 *
Kentucky (WW)	State	KY98043	06-25-23
Louisiana	NELAP	04041	06-30-22 *
Louisiana (All)	NELAP	04041	06-25-23
Maine	State	PA00164	03-06-24
Minnesota	NELAP	042-999-482	06-25-23
New Hampshire	NELAP	2030	06-25-23
New Jersey	NELAP	PA005	06-25-23
New York	NELAP	11182	06-25-23
North Carolina (WW/SW)	State	434	08-07-23
North Dakota	State	R-227	04-30-24
Oregon	NELAP	PA-2151	02-06-24
Pennsylvania	NELAP	02-00416	06-25-23
Rhode Island	State	LAO00362	12-31-22 *
South Carolina	State	89014	04-30-23 *
Texas	NELAP	T104704528	06-25-23
US Fish & Wildlife	US Federal Programs	058448	03-31-24
USDA	US Federal Programs	P330-16-00211	04-11-26
Utah	NELAP	PA001462019-8	05-31-24
Virginia	NELAP	10043	06-25-23
West Virginia DEP	State	142	06-25-23
Wisconsin	State	998027800	08-14-23

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-23
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-23
Connecticut	State	PH-0241	03-31-25
Florida	NELAP	E87689	06-30-23
HI - RadChem Recognition	State	n/a	06-30-23
Illinois	NELAP	200023	11-16-23
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-23
Kentucky (DW)	State	KY90125	09-26-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 180-156567-1
Project/Site: AB Brown Generating Station
SDG: Landfill

Laboratory: Eurofins St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-23
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	08-08-23
MI - RadChem Recognition	State	9005	06-30-23
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-23
New Jersey	NELAP	MO002	06-30-23
New Mexico	State	MO00054	06-30-23
New York	NELAP	11616	10-01-23
North Carolina (DW)	State	29700	06-30-23
North Dakota	State	R-207	06-30-23
Oklahoma	NELAP	9997	08-31-23
Oregon	NELAP	4157	09-01-23
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-23
Texas	NELAP	T104704193	07-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-17-00028	05-18-26
Utah	NELAP	MO000542021-14	07-31-23
Virginia	NELAP	10310	06-29-23
Washington	State	C592	08-30-23
West Virginia DEP	State	381	10-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-156567-1	CCR-LF-1-051223	Water	05/12/23 11:30	05/13/23 09:19
180-156567-2	CCR-LF-2-051223	Water	05/12/23 07:45	05/13/23 09:19
180-156567-3	CCR-LF-3-051223	Water	05/12/23 10:00	05/13/23 09:19
180-156567-4	CCR-LF-4-051223	Water	05/12/23 11:15	05/13/23 09:19
180-156567-5	CCR-LF-5-051223	Water	05/12/23 09:35	05/13/23 09:19
180-156567-6	CCR-LF-6-051223	Water	05/12/23 07:50	05/13/23 09:19
180-156567-7	DUP3-051223	Water	05/12/23 07:50	05/13/23 09:19

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Client Sample ID: CCR-LF-1-051223

Date Collected: 05/12/23 11:30
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5	1 mL	1 mL	435178	05/15/23 22:27	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	436357	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			438036	06/14/23 15:04	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	436345	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438772	06/22/23 22:31	KED	EET PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	436345	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438909	06/23/23 18:46	KED	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	436162	05/25/23 10:30	MTW	EET PIT
Total/NA	Analysis	EPA 7470A		1			436354	05/26/23 11:41	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			436148	05/24/23 15:08	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	435357	05/16/23 18:36	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			992.74 mL	1.0 g	612692	05/22/23 17:00	KAC	EET SL
Total/NA	Analysis	9315		1			616151	06/15/23 22:33	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			992.74 mL	1.0 g	612695	05/22/23 17:06	KAC	EET SL
Total/NA	Analysis	9320		1			616149	06/15/23 12:40	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			616499	06/16/23 12:02	SCB	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-2-051223

Date Collected: 05/12/23 07:45
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5	1 mL	1 mL	435178	05/15/23 21:28	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		25	1 mL	1 mL	435178	05/15/23 21:42	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	437189	06/07/23 06:53	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			438432	06/19/23 16:34	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	437190	06/07/23 07:02	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438772	06/22/23 23:35	KED	EET PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	437190	06/07/23 07:02	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438909	06/23/23 17:05	KED	EET PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-2-051223

Date Collected: 05/12/23 07:45
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	25 mL	436162	05/25/23 10:30	MTW	EET PIT
Total/NA	Analysis	EPA 7470A		1			436354	05/26/23 11:42	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			436148	05/24/23 15:02	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	435357	05/16/23 18:36	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			747.63 mL	1.0 g	612692	05/22/23 17:00	KAC	EET SL
Total/NA	Analysis	9315		1			616151	06/15/23 22:34	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			747.63 mL	1.0 g	612695	05/22/23 17:06	KAC	EET SL
Total/NA	Analysis	9320		1			616149	06/15/23 12:40	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			616499	06/16/23 12:02	SCB	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-3-051223

Date Collected: 05/12/23 10:00
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5	1 mL	1 mL	435178	05/15/23 22:42	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	436357	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			438036	06/14/23 15:15	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	436345	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438772	06/22/23 22:37	KED	EET PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	436345	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438909	06/23/23 18:52	KED	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	436162	05/25/23 10:30	MTW	EET PIT
Total/NA	Analysis	EPA 7470A		1			436354	05/26/23 11:45	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			436148	05/24/23 15:22	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	435357	05/16/23 18:36	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			994.18 mL	1.0 g	612692	05/22/23 17:00	KAC	EET SL
Total/NA	Analysis	9315		1			616151	06/15/23 22:34	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			994.18 mL	1.0 g	612695	05/22/23 17:06	KAC	EET SL
Total/NA	Analysis	9320		1			616151	06/15/23 12:42	FLC	EET SL
	Instrument ID: GFPCBLUE									

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-3-051223

Date Collected: 05/12/23 10:00
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			616499	06/16/23 12:02	SCB	EET SL

Client Sample ID: CCR-LF-4-051223

Date Collected: 05/12/23 11:15
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	435178	05/15/23 22:56	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		10	1 mL	1 mL	435178	05/15/23 23:11	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	436357	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			438036	06/14/23 15:20	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	436345	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438772	06/22/23 22:39	KED	EET PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	436345	05/26/23 13:00	HCY	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438909	06/23/23 19:01	KED	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	436162	05/25/23 10:30	MTW	EET PIT
Total/NA	Analysis	EPA 7470A		1			436354	05/26/23 11:46	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			436148	05/24/23 13:32	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	435357	05/16/23 18:36	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			1004.86 mL	1.0 g	612692	05/22/23 17:00	KAC	EET SL
Total/NA	Analysis	9315		1			616151	06/15/23 22:34	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1004.86 mL	1.0 g	612695	05/22/23 17:06	KAC	EET SL
Total/NA	Analysis	9320		1			616151	06/15/23 12:42	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			616499	06/16/23 12:02	SCB	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-5-051223

Date Collected: 05/12/23 09:35
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	435178	05/15/23 23:26	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 9056A		5	1 mL	1 mL	435178	05/15/23 23:41	SNL	EET PIT
	Instrument ID: CHIC2100A									

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-5-051223

Date Collected: 05/12/23 09:35
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	437189	06/07/23 06:53	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			438432	06/19/23 17:00	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	437190	06/07/23 07:02	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438772	06/22/23 23:49	KED	EET PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	437190	06/07/23 07:02	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438909	06/23/23 17:19	KED	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	436162	05/25/23 10:30	MTW	EET PIT
Total/NA	Analysis	EPA 7470A		1			436354	05/26/23 11:47	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			436148	05/24/23 14:51	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	435357	05/16/23 18:36	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			994.87 mL	1.0 g	612692	05/22/23 17:00	KAC	EET SL
Total/NA	Analysis	9315		1			616151	06/15/23 22:35	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			994.87 mL	1.0 g	612695	05/22/23 17:06	KAC	EET SL
Total/NA	Analysis	9320		1			616151	06/15/23 12:42	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			616499	06/16/23 12:02	SCB	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-6-051223

Date Collected: 05/12/23 07:50
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	435178	05/16/23 00:22	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	437189	06/07/23 06:53	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			438432	06/19/23 17:06	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	437190	06/07/23 07:02	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438772	06/22/23 23:52	KED	EET PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	437190	06/07/23 07:02	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438909	06/23/23 17:22	KED	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	436162	05/25/23 10:30	MTW	EET PIT
Total/NA	Analysis	EPA 7470A		1			436354	05/26/23 11:49	MTW	EET PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-6-051223

Date Collected: 05/12/23 07:50
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9040C		1			436148	05/24/23 14:48	BAB	EET PIT
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	435357	05/16/23 18:36	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			993.47 mL	1.0 g	612692	05/22/23 17:00	KAC	EET SL
Total/NA	Analysis	9315		1			616151	06/15/23 22:35	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			993.47 mL	1.0 g	612695	05/22/23 17:06	KAC	EET SL
Total/NA	Analysis	9320		1			616151	06/15/23 12:43	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			616499	06/16/23 12:02	SCB	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: DUP3-051223

Date Collected: 05/12/23 07:50
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	435178	05/16/23 00:36	SNL	EET PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	437189	06/07/23 06:53	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			438432	06/19/23 17:11	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	437190	06/07/23 07:02	S1Z	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			438909	06/23/23 17:31	KED	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	436162	05/25/23 10:30	MTW	EET PIT
Total/NA	Analysis	EPA 7470A		1			436354	05/26/23 11:50	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			436148	05/24/23 14:45	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	435357	05/16/23 18:36	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			990.22 mL	1.0 g	612692	05/22/23 17:00	KAC	EET SL
Total/NA	Analysis	9315		1			616151	06/15/23 22:35	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			990.22 mL	1.0 g	612695	05/22/23 17:06	KAC	EET SL
Total/NA	Analysis	9320		1			616151	06/15/23 12:43	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			616499	06/16/23 12:02	SCB	EET SL
	Instrument ID: NOEQUIP									

Laboratory References:

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET PIT

Batch Type: Prep

HCY = Harrison Yaeger
MTW = Michael Wesoloski
S1Z = Sage Ziviello

Batch Type: Analysis

AAS = Ariana Swick
BAB = Brooke Batyi
KED = Katie Dacko
LWM = Leslie McIntire
MTW = Michael Wesoloski
SNL = Sean Lordo

Lab: EET SL

Batch Type: Prep

KAC = Kevin Cox

Batch Type: Analysis

FLC = Fernando Cruz
SCB = Sarah Bernsen

Client Sample ID: CCR-LF-1-051223

Date Collected: 05/12/23 11:30
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-1

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**21**		2.5	1.8	mg/L			05/15/23 22:27	2.5
Fluoride	**0.28**		0.25	0.065	mg/L			05/15/23 22:27	2.5
Sulfate	**1100**	**^2**	2.5	1.9	mg/L			05/15/23 22:27	2.5

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**38**	**J**	200	13	ug/L		05/26/23 13:00	06/14/23 15:04	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		05/26/23 13:00	06/22/23 22:31	1
Arsenic	**0.00031**	**J**	0.0010	0.00028	mg/L		05/26/23 13:00	06/22/23 22:31	1
Barium	**0.023**		0.010	0.0031	mg/L		05/26/23 13:00	06/22/23 22:31	1
Beryllium	ND		0.0010	0.00027	mg/L		05/26/23 13:00	06/22/23 22:31	1
Cadmium	ND		0.0010	0.00022	mg/L		05/26/23 13:00	06/22/23 22:31	1
Calcium	**300**		0.50	0.13	mg/L		05/26/23 13:00	06/22/23 22:31	1
Chromium	ND		0.0020	0.0015	mg/L		05/26/23 13:00	06/22/23 22:31	1
Cobalt	ND		0.00050	0.00026	mg/L		05/26/23 13:00	06/23/23 18:46	1
Lead	ND		0.0010	0.00038	mg/L		05/26/23 13:00	06/22/23 22:31	1
Lithium	**0.0041**	**J**	0.0050	0.0013	mg/L		05/26/23 13:00	06/22/23 22:31	1
Molybdenum	**0.00072**	**J**	0.0050	0.00061	mg/L		05/26/23 13:00	06/22/23 22:31	1
Selenium	ND		0.0050	0.00074	mg/L		05/26/23 13:00	06/22/23 22:31	1
Thallium	ND		0.0010	0.00047	mg/L		05/26/23 13:00	06/22/23 22:31	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1900**		10	10	mg/L			05/16/23 18:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**7.0**	**HF**	0.1	0.1	SU			05/24/23 15:08	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.289	U	0.249	0.251	1.00	0.379	pCi/L	05/22/23 17:00	06/15/23 22:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.0*		*30 - 110*	*05/22/23 17:00*	*06/15/23 22:33*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.435	U	0.346	0.348	1.00	0.528	pCi/L	05/22/23 17:06	06/15/23 12:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.0*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:40*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-1-051223
Date Collected: 05/12/23 11:30
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-1
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	81.5		30 - 110	05/22/23 17:06	06/15/23 12:40	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.724		0.426	0.429	5.00	0.528	pCi/L		06/16/23 12:02	1

Client Sample ID: CCR-LF-2-051223

Date Collected: 05/12/23 07:45
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-2

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	380		2.5	1.8	mg/L			05/15/23 21:28	2.5
Fluoride	0.41		0.25	0.065	mg/L			05/15/23 21:28	2.5
Sulfate	14000	^2	25	19	mg/L			05/15/23 21:42	25

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	5700	B	200	13	ug/L		06/07/23 06:53	06/19/23 16:34	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		06/07/23 07:02	06/22/23 23:35	1
Arsenic	0.0016		0.0010	0.00028	mg/L		06/07/23 07:02	06/22/23 23:35	1
Barium	0.014	F1	0.010	0.0031	mg/L		06/07/23 07:02	06/22/23 23:35	1
Beryllium	ND		0.0010	0.00027	mg/L		06/07/23 07:02	06/22/23 23:35	1
Cadmium	0.0056		0.0010	0.00022	mg/L		06/07/23 07:02	06/22/23 23:35	1
Calcium	390		0.50	0.13	mg/L		06/07/23 07:02	06/22/23 23:35	1
Chromium	ND		0.0020	0.0015	mg/L		06/07/23 07:02	06/22/23 23:35	1
Cobalt	0.011		0.00050	0.00026	mg/L		06/07/23 07:02	06/23/23 17:05	1
Lead	0.00057	J	0.0010	0.00038	mg/L		06/07/23 07:02	06/22/23 23:35	1
Lithium	0.017		0.0050	0.0013	mg/L		06/07/23 07:02	06/22/23 23:35	1
Molybdenum	0.0027	J	0.0050	0.00061	mg/L		06/07/23 07:02	06/22/23 23:35	1
Selenium	0.0041	J	0.0050	0.00074	mg/L		06/07/23 07:02	06/22/23 23:35	1
Thallium	0.00087	J	0.0010	0.00047	mg/L		06/07/23 07:02	06/22/23 23:35	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	23000		200	200	mg/L			05/16/23 18:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	6.7	HF	0.1	0.1	SU			05/24/23 15:02	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.522		0.345	0.348	1.00	0.481	pCi/L	05/22/23 17:00	06/15/23 22:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.8*		*30 - 110*	*05/22/23 17:00*	*06/15/23 22:34*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.00		0.735	0.785	1.00	0.710	pCi/L	05/22/23 17:06	06/15/23 12:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*83.8*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:40*	*1*

Client Sample ID: CCR-LF-2-051223

Date Collected: 05/12/23 07:45
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-2

Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*80.4*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:40*	*1*

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**3.52**		0.812	0.859	5.00	0.710	pCi/L		06/16/23 12:02	1

Client Sample ID: CCR-LF-3-051223

Date Collected: 05/12/23 10:00
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-3

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23**		2.5	1.8	mg/L			05/15/23 22:42	2.5
Fluoride	**0.26**		0.25	0.065	mg/L			05/15/23 22:42	2.5
Sulfate	**1100**	**^2**	2.5	1.9	mg/L			05/15/23 22:42	2.5

