Prepared for
Miami Fort Power Company, LLC

Date
January 31, 2025

Project No.
1940106781-011

2024 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

LAWRENCEBURG ROAD LANDFILL

MIAMI FORT POWER PLANT

NORTH BEND, OHIO

CCR UNIT 113

RAMBOLL Bright ideas. Sustainable change.

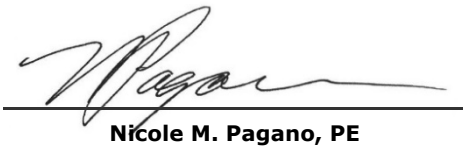
2024 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT LAWRENCEBURG ROAD LANDFILL

Project name	**Miami Fort Power Plant Lawrenceburg Road Landfill**
Project no.	**1940106781-011**
Recipient	**Miami Fort Power Company, LLC**
Document type	**Annual Groundwater Monitoring and Corrective Action Report**
Version	**FINAL**
Date	**January 31, 2025**
Prepared by	**Lauren D. Cook**
Checked by	**Nicole M. Pagano**
Approved by	**Nicole M. Pagano**
Description	**Annual Report required by 40 C.F.R. § 257.90(e)**

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204
USA

T 414-837-3607
F 414-837-3608
https://ramboll.com

Lauren D. Cook
Project Manager



Nicole M. Pagano, PE
Senior Project Manager

CONTENTS

TABLES (IN TEXT)

TABLES (ATTACHED)

FIGURES (ATTACHED)

APPENDICES

ACRONYMS AND ABBREVIATIONS

40 C.F.R.	Title 40 of the Code of Federal Regulations
ASD	Alternative Source Demonstration
CCR	coal combustion residuals
D13	Quarter 3, 2023 Detection Monitoring sampling event
D13R	Quarter 4, 2023 Detection Monitoring resampling event
D14	Quarter 1, 2024 Detection Monitoring sampling event
D15	Quarter 3, 2024 Detection Monitoring sampling event
GWPS	groundwater protection standard
LRLF	Lawrenceburg Road Landfill
MFPP	Miami Fort Power Plant
NA	not applicable
Ramboll	Ramboll Americas Engineering Solutions, Inc.
SAP	Sampling and Analysis Plan
SSI	statistically significant increase
TBD	to be determined

EXECUTIVE SUMMARY

This report has been prepared to provide the information required by Title 40 of the Code of Federal Regulations (40 C.F.R.) § 257.90(e) for the Lawrenceburg Road Landfill (LRLF) located at the Miami Fort Power Plant (MFPP) near North Bend, Ohio.

Groundwater is being monitored at the LRLF in accordance with the Detection Monitoring Program requirements specified in 40 C.F.R. § 257.94.

No changes were made to the monitoring system in 2024.

The following Statistically Significant Increases (SSIs) of 40 C.F.R. § 257 Appendix III parameter concentrations greater than background concentrations were reported in 2024:

- Calcium at wells MW-9 and MW-12

Alternative Source Demonstrations (ASDs) were completed in 2024 for the calcium SSIs referenced above and the LRLF remains in the Detection Monitoring Program.

1. INTRODUCTION

This report has been prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll) on behalf of Miami Fort Power Company, LLC, to provide the information required by 40 C.F.R. § 257.90(e) for the LRLF located at the MFPP near North Bend, Ohio.

In accordance with 40 C.F.R. § 257.90(e), the owner or operator of a coal combustion residuals (CCR) unit must prepare an Annual Groundwater Monitoring and Corrective Action Report for the preceding calendar year that documents the status of the Groundwater Monitoring and Corrective Action Program for the CCR unit (**Section 2**), summarizes key actions completed (**Section 3**), describes any problems encountered and actions to resolve the problems (**Section 4**), and projects key activities for the upcoming year (**Section 5**). At a minimum, the annual report must contain the following information, to the extent available:

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 (**Figure 1**).
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 (**Section 3**, paragraph 1).
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 (**Section 3, Table A**).
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 relative to background levels) (**Section 2**).
5. Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.
6. 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 CCR unit (see **Executive Summary**). At a minimum, the summary must specify all of the following:
    i. 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.
    ii. 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.
    iii. If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III of §257 pursuant to §257.94(e):
        A. Identify those constituents listed in Appendix III of §257 and the names of the monitoring wells associated with such an increase.

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

iv. If it was determined that there was a statistically significant level above the groundwater protection standard [GWPS] for one or more constituents listed in Appendix IV of §257 pursuant to §257.95(g) include all of the following:

A. Identify those constituents listed in Appendix IV of §257 and the names of the monitoring wells associated with such an increase.

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

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

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

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

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

This report provides the required information for the LRLF for calendar year 2024.

2. MONITORING AND CORRECTIVE ACTION PROGRAM STATUS

No changes have occurred to the monitoring program status in calendar year 2024 and the LRLF remains in the Detection Monitoring Program in accordance with 40 C.F.R. § 257.94.

3. KEY ACTIONS COMPLETED IN 2024

A summary of the samples collected from background and compliance monitoring wells in 2024 under the Detection Monitoring Program is included in **Table A** on the following page. The groundwater monitoring system, including the CCR unit and all background and compliance monitoring wells, is presented in **Figure 1**. No changes were made to the monitoring system in 2024(Ramboll, 2023a).

One groundwater sample was collected from each background and compliance well during each monitoring event. All samples were collected and analyzed in accordance with the Multi-Site Sampling and Analysis Plan (SAP) (Ramboll, 2023b).

Potentiometric surfaces for both monitoring events in 2024 are included in **Figures 2 and 3**. All monitoring data and analytical results obtained under 40 C.F.R. § 257.90 through 257.98 are presented in **Tables 1 and 2**. All associated laboratory reports and field data sheets are included in **Appendix A**.

Analytical data were evaluated in accordance with the Multi-Site Statistical Analysis Plan (Ramboll, 2022a), the Multi-Site Quality Assurance Project Plan (Ramboll, 2022b), and the Multi-Site Data Management Plan (Ramboll, 2022c) to determine any SSIs of Appendix III parameters greater than background values. SSIs are summarized in **Table A** and highlighted in **Table 2**. Statistical background values are provided in **Table 3**. A flow chart showing the statistical methodology for determination of background values is included as **Appendix B**.

Potential alternative sources were evaluated as outlined in the 40 C.F.R. § 257.94(e)(2). ASDs were completed in 2024 for the SSIs summarized in **Table A**. The dates the ASDs were completed are also provided in **Table A**. The ASDs were certified by a qualified professional engineer and are included in **Appendix C**. The LRLF remains in the Detection Monitoring Program.

Table A. 2024 Detection Monitoring Program Summary

Event ID	Sampling Dates [1, 2, 3]	Analytical Data Receipt Date	SSI(s) Determination Date	SSI(s) [4]	ASD Completion Date
D13	September 21-22, 2023	October 3, 2023 [5]	January 2, 2024	Calcium at wells MW-9 and MW-12	April 1, 2024
D13R	December 12-15, 2023	December 28, 2023 [5]	NA	NA	NA
D14	March 29, 2024	April 12, 2024	July 11, 2024	Calcium at wells MW-9 and MW-12	October 9, 2024
D15	September 13, 2024	October 3, 2024	January 1, 2025	Calcium at wells MW-9	TBD

Notes:

ASD: Alternative Source Demonstration

NA: not applicable

SSI: Statistically Significant Increase

TBD: to be determined in 2025

[1] All samples were analyzed for Appendix III parameters listed in 40 C.F.R. § 257.94(e).

[2] The following background wells were sampled for each event: MW-5 and MW-13

[3] The following compliance wells were sampled for each event: MW-8, MW-9, MW 11, MW-12, MW-14, and MW-15

[4] If an event includes a resample, an SSI is confirmed only if both the sample and the resample exceed the background value.

[5] Laboratory reports, associated analytical data tables, and statistical determinations were included in the 2023 Annual Groundwater Monitoring and Corrective Action Report.

4. PROBLEMS ENCOUNTERED AND ACTIONS TO RESOLVE THE PROBLEMS

No problems were encountered with the groundwater monitoring program during 2024. Groundwater samples were collected and analyzed in accordance with the SAP and all data were accepted.

5. KEY ACTIVITIES PLANNED FOR 2025

The following key activities are planned for 2025:

- Continuation of the Detection Monitoring Program with semiannual sampling scheduled for the first and third quarters of 2025.
- Complete evaluation of analytical data from the compliance wells using background data to determine whether an SSI of Appendix III parameters detected at concentrations greater than background concentrations has occurred.
- If an SSI is identified, potential alternate sources (*i.e.,* a source other than the CCR unit caused the SSI or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality) will be evaluated.
  - If an alternate source is identified to be the cause of the SSI, a written demonstration will be completed within 90 days of SSI determination and included in the 2025 Annual Groundwater Monitoring and Corrective Action Report.
  - If an alternate source(s) is not identified to be the cause of the SSI, the applicable requirements of 40 C.F.R. §§ 257.94 through 257.98 as may apply in 2025 (*e.g.,* assessment monitoring) will be met, including associated recordkeeping/notifications required by 40 C.F.R. §§ 257.105 through 257.108.

6. REFERENCES

AECOM, 2017, Sampling and Analysis Plan, CCR Rule Groundwater Monitoring, Lawrenceburg Road Landfill, Unit 113, Miami Fort Power Station, Cleveland, Ohio, Job Number 60442412, Revision 0, October 17, 2017.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022a. Multi-Site Statistical Analysis Plan, 40 C.F.R. § 257. December 28, 2022.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022b. Multi-Site Quality Assurance Project Plan. December 28, 2022.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022c. Multi-Site Data Management Plan. December 28, 2022.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2023a. 40 C.F.R. § 257 Groundwater Monitoring Plan, Lawrenceburg Road Landfill, Miami Fort Power Plant, North Bend, Ohio. December 31, 2023.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2023b. Multi-Site Sampling and Analysis Plan, Revision 1. October 10, 2023.

TABLES

TABLE 1
GROUNDWATER ELEVATION DATA
2024 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Monitored Unit	Date	Depth to Groundwater (feet BMP)	Groundwater Elevation (feet NAVD88)
MW-5	Background	UA	03/29/2024	70.32	460.19
MW-5	Background	UA	09/13/2024	73.45	457.06
MW-8	Compliance	UA	03/19/2024	[54.21]	[459.29]
MW-8	Compliance	UA	09/13/2024	56.90	456.60
MW-9	Compliance	UA	03/29/2024	24.42	457.21
MW-9	Compliance	UA	09/13/2024	25.06	456.57
MW-11	Compliance	UA	03/29/2024	62.26	459.21
MW-11	Compliance	UA	09/13/2024	64.95	456.52
MW-12	Compliance	UA	03/29/2024	68.18	459.20
MW-12	Compliance	UA	09/13/2024	70.85	456.53
MW-13	Background	UA	03/29/2024	76.03	460.69
MW-13	Background	UA	09/13/2024	80.05	456.67
MW-14	Compliance	UA	03/29/2024	62.18	459.95
MW-14	Compliance	UA	09/13/2024	65.55	456.58
MW-15	Compliance	UA	03/29/2024	49.33	458.95
MW-15	Compliance	UA	09/13/2024	52.12	456.16

Notes:
BMP = below measuring point
Bracketing [ ] indicates that the measurement was obtained outside of the episodic depth to groundwater measurements time frame.
Depth to Groundwater/Groundwater Elevation Code (if applicable):
DM[1] = Depth to water was not measured.
DM[2] = Depth to water was not measured because water was above or below the staff gage markings.
DM[3] = Depth to water was not measured because the location was inaccessible.
DM[4] = Depth to water was not measured because water level was below the top of the pump.
DM[5] = Depth to water was not measured because water level was above the top of casing (artesian well).
DM[6] = Depth to water was not measured because of damage to the well.
DM[7] = Depth to water was not measured due to required pressure transducer maintenance.
DM[8] = Lab provided groundwater elevation data and not depth to water.
NAVD88 = North American Vertical Datum of 1988
Monitored Unit Abbreviations:
UA = uppermost aquifer

Generated 2024-12-19 00:12 by banoffra

TABLE 2
ANALYTICAL RESULTS - APPENDIX III PARAMETERS
2024 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	HSU	Well Type	Date	Event ID	Parameter	Unit	Result	Comparison Value	Background	SSI Type
MW-5	UA	Background	03/29/2024	D14	Boron, total	mg/L	2.62	--	--	--
MW-5	UA	Background	09/13/2024	D15	Boron, total	mg/L	2.39	--	--	--
MW-5	UA	Background	03/29/2024	D14	Calcium, total	mg/L	117	--	--	--
MW-5	UA	Background	09/13/2024	D15	Calcium, total	mg/L	116	--	--	--
MW-5	UA	Background	03/29/2024	D14	Chloride, total	mg/L	6.65	--	--	--
MW-5	UA	Background	09/13/2024	D15	Chloride, total	mg/L	6.30	--	--	--
MW-5	UA	Background	03/29/2024	D14	Fluoride, total	mg/L	0.213	--	--	--
MW-5	UA	Background	09/13/2024	D15	Fluoride, total	mg/L	0.165	--	--	--
MW-5	UA	Background	03/29/2024	D14	pH (field)	SU	7.3	--	--	--
MW-5	UA	Background	09/13/2024	D15	pH (field)	SU	7.2	--	--	--
MW-5	UA	Background	03/29/2024	D14	Sulfate, total	mg/L	192	--	--	--
MW-5	UA	Background	09/13/2024	D15	Sulfate, total	mg/L	212	--	--	--
MW-5	UA	Background	03/29/2024	D14	Total Dissolved Solids	mg/L	563	--	--	--
MW-5	UA	Background	09/13/2024	D15	Total Dissolved Solids	mg/L	618	--	--	--
MW-13	UA	Background	03/29/2024	D14	Boron, total	mg/L	0.0492	--	--	--
MW-13	UA	Background	09/13/2024	D15	Boron, total	mg/L	0.178	--	--	--
MW-13	UA	Background	03/29/2024	D14	Calcium, total	mg/L	146	--	--	--
MW-13	UA	Background	09/13/2024	D15	Calcium, total	mg/L	140	--	--	--
MW-13	UA	Background	03/29/2024	D14	Chloride, total	mg/L	274	--	--	--
MW-13	UA	Background	09/13/2024	D15	Chloride, total	mg/L	240	--	--	--
MW-13	UA	Background	03/29/2024	D14	Fluoride, total	mg/L	0.196	--	--	--
MW-13	UA	Background	09/13/2024	D15	Fluoride, total	mg/L	0.127 J	--	--	--
MW-13	UA	Background	03/29/2024	D14	pH (field)	SU	7.1	--	--	--
MW-13	UA	Background	09/13/2024	D15	pH (field)	SU	6.9	--	--	--
MW-13	UA	Background	03/29/2024	D14	Sulfate, total	mg/L	30.8	--	--	--
MW-13	UA	Background	09/13/2024	D15	Sulfate, total	mg/L	38.9	--	--	--
MW-13	UA	Background	03/29/2024	D14	Total Dissolved Solids	mg/L	870	--	--	--
MW-13	UA	Background	09/13/2024	D15	Total Dissolved Solids	mg/L	800	--	--	--
MW-8	UA	Compliance	03/29/2024	D14	Boron, total	mg/L	0.0729	0.0729	3.41	No Exceedance
MW-8	UA	Compliance	09/13/2024	D15	Boron, total	mg/L	0.305	0.305	3.41	No Exceedance
MW-8	UA	Compliance	03/29/2024	D14	Calcium, total	mg/L	118	118	142	No Exceedance
MW-8	UA	Compliance	09/13/2024	D15	Calcium, total	mg/L	114	114	142	No Exceedance
MW-8	UA	Compliance	03/29/2024	D14	Chloride, total	mg/L	9.39	9.39	287	No Exceedance
MW-8	UA	Compliance	09/13/2024	D15	Chloride, total	mg/L	10.8	10.8	287	No Exceedance
MW-8	UA	Compliance	03/29/2024	D14	Fluoride, total	mg/L	0.111 J	0.15	0.272	No Exceedance
MW-8	UA	Compliance	09/13/2024	D15	Fluoride, total	mg/L	0.0761 U	0.15	0.272	No Exceedance
MW-8	UA	Compliance	03/29/2024	D14	pH (field)	SU	7.0	7.0	6.5/7.5	No Exceedance
MW-8	UA	Compliance	09/13/2024	D15	pH (field)	SU	6.9	6.9	6.5/7.5	No Exceedance
MW-8	UA	Compliance	03/29/2024	D14	Sulfate, total	mg/L	23.9	23.9	188	No Exceedance
MW-8	UA	Compliance	09/13/2024	D15	Sulfate, total	mg/L	22.9	22.9	188	No Exceedance
MW-8	UA	Compliance	03/29/2024	D14	Total Dissolved Solids	mg/L	443	443	995	No Exceedance
MW-8	UA	Compliance	09/13/2024	D15	Total Dissolved Solids	mg/L	440	440	995	No Exceedance
MW-9	UA	Compliance	03/29/2024	D14	Boron, total	mg/L	0.564	0.564	3.41	No Exceedance
MW-9	UA	Compliance	09/13/2024	D15	Boron, total	mg/L	1.00	1.00	3.41	No Exceedance
MW-9	UA	Compliance	03/29/2024	D14	Calcium, total	mg/L	165	165	142	Reported
MW-9	UA	Compliance	09/13/2024	D15	Calcium, total	mg/L	157	157	142	Reported