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**200**		200	13	ug/L		05/26/23 13:00	06/14/23 15:15	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		05/26/23 13:00	06/22/23 22:37	1
Arsenic	**0.00032**	**J**	0.0010	0.00028	mg/L		05/26/23 13:00	06/22/23 22:37	1
Barium	**0.016**		0.010	0.0031	mg/L		05/26/23 13:00	06/22/23 22:37	1
Beryllium	ND		0.0010	0.00027	mg/L		05/26/23 13:00	06/22/23 22:37	1
Cadmium	ND		0.0010	0.00022	mg/L		05/26/23 13:00	06/22/23 22:37	1
Calcium	**230**		0.50	0.13	mg/L		05/26/23 13:00	06/22/23 22:37	1
Chromium	ND		0.0020	0.0015	mg/L		05/26/23 13:00	06/22/23 22:37	1
Cobalt	ND		0.00050	0.00026	mg/L		05/26/23 13:00	06/23/23 18:52	1
Lead	ND		0.0010	0.00038	mg/L		05/26/23 13:00	06/22/23 22:37	1
Lithium	**0.0018**	**J**	0.0050	0.0013	mg/L		05/26/23 13:00	06/22/23 22:37	1
Molybdenum	**0.00074**	**J**	0.0050	0.00061	mg/L		05/26/23 13:00	06/22/23 22:37	1
Selenium	ND		0.0050	0.00074	mg/L		05/26/23 13:00	06/22/23 22:37	1
Thallium	ND		0.0010	0.00047	mg/L		05/26/23 13:00	06/22/23 22:37	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1800**		10	10	mg/L			05/16/23 18:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**7.3**	**HF**	0.1	0.1	SU			05/24/23 15:22	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.182	U	0.188	0.189	1.00	0.296	pCi/L	05/22/23 17:00	06/15/23 22:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*30 - 110*	*05/22/23 17:00*	*06/15/23 22:34*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.485	U	0.392	0.395	1.00	0.611	pCi/L	05/22/23 17:06	06/15/23 12:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:42*	*1*

Client Sample ID: CCR-LF-3-051223

Date Collected: 05/12/23 10:00
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-3

Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*79.6*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:42*	*1*

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.667**		0.435	0.438	5.00	0.611	pCi/L		06/16/23 12:02	1

Client Sample ID: CCR-LF-4-051223

Date Collected: 05/12/23 11:15
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-4

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		1.0	0.71	mg/L			05/15/23 22:56	1
Fluoride	**0.29**		0.10	0.026	mg/L			05/15/23 22:56	1
Sulfate	**9400**	**^2**	10	7.6	mg/L			05/15/23 23:11	10

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**420**		200	13	ug/L		05/26/23 13:00	06/14/23 15:20	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		05/26/23 13:00	06/22/23 22:39	1
Arsenic	**0.022**		0.0010	0.00028	mg/L		05/26/23 13:00	06/22/23 22:39	1
Barium	**0.011**		0.010	0.0031	mg/L		05/26/23 13:00	06/22/23 22:39	1
Beryllium	ND		0.0010	0.00027	mg/L		05/26/23 13:00	06/22/23 22:39	1
Cadmium	ND		0.0010	0.00022	mg/L		05/26/23 13:00	06/22/23 22:39	1
Calcium	**440**		0.50	0.13	mg/L		05/26/23 13:00	06/22/23 22:39	1
Chromium	ND		0.0020	0.0015	mg/L		05/26/23 13:00	06/22/23 22:39	1
Cobalt	**0.0013**		0.00050	0.00026	mg/L		05/26/23 13:00	06/23/23 19:01	1
Lead	**0.00041**	**J**	0.0010	0.00038	mg/L		05/26/23 13:00	06/22/23 22:39	1
Lithium	**0.076**		0.0050	0.0013	mg/L		05/26/23 13:00	06/22/23 22:39	1
Molybdenum	**0.026**		0.0050	0.00061	mg/L		05/26/23 13:00	06/22/23 22:39	1
Selenium	**0.00093**	**J**	0.0050	0.00074	mg/L		05/26/23 13:00	06/22/23 22:39	1
Thallium	ND		0.0010	0.00047	mg/L		05/26/23 13:00	06/22/23 22:39	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**15000**		100	100	mg/L			05/16/23 18:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**6.8**	**HF**	0.1	0.1	SU			05/24/23 13:32	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**3.25**		0.656	0.719	1.00	0.419	pCi/L	05/22/23 17:00	06/15/23 22:34	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*57.5*		*30 - 110*	*05/22/23 17:00*	*06/15/23 22:34*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.94**		0.672	0.696	1.00	0.779	pCi/L	05/22/23 17:06	06/15/23 12:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*57.5*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:42*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-4-051223
Date Collected: 05/12/23 11:15
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-4
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	80.0		30 - 110	05/22/23 17:06	06/15/23 12:42	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.19		0.939	1.00	5.00	0.779	pCi/L		06/16/23 12:02	1

Client Sample ID: CCR-LF-5-051223

Date Collected: 05/12/23 09:35
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-5

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	350		1.0	0.71	mg/L			05/15/23 23:26	1
Fluoride	0.19		0.10	0.026	mg/L			05/15/23 23:26	1
Sulfate	2500	^2	5.0	3.8	mg/L			05/15/23 23:41	5

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1300	B	200	13	ug/L		06/07/23 06:53	06/19/23 17:00	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		06/07/23 07:02	06/22/23 23:49	1
Arsenic	0.00080	J	0.0010	0.00028	mg/L		06/07/23 07:02	06/22/23 23:49	1
Barium	0.025		0.010	0.0031	mg/L		06/07/23 07:02	06/22/23 23:49	1
Beryllium	ND		0.0010	0.00027	mg/L		06/07/23 07:02	06/22/23 23:49	1
Cadmium	0.00037	J	0.0010	0.00022	mg/L		06/07/23 07:02	06/22/23 23:49	1
Calcium	470		0.50	0.13	mg/L		06/07/23 07:02	06/22/23 23:49	1
Chromium	ND		0.0020	0.0015	mg/L		06/07/23 07:02	06/22/23 23:49	1
Cobalt	ND		0.00050	0.00026	mg/L		06/07/23 07:02	06/23/23 17:19	1
Lead	ND		0.0010	0.00038	mg/L		06/07/23 07:02	06/22/23 23:49	1
Lithium	0.019		0.0050	0.0013	mg/L		06/07/23 07:02	06/22/23 23:49	1
Molybdenum	0.00096	J	0.0050	0.00061	mg/L		06/07/23 07:02	06/22/23 23:49	1
Selenium	0.0011	J	0.0050	0.00074	mg/L		06/07/23 07:02	06/22/23 23:49	1
Thallium	ND		0.0010	0.00047	mg/L		06/07/23 07:02	06/22/23 23:49	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00015	J	0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	4800		40	40	mg/L			05/16/23 18:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	7.2	HF	0.1	0.1	SU			05/24/23 14:51	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0373	U	0.132	0.132	1.00	0.297	pCi/L	05/22/23 17:00	06/15/23 22:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*30 - 110*	*05/22/23 17:00*	*06/15/23 22:35*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.663		0.384	0.389	1.00	0.556	pCi/L	05/22/23 17:06	06/15/23 12:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:42*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-5-051223

Date Collected: 05/12/23 09:35
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-5

Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	82.2		30 - 110	05/22/23 17:06	06/15/23 12:42	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.626		0.406	0.411	5.00	0.556	pCi/L		06/16/23 12:02	1

Client Sample ID: CCR-LF-6-051223

Date Collected: 05/12/23 07:50
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-6

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25		1.0	0.71	mg/L			05/16/23 00:22	1
Fluoride	0.36		0.10	0.026	mg/L			05/16/23 00:22	1
Sulfate	830	^2	1.0	0.76	mg/L			05/16/23 00:22	1

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	720	B	200	13	ug/L		06/07/23 06:53	06/19/23 17:06	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		06/07/23 07:02	06/22/23 23:52	1
Arsenic	0.00033	J	0.0010	0.00028	mg/L		06/07/23 07:02	06/22/23 23:52	1
Barium	0.025		0.010	0.0031	mg/L		06/07/23 07:02	06/22/23 23:52	1
Beryllium	ND		0.0010	0.00027	mg/L		06/07/23 07:02	06/22/23 23:52	1
Cadmium	ND		0.0010	0.00022	mg/L		06/07/23 07:02	06/22/23 23:52	1
Calcium	270		0.50	0.13	mg/L		06/07/23 07:02	06/22/23 23:52	1
Chromium	ND		0.0020	0.0015	mg/L		06/07/23 07:02	06/22/23 23:52	1
Cobalt	ND		0.00050	0.00026	mg/L		06/07/23 07:02	06/23/23 17:22	1
Lead	ND		0.0010	0.00038	mg/L		06/07/23 07:02	06/22/23 23:52	1
Lithium	0.014		0.0050	0.0013	mg/L		06/07/23 07:02	06/22/23 23:52	1
Molybdenum	0.0012	J	0.0050	0.00061	mg/L		06/07/23 07:02	06/22/23 23:52	1
Selenium	0.0016	J	0.0050	0.00074	mg/L		06/07/23 07:02	06/22/23 23:52	1
Thallium	ND		0.0010	0.00047	mg/L		06/07/23 07:02	06/22/23 23:52	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	1400		10	10	mg/L			05/16/23 18:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	7.3	HF	0.1	0.1	SU			05/24/23 14:48	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.224	U	0.241	0.242	1.00	0.387	pCi/L	05/22/23 17:00	06/15/23 22:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*30 - 110*	*05/22/23 17:00*	*06/15/23 22:35*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.279	U	0.368	0.369	1.00	0.614	pCi/L	05/22/23 17:06	06/15/23 12:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.5*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:43*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-156567-1
SDG: Landfill

Client Sample ID: CCR-LF-6-051223

Date Collected: 05/12/23 07:50
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-6

Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*79.6*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:43*	*1*

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.504	U	0.440	0.441	5.00	0.614	pCi/L		06/16/23 12:02	1

Client Sample ID: DUP3-051223

Date Collected: 05/12/23 07:50
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-7

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**22**		1.0	0.71	mg/L			05/16/23 00:36	1
Fluoride	**0.31**		0.10	0.026	mg/L			05/16/23 00:36	1
Sulfate	**740**	**^2**	1.0	0.76	mg/L			05/16/23 00:36	1

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**720**	**B**	200	13	ug/L		06/07/23 06:53	06/19/23 17:11	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		06/07/23 07:02	06/23/23 17:31	1
Arsenic	**0.00029**	**J**	0.0010	0.00028	mg/L		06/07/23 07:02	06/23/23 17:31	1
Barium	**0.024**		0.010	0.0031	mg/L		06/07/23 07:02	06/23/23 17:31	1
Beryllium	ND		0.0010	0.00027	mg/L		06/07/23 07:02	06/23/23 17:31	1
Cadmium	ND		0.0010	0.00022	mg/L		06/07/23 07:02	06/23/23 17:31	1
Calcium	**260**		0.50	0.13	mg/L		06/07/23 07:02	06/23/23 17:31	1
Chromium	ND		0.0020	0.0015	mg/L		06/07/23 07:02	06/23/23 17:31	1
Cobalt	ND		0.00050	0.00026	mg/L		06/07/23 07:02	06/23/23 17:31	1
Lead	ND		0.0010	0.00038	mg/L		06/07/23 07:02	06/23/23 17:31	1
Lithium	**0.013**		0.0050	0.0013	mg/L		06/07/23 07:02	06/23/23 17:31	1
Molybdenum	**0.0011**	**J**	0.0050	0.00061	mg/L		06/07/23 07:02	06/23/23 17:31	1
Selenium	**0.0014**	**J**	0.0050	0.00074	mg/L		06/07/23 07:02	06/23/23 17:31	1
Thallium	ND		0.0010	0.00047	mg/L		06/07/23 07:02	06/23/23 17:31	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1400**		10	10	mg/L			05/16/23 18:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**7.3**	**HF**	0.1	0.1	SU			05/24/23 14:45	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.235	U	0.198	0.199	1.00	0.294	pCi/L	05/22/23 17:00	06/15/23 22:35	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.0*		*30 - 110*	*05/22/23 17:00*	*06/15/23 22:35*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.403	U	0.376	0.378	1.00	0.599	pCi/L	05/22/23 17:06	06/15/23 12:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.0*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:43*	*1*

Client Sample ID: DUP3-051223
Date Collected: 05/12/23 07:50
Date Received: 05/13/23 09:19

Lab Sample ID: 180-156567-7
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*80.7*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:43*	*1*

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.639**		0.425	0.427	5.00	0.599	pCi/L		06/16/23 12:02	1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-435178/38
Matrix: Water
Analysis Batch: 435178

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.71	mg/L			05/15/23 20:28	1
Fluoride	ND		0.10	0.026	mg/L			05/15/23 20:28	1
Sulfate	ND		1.0	0.76	mg/L			05/15/23 20:28	1

Lab Sample ID: LCS 180-435178/39
Matrix: Water
Analysis Batch: 435178

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	51.2		mg/L		102	80 - 120
Fluoride	2.50	2.72		mg/L		109	80 - 120
Sulfate	50.0	51.0		mg/L		102	80 - 120

Lab Sample ID: 180-156567-2 MS
Matrix: Water
Analysis Batch: 435178

Client Sample ID: CCR-LF-2-051223
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	380		1250	1680		mg/L		104	80 - 120
Fluoride	0.79	J	62.5	69.6		mg/L		110	80 - 120
Sulfate	14000	^2	1250	16000	4	mg/L		121	80 - 120

Lab Sample ID: 180-156567-2 MSD
Matrix: Water
Analysis Batch: 435178

Client Sample ID: CCR-LF-2-051223
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	380		1250	1690		mg/L		105	80 - 120	0	15
Fluoride	0.79	J	62.5	70.0		mg/L		111	80 - 120	1	15
Sulfate	14000	^2	1250	16000	4	mg/L		121	80 - 120	0	15

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-436357/1-A
Matrix: Water
Analysis Batch: 438036

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 436357

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		200	13	ug/L		05/26/23 13:00	06/14/23 14:01	1

Lab Sample ID: LCS 180-436357/2-A
Matrix: Water
Analysis Batch: 438036

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 436357

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1250	1340		ug/L		107	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 180-437189/1-A
Matrix: Water
Analysis Batch: 438432

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 437189

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	15.5	J	200	13	ug/L		06/07/23 06:53	06/19/23 16:14	1

Lab Sample ID: LCS 180-437189/2-A
Matrix: Water
Analysis Batch: 438432

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 437189

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1250	1410		ug/L		112	80 - 120

Lab Sample ID: 180-156567-2 MS
Matrix: Water
Analysis Batch: 438432

Client Sample ID: CCR-LF-2-051223
Prep Type: Total Recoverable
Prep Batch: 437189

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	5700	B	1250	7080	4	ug/L		111	75 - 125

Lab Sample ID: 180-156567-2 MSD
Matrix: Water
Analysis Batch: 438432

Client Sample ID: CCR-LF-2-051223
Prep Type: Total Recoverable
Prep Batch: 437189

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	5700	B	1250	7040	4	ug/L		107	75 - 125	1	20

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-436345/1-A
Matrix: Water
Analysis Batch: 438772

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 436345

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		05/26/23 13:00	06/22/23 21:56	1
Arsenic	ND		0.0010	0.00028	mg/L		05/26/23 13:00	06/22/23 21:56	1
Barium	ND		0.010	0.0031	mg/L		05/26/23 13:00	06/22/23 21:56	1
Beryllium	ND		0.0010	0.00027	mg/L		05/26/23 13:00	06/22/23 21:56	1
Cadmium	ND		0.0010	0.00022	mg/L		05/26/23 13:00	06/22/23 21:56	1
Calcium	ND		0.50	0.13	mg/L		05/26/23 13:00	06/22/23 21:56	1
Chromium	ND		0.0020	0.0015	mg/L		05/26/23 13:00	06/22/23 21:56	1
Lead	ND		0.0010	0.00038	mg/L		05/26/23 13:00	06/22/23 21:56	1
Lithium	ND		0.0050	0.0013	mg/L		05/26/23 13:00	06/22/23 21:56	1
Molybdenum	ND		0.0050	0.00061	mg/L		05/26/23 13:00	06/22/23 21:56	1
Selenium	ND		0.0050	0.00074	mg/L		05/26/23 13:00	06/22/23 21:56	1
Thallium	ND		0.0010	0.00047	mg/L		05/26/23 13:00	06/22/23 21:56	1