TABLE 2
ANALYTICAL RESULTS - APPENDIX III PARAMETERS
2024 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	HSU	Well Type	Date	Event ID	Parameter	Unit	Result	Comparison Value	Background	SSI Type
MW-9	UA	Compliance	03/29/2024	D14	Chloride, total	mg/L	52.7	52.7	287	No Exceedance
MW-9	UA	Compliance	09/13/2024	D15	Chloride, total	mg/L	38.4	38.4	287	No Exceedance
MW-9	UA	Compliance	03/29/2024	D14	Fluoride, total	mg/L	0.115 J	0.15	0.272	No Exceedance
MW-9	UA	Compliance	09/13/2024	D15	Fluoride, total	mg/L	0.0793 J	0.15	0.272	No Exceedance
MW-9	UA	Compliance	03/29/2024	D14	pH (field)	SU	6.8	6.8	6.5/7.5	No Exceedance
MW-9	UA	Compliance	09/13/2024	D15	pH (field)	SU	6.8	6.8	6.5/7.5	No Exceedance
MW-9	UA	Compliance	03/29/2024	D14	Sulfate, total	mg/L	150	150	188	No Exceedance
MW-9	UA	Compliance	09/13/2024	D15	Sulfate, total	mg/L	134	134	188	No Exceedance
MW-9	UA	Compliance	03/29/2024	D14	Total Dissolved Solids	mg/L	668	668	995	No Exceedance
MW-9	UA	Compliance	09/13/2024	D15	Total Dissolved Solids	mg/L	656	656	995	No Exceedance
MW-11	UA	Compliance	03/29/2024	D14	Boron, total	mg/L	0.0649	0.0649	3.41	No Exceedance
MW-11	UA	Compliance	09/13/2024	D15	Boron, total	mg/L	0.067 J	0.15	3.41	No Exceedance
MW-11	UA	Compliance	03/29/2024	D14	Calcium, total	mg/L	124	124	142	No Exceedance
MW-11	UA	Compliance	09/13/2024	D15	Calcium, total	mg/L	126	126	142	No Exceedance
MW-11	UA	Compliance	03/29/2024	D14	Chloride, total	mg/L	23.4	23.4	287	No Exceedance
MW-11	UA	Compliance	09/13/2024	D15	Chloride, total	mg/L	22.4	22.4	287	No Exceedance
MW-11	UA	Compliance	03/29/2024	D14	Fluoride, total	mg/L	0.146 J	0.15	0.272	No Exceedance
MW-11	UA	Compliance	09/13/2024	D15	Fluoride, total	mg/L	0.0891 J	0.15	0.272	No Exceedance
MW-11	UA	Compliance	03/29/2024	D14	pH (field)	SU	6.9	6.9	6.5/7.5	No Exceedance
MW-11	UA	Compliance	09/13/2024	D15	pH (field)	SU	6.9	6.9	6.5/7.5	No Exceedance
MW-11	UA	Compliance	03/29/2024	D14	Sulfate, total	mg/L	46.1	46.1	188	No Exceedance
MW-11	UA	Compliance	09/13/2024	D15	Sulfate, total	mg/L	52.1 J	52.1	188	No Exceedance
MW-11	UA	Compliance	03/29/2024	D14	Total Dissolved Solids	mg/L	499	499	995	No Exceedance
MW-11	UA	Compliance	09/13/2024	D15	Total Dissolved Solids	mg/L	491	491	995	No Exceedance
MW-12	UA	Compliance	03/29/2024	D14	Boron, total	mg/L	0.0880	0.0880	3.41	No Exceedance
MW-12	UA	Compliance	09/13/2024	D15	Boron, total	mg/L	0.286	0.286	3.41	No Exceedance
MW-12	UA	Compliance	03/29/2024	D14	Calcium, total	mg/L	143	143	142	Reported
MW-12	UA	Compliance	09/13/2024	D15	Calcium, total	mg/L	135	135	142	No Exceedance
MW-12	UA	Compliance	03/29/2024	D14	Chloride, total	mg/L	19.8	19.8	287	No Exceedance
MW-12	UA	Compliance	09/13/2024	D15	Chloride, total	mg/L	22.4	22.4	287	No Exceedance
MW-12	UA	Compliance	03/29/2024	D14	Fluoride, total	mg/L	0.164	0.164	0.272	No Exceedance
MW-12	UA	Compliance	09/13/2024	D15	Fluoride, total	mg/L	0.126 J	0.15	0.272	No Exceedance
MW-12	UA	Compliance	03/29/2024	D14	pH (field)	SU	6.8	6.8	6.5/7.5	No Exceedance
MW-12	UA	Compliance	09/13/2024	D15	pH (field)	SU	6.8	6.8	6.5/7.5	No Exceedance
MW-12	UA	Compliance	03/29/2024	D14	Sulfate, total	mg/L	66.8	66.8	188	No Exceedance
MW-12	UA	Compliance	09/13/2024	D15	Sulfate, total	mg/L	69.5	69.5	188	No Exceedance
MW-12	UA	Compliance	03/29/2024	D14	Total Dissolved Solids	mg/L	533	533	995	No Exceedance
MW-12	UA	Compliance	09/13/2024	D15	Total Dissolved Solids	mg/L	552	552	995	No Exceedance
MW-14	UA	Compliance	03/29/2024	D14	Boron, total	mg/L	0.133	0.133	3.41	No Exceedance
MW-14	UA	Compliance	09/13/2024	D15	Boron, total	mg/L	0.237	0.237	3.41	No Exceedance
MW-14	UA	Compliance	03/29/2024	D14	Calcium, total	mg/L	110	110	142	No Exceedance
MW-14	UA	Compliance	09/13/2024	D15	Calcium, total	mg/L	109	109	142	No Exceedance
MW-14	UA	Compliance	03/29/2024	D14	Chloride, total	mg/L	23.8	23.8	287	No Exceedance
MW-14	UA	Compliance	09/13/2024	D15	Chloride, total	mg/L	31.6	31.6	287	No Exceedance
MW-14	UA	Compliance	03/29/2024	D14	Fluoride, total	mg/L	0.211	0.211	0.272	No Exceedance
MW-14	UA	Compliance	09/13/2024	D15	Fluoride, total	mg/L	0.147 J	0.15	0.272	No Exceedance

TABLE 2
ANALYTICAL RESULTS - APPENDIX III PARAMETERS
2024 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	HSU	Well Type	Date	Event ID	Parameter	Unit	Result	Comparison Value	Background	SSI Type
MW-14	UA	Compliance	03/29/2024	D14	pH (field)	SU	7.1	7.1	6.5/7.5	No Exceedance
MW-14	UA	Compliance	09/13/2024	D15	pH (field)	SU	6.9	6.9	6.5/7.5	No Exceedance
MW-14	UA	Compliance	03/29/2024	D14	Sulfate, total	mg/L	51.4	51.4	188	No Exceedance
MW-14	UA	Compliance	09/13/2024	D15	Sulfate, total	mg/L	45.8	45.8	188	No Exceedance
MW-14	UA	Compliance	03/29/2024	D14	Total Dissolved Solids	mg/L	465	465	995	No Exceedance
MW-14	UA	Compliance	09/13/2024	D15	Total Dissolved Solids	mg/L	462	462	995	No Exceedance
MW-15	UA	Compliance	03/29/2024	D14	Boron, total	mg/L	0.0512	0.0512	3.41	No Exceedance
MW-15	UA	Compliance	09/13/2024	D15	Boron, total	mg/L	0.109 J	0.15	3.41	No Exceedance
MW-15	UA	Compliance	03/29/2024	D14	Calcium, total	mg/L	101	101	142	No Exceedance
MW-15	UA	Compliance	09/13/2024	D15	Calcium, total	mg/L	95.6	95.6	142	No Exceedance
MW-15	UA	Compliance	03/29/2024	D14	Chloride, total	mg/L	26.5	26.5	287	No Exceedance
MW-15	UA	Compliance	09/13/2024	D15	Chloride, total	mg/L	30.5	30.5	287	No Exceedance
MW-15	UA	Compliance	03/29/2024	D14	Fluoride, total	mg/L	0.204	0.204	0.272	No Exceedance
MW-15	UA	Compliance	09/13/2024	D15	Fluoride, total	mg/L	0.119 J	0.15	0.272	No Exceedance
MW-15	UA	Compliance	03/29/2024	D14	pH (field)	SU	7.1	7.1	6.5/7.5	No Exceedance
MW-15	UA	Compliance	09/13/2024	D15	pH (field)	SU	7.1	7.1	6.5/7.5	No Exceedance
MW-15	UA	Compliance	03/29/2024	D14	Sulfate, total	mg/L	38.5	38.5	188	No Exceedance
MW-15	UA	Compliance	09/13/2024	D15	Sulfate, total	mg/L	39.4	39.4	188	No Exceedance
MW-15	UA	Compliance	03/29/2024	D14	Total Dissolved Solids	mg/L	406	406	995	No Exceedance
MW-15	UA	Compliance	09/13/2024	D15	Total Dissolved Solids	mg/L	387	387	995	No Exceedance

Notes:
-- = not applicable
Comparison Value is different from the Result when the Result is below the Reporting Limit (RL). The Result will not be used in statistical calculations due to the inherent uncertainty in results that are below the RL. Half of the RL will be substituted for these data. See the *Multi-Site Statistical Analysis Plan* (Ramboll, 2022a) for more information.
Event IDs:
D14 = Quarter 1, 2024 Detection Monitoring sampling event
D15 = Quarter 3, 2024 Detection Monitoring sampling event
HSU = hydrostratigraphic unit:
UA = Uppermost Aquifer
ID = identification
mg/L = milligrams per liter
Result Code (if applicable):
NR[1] = Parameter not analyzed.
NS[1] = Well has been, or will be, abandoned; therefore, a sample was not collected.
NS[2] = Well either needs or was undergoing maintenance; therefore, a sample was not collected.
NS[3] = The location was not accessible; therefore, a sample was not collected.
NS[4] = The location could not be found; therefore, a sample was not collected.
NS[5] = The location was damaged; therefore, a sample was not collected.
NS[6] = Sampling pump could not yield a sample.
NS[7] = Well was either dry or purged dry and did not recover sufficiently to yield adequate volume for a sample.
NS[8] = A sample was not collected.
PM[1] = Parameter not analyzed as the well purged dry during sample collection and did not sufficiently recover to yield adequate sample volume for analysis.
Result qualifiers as defined in the United States Environmental Protection Agency's *National Functional Guidelines for Inorganic Superfund Methods Data Review*, EPA 542-R-20-006. November 2020.:
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.
Statistically Significant Increase (SSI) Type:
No Exceedance: No exceedance of the background.
Reported: An exceedance in the parent event was observed and reported.
SU = Standard Units

Generated 2024-12-09 08:12 by banoffra

TABLE 3
STATISTICAL BACKGROUND VALUES
2024 40 C.F.R. § 257 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Parameter	Date Range	Sample Count	Percent Non-Detects	Statistical Calculation	Statistical Background Value (LPL/UPL)
Boron (mg/L)	11/15/2017 - 03/24/2022	20	30	Parametric UPL	3.41
Calcium (mg/L)	11/15/2017 - 03/24/2022	20	0	Parametric UPL	142
Chloride (mg/L)	11/15/2017 - 03/24/2022	20	0	Non-Parametric UPL	287
Fluoride (mg/L)	11/15/2017 - 03/24/2022	20	50	Non-Parametric UPL	0.272
pH (field) (SU)	11/15/2017 - 03/24/2022	21	0	Parametric LPL/UPL	6.5/7.5
Sulfate (mg/L)	11/15/2017 - 03/24/2022	20	10	Non-Parametric UPL	188
Total Dissolved Solids (mg/L)	11/15/2017 - 03/24/2022	20	0	Parametric UPL	995