Lab Sample ID: MB 180-436345/1-A
Matrix: Water
Analysis Batch: 438909

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 436345

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.00050	0.00026	mg/L		05/26/23 13:00	06/23/23 18:29	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-436345/2-A
Matrix: Water
Analysis Batch: 438772

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 436345

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.250	0.235		mg/L		94	80 - 120
Arsenic	1.00	0.810		mg/L		81	80 - 120
Barium	1.00	0.895		mg/L		89	80 - 120
Beryllium	0.500	0.485		mg/L		97	80 - 120
Cadmium	0.500	0.427		mg/L		85	80 - 120
Calcium	25.0	24.5		mg/L		98	80 - 120
Chromium	0.500	0.422		mg/L		84	80 - 120
Lead	0.500	0.438		mg/L		88	80 - 120
Lithium	0.500	0.502		mg/L		100	80 - 120
Molybdenum	0.500	0.445		mg/L		89	80 - 120
Selenium	1.00	0.981		mg/L		98	80 - 120
Thallium	1.00	0.859		mg/L		86	80 - 120

Lab Sample ID: LCS 180-436345/2-A
Matrix: Water
Analysis Batch: 438909

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 436345

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.500	0.433		mg/L		87	80 - 120

Lab Sample ID: MB 180-437190/1-A
Matrix: Water
Analysis Batch: 438772

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		06/07/23 07:02	06/22/23 23:29	1
Arsenic	ND		0.0010	0.00028	mg/L		06/07/23 07:02	06/22/23 23:29	1
Barium	ND		0.010	0.0031	mg/L		06/07/23 07:02	06/22/23 23:29	1
Beryllium	ND		0.0010	0.00027	mg/L		06/07/23 07:02	06/22/23 23:29	1
Cadmium	ND		0.0010	0.00022	mg/L		06/07/23 07:02	06/22/23 23:29	1
Calcium	ND		0.50	0.13	mg/L		06/07/23 07:02	06/22/23 23:29	1
Chromium	ND		0.0020	0.0015	mg/L		06/07/23 07:02	06/22/23 23:29	1
Lead	ND		0.0010	0.00038	mg/L		06/07/23 07:02	06/22/23 23:29	1
Lithium	ND		0.0050	0.0013	mg/L		06/07/23 07:02	06/22/23 23:29	1
Molybdenum	ND		0.0050	0.00061	mg/L		06/07/23 07:02	06/22/23 23:29	1
Selenium	ND		0.0050	0.00074	mg/L		06/07/23 07:02	06/22/23 23:29	1
Thallium	ND		0.0010	0.00047	mg/L		06/07/23 07:02	06/22/23 23:29	1

Lab Sample ID: MB 180-437190/1-A
Matrix: Water
Analysis Batch: 438909

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0020	0.00097	mg/L		06/07/23 07:02	06/23/23 16:59	1
Arsenic	ND		0.0010	0.00028	mg/L		06/07/23 07:02	06/23/23 16:59	1
Barium	ND		0.010	0.0031	mg/L		06/07/23 07:02	06/23/23 16:59	1
Beryllium	ND		0.0010	0.00027	mg/L		06/07/23 07:02	06/23/23 16:59	1
Cadmium	ND		0.0010	0.00022	mg/L		06/07/23 07:02	06/23/23 16:59	1
Calcium	ND		0.50	0.13	mg/L		06/07/23 07:02	06/23/23 16:59	1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-437190/1-A
Matrix: Water
Analysis Batch: 438909

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.0020	0.0015	mg/L		06/07/23 07:02	06/23/23 16:59	1
Cobalt	ND		0.00050	0.00026	mg/L		06/07/23 07:02	06/23/23 16:59	1
Lead	ND		0.0010	0.00038	mg/L		06/07/23 07:02	06/23/23 16:59	1
Lithium	ND		0.0050	0.0013	mg/L		06/07/23 07:02	06/23/23 16:59	1
Molybdenum	ND		0.0050	0.00061	mg/L		06/07/23 07:02	06/23/23 16:59	1
Selenium	ND		0.0050	0.00074	mg/L		06/07/23 07:02	06/23/23 16:59	1
Thallium	ND		0.0010	0.00047	mg/L		06/07/23 07:02	06/23/23 16:59	1

Lab Sample ID: LCS 180-437190/2-A
Matrix: Water
Analysis Batch: 438772

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.250	0.268		mg/L		107	80 - 120
Arsenic	1.00	0.952		mg/L		95	80 - 120
Barium	1.00	1.06		mg/L		106	80 - 120
Beryllium	0.500	0.483		mg/L		97	80 - 120
Cadmium	0.500	0.495		mg/L		99	80 - 120
Calcium	25.0	29.0		mg/L		116	80 - 120
Chromium	0.500	0.496		mg/L		99	80 - 120
Lead	0.500	0.515		mg/L		103	80 - 120
Lithium	0.500	0.480		mg/L		96	80 - 120
Molybdenum	0.500	0.513		mg/L		103	80 - 120
Selenium	1.00	1.01		mg/L		101	80 - 120
Thallium	1.00	1.01		mg/L		101	80 - 120

Lab Sample ID: LCS 180-437190/2-A
Matrix: Water
Analysis Batch: 438909

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.250	0.268		mg/L		107	80 - 120
Arsenic	1.00	1.03		mg/L		103	80 - 120
Barium	1.00	1.03		mg/L		103	80 - 120
Beryllium	0.500	0.517		mg/L		103	80 - 120
Cadmium	0.500	0.491		mg/L		98	80 - 120
Calcium	25.0	28.5		mg/L		114	80 - 120
Chromium	0.500	0.485		mg/L		97	80 - 120
Cobalt	0.500	0.493		mg/L		99	80 - 120
Lead	0.500	0.508		mg/L		102	80 - 120
Lithium	0.500	0.479		mg/L		96	80 - 120
Molybdenum	0.500	0.564		mg/L		113	80 - 120
Selenium	1.00	0.940		mg/L		94	80 - 120
Thallium	1.00	0.989		mg/L		99	80 - 120

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-156567-2 MS
Matrix: Water
Analysis Batch: 438772

Client Sample ID: CCR-LF-2-051223
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND		0.250	0.262		mg/L		105	75 - 125
Arsenic	0.0016		1.00	1.17		mg/L		117	75 - 125
Barium	0.014	F1	1.00	0.510	F1	mg/L		50	75 - 125
Beryllium	ND		0.500	0.458		mg/L		92	75 - 125
Cadmium	0.0056		0.500	0.428		mg/L		84	75 - 125
Calcium	390		25.0	441	4	mg/L		212	75 - 125
Chromium	ND		0.500	0.426		mg/L		85	75 - 125
Lead	0.00057	J	0.500	0.467		mg/L		93	75 - 125
Lithium	0.017		0.500	0.463		mg/L		89	75 - 125
Molybdenum	0.0027	J	0.500	0.546		mg/L		109	75 - 125
Selenium	0.0041	J	1.00	0.865		mg/L		86	75 - 125
Thallium	0.00087	J	1.00	1.04		mg/L		104	75 - 125

Lab Sample ID: 180-156567-2 MS
Matrix: Water
Analysis Batch: 438909

Client Sample ID: CCR-LF-2-051223
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	0.011		0.500	0.490		mg/L		96	75 - 125

Lab Sample ID: 180-156567-2 MSD
Matrix: Water
Analysis Batch: 438772

Client Sample ID: CCR-LF-2-051223
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND		0.250	0.262		mg/L		105	75 - 125	0	20
Arsenic	0.0016		1.00	1.20		mg/L		120	75 - 125	3	20
Barium	0.014	F1	1.00	0.447	F1	mg/L		43	75 - 125	13	20
Beryllium	ND		0.500	0.448		mg/L		90	75 - 125	2	20
Cadmium	0.0056		0.500	0.426		mg/L		84	75 - 125	1	20
Calcium	390		25.0	433	4	mg/L		179	75 - 125	2	20
Chromium	ND		0.500	0.417		mg/L		83	75 - 125	2	20
Lead	0.00057	J	0.500	0.445		mg/L		89	75 - 125	5	20
Lithium	0.017		0.500	0.466		mg/L		90	75 - 125	1	20
Molybdenum	0.0027	J	0.500	0.554		mg/L		110	75 - 125	1	20
Selenium	0.0041	J	1.00	0.969		mg/L		96	75 - 125	11	20
Thallium	0.00087	J	1.00	1.01		mg/L		101	75 - 125	2	20

Lab Sample ID: 180-156567-2 MSD
Matrix: Water
Analysis Batch: 438909

Client Sample ID: CCR-LF-2-051223
Prep Type: Total Recoverable
Prep Batch: 437190

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cobalt	0.011		0.500	0.509		mg/L		99	75 - 125	4	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-436162/1-A
Matrix: Water
Analysis Batch: 436354

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 436162

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		05/25/23 10:30	05/26/23 11:27	1

Lab Sample ID: LCS 180-436162/2-A
Matrix: Water
Analysis Batch: 436354

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 436162

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.00234		mg/L		93	80 - 120

Lab Sample ID: 180-156567-2 MS
Matrix: Water
Analysis Batch: 436354

Client Sample ID: CCR-LF-2-051223
Prep Type: Total/NA
Prep Batch: 436162

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00100	0.000826		mg/L		83	75 - 125

Lab Sample ID: 180-156567-2 MSD
Matrix: Water
Analysis Batch: 436354

Client Sample ID: CCR-LF-2-051223
Prep Type: Total/NA
Prep Batch: 436162

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.000776		mg/L		78	75 - 125	6	20

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-436148/1
Matrix: Water
Analysis Batch: 436148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 180-436148/24
Matrix: Water
Analysis Batch: 436148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	99 - 101

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-435357/1
Matrix: Water
Analysis Batch: 435357

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			05/16/23 18:36	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 180-435357/2
Matrix: Water
Analysis Batch: 435357

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Dissolved Solids			580	582		mg/L		100	85 - 115		

Lab Sample ID: 180-156567-6 DU
Matrix: Water
Analysis Batch: 435357

Client Sample ID: CCR-LF-6-051223
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	1400			1360		mg/L				NC	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-612692/1-A
Matrix: Water
Analysis Batch: 616149

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612692

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.3351		0.232	0.234	1.00	0.326	pCi/L	05/22/23 17:00	06/15/23 20:30	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*30 - 110*	*05/22/23 17:00*	*06/15/23 20:30*	*1*

Lab Sample ID: LCS 160-612692/2-A
Matrix: Water
Analysis Batch: 616149

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612692

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	8.434		1.16	1.00	0.322	pCi/L	74	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*87.0*		*30 - 110*

Lab Sample ID: 180-156567-2 DU
Matrix: Water
Analysis Batch: 616151

Client Sample ID: CCR-LF-2-051223
Prep Type: Total/NA
Prep Batch: 612692

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.522			0.4497	U	0.382	1.00	0.580	pCi/L			0.1	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*76.8*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-612695/1-A
Matrix: Water
Analysis Batch: 616149

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 612695

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1834	U	0.405	0.405	1.00	0.714	pCi/L	05/22/23 17:06	06/15/23 12:37	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.3*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:37*	*1*
Y Carrier	*56.8*		*30 - 110*	*05/22/23 17:06*	*06/15/23 12:37*	*1*

Lab Sample ID: LCS 160-612695/2-A
Matrix: Water
Analysis Batch: 616149

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 612695

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			8.12	9.550		1.33	1.00	0.564	pCi/L	118	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*87.0*		*30 - 110*
Y Carrier	*81.9*		*30 - 110*

Lab Sample ID: 180-156567-2 DU
Matrix: Water
Analysis Batch: 616149

Client Sample ID: CCR-LF-2-051223
Prep Type: Total/NA
Prep Batch: 612695

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	3.00			2.543	G	0.934	1.00	1.10	pCi/L			0.26	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*76.8*		*30 - 110*
Y Carrier	*63.2*		*30 - 110*

HPLC/IC

Analysis Batch: 435178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total/NA	Water	EPA 9056A	
180-156567-2	CCR-LF-2-051223	Total/NA	Water	EPA 9056A	
180-156567-2	CCR-LF-2-051223	Total/NA	Water	EPA 9056A	
180-156567-3	CCR-LF-3-051223	Total/NA	Water	EPA 9056A	
180-156567-4	CCR-LF-4-051223	Total/NA	Water	EPA 9056A	
180-156567-4	CCR-LF-4-051223	Total/NA	Water	EPA 9056A	
180-156567-5	CCR-LF-5-051223	Total/NA	Water	EPA 9056A	
180-156567-5	CCR-LF-5-051223	Total/NA	Water	EPA 9056A	
180-156567-6	CCR-LF-6-051223	Total/NA	Water	EPA 9056A	
180-156567-7	DUP3-051223	Total/NA	Water	EPA 9056A	
MB 180-435178/38	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-435178/39	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-156567-2 MS	CCR-LF-2-051223	Total/NA	Water	EPA 9056A	
180-156567-2 MSD	CCR-LF-2-051223	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 436162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total/NA	Water	7470A	
180-156567-2	CCR-LF-2-051223	Total/NA	Water	7470A	
180-156567-3	CCR-LF-3-051223	Total/NA	Water	7470A	
180-156567-4	CCR-LF-4-051223	Total/NA	Water	7470A	
180-156567-5	CCR-LF-5-051223	Total/NA	Water	7470A	
180-156567-6	CCR-LF-6-051223	Total/NA	Water	7470A	
180-156567-7	DUP3-051223	Total/NA	Water	7470A	
MB 180-436162/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-436162/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-156567-2 MS	CCR-LF-2-051223	Total/NA	Water	7470A	
180-156567-2 MSD	CCR-LF-2-051223	Total/NA	Water	7470A	

Prep Batch: 436345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total Recoverable	Water	3005A	
180-156567-3	CCR-LF-3-051223	Total Recoverable	Water	3005A	
180-156567-4	CCR-LF-4-051223	Total Recoverable	Water	3005A	
MB 180-436345/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-436345/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 436354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total/NA	Water	EPA 7470A	436162
180-156567-2	CCR-LF-2-051223	Total/NA	Water	EPA 7470A	436162
180-156567-3	CCR-LF-3-051223	Total/NA	Water	EPA 7470A	436162
180-156567-4	CCR-LF-4-051223	Total/NA	Water	EPA 7470A	436162
180-156567-5	CCR-LF-5-051223	Total/NA	Water	EPA 7470A	436162
180-156567-6	CCR-LF-6-051223	Total/NA	Water	EPA 7470A	436162
180-156567-7	DUP3-051223	Total/NA	Water	EPA 7470A	436162
MB 180-436162/1-A	Method Blank	Total/NA	Water	EPA 7470A	436162
LCS 180-436162/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	436162
180-156567-2 MS	CCR-LF-2-051223	Total/NA	Water	EPA 7470A	436162

Metals (Continued)

Analysis Batch: 436354 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-2 MSD	CCR-LF-2-051223	Total/NA	Water	EPA 7470A	436162

Prep Batch: 436357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total Recoverable	Water	3005A	
180-156567-3	CCR-LF-3-051223	Total Recoverable	Water	3005A	
180-156567-4	CCR-LF-4-051223	Total Recoverable	Water	3005A	
MB 180-436357/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-436357/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 437189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-2	CCR-LF-2-051223	Total Recoverable	Water	3005A	
180-156567-5	CCR-LF-5-051223	Total Recoverable	Water	3005A	
180-156567-6	CCR-LF-6-051223	Total Recoverable	Water	3005A	
180-156567-7	DUP3-051223	Total Recoverable	Water	3005A	
MB 180-437189/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-437189/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-156567-2 MS	CCR-LF-2-051223	Total Recoverable	Water	3005A	
180-156567-2 MSD	CCR-LF-2-051223	Total Recoverable	Water	3005A	