Notes:
LPL = lower prediction limit (applicable for pH only)
mg/L = milligrams per liter
SU = standard units
UPL = upper prediction limit

Generated 2024-11-14 14:26:10.46408 by banoffra

FIGURES

BACKGROUND WELL

COMPLIANCE WELL

REGULATED UNIT (SUBJECT UNIT)

0 150 300
Feet

MONITORING WELL LOCATION MAP

2024 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\2285\MXD\2021_AnnualGWM_CAR\Miami_Fort\LRL_113\Figure 1 MF LRL MW Location Map.mxd

PROJECT: 169000XXXX | DATED: 1/5/2022 | DESIGNER: galarmmc

COMPLIANCE MONITORING WELL

BACKGROUND MONITORING WELL

LEACHATE WELL

MONITORING WELL

GROUNDWATER ELEVATION CONTOUR (1-FT CONTOUR INTERVAL, NAVD88)

INFERRED GROUNDWATER ELEVATION CONTOUR

GROUNDWATER FLOW DIRECTION

REGULATED UNIT (SUBJECT UNIT)

NOTES:
1. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 150 300
Feet

POTENTIOMETRIC SURFACE MAP MARCH 29, 2024

2024 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

COMPLIANCE MONITORING WELL
BACKGROUND MONITORING WELL
LEACHATE WELL
MONITORING WELL
GROUNDWATER ELEVATION CONTOUR (1-FT CONTOUR INTERVAL, NAVD88)
INFERRED GROUNDWATER ELEVATION CONTOUR
GROUNDWATER FLOW DIRECTION
REGULATED UNIT (SUBJECT UNIT)

NOTES:
1. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 150 300
Feet

POTENTIOMETRIC SURFACE MAP SEPTEMBER 13, 2024

2024 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22285\MXD\GW_Contours\Round_2024\Miami_Fort\LRL_113\MFS LRL 113 2024.aprx

PROJECT: 169000XXXX | DATED: 11/1/2024 | DESIGNER: PWYSIATKO

APPENDICES

APPENDIX A
LABORATORY REPORTS AND FIELD DATA SHEETS

Pace Analytical®

ANALYTICAL REPORT

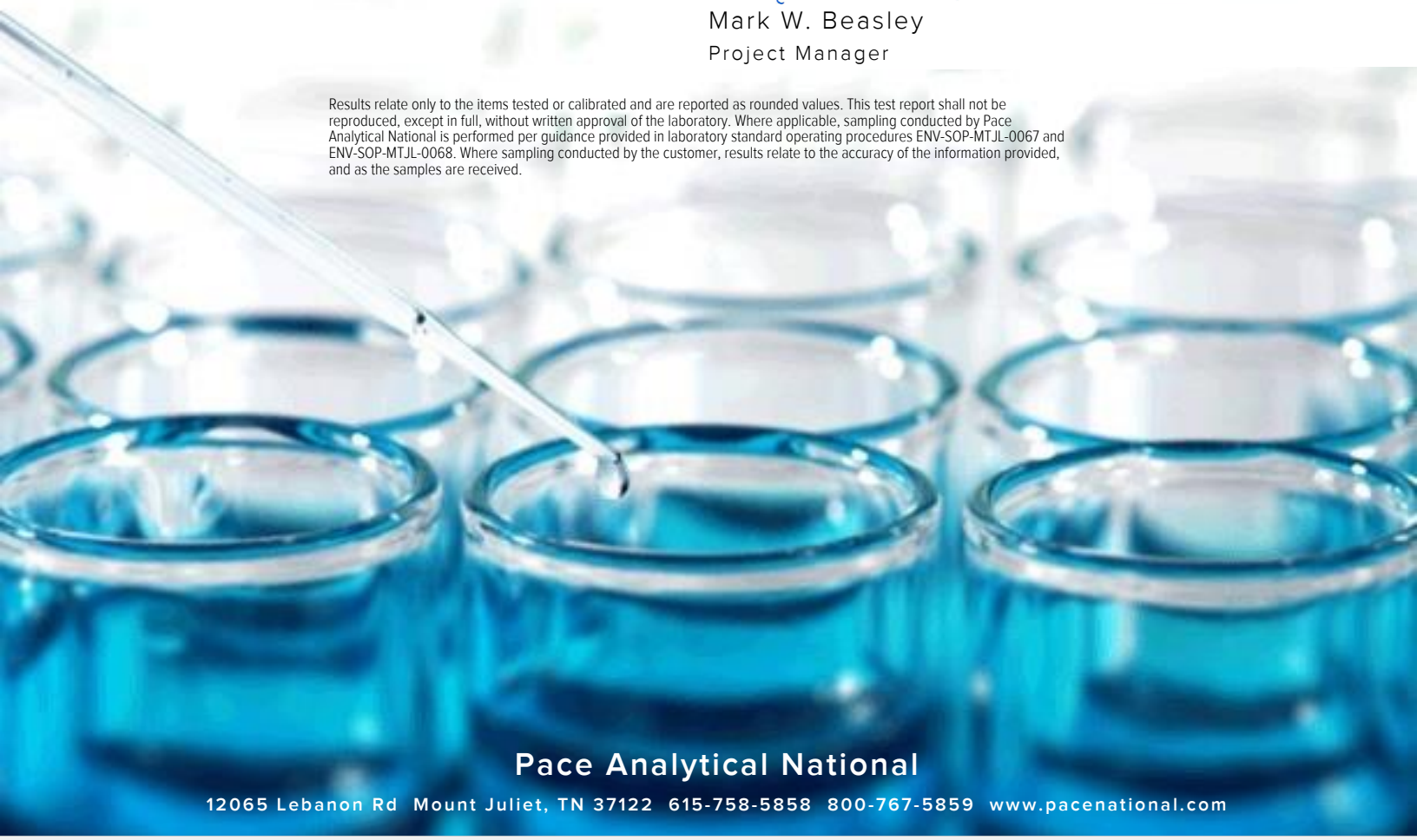
April 12, 2024

S&ME - Nashville, TN

Sample Delivery Group:	L1720682
Samples Received:	03/30/2024
Project Number:	7217-17-003D
Description:	Miami Fort Station - North Bend, OH
Site:	LAWRENCEBURG RD. LF (UNIT 113)
Report To:	Vince Epps 862 East Crescentville Road Cincinnati, OH 45246

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

MW-05 L1720682-01 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 11:35 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257373	1	03/30/24 20:57	04/01/24 17:06	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258370	1	04/02/24 11:54	04/02/24 11:54	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 16:58	04/04/24 16:58	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2263144	5	04/09/24 14:38	04/09/24 14:38	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258596	1	04/02/24 14:33	04/07/24 21:17	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258596	20	04/02/24 14:33	04/09/24 10:13	SJM	Mt. Juliet, TN

MW-08 L1720682-02 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 12:25 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257374	1	03/30/24 21:01	04/03/24 00:13	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 10:46	04/02/24 10:46	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 17:10	04/04/24 17:10	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258596	1	04/02/24 14:33	04/07/24 21:20	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258596	1	04/02/24 14:33	04/09/24 10:16	SJM	Mt. Juliet, TN

MW-09 L1720682-03 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 11:50 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257373	1	03/30/24 20:57	04/01/24 17:06	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 10:53	04/02/24 10:53	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 17:23	04/04/24 17:23	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258596	1	04/02/24 14:33	04/07/24 21:23	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258596	5	04/02/24 14:33	04/09/24 10:20	SJM	Mt. Juliet, TN

MW-09R L1720682-04 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 12:25 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257374	1	03/30/24 21:01	04/03/24 00:13	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 10:58	04/02/24 10:58	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 17:36	04/04/24 17:36	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 14:32	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	10	04/03/24 09:44	04/09/24 11:45	SJM	Mt. Juliet, TN

MW-11 L1720682-05 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 11:00 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257374	1	03/30/24 21:01	04/03/24 00:13	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 11:04	04/02/24 11:04	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 17:48	04/04/24 17:48	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 13:35	SJM	Mt. Juliet, TN

SAMPLE SUMMARY

MW-12 L1720682-06 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 13:25 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257373	1	03/30/24 20:57	04/01/24 17:06	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2259347	1	04/03/24 11:04	04/03/24 11:04	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 18:01	04/04/24 18:01	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 13:38	SJM	Mt. Juliet, TN

MW-13 L1720682-07 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 10:50 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257374	1	03/30/24 21:01	04/03/24 00:13	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 11:26	04/02/24 11:26	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 18:13	04/04/24 18:13	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	5	04/04/24 18:26	04/04/24 18:26	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 13:41	SJM	Mt. Juliet, TN

MW-14 L1720682-08 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 13:30 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257374	1	03/30/24 21:01	04/03/24 00:13	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 11:37	04/02/24 11:37	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 19:04	04/04/24 19:04	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 13:45	SJM	Mt. Juliet, TN

MW-15 L1720682-09 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 14:25 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257373	1	03/30/24 20:57	04/01/24 17:06	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 11:44	04/02/24 11:44	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 19:17	04/04/24 19:17	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 13:48	SJM	Mt. Juliet, TN

L1-LEACHATE L1720682-10 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 09:05 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257374	1	03/30/24 21:01	04/03/24 00:13	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2258075	1	04/02/24 11:49	04/02/24 11:49	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 19:29	04/04/24 19:29	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	10	04/04/24 19:42	04/04/24 19:42	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 14:35	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2258598	10	04/03/24 09:44	04/09/24 12:27	SJM	Mt. Juliet, TN

DUP-1 L1720682-11 GW

Collected by: Jamie Bailey | Collected date/time: 03/29/24 00:00 | Received date/time: 03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2257374	1	03/30/24 21:01	04/03/24 00:13	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2259347	1	04/03/24 11:07	04/03/24 11:07	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2260241	1	04/04/24 19:55	04/04/24 19:55	GEB	Mt. Juliet, TN

SAMPLE SUMMARY

DUP-1 L1720682-11 GW

Collected by	Collected date/time	Received date/time
Jamie Bailey	03/29/24 00:00	03/30/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2258598	1	04/03/24 09:44	04/09/24 13:51	SJM	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	563000		10000	1	04/01/2024 17:06	WG2257373

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	254000		8450	20000	1	04/02/2024 11:54	WG2258370
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 11:54	WG2258370

Sample Narrative:

L1720682-01 WG2258370: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	6650		379	1000	1	04/04/2024 16:58	WG2260241
Fluoride	213		64.0	150	1	04/04/2024 16:58	WG2260241
Sulfate	192000		2970	25000	5	04/09/2024 14:38	WG2263144

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	2620		193	600	20	04/09/2024 10:13	WG2258596
Calcium	117000		93.6	1000	1	04/07/2024 21:17	WG2258596
Magnesium	39300		73.5	1000	1	04/07/2024 21:17	WG2258596
Potassium	2580		108	2000	1	04/07/2024 21:17	WG2258596
Sodium	14400		376	2000	1	04/07/2024 21:17	WG2258596

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	443000		10000	1	04/03/2024 00:13	WG2257374

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	422000		8450	20000	1	04/02/2024 10:46	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 10:46	WG2258075

Sample Narrative:

L1720682-02 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	9390		379	1000	1	04/04/2024 17:10	WG2260241
Fluoride	111	J	64.0	150	1	04/04/2024 17:10	WG2260241
Sulfate	23900		594	5000	1	04/04/2024 17:10	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	72.9		9.63	30.0	1	04/09/2024 10:16	WG2258596
Calcium	118000		93.6	1000	1	04/07/2024 21:20	WG2258596
Magnesium	36800		73.5	1000	1	04/07/2024 21:20	WG2258596
Potassium	2920		108	2000	1	04/07/2024 21:20	WG2258596
Sodium	8670		376	2000	1	04/07/2024 21:20	WG2258596

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	668000		13300	1	04/01/2024 17:06	WG2257373

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	406000		8450	20000	1	04/02/2024 10:53	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 10:53	WG2258075

Sample Narrative:

L1720682-03 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	52700		379	1000	1	04/04/2024 17:23	WG2260241
Fluoride	115	J	64.0	150	1	04/04/2024 17:23	WG2260241
Sulfate	150000		594	5000	1	04/04/2024 17:23	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	564		48.2	150	5	04/09/2024 10:20	WG2258596
Calcium	165000		93.6	1000	1	04/07/2024 21:23	WG2258596
Magnesium	36300		73.5	1000	1	04/07/2024 21:23	WG2258596
Potassium	4440		108	2000	1	04/07/2024 21:23	WG2258596
Sodium	40400		376	2000	1	04/07/2024 21:23	WG2258596

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	736000		20000	1	04/03/2024 00:13	WG2257374

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	342000		8450	20000	1	04/02/2024 10:58	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 10:58	WG2258075

Sample Narrative:

L1720682-04 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	92900		379	1000	1	04/04/2024 17:36	WG2260241
Fluoride	154		64.0	150	1	04/04/2024 17:36	WG2260241
Sulfate	163000		594	5000	1	04/04/2024 17:36	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	776		96.3	300	10	04/09/2024 11:45	WG2258598
Calcium	177000		93.6	1000	1	04/09/2024 14:32	WG2258598
Magnesium	39300		73.5	1000	1	04/09/2024 14:32	WG2258598
Potassium	3970		108	2000	1	04/09/2024 14:32	WG2258598
Sodium	30400		376	2000	1	04/09/2024 14:32	WG2258598

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	499000		10000	1	04/03/2024 00:13	WG2257374

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	421000		8450	20000	1	04/02/2024 11:04	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 11:04	WG2258075

Sample Narrative:

L1720682-05 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	23400		379	1000	1	04/04/2024 17:48	WG2260241
Fluoride	146	J	64.0	150	1	04/04/2024 17:48	WG2260241
Sulfate	46100		594	5000	1	04/04/2024 17:48	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	64.9		9.63	30.0	1	04/09/2024 13:35	WG2258598
Calcium	124000		93.6	1000	1	04/09/2024 13:35	WG2258598
Magnesium	37900		73.5	1000	1	04/09/2024 13:35	WG2258598
Potassium	3120		108	2000	1	04/09/2024 13:35	WG2258598
Sodium	7990		376	2000	1	04/09/2024 13:35	WG2258598

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	533000		13300	1	04/01/2024 17:06	WG2257373

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	431000		8450	20000	1	04/03/2024 11:04	WG2259347
Alkalinity,Carbonate	U		8450	20000	1	04/03/2024 11:04	WG2259347

Sample Narrative:

L1720682-06 WG2259347: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	19800		379	1000	1	04/04/2024 18:01	WG2260241
Fluoride	164		64.0	150	1	04/04/2024 18:01	WG2260241
Sulfate	66800		594	5000	1	04/04/2024 18:01	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	88.0		9.63	30.0	1	04/09/2024 13:38	WG2258598
Calcium	143000		93.6	1000	1	04/09/2024 13:38	WG2258598
Magnesium	37900		73.5	1000	1	04/09/2024 13:38	WG2258598
Potassium	2750		108	2000	1	04/09/2024 13:38	WG2258598
Sodium	12500		376	2000	1	04/09/2024 13:38	WG2258598

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	870000		20000	1	04/03/2024 00:13	WG2257374

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	412000		8450	20000	1	04/02/2024 11:26	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 11:26	WG2258075

Sample Narrative:

L1720682-07 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	274000		1900	5000	5	04/04/2024 18:26	WG2260241
Fluoride	196		64.0	150	1	04/04/2024 18:13	WG2260241
Sulfate	30800		594	5000	1	04/04/2024 18:13	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	49.2		9.63	30.0	1	04/09/2024 13:41	WG2258598
Calcium	146000		93.6	1000	1	04/09/2024 13:41	WG2258598
Magnesium	46800		73.5	1000	1	04/09/2024 13:41	WG2258598
Potassium	3560		108	2000	1	04/09/2024 13:41	WG2258598
Sodium	138000		376	2000	1	04/09/2024 13:41	WG2258598

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	465000		10000	1	04/03/2024 00:13	WG2257374

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	388000		8450	20000	1	04/02/2024 11:37	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 11:37	WG2258075

Sample Narrative:

L1720682-08 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	23800		379	1000	1	04/04/2024 19:04	WG2260241
Fluoride	211		64.0	150	1	04/04/2024 19:04	WG2260241
Sulfate	51400		594	5000	1	04/04/2024 19:04	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	133		9.63	30.0	1	04/09/2024 13:45	WG2258598
Calcium	110000		93.6	1000	1	04/09/2024 13:45	WG2258598
Magnesium	27400		73.5	1000	1	04/09/2024 13:45	WG2258598
Potassium	2730		108	2000	1	04/09/2024 13:45	WG2258598
Sodium	29200		376	2000	1	04/09/2024 13:45	WG2258598

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	406000		10000	1	04/01/2024 17:06	WG2257373

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	325000		8450	20000	1	04/02/2024 11:44	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 11:44	WG2258075

Sample Narrative:

L1720682-09 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	26500		379	1000	1	04/04/2024 19:17	WG2260241
Fluoride	204		64.0	150	1	04/04/2024 19:17	WG2260241
Sulfate	38500		594	5000	1	04/04/2024 19:17	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	51.2		9.63	30.0	1	04/09/2024 13:48	WG2258598
Calcium	101000		93.6	1000	1	04/09/2024 13:48	WG2258598
Magnesium	24000		73.5	1000	1	04/09/2024 13:48	WG2258598
Potassium	2220		108	2000	1	04/09/2024 13:48	WG2258598
Sodium	16600		376	2000	1	04/09/2024 13:48	WG2258598

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	2690000		50000	1	04/03/2024 00:13	WG2257374

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	225000		8450	20000	1	04/02/2024 11:49	WG2258075
Alkalinity,Carbonate	U		8450	20000	1	04/02/2024 11:49	WG2258075

Sample Narrative:

L1720682-10 WG2258075: Endpoint pH 4.5 headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	198000		379	1000	1	04/04/2024 19:29	WG2260241
Fluoride	489		64.0	150	1	04/04/2024 19:29	WG2260241
Sulfate	1180000		5940	50000	10	04/04/2024 19:42	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	12500		96.3	300	10	04/09/2024 12:27	WG2258598
Calcium	433000		93.6	1000	1	04/09/2024 14:35	WG2258598
Magnesium	36600		73.5	1000	1	04/09/2024 14:35	WG2258598
Potassium	100000		108	2000	1	04/09/2024 14:35	WG2258598
Sodium	159000		376	2000	1	04/09/2024 14:35	WG2258598

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	478000		10000	1	04/03/2024 00:13	WG2257374

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	413000		8450	20000	1	04/03/2024 11:07	WG2259347
Alkalinity,Carbonate	U		8450	20000	1	04/03/2024 11:07	WG2259347

Sample Narrative:

L1720682-11 WG2259347: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	22100		379	1000	1	04/04/2024 19:55	WG2260241
Fluoride	152		64.0	150	1	04/04/2024 19:55	WG2260241
Sulfate	45600		594	5000	1	04/04/2024 19:55	WG2260241