Prep Batch: 437190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-2	CCR-LF-2-051223	Total Recoverable	Water	3005A	
180-156567-5	CCR-LF-5-051223	Total Recoverable	Water	3005A	
180-156567-6	CCR-LF-6-051223	Total Recoverable	Water	3005A	
180-156567-7	DUP3-051223	Total Recoverable	Water	3005A	
MB 180-437190/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-437190/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-156567-2 MS	CCR-LF-2-051223	Total Recoverable	Water	3005A	
180-156567-2 MSD	CCR-LF-2-051223	Total Recoverable	Water	3005A	

Analysis Batch: 438036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total Recoverable	Water	EPA 6010D	436357
180-156567-3	CCR-LF-3-051223	Total Recoverable	Water	EPA 6010D	436357
180-156567-4	CCR-LF-4-051223	Total Recoverable	Water	EPA 6010D	436357
MB 180-436357/1-A	Method Blank	Total Recoverable	Water	EPA 6010D	436357
LCS 180-436357/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6010D	436357

Analysis Batch: 438432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-2	CCR-LF-2-051223	Total Recoverable	Water	EPA 6010D	437189
180-156567-5	CCR-LF-5-051223	Total Recoverable	Water	EPA 6010D	437189
180-156567-6	CCR-LF-6-051223	Total Recoverable	Water	EPA 6010D	437189
180-156567-7	DUP3-051223	Total Recoverable	Water	EPA 6010D	437189
MB 180-437189/1-A	Method Blank	Total Recoverable	Water	EPA 6010D	437189
LCS 180-437189/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6010D	437189
180-156567-2 MS	CCR-LF-2-051223	Total Recoverable	Water	EPA 6010D	437189
180-156567-2 MSD	CCR-LF-2-051223	Total Recoverable	Water	EPA 6010D	437189

Metals

Analysis Batch: 438772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total Recoverable	Water	EPA 6020A	436345
180-156567-2	CCR-LF-2-051223	Total Recoverable	Water	EPA 6020A	437190
180-156567-3	CCR-LF-3-051223	Total Recoverable	Water	EPA 6020A	436345
180-156567-4	CCR-LF-4-051223	Total Recoverable	Water	EPA 6020A	436345
180-156567-5	CCR-LF-5-051223	Total Recoverable	Water	EPA 6020A	437190
180-156567-6	CCR-LF-6-051223	Total Recoverable	Water	EPA 6020A	437190
MB 180-436345/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	436345
MB 180-437190/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	437190
LCS 180-436345/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	436345
LCS 180-437190/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	437190
180-156567-2 MS	CCR-LF-2-051223	Total Recoverable	Water	EPA 6020A	437190
180-156567-2 MSD	CCR-LF-2-051223	Total Recoverable	Water	EPA 6020A	437190

Analysis Batch: 438909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total Recoverable	Water	EPA 6020A	436345
180-156567-2	CCR-LF-2-051223	Total Recoverable	Water	EPA 6020A	437190
180-156567-3	CCR-LF-3-051223	Total Recoverable	Water	EPA 6020A	436345
180-156567-4	CCR-LF-4-051223	Total Recoverable	Water	EPA 6020A	436345
180-156567-5	CCR-LF-5-051223	Total Recoverable	Water	EPA 6020A	437190
180-156567-6	CCR-LF-6-051223	Total Recoverable	Water	EPA 6020A	437190
180-156567-7	DUP3-051223	Total Recoverable	Water	EPA 6020A	437190
MB 180-436345/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	436345
MB 180-437190/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	437190
LCS 180-436345/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	436345
LCS 180-437190/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	437190
180-156567-2 MS	CCR-LF-2-051223	Total Recoverable	Water	EPA 6020A	437190
180-156567-2 MSD	CCR-LF-2-051223	Total Recoverable	Water	EPA 6020A	437190

General Chemistry

Analysis Batch: 435357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total/NA	Water	SM 2540C	
180-156567-2	CCR-LF-2-051223	Total/NA	Water	SM 2540C	
180-156567-3	CCR-LF-3-051223	Total/NA	Water	SM 2540C	
180-156567-4	CCR-LF-4-051223	Total/NA	Water	SM 2540C	
180-156567-5	CCR-LF-5-051223	Total/NA	Water	SM 2540C	
180-156567-6	CCR-LF-6-051223	Total/NA	Water	SM 2540C	
180-156567-7	DUP3-051223	Total/NA	Water	SM 2540C	
MB 180-435357/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-435357/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-156567-6 DU	CCR-LF-6-051223	Total/NA	Water	SM 2540C	

Analysis Batch: 436148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total/NA	Water	EPA 9040C	
180-156567-2	CCR-LF-2-051223	Total/NA	Water	EPA 9040C	
180-156567-3	CCR-LF-3-051223	Total/NA	Water	EPA 9040C	
180-156567-4	CCR-LF-4-051223	Total/NA	Water	EPA 9040C	
180-156567-5	CCR-LF-5-051223	Total/NA	Water	EPA 9040C	

General Chemistry (Continued)

Analysis Batch: 436148 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-6	CCR-LF-6-051223	Total/NA	Water	EPA 9040C	
180-156567-7	DUP3-051223	Total/NA	Water	EPA 9040C	
LCS 180-436148/1	Lab Control Sample	Total/NA	Water	EPA 9040C	
LCS 180-436148/24	Lab Control Sample	Total/NA	Water	EPA 9040C	

Rad

Prep Batch: 612692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total/NA	Water	PrecSep-21	
180-156567-2	CCR-LF-2-051223	Total/NA	Water	PrecSep-21	
180-156567-3	CCR-LF-3-051223	Total/NA	Water	PrecSep-21	
180-156567-4	CCR-LF-4-051223	Total/NA	Water	PrecSep-21	
180-156567-5	CCR-LF-5-051223	Total/NA	Water	PrecSep-21	
180-156567-6	CCR-LF-6-051223	Total/NA	Water	PrecSep-21	
180-156567-7	DUP3-051223	Total/NA	Water	PrecSep-21	
MB 160-612692/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-612692/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
180-156567-2 DU	CCR-LF-2-051223	Total/NA	Water	PrecSep-21	

Prep Batch: 612695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-156567-1	CCR-LF-1-051223	Total/NA	Water	PrecSep_0	
180-156567-2	CCR-LF-2-051223	Total/NA	Water	PrecSep_0	
180-156567-3	CCR-LF-3-051223	Total/NA	Water	PrecSep_0	
180-156567-4	CCR-LF-4-051223	Total/NA	Water	PrecSep_0	
180-156567-5	CCR-LF-5-051223	Total/NA	Water	PrecSep_0	
180-156567-6	CCR-LF-6-051223	Total/NA	Water	PrecSep_0	
180-156567-7	DUP3-051223	Total/NA	Water	PrecSep_0	
MB 160-612695/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-612695/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
180-156567-2 DU	CCR-LF-2-051223	Total/NA	Water	PrecSep_0	

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

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Client Information	Sampler: Haley & Aldrich	Lab PM: Hayes, Ken	Carrier Tracking No(s):	COC No: 180-91208-15023.1
Client Contact: Britton Hundley	Phone: 803-617-8687	E-Mail: Ken Hayes@et.eurofinsus com	State of Origin: IN	Page: Page 1 of 4
Company: Haley & Aldrich, Inc.	PWSID:			Job #: 0129420-037-001-01

Address: 400 Augusta Street Suite 100	Due Date Requested: STANDARD
City: Greenville	TAT Requested (days): STANDARD
State, Zip: SC, 29601	Compliance Project: Δ Yes Δ No
Phone: 864-214-8750(Tel)	PO #: 0129420-037-001-01
Email: BHundley@haleyaldrich com	WO #: 0129420-037-001-01
Project Name: AB Brown Genertating Station	Project #: 18016014
Site: Landfill	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9040C, 9056A_ORGFM_28D	6020A, 7470A	2540C_Calcd - Local Method	9315_Ra226 - Standard Target List	9320_Ra228 - Standard Target List	Ra226Ra228_GFPC - Local Method	6010D - (MOD) Boron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N	D	D	D	D		
CCR-LF-1-051223	5/12/23	1130	WG	Water			X	X	X	X	X	X	X	6	
CCR-LF-2-051223		0745	WG	Water										18	MS/MSD
CCR-LF-3-051223		1000	WG	Water										6	
CCR-LF-4-051223		1115	WG	Water										6	
CCR-LF-5-051223		0935	WG	Water										6	
CCR-LF-6-051223		0750	WG	Water										6	
DUP3-051223		0750	WG	Water										6	FIELD DUP
				Water											
				Water											
				Water											
				Water											

180-156567 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Francis Reed	5/12/23	H&A		5-13-23 0919	EPI
2	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No | Cooler Temperature(s) °C and Other Remarks

Ver: 06/08/2021

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Hayes, Ken	Carrier Tracking No(s):	COC No: 180-486998.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Ken.Hayes@et.eurofinsus.com	State of Origin: Indiana	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-156567-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/18/2023			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: AB Brown Generating Station	Project #: 18016014			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
CCR-LF-1-051223 (180-156567-1)	5/12/23	11:30 Eastern		Water			X	X	X	2	
CCR-LF-2-051223 (180-156567-2)	5/12/23	07:45 Eastern		Water			X	X	X	2	
CCR-LF-2-051223 (180-156567-2DU)	5/12/23	07:45 Eastern	DU	Water			X	X	X	4	
CCR-LF-3-051223 (180-156567-3)	5/12/23	10:00 Eastern		Water			X	X	X	2	
CCR-LF-4-051223 (180-156567-4)	5/12/23	11:15 Eastern		Water			X	X	X	2	
CCR-LF-5-051223 (180-156567-5)	5/12/23	09:35 Eastern		Water			X	X	X	2	
CCR-LF-6-051223 (180-156567-6)	5/12/23	07:50 Eastern		Water			X	X	X	2	
DUP3-051223 (180-156567-7)	5/12/23	07:50 Eastern		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Pittsburgh.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/15/23 1700	EGTMC	FED EX		
2	FED EX			Jena Worthington	MAY 16 2023 0840	ETSN
3						

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 180-156567-1
SDG Number: Landfill

Login Number: 156567
List Number: 1
Creator: Kovitch, Christina M

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 180-156567-1
SDG Number: Landfill

Login Number: 156567
List Number: 2
Creator: Worthington, Sierra M

List Source: Eurofins St. Louis
List Creation: 05/16/23 02:19 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Todd Plating
Haley & Aldrich, Inc.
400 Augusta Street
Suite 100
Greenville, South Carolina 29601

Generated 12/28/2023 8:23:39 AM

JOB DESCRIPTION

AB Brown Generating Station
LF

JOB NUMBER

180-165229-1

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh PA 15238

See page two for job notes and contact information.

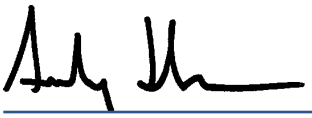
Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

PA Lab ID: 02-00416

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Pittsburgh Project Manager.

Authorization



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Authorized for release by
Andy Johnson, Senior Project Manager
Andy.Johnson@et.eurofinsus.com
(615)818-9567

Table of Contents

Job Narrative
180-165229-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 11/11/2023 8:29 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

HPLC/IC
Method 9056A_ORGFM_28D: The following sample was diluted to bring the concentration of target analytes within the calibration range: CCR-LF-4-110923 (180-165229-1). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: CCR-LF-1-110923 (180-165229-4). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: CCR-LF-2-110923 (180-165229-5). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following sample was diluted to bring the concentration of target analytes within the calibration range: CCR-LF-2-110923 (180-165229-5). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following sample was diluted to bring the concentration of target analytes within the calibration range: DUP-1-110923 (180-165229-6). Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: CCR-LF-3-111023 (180-165229-7) at 2.5. Elevated reporting limits (RLs) are provided.

Method 9056A_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 180-452140 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 9056A_ORGFM_28D: The following sample was diluted to bring the concentration of target analytes within the calibration range: CCR-LF-5-110923 (180-165229-3). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010D: The post digestion spike % recovery for boron associated with batch 180-452389 was outside the control limits. The associated sample is: CCR-LF-6-110923 (180-165229-2).

Method 6010D: The following sample was diluted to bring the concentration of boron within the calibration range: CCR-LF-1-110923 (180-165229-4). Elevated reporting limits (RLs) are provided.

Method 6020A: The following samples were diluted to bring the concentration of target analytes within the calibration range: CCR-LF-6-110923 (180-165229-2[MS]), CCR-LF-6-110923 (180-165229-2[MSD]), (LCS 180-451924/2-A ^5) and (180-165229-E-2-D PDS ^5). Elevated reporting limits (RLs) are provided.

Method 6020A: The linear range check (LRC) failed for barium, cadmium, and antimony for samples CCR-LF-4-110923

(180-165229-1), CCR-LF-6-110923 (180-165229-2), CCR-LF-6-110923 (180-165229-2[MS]), CCR-LF-6-110923 (180-165229-2[MSD]), CCR-LF-5-110923 (180-165229-3), CCR-LF-1-110923 (180-165229-4), CCR-LF-2-110923 (180-165229-5), DUP-1-110923 (180-165229-6), (180-165229-E-2-D PDS ^5) and (180-165229-E-2-D SD) and results were substantiated by a secondary verification; the Calibration Standard, the LCS, or CCV. Results are reported, as is, with this narrative.

Method 6020A: The post digestion spike % recoveries for molybdenum, antimony, and boron associated with batch 180-452225 were outside of control limits. The associated samples are: CCR-LF-4-110923 (180-165229-1), CCR-LF-6-110923 (180-165229-2), CCR-LF-5-110923 (180-165229-3), CCR-LF-1-110923 (180-165229-4), CCR-LF-2-110923 (180-165229-5) and DUP-1-110923 (180-165229-6).

Method 6020A: The linear range check (LRC) failed for several analytes for samples CCR-LF-3-111023 (180-165229-7) and results were substantiated by a secondary verification; the Calibration Standard, the LCS, or CCV. Results are reported, as is, with this narrative.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2540C_Calcd: The sample did not reach a stable weight following 3 cycles of heating, cooling, and desiccation. The cycle 3 weight was used to calculate the Total Dissolved Solids (TDS) for the sample result. CCR-LF-6-110923 (180-165229-2) and CCR-LF-5-110923 (180-165229-3)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Gas Flow Proportional Counter
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Rad
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^5+	Linear Range Check (LRC) is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 180-165229-1
Project/Site: AB Brown Generating Station
SDG: LF

Laboratory: Eurofins Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-24
California	State	2891	04-30-24
Connecticut	State	PH-0688	09-30-24
Florida	NELAP	E871008	06-30-24
Georgia	State	PA 02-00416	04-30-24
Illinois	NELAP	004375	06-30-24
Kansas	NELAP	E-10350	01-31-24
Kentucky (UST)	State	162013	04-30-23 *
Kentucky (WW)	State	KY98043	12-31-23
Louisiana	NELAP	04041	06-30-22 *
Louisiana (All)	NELAP	04041	06-30-24
Maine	State	PA00164	03-06-24
Minnesota	NELAP	042-999-482	12-31-23
New Hampshire	NELAP	2030	04-04-24
New Jersey	NELAP	PA005	06-30-24
New York	NELAP	11182	04-01-24
North Carolina (WW/SW)	State	434	12-31-23
North Dakota	State	R-227	04-30-24
Oregon	NELAP	PA-2151	02-06-24
Pennsylvania	NELAP	02-00416	04-30-24
Rhode Island	State	LAO00362	12-31-22 *
South Carolina	State	89014	04-30-23 *
Texas	NELAP	T104704528	03-31-24
US Fish & Wildlife	US Federal Programs	058448	03-31-24
USDA	US Federal Programs	P330-16-00211	04-11-26
Utah	NELAP	PA001462019-8	05-31-24
Virginia	NELAP	10043	07-14-24
West Virginia DEP	State	142	01-31-24
Wisconsin	State	998027800	08-31-24

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-25
ANAB	Dept. of Defense ELAP	L2305	04-06-25
ANAB	Dept. of Energy	L2305.01	04-06-25
ANAB	ISO/IEC 17025	L2305	04-06-25
Arizona	State	AZ0813	12-08-24
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-24
Connecticut	State	PH-0241	03-31-25
Florida	NELAP	E87689	06-30-24
HI - RadChem Recognition	State	n/a	06-30-24
Illinois	NELAP	200023	11-30-24
Iowa	State	373	12-01-24
Kansas	NELAP	E-10236	10-31-24
Kentucky (DW)	State	KY90125	12-31-23
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Job ID: 180-165229-1
Project/Site: AB Brown Generating Station
SDG: LF

Laboratory: Eurofins St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Louisiana	NELAP	04080	06-30-22 *
Louisiana (All)	NELAP	04080	06-30-24
Louisiana (DW)	State	LA011	12-31-23
Maryland	State	310	09-30-24
Massachusetts	State	M-MO054	06-30-24
MI - RadChem Recognition	State	9005	06-30-24
Missouri	State	780	06-30-25
Nevada	State	MO000542020-1	07-31-24
New Jersey	NELAP	MO002	06-30-24
New Mexico	State	MO00054	06-30-24
New York	NELAP	11616	03-31-24
North Carolina (DW)	State	29700	07-31-24
North Dakota	State	R-207	06-30-24
Oklahoma	NELAP	9997	08-31-24
Oregon	NELAP	4157	09-01-24
Pennsylvania	NELAP	68-00540	02-28-24
South Carolina	State	85002001	06-30-24
Texas	NELAP	T104704193	07-31-24
US Fish & Wildlife	US Federal Programs	058448	07-31-24
USDA	US Federal Programs	P330-17-00028	05-18-26
Utah	NELAP	MO000542021-14	07-31-24
Virginia	NELAP	10310	06-15-25
Washington	State	C592	08-30-24
West Virginia DEP	State	381	12-20-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-165229-1	CCR-LF-4-110923	Water	11/09/23 08:55	11/11/23 08:29
180-165229-2	CCR-LF-6-110923	Water	11/09/23 10:17	11/11/23 08:29
180-165229-3	CCR-LF-5-110923	Water	11/09/23 12:30	11/11/23 08:29
180-165229-4	CCR-LF-1-110923	Water	11/09/23 14:20	11/11/23 08:29
180-165229-5	CCR-LF-2-110923	Water	11/09/23 15:39	11/11/23 08:29
180-165229-6	DUP-1-110923	Water	11/09/23 00:00	11/11/23 08:29
180-165229-7	CCR-LF-3-111023	Water	11/10/23 08:27	11/11/23 08:29

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
EPA 6010D	Metals (ICP)	SW846	EET PIT
EPA 6020A	Metals (ICP/MS)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
EPA 9040C	pH	SW846	EET PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET PIT
9315	Radium-226 (GFPC)	SW846	EET SL
9320	Radium-228 (GFPC)	SW846	EET SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	EET SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT
PrecSep_0	Preparation, Precipitate Separation	None	EET SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	EET SL

Protocol References:

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Client Sample ID: CCR-LF-4-110923

Date Collected: 11/09/23 08:55
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	452001	11/15/23 22:47	M1D	EET PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		10	1 mL	1 mL	452001	11/15/23 23:06	M1D	EET PIT
	Instrument ID: INTEGRION									
Total Recoverable	Prep	3005A			50 mL	50 mL	451922	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			452389	11/17/23 20:38	RJR	EET PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	451924	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			452225	11/16/23 15:09	S1Z	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	452480	11/21/23 10:15	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			452922	11/28/23 08:58	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			452193	11/16/23 13:31	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	452069	11/15/23 18:30	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			994.86 mL	1.0 g	637223	11/16/23 10:40	KAC	EET SL
Total/NA	Analysis	9315		1			640878	12/15/23 21:21	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			994.86 mL	1.0 g	637224	11/16/23 10:42	KAC	EET SL
Total/NA	Analysis	9320		1			640878	12/15/23 11:42	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			641295	12/18/23 23:10	EMH	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-6-110923

Date Collected: 11/09/23 10:17
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	452140	11/16/23 15:14	M1D	EET PIT
	Instrument ID: INTEGRION									
Total Recoverable	Prep	3005A			50 mL	50 mL	451922	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			452389	11/17/23 20:44	RJR	EET PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	451924	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			452225	11/16/23 15:12	S1Z	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	452480	11/21/23 10:15	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			452922	11/28/23 08:59	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			452193	11/16/23 13:06	BAB	EET PIT
	Instrument ID: OZ									

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: CCR-LF-6-110923

Lab Sample ID: 180-165229-2

Date Collected: 11/09/23 10:17

Matrix: Water

Date Received: 11/11/23 08:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	452069	11/15/23 18:30	LWM	EET PIT
Total/NA	Prep	PrecSep-21			998.14 mL	1.0 g	637223	11/16/23 10:40	KAC	EET SL
Total/NA	Analysis	9315		1			640878	12/15/23 21:21	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			998.14 mL	1.0 g	637224	11/16/23 10:42	KAC	EET SL
Total/NA	Analysis	9320		1			640878	12/15/23 11:43	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			641295	12/18/23 23:10	EMH	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-5-110923

Lab Sample ID: 180-165229-3

Date Collected: 11/09/23 12:30

Matrix: Water

Date Received: 11/11/23 08:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	452140	11/16/23 16:10	M1D	EET PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		5	1 mL	1 mL	452140	11/16/23 16:28	M1D	EET PIT
	Instrument ID: INTEGRION									
Total Recoverable	Prep	3005A			50 mL	50 mL	451922	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			452389	11/17/23 21:09	RJR	EET PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	451924	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			452225	11/16/23 15:27	S1Z	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	452480	11/21/23 10:15	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			452922	11/28/23 09:02	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			452193	11/16/23 13:26	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	452069	11/15/23 18:30	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			990.79 mL	1.0 g	637223	11/16/23 10:40	KAC	EET SL
Total/NA	Analysis	9315		1			640878	12/15/23 21:21	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			990.79 mL	1.0 g	637224	11/16/23 10:42	KAC	EET SL
Total/NA	Analysis	9320		1			640878	12/15/23 11:43	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			641295	12/18/23 23:10	EMH	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-1-110923
Lab Sample ID: 180-165229-4

Date Collected: 11/09/23 14:20
Matrix: Water
Date Received: 11/11/23 08:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5	1 mL	1 mL	452001	11/15/23 23:24	M1D	EET PIT
	Instrument ID: INTEGRION									
Total Recoverable	Prep	3005A			50 mL	50 mL	451922	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6010D		10			452510	11/21/23 06:44	AAS	EET PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	451924	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			452225	11/16/23 15:30	S1Z	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	452480	11/21/23 10:15	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			452922	11/28/23 09:03	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			452193	11/16/23 13:21	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	452069	11/15/23 18:30	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			1004.60 mL	1.0 g	637223	11/16/23 10:40	KAC	EET SL
Total/NA	Analysis	9315		1			640878	12/15/23 21:21	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1004.60 mL	1.0 g	637224	11/16/23 10:42	KAC	EET SL
Total/NA	Analysis	9320		1			640878	12/15/23 11:43	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			641295	12/18/23 23:10	EMH	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: CCR-LF-2-110923
Lab Sample ID: 180-165229-5

Date Collected: 11/09/23 15:39
Matrix: Water
Date Received: 11/11/23 08:29

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5	1 mL	1 mL	452001	11/15/23 23:42	M1D	EET PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		25	1 mL	1 mL	452001	11/16/23 00:01	M1D	EET PIT
	Instrument ID: INTEGRION									
Total Recoverable	Prep	3005A			50 mL	50 mL	451922	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			452389	11/17/23 21:30	RJR	EET PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	451924	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			452225	11/16/23 15:33	S1Z	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	452480	11/21/23 10:15	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			452922	11/28/23 09:04	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			452193	11/16/23 13:16	BAB	EET PIT
	Instrument ID: OZ									

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: CCR-LF-2-110923

Date Collected: 11/09/23 15:39
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	452200	11/16/23 18:14	LWM	EET PIT
Total/NA	Prep	PrecSep-21			746.91 mL	1.0 g	637223	11/16/23 10:40	KAC	EET SL
Total/NA	Analysis	9315		1			640957	12/16/23 10:09	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			746.91 mL	1.0 g	637224	11/16/23 10:42	KAC	EET SL
Total/NA	Analysis	9320		1			640847	12/15/23 11:45	FLC	EET SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			641295	12/18/23 23:10	EMH	EET SL
	Instrument ID: NOEQUIP									

Client Sample ID: DUP-1-110923

Date Collected: 11/09/23 00:00
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1	1 mL	1 mL	452001	11/16/23 06:29	M1D	EET PIT
	Instrument ID: INTEGRION									
Total/NA	Analysis	EPA 9056A		5	1 mL	1 mL	452001	11/16/23 06:47	M1D	EET PIT
	Instrument ID: INTEGRION									
Total Recoverable	Prep	3005A			50 mL	50 mL	451922	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			452389	11/17/23 21:35	RJR	EET PIT
	Instrument ID: C									
Total Recoverable	Prep	3005A			50 mL	50 mL	451924	11/15/23 08:24	SJM	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			452225	11/16/23 15:36	S1Z	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	452480	11/21/23 10:15	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			452922	11/28/23 09:05	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			452193	11/16/23 12:52	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	452200	11/16/23 18:14	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			991.01 mL	1.0 g	637221	11/16/23 10:32	KAC	EET SL
Total/NA	Analysis	9315		1			641268	12/18/23 14:14	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			991.01 mL	1.0 g	637222	11/16/23 10:39	KAC	EET SL
Total/NA	Analysis	9320		1			640878	12/15/23 16:24	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			641297	12/18/23 23:24	EMH	EET SL
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: CCR-LF-3-111023

Date Collected: 11/10/23 08:27
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		2.5	1 mL	1 mL	452138	11/17/23 01:49	AM	EET PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	452447	11/20/23 10:09	SJM	EET PIT
Total Recoverable	Analysis	EPA 6010D		1			453223	11/30/23 02:48	AAS	EET PIT
	Instrument ID: Q									
Total Recoverable	Prep	3005A			50 mL	50 mL	452448	11/20/23 10:09	SJM	EET PIT
Total Recoverable	Analysis	EPA 6020A		1			455528	12/27/23 12:58	S1Z	EET PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			25 mL	25 mL	452480	11/21/23 10:15	RJR	EET PIT
Total/NA	Analysis	EPA 7470A		1			452922	11/28/23 09:10	MTW	EET PIT
	Instrument ID: HGZ									
Total/NA	Analysis	EPA 9040C		1			452193	11/16/23 12:47	BAB	EET PIT
	Instrument ID: OZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	452200	11/16/23 18:14	LWM	EET PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			995.03 mL	1.0 g	637221	11/16/23 10:32	KAC	EET SL
Total/NA	Analysis	9315		1			641268	12/18/23 14:14	FLC	EET SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			995.03 mL	1.0 g	637222	11/16/23 10:39	KAC	EET SL
Total/NA	Analysis	9320		1			640878	12/15/23 16:25	FLC	EET SL
	Instrument ID: GFPCRED									
Total/NA	Analysis	Ra226_Ra228		1			641297	12/18/23 23:24	EMH	EET SL
	Instrument ID: NOEQUIP									

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: EET PIT

Batch Type: Prep

RJR = Ron Rosenbaum
SJM = Shannon Mueller

Batch Type: Analysis

AAS = Ariana Swick
AM = Adzuira Musule
BAB = Brooke Batyi
LWM = Leslie McIntire
M1D = Maureen Donlin
MTW = Michael Wesoloski
RJR = Ron Rosenbaum
S1Z = Sage Ziviello

Lab: EET SL

Batch Type: Prep

KAC = Kevin Cox

Batch Type: Analysis

EMH = Elizabeth Hoerchler
FLC = Fernando Cruz

Client Sample ID: CCR-LF-4-110923

Date Collected: 11/09/23 08:55
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-1

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		1.0	0.71	mg/L			11/15/23 22:47	1
Fluoride	**1.9**		0.10	0.026	mg/L			11/15/23 22:47	1
Sulfate	**9900**		10	7.6	mg/L			11/15/23 23:06	10

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**890**		200	33	ug/L		11/15/23 08:24	11/17/23 20:38	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/15/23 08:24	11/16/23 15:09	1
Arsenic	**0.025**		0.0010	0.00028	mg/L		11/15/23 08:24	11/16/23 15:09	1
Barium	**0.013**	**^5+**	0.010	0.0031	mg/L		11/15/23 08:24	11/16/23 15:09	1
Beryllium	ND		0.0010	0.00027	mg/L		11/15/23 08:24	11/16/23 15:09	1
Cadmium	ND	^5+	0.0010	0.00022	mg/L		11/15/23 08:24	11/16/23 15:09	1
Calcium	**430**		0.50	0.13	mg/L		11/15/23 08:24	11/16/23 15:09	1
Chromium	ND		0.0020	0.0015	mg/L		11/15/23 08:24	11/16/23 15:09	1
Cobalt	**0.0014**		0.00050	0.00026	mg/L		11/15/23 08:24	11/16/23 15:09	1
Lead	ND		0.0010	0.00038	mg/L		11/15/23 08:24	11/16/23 15:09	1
Lithium	**0.087**		0.0050	0.0013	mg/L		11/15/23 08:24	11/16/23 15:09	1
Molybdenum	**0.024**		0.0050	0.00061	mg/L		11/15/23 08:24	11/16/23 15:09	1
Selenium	**0.0025**	**J**	0.0050	0.00074	mg/L		11/15/23 08:24	11/16/23 15:09	1
Thallium	ND		0.0010	0.00047	mg/L		11/15/23 08:24	11/16/23 15:09	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 08:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**16000**		100	100	mg/L			11/15/23 18:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**6.9**	**HF**	0.1	0.1	SU			11/16/23 13:31	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**3.17**		0.514	0.588	1.00	0.241	pCi/L	11/16/23 10:40	12/15/23 21:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*30 - 110*	*11/16/23 10:40*	*12/15/23 21:21*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**2.38**		0.509	0.554	1.00	0.484	pCi/L	11/16/23 10:42	12/15/23 11:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.1*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:42*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: CCR-LF-4-110923
Date Collected: 11/09/23 08:55
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-1
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	85.6		30 - 110	11/16/23 10:42	12/15/23 11:42	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	5.56		0.723	0.808	5.00	0.484	pCi/L		12/18/23 23:10	1

Client Sample ID: CCR-LF-6-110923

Date Collected: 11/09/23 10:17
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-2

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**28**		1.0	0.71	mg/L			11/16/23 15:14	1
Fluoride	**0.35**		0.10	0.026	mg/L			11/16/23 15:14	1
Sulfate	**690**		1.0	0.76	mg/L			11/16/23 15:14	1

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**440**		200	33	ug/L		11/15/23 08:24	11/17/23 20:44	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/15/23 08:24	11/16/23 15:12	1
Arsenic	ND		0.0010	0.00028	mg/L		11/15/23 08:24	11/16/23 15:12	1
Barium	**0.026**	**^5+**	0.010	0.0031	mg/L		11/15/23 08:24	11/16/23 15:12	1
Beryllium	ND		0.0010	0.00027	mg/L		11/15/23 08:24	11/16/23 15:12	1
Cadmium	ND	^5+	0.0010	0.00022	mg/L		11/15/23 08:24	11/16/23 15:12	1
Calcium	**240**		0.50	0.13	mg/L		11/15/23 08:24	11/16/23 15:12	1
Chromium	ND		0.0020	0.0015	mg/L		11/15/23 08:24	11/16/23 15:12	1
Cobalt	**0.00030**	**J**	0.00050	0.00026	mg/L		11/15/23 08:24	11/16/23 15:12	1
Lead	ND		0.0010	0.00038	mg/L		11/15/23 08:24	11/16/23 15:12	1
Lithium	**0.014**		0.0050	0.0013	mg/L		11/15/23 08:24	11/16/23 15:12	1
Molybdenum	**0.0013**	**J**	0.0050	0.00061	mg/L		11/15/23 08:24	11/16/23 15:12	1
Selenium	**0.0023**	**J**	0.0050	0.00074	mg/L		11/15/23 08:24	11/16/23 15:12	1
Thallium	ND		0.0010	0.00047	mg/L		11/15/23 08:24	11/16/23 15:12	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 08:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1300**		10	10	mg/L			11/15/23 18:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**7.3**	**HF**	0.1	0.1	SU			11/16/23 13:06	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0352	U	0.117	0.117	1.00	0.270	pCi/L	11/16/23 10:40	12/15/23 21:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.6*		*30 - 110*	*11/16/23 10:40*	*12/15/23 21:21*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.560**		0.369	0.373	1.00	0.547	pCi/L	11/16/23 10:42	12/15/23 11:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.6*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:43*	*1*