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	62.2		9.63	30.0	1	04/09/2024 13:51	WG2258598
Calcium	114000		93.6	1000	1	04/09/2024 13:51	WG2258598
Magnesium	35900		73.5	1000	1	04/09/2024 13:51	WG2258598
Potassium	2850		108	2000	1	04/09/2024 13:51	WG2258598
Sodium	7270		376	2000	1	04/09/2024 13:51	WG2258598

Method Blank (MB)

(MB) R4053958-1 04/01/24 17:06

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		10000	10000

L1720472-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1720472-02 04/01/24 17:06 • (DUP) R4053958-3 04/01/24 17:06

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	140000	152000	1	8.22		10

L1720472-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1720472-06 04/01/24 17:06 • (DUP) R4053958-4 04/01/24 17:06

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	276000	276000	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R4053958-2 04/01/24 17:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8880000	101	85.0-115	

Method Blank (MB)

(MB) R4054667-1 04/03/24 00:13

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		10000	10000

L1720682-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1720682-11 04/03/24 00:13 • (DUP) R4054667-4 04/03/24 00:13

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	478000	496000	1	3.70		10

Laboratory Control Sample (LCS)

(LCS) R4054667-2 04/03/24 00:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8650000	98.3	85.0-115	

Method Blank (MB)

(MB) R4052742-2 04/02/24 08:51

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1720498-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1720498-01 04/02/24 09:20 • (DUP) R4052742-3 04/02/24 09:26

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	465000	468000	1	0.654		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

L1720682-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1720682-07 04/02/24 11:26 • (DUP) R4052742-4 04/02/24 11:32

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	412000	409000	1	0.667		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R4052745-2 04/02/24 08:45

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1718335-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1718335-01 04/02/24 08:53 • (DUP) R4052745-3 04/02/24 09:01

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	164000	166000	1	1.48		20
Alkalinity,Carbonate	13300	14100	1	5.87	J	20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

L1720630-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1720630-16 04/02/24 11:33 • (DUP) R4052745-4 04/02/24 11:39

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	116000	117000	1	0.845		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R4053209-2 04/03/24 08:35

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1720613-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1720613-02 04/03/24 09:59 • (DUP) R4053209-3 04/03/24 10:04

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	170000	168000	1	1.47		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1720613-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1720613-03 04/03/24 11:38 • (DUP) R4053209-4 04/03/24 11:42

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	203000	208000	1	2.05		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R4055311-1 04/04/24 13:11

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	688	J	594	5000

L1720660-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1720660-12 04/04/24 14:39 • (DUP) R4055311-3 04/04/24 14:52

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	72200	69400	1	3.99		15
Fluoride	154	191	1	21.1	P1	15
Sulfate	9320	9270	1	0.605		15

L1721632-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1721632-02 04/04/24 20:32 • (DUP) R4055311-7 04/04/24 22:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Fluoride	145	130	1	10.7	J	15
Sulfate	52200	52500	1	0.435		15

Laboratory Control Sample (LCS)

(LCS) R4055311-2 04/04/24 13:25

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	37700	94.1	80.0-120	
Fluoride	8000	8040	100	80.0-120	
Sulfate	40000	40900	102	80.0-120	

L1720660-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1720660-12 04/04/24 14:39 • (MS) R4055311-4 04/04/24 15:04 • (MSD) R4055311-5 04/04/24 15:17

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	40000	72200	96100	95200	59.8	57.5	1	80.0-120	J6	J6	0.949	15
Fluoride	8000	154	8550	8350	105	102	1	80.0-120			2.40	15

L1720660-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1720660-12 04/04/24 14:39 • (MS) R4055311-4 04/04/24 15:04 • (MSD) R4055311-5 04/04/24 15:17

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	40000	9320	49900	50100	102	102	1	80.0-120			0.238	15

Sample Narrative:

MS: CL spike failed due to sample matrix

MSD: CL spike failed due to sample matrix

L1721632-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1721632-02 04/04/24 20:32 • (MS) R4055311-8 04/04/24 22:42

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Fluoride	8000	145	8630	106	1	80.0-120	
Sulfate	40000	52200	84800	81.4	1	80.0-120	

Sample Narrative:

MS: CL spike failed due to sample matrix

Method Blank (MB)

(MB) R4056712-1 04/09/24 08:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	732	J	594	5000

L1723428-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1723428-03 04/09/24 17:54 • (DUP) R4056712-3 04/09/24 18:10

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	197000	196000	1	0.511		15

L1723433-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1723433-06 04/10/24 01:14 • (DUP) R4056712-7 04/10/24 01:30

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	1350000	1370000	50	1.92		15

Laboratory Control Sample (LCS)

(LCS) R4056712-2 04/09/24 08:59

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	38400	95.9	80.0-120	

L1723428-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1723428-03 04/09/24 17:54 • (MS) R4056712-5 04/09/24 18:58 • (MSD) R4056712-6 04/09/24 19:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	40000	197000	U	216000	0.000	47.9	1	80.0-120	V	E J3 V	200	15

L1723433-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1723433-06 04/10/24 01:14 • (MS) R4056712-10 04/10/24 03:22 • (MSD) R4056712-11 04/10/24 03:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	40000	1350000	1060000	1040000	0.000	0.000	50	80.0-120	V	V	1.99	15

L1723433-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1723433-06 04/10/24 01:14 • (MS) R4056712-10 04/10/24 03:22 • (MSD) R4056712-11 04/10/24 03:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %

Sample Narrative:

MS: Spike failure due to matrix interference

MSD: Spike failure due to matrix interference

Method Blank (MB)

(MB) R4054783-1 04/07/24 19:39

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		93.6	1000
Magnesium	U		73.5	1000
Potassium	U		108	2000
Sodium	U		376	2000

Method Blank (MB)

(MB) R4055399-1 04/09/24 09:37

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		9.63	30.0

Laboratory Control Sample (LCS)

(LCS) R4054783-2 04/07/24 19:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	5000	5300	106	80.0-120	
Magnesium	5000	5570	111	80.0-120	
Potassium	5000	5430	109	80.0-120	
Sodium	5000	5470	109	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4055399-2 04/09/24 09:49

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	50.0	46.2	92.3	80.0-120	

L1720660-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1720660-04 04/07/24 19:52 • (MS) R4054783-4 04/07/24 19:55 • (MSD) R4054783-5 04/07/24 19:59

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	5000	55000	57700	58200	54.0	63.8	1	75.0-125	V	V	0.845	20
Magnesium	5000	8070	13000	13100	97.8	100	1	75.0-125			0.938	20
Potassium	5000	5260	10200	10300	99.1	100	1	75.0-125			0.559	20
Sodium	5000	238000	249000	260000	217	436	1	75.0-125	V	V	4.32	20

L1720660-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1720660-04 04/09/24 09:52 • (MS) R4055399-4 04/09/24 09:59 • (MSD) R4055399-5 04/09/24 10:09

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	50.0	105	149	147	89.0	84.3	1	75.0-125			1.59	20

Method Blank (MB)

(MB) R4055495-1 04/09/24 11:24

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		9.63	30.0
Calcium	U		93.6	1000
Magnesium	U		73.5	1000
Potassium	U		108	2000
Sodium	U		376	2000

Laboratory Control Sample (LCS)

(LCS) R4055495-2 04/09/24 11:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	50.0	45.6	91.2	80.0-120	
Calcium	5000	4960	99.1	80.0-120	
Magnesium	5000	5140	103	80.0-120	
Potassium	5000	5040	101	80.0-120	
Sodium	5000	5250	105	80.0-120	

L1720725-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1720725-07 04/09/24 11:31 • (MS) R4055495-4 04/09/24 11:38 • (MSD) R4055495-5 04/09/24 11:41

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	50.0	111	157	157	91.2	90.4	1	75.0-125			0.249	20
Calcium	5000	40400	46400	46200	120	116	1	75.0-125			0.407	20
Magnesium	5000	19700	25400	25000	115	106	1	75.0-125			1.63	20
Potassium	5000	3860	8810	8820	99.1	99.3	1	75.0-125			0.0842	20
Sodium	5000	24600	29600	29600	101	101	1	75.0-125			0.0601	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

APPENDIX A.
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT, LAWRENCEBURG ROAD LANDFILL
MFS-257-113

Company Name/Address: S&ME - Cincinnati
862 E. Crescentville Rd.
Cincinnati. OH 45246

Billing Information: Accounts Payable
smeinc_invoice@concursolutions.com

Pres Chk

Report to: Vince Epps

Email To: vepps@smeinc.com

Project Description: Miami Fort Station

City/State Collected: North Bend, OH

Please Circle: PT MT CT (ET)

Phone: 513-771-8471

Client Project # 7217-17-003D

Lab Project # LITEGNTN-MIAMI

Collected by (print): Jamie Bailey

Site/Facility ID # MFS Unit 113 (Landfill)

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	Cntrs	Carb/Bicarb Alk, Cl, F, SO4 125mlHDPE-Nc	CCR Metals 250mlHDPE HNO3	Other Metals 250mlHDPE-HNO3	TDS 250 mlHDPE-NonPres	Remarks	Sample # (lab only)
MW-05	Grab	GW	NA	3/29/24	1050	4	X	X	X	X		-01
MW-08	Grab	GW	NA		1225		X	X	X	X		-02
MW-09	Grab	GW	NA		1150		X	X	X	X		-03
MW-09R	Grab	GW	NA		1225		X	X	X	X		-04
MW-11	Grab	GW	NA		1035		X	X	X	X		-05
MW-12	Grab	GW	NA		1325		X	X	X	X		-06
MW-13	Grab	GW	NA		1050		X	X	X	X		-07
MW-14	Grab	GW	NA		1330		X	X	X	X		-08
MW-15	Grab	GW	NA	1475	0900		X	X	X	X		-09
L1-Leachate	Grab	GW	NA		0905		X	X	X	X		-10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
CCR Metals = B and Ca
Other Metals = K, Mg, Na