Client Sample ID: CCR-LF-6-110923
Date Collected: 11/09/23 10:17
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-2
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*76.3*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:43*	*1*

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.525	U	0.387	0.391	5.00	0.547	pCi/L		12/18/23 23:10	1

Client Sample ID: CCR-LF-5-110923

Date Collected: 11/09/23 12:30
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-3

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**300**		1.0	0.71	mg/L			11/16/23 16:10	1
Fluoride	**0.17**		0.10	0.026	mg/L			11/16/23 16:10	1
Sulfate	**2700**		5.0	3.8	mg/L			11/16/23 16:28	5

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**95**	**J**	200	33	ug/L		11/15/23 08:24	11/17/23 21:09	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/15/23 08:24	11/16/23 15:27	1
Arsenic	ND		0.0010	0.00028	mg/L		11/15/23 08:24	11/16/23 15:27	1
Barium	**0.026**	**^5+**	0.010	0.0031	mg/L		11/15/23 08:24	11/16/23 15:27	1
Beryllium	ND		0.0010	0.00027	mg/L		11/15/23 08:24	11/16/23 15:27	1
Cadmium	**0.00023**	**J ^5+**	0.0010	0.00022	mg/L		11/15/23 08:24	11/16/23 15:27	1
Calcium	**470**		0.50	0.13	mg/L		11/15/23 08:24	11/16/23 15:27	1
Chromium	ND		0.0020	0.0015	mg/L		11/15/23 08:24	11/16/23 15:27	1
Cobalt	ND		0.00050	0.00026	mg/L		11/15/23 08:24	11/16/23 15:27	1
Lead	ND		0.0010	0.00038	mg/L		11/15/23 08:24	11/16/23 15:27	1
Lithium	**0.021**		0.0050	0.0013	mg/L		11/15/23 08:24	11/16/23 15:27	1
Molybdenum	**0.00072**	**J**	0.0050	0.00061	mg/L		11/15/23 08:24	11/16/23 15:27	1
Selenium	ND		0.0050	0.00074	mg/L		11/15/23 08:24	11/16/23 15:27	1
Thallium	ND		0.0010	0.00047	mg/L		11/15/23 08:24	11/16/23 15:27	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.00016**	**J**	0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 09:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**4800**		40	40	mg/L			11/15/23 18:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**7.2**	**HF**	0.1	0.1	SU			11/16/23 13:26	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.138	U	0.151	0.151	1.00	0.239	pCi/L	11/16/23 10:40	12/15/23 21:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.4*		*30 - 110*	*11/16/23 10:40*	*12/15/23 21:21*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.19**		0.406	0.420	1.00	0.467	pCi/L	11/16/23 10:42	12/15/23 11:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.4*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:43*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: CCR-LF-5-110923
Date Collected: 11/09/23 12:30
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-3
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	78.5		30 - 110	11/16/23 10:42	12/15/23 11:43	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.33		0.433	0.446	5.00	0.467	pCi/L		12/18/23 23:10	1

Client Sample ID: CCR-LF-1-110923

Date Collected: 11/09/23 14:20
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-4

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**19**		2.5	1.8	mg/L			11/15/23 23:24	2.5
Fluoride	**0.26**		0.25	0.065	mg/L			11/15/23 23:24	2.5
Sulfate	**1100**		2.5	1.9	mg/L			11/15/23 23:24	2.5

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		2000	330	ug/L		11/15/23 08:24	11/21/23 06:44	10

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/15/23 08:24	11/16/23 15:30	1
Arsenic	**0.00093**	**J**	0.0010	0.00028	mg/L		11/15/23 08:24	11/16/23 15:30	1
Barium	**0.067**	**^5+**	0.010	0.0031	mg/L		11/15/23 08:24	11/16/23 15:30	1
Beryllium	ND		0.0010	0.00027	mg/L		11/15/23 08:24	11/16/23 15:30	1
Cadmium	ND	^5+	0.0010	0.00022	mg/L		11/15/23 08:24	11/16/23 15:30	1
Calcium	**310**		0.50	0.13	mg/L		11/15/23 08:24	11/16/23 15:30	1
Chromium	ND		0.0020	0.0015	mg/L		11/15/23 08:24	11/16/23 15:30	1
Cobalt	ND		0.00050	0.00026	mg/L		11/15/23 08:24	11/16/23 15:30	1
Lead	ND		0.0010	0.00038	mg/L		11/15/23 08:24	11/16/23 15:30	1
Lithium	**0.0053**		0.0050	0.0013	mg/L		11/15/23 08:24	11/16/23 15:30	1
Molybdenum	**0.0012**	**J**	0.0050	0.00061	mg/L		11/15/23 08:24	11/16/23 15:30	1
Selenium	ND		0.0050	0.00074	mg/L		11/15/23 08:24	11/16/23 15:30	1
Thallium	ND		0.0010	0.00047	mg/L		11/15/23 08:24	11/16/23 15:30	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 09:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**2000**		10	10	mg/L			11/15/23 18:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**6.9**	**HF**	0.1	0.1	SU			11/16/23 13:21	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.562**		0.253	0.258	1.00	0.278	pCi/L	11/16/23 10:40	12/15/23 21:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.0*		*30 - 110*	*11/16/23 10:40*	*12/15/23 21:21*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.432	U	0.372	0.374	1.00	0.583	pCi/L	11/16/23 10:42	12/15/23 11:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.0*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:43*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: CCR-LF-1-110923

Date Collected: 11/09/23 14:20
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-4

Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*74.8*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:43*	*1*

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.994**		0.450	0.454	5.00	0.583	pCi/L		12/18/23 23:10	1

Client Sample ID: CCR-LF-2-110923

Date Collected: 11/09/23 15:39
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-5

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	350		2.5	1.8	mg/L			11/15/23 23:42	2.5
Fluoride	0.26		0.25	0.065	mg/L			11/15/23 23:42	2.5
Sulfate	15000		25	19	mg/L			11/16/23 00:01	25

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	5900		200	33	ug/L		11/15/23 08:24	11/17/23 21:30	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/15/23 08:24	11/16/23 15:33	1
Arsenic	0.0015		0.0010	0.00028	mg/L		11/15/23 08:24	11/16/23 15:33	1
Barium	0.012	^5+	0.010	0.0031	mg/L		11/15/23 08:24	11/16/23 15:33	1
Beryllium	ND		0.0010	0.00027	mg/L		11/15/23 08:24	11/16/23 15:33	1
Cadmium	0.0075	^5+	0.0010	0.00022	mg/L		11/15/23 08:24	11/16/23 15:33	1
Calcium	400		0.50	0.13	mg/L		11/15/23 08:24	11/16/23 15:33	1
Chromium	ND		0.0020	0.0015	mg/L		11/15/23 08:24	11/16/23 15:33	1
Cobalt	0.013		0.00050	0.00026	mg/L		11/15/23 08:24	11/16/23 15:33	1
Lead	0.00086	J	0.0010	0.00038	mg/L		11/15/23 08:24	11/16/23 15:33	1
Lithium	0.017		0.0050	0.0013	mg/L		11/15/23 08:24	11/16/23 15:33	1
Molybdenum	0.0022	J	0.0050	0.00061	mg/L		11/15/23 08:24	11/16/23 15:33	1
Selenium	0.0066		0.0050	0.00074	mg/L		11/15/23 08:24	11/16/23 15:33	1
Thallium	0.00078	J	0.0010	0.00047	mg/L		11/15/23 08:24	11/16/23 15:33	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 09:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	22000		200	200	mg/L			11/16/23 18:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	6.9	HF	0.1	0.1	SU			11/16/23 13:16	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.564		0.288	0.292	1.00	0.326	pCi/L	11/16/23 10:40	12/16/23 10:09	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.3*		*30 - 110*	*11/16/23 10:40*	*12/16/23 10:09*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.67		0.775	0.813	1.00	0.824	pCi/L	11/16/23 10:42	12/15/23 11:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.3*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:45*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: CCR-LF-2-110923
Date Collected: 11/09/23 15:39
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-5
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	76.6		30 - 110	11/16/23 10:42	12/15/23 11:45	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.23		0.827	0.864	5.00	0.824	pCi/L		12/18/23 23:10	1

Client Sample ID: DUP-1-110923

Date Collected: 11/09/23 00:00
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-6

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	300		1.0	0.71	mg/L			11/16/23 06:29	1
Fluoride	0.16		0.10	0.026	mg/L			11/16/23 06:29	1
Sulfate	2700		5.0	3.8	mg/L			11/16/23 06:47	5

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	140	J	200	33	ug/L		11/15/23 08:24	11/17/23 21:35	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/15/23 08:24	11/16/23 15:36	1
Arsenic	0.00035	J	0.0010	0.00028	mg/L		11/15/23 08:24	11/16/23 15:36	1
Barium	0.025	^5+	0.010	0.0031	mg/L		11/15/23 08:24	11/16/23 15:36	1
Beryllium	ND		0.0010	0.00027	mg/L		11/15/23 08:24	11/16/23 15:36	1
Cadmium	0.00024	J ^5+	0.0010	0.00022	mg/L		11/15/23 08:24	11/16/23 15:36	1
Calcium	490		0.50	0.13	mg/L		11/15/23 08:24	11/16/23 15:36	1
Chromium	ND		0.0020	0.0015	mg/L		11/15/23 08:24	11/16/23 15:36	1
Cobalt	ND		0.00050	0.00026	mg/L		11/15/23 08:24	11/16/23 15:36	1
Lead	ND		0.0010	0.00038	mg/L		11/15/23 08:24	11/16/23 15:36	1
Lithium	0.020		0.0050	0.0013	mg/L		11/15/23 08:24	11/16/23 15:36	1
Molybdenum	0.00066	J	0.0050	0.00061	mg/L		11/15/23 08:24	11/16/23 15:36	1
Selenium	ND		0.0050	0.00074	mg/L		11/15/23 08:24	11/16/23 15:36	1
Thallium	ND		0.0010	0.00047	mg/L		11/15/23 08:24	11/16/23 15:36	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00017	J	0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 09:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	4900		40	40	mg/L			11/16/23 18:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	7.2	HF	0.1	0.1	SU			11/16/23 12:52	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.171	U	0.131	0.132	1.00	0.193	pCi/L	11/16/23 10:32	12/18/23 14:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.2*		*30 - 110*	*11/16/23 10:32*	*12/18/23 14:14*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.318	U	0.350	0.351	1.00	0.571	pCi/L	11/16/23 10:39	12/15/23 16:24	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.2*		*30 - 110*	*11/16/23 10:39*	*12/15/23 16:24*	*1*

Client: Haley & Aldrich, Inc.
Project/Site: AB Brown Generating Station

Job ID: 180-165229-1
SDG: LF

Client Sample ID: DUP-1-110923
Date Collected: 11/09/23 00:00
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-6
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Y Carrier	*73.6*		*30 - 110*	*11/16/23 10:39*	*12/15/23 16:24*	*1*

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.488	U	0.374	0.375	5.00	0.571	pCi/L		12/18/23 23:24	1

Client Sample ID: CCR-LF-3-111023

Date Collected: 11/10/23 08:27
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-7

Matrix: Water

Method: SW846 EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**23**		2.5	1.8	mg/L			11/17/23 01:49	2.5
Fluoride	**0.17**	**J**	0.25	0.065	mg/L			11/17/23 01:49	2.5
Sulfate	**960**		2.5	1.9	mg/L			11/17/23 01:49	2.5

Method: SW846 EPA 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	**190**	**J**	200	33	ug/L		11/20/23 10:09	11/30/23 02:48	1

Method: SW846 EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/20/23 10:09	12/27/23 12:58	1
Arsenic	**0.00041**	**J**	0.0010	0.00028	mg/L		11/20/23 10:09	12/27/23 12:58	1
Barium	**0.020**		0.010	0.0031	mg/L		11/20/23 10:09	12/27/23 12:58	1
Beryllium	ND		0.0010	0.00027	mg/L		11/20/23 10:09	12/27/23 12:58	1
Cadmium	ND	^5+	0.0010	0.00022	mg/L		11/20/23 10:09	12/27/23 12:58	1
Calcium	**240**		0.50	0.13	mg/L		11/20/23 10:09	12/27/23 12:58	1
Chromium	ND		0.0020	0.0015	mg/L		11/20/23 10:09	12/27/23 12:58	1
Cobalt	ND		0.00050	0.00026	mg/L		11/20/23 10:09	12/27/23 12:58	1
Lead	ND		0.0010	0.00038	mg/L		11/20/23 10:09	12/27/23 12:58	1
Lithium	ND		0.0050	0.0013	mg/L		11/20/23 10:09	12/27/23 12:58	1
Molybdenum	**0.0010**	**J**	0.0050	0.00061	mg/L		11/20/23 10:09	12/27/23 12:58	1
Selenium	ND		0.0050	0.00074	mg/L		11/20/23 10:09	12/27/23 12:58	1
Thallium	ND		0.0010	0.00047	mg/L		11/20/23 10:09	12/27/23 12:58	1

Method: SW846 EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 09:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**1700**		10	10	mg/L			11/16/23 18:14	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 EPA 9040C)	**7.3**	**HF**	0.1	0.1	SU			11/16/23 12:47	1

Method: SW846 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.199**		0.118	0.119	1.00	0.151	pCi/L	11/16/23 10:32	12/18/23 14:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.7*		*30 - 110*	*11/16/23 10:32*	*12/18/23 14:14*	*1*

Method: SW846 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.517	U	0.422	0.425	1.00	0.662	pCi/L	11/16/23 10:39	12/15/23 16:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.7*		*30 - 110*	*11/16/23 10:39*	*12/15/23 16:25*	*1*

Client Sample ID: CCR-LF-3-111023
Date Collected: 11/10/23 08:27
Date Received: 11/11/23 08:29

Lab Sample ID: 180-165229-7
Matrix: Water

Method: SW846 9320 - Radium-228 (GFPC) (Continued)

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Y Carrier	76.6		30 - 110	11/16/23 10:39	12/15/23 16:25	1

Method: TAL-STL Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.716		0.438	0.441	5.00	0.662	pCi/L		12/18/23 23:24	1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-452001/43
Matrix: Water
Analysis Batch: 452001

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.71	mg/L			11/16/23 01:33	1
Fluoride	ND		0.10	0.026	mg/L			11/16/23 01:33	1
Sulfate	ND		1.0	0.76	mg/L			11/16/23 01:33	1

Lab Sample ID: MB 180-452001/6
Matrix: Water
Analysis Batch: 452001

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.71	mg/L			11/15/23 11:25	1
Fluoride	ND		0.10	0.026	mg/L			11/15/23 11:25	1
Sulfate	ND		1.0	0.76	mg/L			11/15/23 11:25	1

Lab Sample ID: LCS 180-452001/44
Matrix: Water
Analysis Batch: 452001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.9		mg/L		100	80 - 120
Fluoride	2.50	2.56		mg/L		102	80 - 120
Sulfate	50.0	49.5		mg/L		99	80 - 120

Lab Sample ID: LCS 180-452001/7
Matrix: Water
Analysis Batch: 452001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.1		mg/L		98	80 - 120
Fluoride	2.50	2.52		mg/L		101	80 - 120
Sulfate	50.0	48.8		mg/L		98	80 - 120

Lab Sample ID: MB 180-452138/6
Matrix: Water
Analysis Batch: 452138

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.71	mg/L			11/16/23 18:38	1
Fluoride	ND		0.10	0.026	mg/L			11/16/23 18:38	1
Sulfate	ND		1.0	0.76	mg/L			11/16/23 18:38	1

Lab Sample ID: LCS 180-452138/7
Matrix: Water
Analysis Batch: 452138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	55.2		mg/L		110	80 - 120
Fluoride	2.50	2.66		mg/L		106	80 - 120
Sulfate	50.0	51.1		mg/L		102	80 - 120

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 180-452140/6
Matrix: Water
Analysis Batch: 452140

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.71	mg/L			11/16/23 14:37	1
Fluoride	ND		0.10	0.026	mg/L			11/16/23 14:37	1
Sulfate	ND		1.0	0.76	mg/L			11/16/23 14:37	1

Lab Sample ID: LCS 180-452140/7
Matrix: Water
Analysis Batch: 452140

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	50.0	49.9		mg/L		100	80 - 120
Fluoride	2.50	2.53		mg/L		101	80 - 120
Sulfate	50.0	49.8		mg/L		100	80 - 120

Lab Sample ID: 180-165229-2 MS
Matrix: Water
Analysis Batch: 452140

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	28		50.0	77.6		mg/L		98	80 - 120
Fluoride	0.35		2.50	2.87		mg/L		101	80 - 120
Sulfate	690		50.0	703	4	mg/L		28	80 - 120

Lab Sample ID: 180-165229-2 MSD
Matrix: Water
Analysis Batch: 452140

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	28		50.0	78.1		mg/L		99	80 - 120	1	15
Fluoride	0.35		2.50	2.87		mg/L		101	80 - 120	0	15
Sulfate	690		50.0	710	4	mg/L		42	80 - 120	1	15

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-451922/1-A
Matrix: Water
Analysis Batch: 452389

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 451922

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		200	33	ug/L		11/15/23 08:24	11/17/23 20:28	1

Lab Sample ID: LCS 180-451922/2-A
Matrix: Water
Analysis Batch: 452389

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 451922

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1250	1340		ug/L		107	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-165229-2 MS
Matrix: Water
Analysis Batch: 452389

Client Sample ID: CCR-LF-6-110923
Prep Type: Total Recoverable
Prep Batch: 451922

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	440		1250	1790		ug/L		108	75 - 125

Lab Sample ID: 180-165229-2 MSD
Matrix: Water
Analysis Batch: 452389

Client Sample ID: CCR-LF-6-110923
Prep Type: Total Recoverable
Prep Batch: 451922

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	440		1250	1830		ug/L		111	75 - 125	2	20

Lab Sample ID: MB 180-452447/1-A
Matrix: Water
Analysis Batch: 453223

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 452447

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		200	33	ug/L		11/20/23 10:09	11/30/23 01:51	1

Lab Sample ID: LCS 180-452447/2-A
Matrix: Water
Analysis Batch: 453223

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 452447

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	250	285		ug/L		114	80 - 120

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-451924/1-A
Matrix: Water
Analysis Batch: 452225

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 451924

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	^5+	0.0020	0.00097	mg/L		11/15/23 08:24	11/16/23 15:03	1
Arsenic	ND		0.0010	0.00028	mg/L		11/15/23 08:24	11/16/23 15:03	1
Barium	ND	^5+	0.010	0.0031	mg/L		11/15/23 08:24	11/16/23 15:03	1
Beryllium	ND		0.0010	0.00027	mg/L		11/15/23 08:24	11/16/23 15:03	1
Cadmium	ND	^5+	0.0010	0.00022	mg/L		11/15/23 08:24	11/16/23 15:03	1
Calcium	ND		0.50	0.13	mg/L		11/15/23 08:24	11/16/23 15:03	1
Chromium	ND		0.0020	0.0015	mg/L		11/15/23 08:24	11/16/23 15:03	1
Cobalt	ND		0.00050	0.00026	mg/L		11/15/23 08:24	11/16/23 15:03	1
Lead	ND		0.0010	0.00038	mg/L		11/15/23 08:24	11/16/23 15:03	1
Lithium	ND		0.0050	0.0013	mg/L		11/15/23 08:24	11/16/23 15:03	1
Molybdenum	ND		0.0050	0.00061	mg/L		11/15/23 08:24	11/16/23 15:03	1
Selenium	ND		0.0050	0.00074	mg/L		11/15/23 08:24	11/16/23 15:03	1
Thallium	ND		0.0010	0.00047	mg/L		11/15/23 08:24	11/16/23 15:03	1

Lab Sample ID: LCS 180-451924/2-A ^5
Matrix: Water
Analysis Batch: 452225

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 451924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.250	0.267	^5+	mg/L		107	80 - 120

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-451924/2-A ^5
Matrix: Water
Analysis Batch: 452225

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 451924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.04		mg/L		104	80 - 120
Barium	1.00	0.896	^5+	mg/L		90	80 - 120
Beryllium	0.500	0.521		mg/L		104	80 - 120
Cadmium	0.500	0.528	^5+	mg/L		106	80 - 120
Calcium	25.0	27.8		mg/L		111	80 - 120
Chromium	0.500	0.516		mg/L		103	80 - 120
Cobalt	0.500	0.537		mg/L		107	80 - 120
Lead	0.500	0.529		mg/L		106	80 - 120
Lithium	0.500	0.521		mg/L		104	80 - 120
Molybdenum	0.500	0.520		mg/L		104	80 - 120
Selenium	1.00	1.06		mg/L		106	80 - 120
Thallium	1.00	1.07		mg/L		107	80 - 120

Lab Sample ID: 180-165229-2 MS
Matrix: Water
Analysis Batch: 452225

Client Sample ID: CCR-LF-6-110923
Prep Type: Total Recoverable
Prep Batch: 451924

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND	^5+	0.250	0.271	^5+	mg/L		109	75 - 125
Arsenic	ND		1.00	0.990		mg/L		99	75 - 125
Barium	0.026	^5+	1.00	0.954	^5+	mg/L		93	75 - 125
Beryllium	ND		0.500	0.520		mg/L		104	75 - 125
Cadmium	ND	^5+	0.500	0.525	^5+	mg/L		105	75 - 125
Calcium	240		25.0	262	4	mg/L		72	75 - 125
Chromium	ND		0.500	0.516		mg/L		103	75 - 125
Cobalt	0.00030	J	0.500	0.497		mg/L		99	75 - 125
Lead	ND		0.500	0.519		mg/L		104	75 - 125
Lithium	0.014		0.500	0.529		mg/L		103	75 - 125
Molybdenum	0.0013	J	0.500	0.543		mg/L		108	75 - 125
Selenium	0.0023	J	1.00	1.06		mg/L		105	75 - 125
Thallium	ND		1.00	1.04		mg/L		104	75 - 125

Lab Sample ID: 180-165229-2 MSD
Matrix: Water
Analysis Batch: 452225

Client Sample ID: CCR-LF-6-110923
Prep Type: Total Recoverable
Prep Batch: 451924

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND	^5+	0.250	0.277	^5+	mg/L		111	75 - 125	2	20
Arsenic	ND		1.00	1.01		mg/L		101	75 - 125	2	20
Barium	0.026	^5+	1.00	0.936	^5+	mg/L		91	75 - 125	2	20
Beryllium	ND		0.500	0.529		mg/L		106	75 - 125	2	20
Cadmium	ND	^5+	0.500	0.530	^5+	mg/L		106	75 - 125	1	20
Calcium	240		25.0	273	4	mg/L		114	75 - 125	4	20
Chromium	ND		0.500	0.525		mg/L		105	75 - 125	2	20
Cobalt	0.00030	J	0.500	0.510		mg/L		102	75 - 125	3	20
Lead	ND		0.500	0.525		mg/L		105	75 - 125	1	20
Lithium	0.014		0.500	0.533		mg/L		104	75 - 125	1	20
Molybdenum	0.0013	J	0.500	0.553		mg/L		110	75 - 125	2	20
Selenium	0.0023	J	1.00	1.06		mg/L		105	75 - 125	0	20

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-165229-2 MSD
Matrix: Water
Analysis Batch: 452225

Client Sample ID: CCR-LF-6-110923
Prep Type: Total Recoverable
Prep Batch: 451924

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Thallium	ND		1.00	1.05		mg/L		105	75 - 125	1	20

Lab Sample ID: MB 180-452448/1-A
Matrix: Water
Analysis Batch: 452697

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 452448

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.00133	J	0.0020	0.00097	mg/L		11/20/23 10:09	11/22/23 15:23	1
Arsenic	ND		0.0010	0.00028	mg/L		11/20/23 10:09	11/22/23 15:23	1
Barium	ND		0.010	0.0031	mg/L		11/20/23 10:09	11/22/23 15:23	1
Beryllium	ND		0.0010	0.00027	mg/L		11/20/23 10:09	11/22/23 15:23	1
Cadmium	ND		0.0010	0.00022	mg/L		11/20/23 10:09	11/22/23 15:23	1
Calcium	ND		0.50	0.13	mg/L		11/20/23 10:09	11/22/23 15:23	1
Chromium	ND		0.0020	0.0015	mg/L		11/20/23 10:09	11/22/23 15:23	1
Cobalt	ND		0.00050	0.00026	mg/L		11/20/23 10:09	11/22/23 15:23	1
Lead	ND		0.0010	0.00038	mg/L		11/20/23 10:09	11/22/23 15:23	1
Lithium	ND		0.0050	0.0013	mg/L		11/20/23 10:09	11/22/23 15:23	1
Molybdenum	ND		0.0050	0.00061	mg/L		11/20/23 10:09	11/22/23 15:23	1
Selenium	ND		0.0050	0.00074	mg/L		11/20/23 10:09	11/22/23 15:23	1
Thallium	ND		0.0010	0.00047	mg/L		11/20/23 10:09	11/22/23 15:23	1

Lab Sample ID: LCS 180-452448/2-A
Matrix: Water
Analysis Batch: 452697

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 452448

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0625	0.0680		mg/L		109	80 - 120
Arsenic	0.0625	0.0669		mg/L		107	80 - 120
Barium	0.250	0.261		mg/L		104	80 - 120
Beryllium	0.250	0.268		mg/L		107	80 - 120
Cadmium	0.0625	0.0646		mg/L		103	80 - 120
Chromium	0.250	0.256		mg/L		102	80 - 120
Cobalt	0.250	0.262		mg/L		105	80 - 120
Lead	0.0625	0.0647		mg/L		104	80 - 120
Lithium	0.250	0.265		mg/L		106	80 - 120
Molybdenum	0.250	0.256		mg/L		103	80 - 120
Selenium	0.0625	0.0665		mg/L		106	80 - 120
Thallium	0.125	0.130		mg/L		104	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-452480/1-A
Matrix: Water
Analysis Batch: 452922

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 452480

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/21/23 10:15	11/28/23 08:56	1

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 180-452480/2-A
Matrix: Water
Analysis Batch: 452922

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 452480

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00250	0.00243		mg/L		97	80 - 120		

Lab Sample ID: 180-165229-2 MS
Matrix: Water
Analysis Batch: 452922

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA
Prep Batch: 452480

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	ND		0.00100	0.000979		mg/L		98	75 - 125		

Lab Sample ID: 180-165229-2 MSD
Matrix: Water
Analysis Batch: 452922

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA
Prep Batch: 452480

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00100	0.000921		mg/L		92	75 - 125	6	20

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-452193/1
Matrix: Water
Analysis Batch: 452193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: LCS 180-452193/24
Matrix: Water
Analysis Batch: 452193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: 180-165229-2 DU
Matrix: Water
Analysis Batch: 452193

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.3	HF	7.3	HF	SU		0.3	2

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-452069/1
Matrix: Water
Analysis Batch: 452069

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			11/15/23 18:30	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 180-452069/2
Matrix: Water
Analysis Batch: 452069

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	336	332		mg/L		99	85 - 115

Lab Sample ID: 180-165229-2 DU
Matrix: Water
Analysis Batch: 452069

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1300		1290		mg/L		NC	10

Lab Sample ID: MB 180-452200/1
Matrix: Water
Analysis Batch: 452200

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			11/16/23 18:14	1

Lab Sample ID: LCS 180-452200/2
Matrix: Water
Analysis Batch: 452200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	336	322		mg/L		96	85 - 115

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-637221/1-A
Matrix: Water
Analysis Batch: 641268

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 637221

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2180		0.140	0.142	1.00	0.196	pCi/L	11/16/23 10:32	12/18/23 14:14	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*30 - 110*	*11/16/23 10:32*	*12/18/23 14:14*	*1*

Lab Sample ID: LCS 160-637221/2-A
Matrix: Water
Analysis Batch: 641268

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 637221

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits
Radium-226	11.3	9.796		1.09	1.00	0.148	pCi/L	86	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*30 - 110*

Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: MB 160-637223/1-A
Matrix: Water
Analysis Batch: 640846

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 637223

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.06486	U	0.155	0.155	1.00	0.342	pCi/L	11/16/23 10:40	12/15/23 21:19	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.4*		*30 - 110*	*11/16/23 10:40*	*12/15/23 21:19*	*1*

Lab Sample ID: LCS 160-637223/2-A
Matrix: Water
Analysis Batch: 641229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 637223

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			11.3	10.71		1.18	1.00	0.169	pCi/L	94	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.6*		*30 - 110*

Lab Sample ID: 180-165229-2 DU
Matrix: Water
Analysis Batch: 640878

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA
Prep Batch: 637223

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	-0.0352	U		0.04075	U	0.126	1.00	0.247	pCi/L			0.31	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*89.5*		*30 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-637222/1-A
Matrix: Water
Analysis Batch: 640878

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 637222

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1039	U	0.319	0.319	1.00	0.576	pCi/L	11/16/23 10:39	12/15/23 18:35	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*30 - 110*	*11/16/23 10:39*	*12/15/23 18:35*	*1*
Y Carrier	*84.5*		*30 - 110*	*11/16/23 10:39*	*12/15/23 18:35*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-637222/2-A
Matrix: Water
Analysis Batch: 640878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 637222

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			3.82	3.953		0.743	1.00	0.509	pCi/L	103	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*101*		*30 - 110*
Y Carrier	*78.9*		*30 - 110*

Lab Sample ID: MB 160-637224/1-A
Matrix: Water
Analysis Batch: 640878

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 637224

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5471		0.344	0.347	1.00	0.506	pCi/L	11/16/23 10:42	12/15/23 11:34	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.4*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:34*	*1*
Y Carrier	*80.7*		*30 - 110*	*11/16/23 10:42*	*12/15/23 11:34*	*1*

Lab Sample ID: LCS 160-637224/2-A
Matrix: Water
Analysis Batch: 640878

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 637224

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			3.82	4.462		0.767	1.00	0.453	pCi/L	117	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*95.6*		*30 - 110*
Y Carrier	*84.9*		*30 - 110*

Lab Sample ID: 180-165229-2 DU
Matrix: Water
Analysis Batch: 640878

Client Sample ID: CCR-LF-6-110923
Prep Type: Total/NA
Prep Batch: 637224

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.560			0.9329		0.406	1.00	0.501	pCi/L			0.48	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*89.5*		*30 - 110*
Y Carrier	*78.5*		*30 - 110*

HPLC/IC

Analysis Batch: 452001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total/NA	Water	EPA 9056A	
180-165229-1	CCR-LF-4-110923	Total/NA	Water	EPA 9056A	
180-165229-4	CCR-LF-1-110923	Total/NA	Water	EPA 9056A	
180-165229-5	CCR-LF-2-110923	Total/NA	Water	EPA 9056A	
180-165229-5	CCR-LF-2-110923	Total/NA	Water	EPA 9056A	
180-165229-6	DUP-1-110923	Total/NA	Water	EPA 9056A	
180-165229-6	DUP-1-110923	Total/NA	Water	EPA 9056A	
MB 180-452001/43	Method Blank	Total/NA	Water	EPA 9056A	
MB 180-452001/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-452001/44	Lab Control Sample	Total/NA	Water	EPA 9056A	
LCS 180-452001/7	Lab Control Sample	Total/NA	Water	EPA 9056A	

Analysis Batch: 452138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-7	CCR-LF-3-111023	Total/NA	Water	EPA 9056A	
MB 180-452138/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-452138/7	Lab Control Sample	Total/NA	Water	EPA 9056A	