Samples returned via:
__ UPS X FedEx __ Courier __ _____

Tracking # 732094470815; 732094470756

pH _____ Temp _____

Flow _____ Other _____

Relinquished by : (Signature) Carter Hedt S&ME | Date: 3/29/24 | Time: 1530

Received by: (Signature) Shipped Via FedEx

Trip Blank Received: Yes / No HCL / MeoH TBR

Relinquished by : (Signature) | Date: | Time:

Received by: (Signature)

Temp: °C Bottles Received: 44

If pre... PH-10BDH5021 TRC-2352362 CR6-20221V ... Time

Relinquished by : (Signature) | Date: | Time:

Received for lab by: (Signature) CRoberts

Date: 03-30-24 Time: 0900

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: X Y __N
RAD Screen <0.5 mR/hr: X Y __N

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1724602

A089

Ta

Acctnum: LITEGNTN

Template: T164916

Prelogin: P1063307

PM: 134

PB:

Shipped Via:

Quality Control Water

S&ME - Cincinnati
862 E. Crescentville Rd.
Cincinnati. OH 45246

Billing Information:
Accounts Payable
smeinc_invoice@concursolutions.com

Report to: Vince Epps
Email To: vepps@smeinc.com

Project Description: Miami Fort Station
City/State Collected: North Bend, OH
Please Circle: PT MT CT (ET)

Phone: 513-771-8471
Client Project # 7217-17-003D
Lab Project # LITEGNTN-MIAMI

Collected by (print): Jamie Bailey
Collected by (signature): JBailey
Immediately Packed on Ice N ___ Y X
Site/Facility ID # MFS Unit 113 (Landfill)
P.O. #
Quote #

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Carb/Bicarb Alk, Cl, F, SO4 125mlHDPE-N	CCR Metals 250mlHDPE HNO3	Other Metals 250mlHDPE-HNO3	TDS 250 mlHDPE-NonPres	Pres Chk									Remarks	Sample # (lab only)
								N	N												
DUP-1	Grab	GW	NA	3/29/24	—	4	X	X	X	X											-11

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE
12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1720662
Table #
Acctnum: LITEGNTN
Template: T164916
Prelogin: P1063307
PM: 134
PB:
Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
CCR Metals = B and Ca
Other Metals = K, Mg, Na

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier __ _____
Tracking # 732096467615; 732096467756

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Cole Hahn S&ME	3/29/24	1530	Shipped via FedEx		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 44	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) CRoberts	Date: 03-30-24 Time: 0900	Hold: Condition: NCF / OK

L7720682

Tracking Numbers	[redacted]	Temperature
7320 9067 6815	[redacted]	0.6+0.1=0.7 TLA7
7320 9067 6752	[redacted]	5.0+0.1=5.1 TLA7
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	
	[redacted]	

Name

Date

APPENDIX A.
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT LAWRENCEBURG ROAD LANDFILL
MFS-257-113

Company Name/Address:
S&ME - Cincinnati
862 E. Crescentville Rd.
Cincinnati. OH 45246

Billing Information:
Accounts Payable
smeinc_invoice@concursolutions.com

Report to: Vince Epps
Email To: vepps@smeinc.com
Project Description: Miami Fort Station
City/State Collected: North Bend, OH
Please Circle: PT MT CT ET
Phone: 513-771-8471
Client Project # 7217-17-003D
Lab Project # LITEGNTN-MIAMI
Collected by (print): Jamie Bailey
Site/Facility ID # MFS Unit 113 (Landfill)
P.O. #
Collected by (signature):
Immediately Packed on Ice N ___ Y X
Rush? (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day
Quote #
Date Results Needed 4/13/24
No. of Cntrs

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE
12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1726682
A089
Acctnum: LITEGNTN
Template: T164916
Prelogin: P1063307
PM: 134
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Carb/Bicarb Alk, Cl, F, SO4 125mlHDPE-No	CCR Metals 250mlHDPE HNO3	Other Metals 250mlHDPE-HNO3	TDS 250 mlHDPE-NonPres	Remarks	Sample # (lab only)
MW-05	Grab	GW	NA	3/29/24	1050 1135	4	X	X	X	X		-01
MW-08	Grab	GW	NA		1225		X	X	X	X		-02
MW-09	Grab	GW	NA		1150		X	X	X	X		-03
MW-09R	Grab	GW	NA		1225		X	X	X	X		-04
MW-11	Grab	GW	NA		1055 1100		X	X	X	X		-05
MW-12	Grab	GW	NA		1325		X	X	X	X		-06
MW-13	Grab	GW	NA		1050		X	X	X	X		-07
MW-14	Grab	GW	NA		1330		X	X	X	X		-08
MW-15	Grab	GW	NA		1425 0900		X	X	X	X		-09
L1-Leachate	Grab	GW	NA		0905		X	X	X	X		-10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
CCR Metals = B and Ca
Other Metals = K, Mg, Na

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS X FedEx __ Courier
Tracking # 732094470815; 732094470756

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Cathy Hahn S&ME	3/29/24	1530	Shipped Via FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No HCL / MeOH TBR
Temp: °C Bottles Received: 44
Date: 03-30-24 Time: 0900
If pre PH-10BDH-6021 TPL CR6-20221V Time
Hold: Condition: NCF / OK

Company Name/Address:
S&ME - Cincinnati
862 E. Crescentville Rd.
Cincinnati. OH 45246

Billing Information:
Accounts Payable
smeinc_invoice@concursolutions
.com

Report to: Vince Epps

Email To: vepps@smeinc.com

Project Description: Miami Fort Station

City/State Collected: North Bend, OH

Please Circle: PT MT CT (ET)

Phone: 513-771-8471

Client Project # 7217-17-003D

Lab Project # LITEGNTN-MIAMI

Collected by (print): Jamie Bailey

Site/Facility ID # MFS Unit 113 (Landfill)

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE
12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Toll-free: 800-767-5859
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1724682

Table #

Acctnum: LITEGNTN

Template: T164916

Prelogin: P1063307

PM: 134

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Carb/Bicarb Alk, Cl, F, SO4 125mlHDPE-N	CCR Metals 250mlHDPE HNO3	Other Metals 250mlHDPE-HNO3	TDS 250 mlHDPE-NonPres					Remarks	Sample # (lab only)
							N	N								
DUP-1	Grab	GW	NA	3/29/24	—	4	X	X	X	X						-11

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
CCR Metals = B and Ca
Other Metals = K, Mg, Na

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS X FedEx __ Courier __ _____

Tracking # 732096676815; 732096676756

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Corbin Hicks S&ME	3/29/24	1530	Shipped via FedEx	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 44
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) CRobert	Date: 03-30-24 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-05	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	11:35
Weather:	Sunny	Air Temp:	55F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				70.32	ft-TOC
Total Well Depth:				81.40	ft-TOC
Height of Water Column:				11.08	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.8	Gal
3 * Well Volume	5.42	Gal
5 * Well Volume	9.04	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	11:05	End Time:	11:30
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100 psi
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**		
Final Volume Purged:		1.0		Gallons			
Final Volume Purge Rate:		150		mL/min			
Well Purged Dry?:		No		(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	11:05	0.0	---	---	---	---	---	---	---	---	Start Purging
	11:10	0.2	150	70.29	15.1	7.2	0.859	4.4	72	0.99	Clear
	11:15	0.4	150	73.33	15.0	7.2	0.864	4.0	70	1.12	Clear
	11:20	0.6	150	73.33	15.1	7.3	0.867	3.8	68	0.64	Clear
	11:25	0.8	150	73.33	15.1	7.3	0.869	3.7	67	0.55	Clear
	11:30	1.0	150	73.33	15.0	7.3	0.870	3.5	66	0.53	Clear
Final:	11:30	1.0	150	73.33	15.0	7.3	0.870	3.5	66	0.5	End of Purging

Sample Method: Bladder Pump Sample Start Time: 11:35 Sample End Time: 11:40

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-08	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	12:25
Weather:	Sunny	Air Temp:	57F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				54.21	ft-TOC
Total Well Depth:				70.00	ft-TOC
Height of Water Column:				15.79	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.6	Gal
3 * Well Volume	7.73	Gal
5 * Well Volume	12.88	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	11:55	End Time:	12:20	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**			
Final Volume Purged:		1.3		Gallons				
Final Volume Purge Rate:		200		mL/min				
Well Purged Dry?:		No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	11:55	0.0	---	---	---	---	---	---	---	---	Start Purging
	12:00	0.3	200	54.12	13.8	7.0	0.830	4.7	93	0.98	Clear
	12:05	0.5	200	53.78	13.7	7.0	0.829	4.3	94	0.81	Clear
	12:10	0.8	200	53.78	13.6	7.0	0.827	4.2	93	0.39	Clear
	12:15	1.1	200	53.78	13.6	7.0	0.825	4.2	93	0.50	Clear
	12:20	1.3	200	53.75	13.5	7.0	0.823	4.3	93	0.42	Clear
Final:	12:20	1.3	200	53.75	13.5	7.0	0.823	4.3	93	0.4	End of Purging

Sample Method: Bladder Pump Sample Start Time: 12:25 Sample End Time: 12:30

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-09	Purge Time:	20 Minutes
Locked?:	No	Sample Date:	March 29, 2024
Sampled By:	Carter Harlan & Amber Lacy	Sample Time:	11:50
Weather:	Sunny	Air Temp:	54F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				24.42	ft-TOC
Total Well Depth:				40.00	ft-TOC
Height of Water Column:				15.58	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.5	Gal
3 * Well Volume	7.63	Gal
5 * Well Volume	12.71	Gal

Well Purging Information

Purge Method:		Peristaltic Pump		Start Time:	11:25	End Time:	11:45
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100 psi
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200 mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**		
Final Volume Purged:		1.3		Gallons			
Final Volume Purge Rate:		250		mL/min			
Well Purged Dry?:		No		(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	11:25	0.0	---	---	---	---	---	---	---	---	Start Purging
	11:30	0.3	250	24.23	12.9	6.8	1.139	4.5	63	1.36	Clear, no odor
	11:35	0.7	250	22.44	12.9	6.8	1.145	4.4	65	0.92	Clear, no odor
	11:40	1.0	250	22.44	12.9	6.8	1.142	4.4	67	2.07	Clear, no odor
	11:45	1.3	250	22.44	13.0	6.8	1.145	4.6	69	0.69	Clear, no odor
Final:	11:45	1.3	250	22.44	13.0	6.8	1.145	4.6	69	0.7	End of Purging

Sample Method: Bladder Pump Sample Start Time: 11:50 Sample End Time: 11:55

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes: Used Peristaltic Pump to purge and sample well.