Analysis Batch: 452140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-2	CCR-LF-6-110923	Total/NA	Water	EPA 9056A	
180-165229-3	CCR-LF-5-110923	Total/NA	Water	EPA 9056A	
180-165229-3	CCR-LF-5-110923	Total/NA	Water	EPA 9056A	
MB 180-452140/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-452140/7	Lab Control Sample	Total/NA	Water	EPA 9056A	
180-165229-2 MS	CCR-LF-6-110923	Total/NA	Water	EPA 9056A	
180-165229-2 MSD	CCR-LF-6-110923	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 451922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total Recoverable	Water	3005A	
180-165229-2	CCR-LF-6-110923	Total Recoverable	Water	3005A	
180-165229-3	CCR-LF-5-110923	Total Recoverable	Water	3005A	
180-165229-4	CCR-LF-1-110923	Total Recoverable	Water	3005A	
180-165229-5	CCR-LF-2-110923	Total Recoverable	Water	3005A	
180-165229-6	DUP-1-110923	Total Recoverable	Water	3005A	
MB 180-451922/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-451922/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-165229-2 MS	CCR-LF-6-110923	Total Recoverable	Water	3005A	
180-165229-2 MSD	CCR-LF-6-110923	Total Recoverable	Water	3005A	

Prep Batch: 451924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total Recoverable	Water	3005A	
180-165229-2	CCR-LF-6-110923	Total Recoverable	Water	3005A	
180-165229-3	CCR-LF-5-110923	Total Recoverable	Water	3005A	
180-165229-4	CCR-LF-1-110923	Total Recoverable	Water	3005A	
180-165229-5	CCR-LF-2-110923	Total Recoverable	Water	3005A	
180-165229-6	DUP-1-110923	Total Recoverable	Water	3005A	

Metals (Continued)

Prep Batch: 451924 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-451924/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-451924/2-A ^5	Lab Control Sample	Total Recoverable	Water	3005A	
180-165229-2 MS	CCR-LF-6-110923	Total Recoverable	Water	3005A	
180-165229-2 MSD	CCR-LF-6-110923	Total Recoverable	Water	3005A	

Analysis Batch: 452225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total Recoverable	Water	EPA 6020A	451924
180-165229-2	CCR-LF-6-110923	Total Recoverable	Water	EPA 6020A	451924
180-165229-3	CCR-LF-5-110923	Total Recoverable	Water	EPA 6020A	451924
180-165229-4	CCR-LF-1-110923	Total Recoverable	Water	EPA 6020A	451924
180-165229-5	CCR-LF-2-110923	Total Recoverable	Water	EPA 6020A	451924
180-165229-6	DUP-1-110923	Total Recoverable	Water	EPA 6020A	451924
MB 180-451924/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	451924
LCS 180-451924/2-A ^5	Lab Control Sample	Total Recoverable	Water	EPA 6020A	451924
180-165229-2 MS	CCR-LF-6-110923	Total Recoverable	Water	EPA 6020A	451924
180-165229-2 MSD	CCR-LF-6-110923	Total Recoverable	Water	EPA 6020A	451924

Analysis Batch: 452389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total Recoverable	Water	EPA 6010D	451922
180-165229-2	CCR-LF-6-110923	Total Recoverable	Water	EPA 6010D	451922
180-165229-3	CCR-LF-5-110923	Total Recoverable	Water	EPA 6010D	451922
180-165229-5	CCR-LF-2-110923	Total Recoverable	Water	EPA 6010D	451922
180-165229-6	DUP-1-110923	Total Recoverable	Water	EPA 6010D	451922
MB 180-451922/1-A	Method Blank	Total Recoverable	Water	EPA 6010D	451922
LCS 180-451922/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6010D	451922
180-165229-2 MS	CCR-LF-6-110923	Total Recoverable	Water	EPA 6010D	451922
180-165229-2 MSD	CCR-LF-6-110923	Total Recoverable	Water	EPA 6010D	451922

Prep Batch: 452447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-7	CCR-LF-3-111023	Total Recoverable	Water	3005A	
MB 180-452447/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-452447/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 452448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-7	CCR-LF-3-111023	Total Recoverable	Water	3005A	
MB 180-452448/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-452448/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 452480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total/NA	Water	7470A	
180-165229-2	CCR-LF-6-110923	Total/NA	Water	7470A	
180-165229-3	CCR-LF-5-110923	Total/NA	Water	7470A	
180-165229-4	CCR-LF-1-110923	Total/NA	Water	7470A	
180-165229-5	CCR-LF-2-110923	Total/NA	Water	7470A	
180-165229-6	DUP-1-110923	Total/NA	Water	7470A	
180-165229-7	CCR-LF-3-111023	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 452480 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-452480/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-452480/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-165229-2 MS	CCR-LF-6-110923	Total/NA	Water	7470A	
180-165229-2 MSD	CCR-LF-6-110923	Total/NA	Water	7470A	

Analysis Batch: 452510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-4	CCR-LF-1-110923	Total Recoverable	Water	EPA 6010D	451922

Analysis Batch: 452697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-452448/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	452448
LCS 180-452448/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	452448

Analysis Batch: 452922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total/NA	Water	EPA 7470A	452480
180-165229-2	CCR-LF-6-110923	Total/NA	Water	EPA 7470A	452480
180-165229-3	CCR-LF-5-110923	Total/NA	Water	EPA 7470A	452480
180-165229-4	CCR-LF-1-110923	Total/NA	Water	EPA 7470A	452480
180-165229-5	CCR-LF-2-110923	Total/NA	Water	EPA 7470A	452480
180-165229-6	DUP-1-110923	Total/NA	Water	EPA 7470A	452480
180-165229-7	CCR-LF-3-111023	Total/NA	Water	EPA 7470A	452480
MB 180-452480/1-A	Method Blank	Total/NA	Water	EPA 7470A	452480
LCS 180-452480/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	452480
180-165229-2 MS	CCR-LF-6-110923	Total/NA	Water	EPA 7470A	452480
180-165229-2 MSD	CCR-LF-6-110923	Total/NA	Water	EPA 7470A	452480

Analysis Batch: 453223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-7	CCR-LF-3-111023	Total Recoverable	Water	EPA 6010D	452447
MB 180-452447/1-A	Method Blank	Total Recoverable	Water	EPA 6010D	452447
LCS 180-452447/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6010D	452447

Analysis Batch: 455528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-7	CCR-LF-3-111023	Total Recoverable	Water	EPA 6020A	452448

General Chemistry

Analysis Batch: 452069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total/NA	Water	SM 2540C	
180-165229-2	CCR-LF-6-110923	Total/NA	Water	SM 2540C	
180-165229-3	CCR-LF-5-110923	Total/NA	Water	SM 2540C	
180-165229-4	CCR-LF-1-110923	Total/NA	Water	SM 2540C	
MB 180-452069/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-452069/2	Lab Control Sample	Total/NA	Water	SM 2540C	
180-165229-2 DU	CCR-LF-6-110923	Total/NA	Water	SM 2540C	

General Chemistry

Analysis Batch: 452193

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total/NA	Water	EPA 9040C	
180-165229-2	CCR-LF-6-110923	Total/NA	Water	EPA 9040C	
180-165229-3	CCR-LF-5-110923	Total/NA	Water	EPA 9040C	
180-165229-4	CCR-LF-1-110923	Total/NA	Water	EPA 9040C	
180-165229-5	CCR-LF-2-110923	Total/NA	Water	EPA 9040C	
180-165229-6	DUP-1-110923	Total/NA	Water	EPA 9040C	
180-165229-7	CCR-LF-3-111023	Total/NA	Water	EPA 9040C	
LCS 180-452193/1	Lab Control Sample	Total/NA	Water	EPA 9040C	
LCS 180-452193/24	Lab Control Sample	Total/NA	Water	EPA 9040C	
180-165229-2 DU	CCR-LF-6-110923	Total/NA	Water	EPA 9040C	

Analysis Batch: 452200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-5	CCR-LF-2-110923	Total/NA	Water	SM 2540C	
180-165229-6	DUP-1-110923	Total/NA	Water	SM 2540C	
180-165229-7	CCR-LF-3-111023	Total/NA	Water	SM 2540C	
MB 180-452200/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-452200/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Rad

Prep Batch: 637221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-6	DUP-1-110923	Total/NA	Water	PrecSep-21	
180-165229-7	CCR-LF-3-111023	Total/NA	Water	PrecSep-21	
MB 160-637221/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-637221/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 637222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-6	DUP-1-110923	Total/NA	Water	PrecSep_0	
180-165229-7	CCR-LF-3-111023	Total/NA	Water	PrecSep_0	
MB 160-637222/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-637222/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Prep Batch: 637223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total/NA	Water	PrecSep-21	
180-165229-2	CCR-LF-6-110923	Total/NA	Water	PrecSep-21	
180-165229-3	CCR-LF-5-110923	Total/NA	Water	PrecSep-21	
180-165229-4	CCR-LF-1-110923	Total/NA	Water	PrecSep-21	
180-165229-5	CCR-LF-2-110923	Total/NA	Water	PrecSep-21	
MB 160-637223/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-637223/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
180-165229-2 DU	CCR-LF-6-110923	Total/NA	Water	PrecSep-21	

Prep Batch: 637224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-1	CCR-LF-4-110923	Total/NA	Water	PrecSep_0	
180-165229-2	CCR-LF-6-110923	Total/NA	Water	PrecSep_0	
180-165229-3	CCR-LF-5-110923	Total/NA	Water	PrecSep_0	

Rad (Continued)

Prep Batch: 637224 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-165229-4	CCR-LF-1-110923	Total/NA	Water	PrecSep_0	
180-165229-5	CCR-LF-2-110923	Total/NA	Water	PrecSep_0	
MB 160-637224/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-637224/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
180-165229-2 DU	CCR-LF-6-110923	Total/NA	Water	PrecSep_0	

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

Eurofins Environment Testing

Client Information	Sampler: Francis Reed	Lab PM: Hayes, Ken	Carrier Tracking No(s):	COC No: 180-96134-15023.3
Client Contact: Britton Hundley	Phone: 614 288 8619	E-Mail: Ken.Hayes@et.eurofinsus.com	State of Origin: IN	Page: Page 1
Company: Haley & Aldrich, Inc.	PWSID:			Job #: 0129420
Address: 400 Augusta Street Suite 100	Due Date Requested:			
City: Greenville	TAT Requested (days): STD			
State, Zip: SC, 29601	Compliance Project: Δ Yes Δ No			
Phone:	PO #: 0129420-037-001-01			
Email: BHundley@haleyaldrich.com	WO #: 0129420-037-001-01			
Project Name: AB Brown Genertating Station	Project #: 18016014			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)			9040C, 9056A_ORGFM_28D	6020A, 7470A	2540C_Calcd - Local Method	9315_Ra226 - Standard Target List	9320_Ra228 - Standard Target List	Ra226Ra228_GFPC - Local Method	6010D - (MOD) Boron	Special Instr
CCR-LF-4-110923	11/09/23	08:55	G	Water	N	N	X	X	X	X	X	X	X	
CCR-LF-6-110923	11/09/23	10:17	G	Water	N	Y	X	X	X	X	X	X	X	MS/MSD
CCR-LF-5-110923	11/09/23	12:36	G	Water	N	N	X	X	X	X	X	X	X	
CCR-LF-1-110923	11/09/23	14:20	G	Water	N	N	X	X	X	X	X	X	X	
CCR-LF-2-110923	11/09/23	15:39	G	Water	N	N	X	X	X	X	X	X	X	
DUP-1-110923	11/09/23	—	G	Water	N	N	X	X	X	X	X	X	X	Field Dup
CCR-LF-3-111023	11/10/23	08:27	G	Water	N	N	X	X	X	X	X	X	X	
				Water										
				Water										
				Water										
				Water										

180-165229 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Francis Reed	11/10/23 10:30	H+A		11/11/23 0829	EurHVE
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

day Delivery 151966 10/04 MWI FedEx® Saturday

ORIGIN ID:GTYA (864) 214-8759
TRAVIS PEAY
A.B. BROWN GENERATING STATION
8511 WELBORN ROAD

MOUNT VERNON, IN 47620
UNITED STATES US

SHIP DATE: 30OCT23
ACTWGT: 45.00 LB MAN
CAD: 0129689/CAFE3511

TO SAMPLE RECEIVING
EUROFINS ENVIRONMENT TESTING NE
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 152382907
(412) 963-7058 REF:
INV:
PO: DEPT:

RMA:

FedEx Express

E

J211020121101uv

180-165229 Waybill

FedEx
TRK# 0221 6772 2899 4004

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO AGCA

15238
PA-US PIT

Part # 156297-435 RRDB2 EXP 09/24

570C3/443A/6F4D

#3923924 11/10 583J5/FOB2/9AE3

ORIGIN ID:GTYA (864) 214-8759
TRAVIS PEAY
A.B. BROWN GENERATING STATION
8511 WELBORN ROAD
MOUNT VERNON, IN 47620
UNITED STATES US

SHIP DATE: 30OCT23
ACTWGT: 45 LB MAN
CAD: 0129610/CAFE3511

TO SAMPLE RECEIVING
EUROFINS ENVIRONMENT TESTING NE
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 152382907
(412) 963-7058
INV:
PO: REF:
DEPT:

RMA:

Uncorrected temp 4.6 °C
Thermometer ID 22
CF -0.4 Initials PM
PT-WI-SR-001 effective 11/8/18

FedEx Express

E

J211020121101uv

FedEx
TRK# 0221 6772 2899 3990

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO AGCA

15238
PA-US PIT

Part # 156297-435 RRDB2 EXP 09/24

570C3/443A/6F4D

#3923924 11/10 583J5/FOB2/9AE3

RT 639 A


ORIGIN ID:GTYA (864) 214-8759
TRAVIS PEAY
A.B. BROWN GENERATING STATION
8511 WELBORN ROAD

MOUNT VERNON, IN 47620
UNITED STATES US

TO SAMPLE RECEIVING
EUROFINS ENVIRONMENT TESTING NE
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 152382907
(412) 963-7058 REF:
INV:
PO: DEPT:
RMA:

FedEx
TRK# 0221 6772 2899 4026
SATURDAY
PRIORITY OVER

XO AGCA

PA-US

#3923924 11/10 583J5/F0B2/9AE3

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Johnson, Andy	Carrier Tracking No(s):	COC No: 180-499386.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Andy.Johnson@et.eurofinsus.com	State of Origin: Indiana	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-165229-1
Address: 13715 Rider Trail North,	Due Date Requested: 12/18/2023			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045	PO #:			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:			
Email:				
Project Name: AB Brown Generating Station	Project #: 18016014			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra226/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
CCR-LF-4-110923 (180-165229-1)	11/9/23	08:55 Eastern		Water			X	X	X	2	
CCR-LF-6-110923 (180-165229-2)	11/9/23	10:17 Eastern		Water			X	X	X	2	
CCR-LF-6-110923 (180-165229-2DU)	11/9/23	10:17 Eastern	DU	Water			X	X	X	6	
CCR-LF-5-110923 (180-165229-3)	11/9/23	12:30 Eastern		Water			X	X	X	2	
CCR-LF-1-110923 (180-165229-4)	11/9/23	14:20 Eastern		Water			X	X	X	2	
CCR-LF-2-110923 (180-165229-5)	11/9/23	15:39 Eastern		Water			X	X	X	2	
DUP-1-110923 (180-165229-6)	11/9/23	Eastern		Water			X	X	X	2	
CCR-LF-3-111023 (180-165229-7)	11/10/23	08:27 Eastern		Water			X	X	X	2	
										2	

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Pittsburgh.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:		Method of Shipment:		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by: Fedex	Date/Time: 11/13/23 1700	Company	Received by: M. Pinette Fedex	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: NOV 14 2023 0900	Company	
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	Date/Time:	Company	

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 180-165229-1
SDG Number: LF

Login Number: 165229
List Number: 1
Creator: Abernathy, Eric L

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	False	Sample splitting required for subcontract purposes.
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 180-165229-1
SDG Number: LF

Login Number: 165229
List Number: 2
Creator: Pinette, Meadow L

List Source: Eurofins St. Louis
List Creation: 11/14/23 02:19 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	