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-9R	Purge Time:	20 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Carter Harlan & Amber Lacy	Sample Time:	12:25
Weather:	Sunny	Air Temp:	56F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				22.24	ft-TOC
Total Well Depth:				22.26	ft-TOC
Height of Water Column:				0.02	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	0.0	Gal
3 * Well Volume	0.01	Gal
5 * Well Volume	0.02	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	12:00	End Time:	12:20	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC		**Comments:**		
Final Volume Purged:		1.7		Gallons				
Final Volume Purge Rate:		300		mL/min				
Well Purged Dry?:		No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	12:00	0.0	---	---	---	---	---	---	---	---	Start Purging
	12:05	0.5	400	22.26	12.7	6.8	1.220	3.7	51	7.83	Clear, no odor
	12:10	0.9	300	22.24	12.7	6.8	1.219	3.8	53	4.89	Clear, no odor
	12:15	1.3	300	22.24	12.7	6.8	1.222	3.8	55	3.83	Clear, no odor
	12:20	1.7	300	22.24	12.6	6.8	1.223	3.8	56	2.54	Clear, no odor
Final:	12:20	1.7	300	22.24	12.6	6.8	1.223	3.8	56	2.5	End of Purging

Sample Method: Bladder Pump Sample Start Time: 12:25 Sample End Time: 12:35

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort LF		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-11	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Carter Harlan & Amber Lacy	Sample Time:	11:00
Weather:	Sunny	Air Temp:	50F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				62.26	ft-TOC
Total Well Depth:				77.00	ft-TOC
Height of Water Column:				14.74	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.4	Gal
3 * Well Volume	7.22	Gal
5 * Well Volume	12.03	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	10:30	End Time:	10:55
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100 psi
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200 mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**		
Final Volume Purged:		1.7		Gallons	Duplicate sample collected (DUP-1).		
Final Volume Purge Rate:		250		mL/min			
Well Purged Dry?:		No		(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	10:30	0.0	---	---	---	---	---	---	---	---	Start Purging
	10:35	0.3	250	62.24	12.7	6.9	0.819	4.5	84	8.35	Clear, no odor
	10:40	0.7	250	62.24	12.6	6.9	0.866	3.5	75	2.96	Clear, no odor
	10:45	1.0	250	62.24	12.7	6.9	0.867	3.3	71	1.62	Clear, no odor
	10:50	1.3	250	62.24	12.6	6.9	0.865	3.3	68	1.23	Clear, no odor
	10:55	1.7	250	52.24	12.7	6.9	0.862	3.2	67	0.81	Clear, no odor
									.		
Final:	10:55	1.7	250	52.24	12.7	6.9	0.862	3.2	67	0.8	End of Purging

Sample Method: Bladder Pump Sample Start Time: 11:00 Sample End Time: 11:10

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes: Duplicate sample collected (DUP-1).

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-12	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Amber Lacy and Carter Harlan	Sample Time:	13:25
Weather:	Sunny	Air Temp:	60F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				68.13	ft-TOC
Total Well Depth:				80.20	ft-TOC
Height of Water Column:				12.07	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.0	Gal
3 * Well Volume	5.91	Gal
5 * Well Volume	9.85	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	12:55	End Time:	13:20
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100 psi
Pump Intake Depth from Top of Casing:				ft-TOC			
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200 mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**		
Final Volume Purged:		1.8		Gallons			
Final Volume Purge Rate:		250		mL/min			
Well Purged Dry?:		No		(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	12:55	0.0	---	---	---	---	---	---	---	---	Start Purging
	13:00	0.4	300	68.14	14.0	6.8	0.912	1.9	60	4.53	Clear, odorless
	13:05	0.8	300	68.17	13.9	6.8	0.910	0.9	58	5.37	Clear, odorless
	13:10	1.1	250	68.18	14.0	6.8	0.909	0.7	56	4.38	Clear, odorless
	13:15	1.5	250	68.18	13.9	6.8	0.909	0.7	53	2.77	Clear, odorless
	13:20	1.8	250	68.19	14.0	6.8	0.908	0.6	51	2.88	Clear, odorless
Final:	13:20	1.8	250	68.19	14.0	6.8	0.908	0.6	51	2.9	End of Purging

Sample Method: Bladder Pump Sample Start Time: 13:25 Sample End Time: 13:30

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-13	Purge Time:	30 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	10:50
Weather:	Sunny	Air Temp:	53F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				76.03	ft-TOC
Total Well Depth:				87.07	ft-TOC
Height of Water Column:				11.04	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.8	Gal
3 * Well Volume	5.40	Gal
5 * Well Volume	9.01	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	10:15	End Time:	10:45	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC		**Comments:**		
Final Volume Purged:		1.6		Gallons				
Final Volume Purge Rate:		200		mL/min				
Well Purged Dry?:		No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	10:15	0.0	---	---	---	---	---	---	---	---	Start Purging
	10:20	0.3	200	76.03	13.9	7.1	1.559	8.2	80	5.63	Clear
	10:25	0.5	200	76.30	13.7	7.0	1.578	8.1	83	4.46	Clear
	10:30	0.8	200	76.30	13.6	7.0	1.641	8.3	86	1.23	Clear
	10:35	1.1	200	76.30	13.7	7.1	1.659	8.2	87	0.81	Clear
	10:40	1.3	200	76.30	13.7	7.1	1.682	8.3	88	0.52	Clear
	10:45	1.6	200	76.30	13.8	7.1	1.697	8.1	87	0.61	Clear
Final:	10:45	1.6	200	76.30	13.8	7.1	1.697	8.1	87	0.6	End of Purging

Sample Method: Bladder Pump Sample Start Time: 10:50 Sample End Time: 10:55

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-14	Purge Time:	30 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	13:30
Weather:	Sunny	Air Temp:	60F

Water Level & Well Data

			Measuring Point:	Top of Casing	
			Depth to Water:	62.18	ft-TOC
			Total Well Depth:	85.16	ft-TOC
			Height of Water Column:	22.98	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	3.8	Gal
3 * Well Volume	11.25	Gal
5 * Well Volume	18.75	Gal

Well Purging Information

	Purge Method:	Bladder Pump		Start Time:	12:55	End Time:	13:25
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100 psi
	Pump Intake Depth from Top of Casing:			ft-TOC			
	Water Column Above Pump Intake:			feet	Flow Through Cell Vol:		200 mL
	DTW-TOC at 25% Drawdown of WC Above Pump:			ft-TOC	**Comments:**		
	Final Volume Purged:	1.6		Gallons			
	Final Volume Purge Rate:	200		mL/min			
	Well Purged Dry?:	No		(Yes/No)			

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	12:55	0.0	---	---	---	---	---	---	---	---	Start Purging
	13:00	0.3	200	62.09	14.5	7.4	0.902	8.8	91	1.33	Clear
	13:05	0.5	200	62.09	14.1	7.1	0.877	4.6	98	1.67	Clear
	13:10	0.8	200	62.12	13.9	7.0	0.858	4.0	95.5	1.38	Clear
	13:15	1.1	200	62.12	13.9	7.1	0.855	3.9	93	1.50	Clear
	13:20	1.3	200	62.12	13.9	7.1	0.850	3.7	91	0.79	Clear
	13:25	1.6	200	62.12	14.0	7.1	0.850	3.7	89	0.68	Clear
Final:	13:25	1.6	200	62.12	14.0	7.1	0.850	3.7	89	0.7	End of Purging

Sample Method: Bladder Pump Sample Start Time: 13:30 Sample End Time: 13:35

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	March 29, 2024
Source Well:	MW-15	Purge Time:	45 Minutes
Locked?:	No	Sample Date:	March 29, 2024
Sampled By:	Carter Harlan & Amber Lacy	Sample Time:	14:25
Weather:	Sunny	Air Temp:	65F

Water Level & Well Data

			Measuring Point:	Top of Casing	
			Depth to Water:	49.31	ft-TOC
			Total Well Depth:	78.66	ft-TOC
			Height of Water Column:	29.35	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	4.8	Gal
3 * Well Volume	14.37	Gal
5 * Well Volume	23.95	Gal

Well Purging Information

	Purge Method:	Bladder Pump		Start Time:	13:35	End Time:	14:20	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
	Pump Intake Depth from Top of Casing:			ft-TOC				
	Water Column Above Pump Intake:			feet		Flow Through Cell Vol:	200	mL
	DTW-TOC at 25% Drawdown of WC Above Pump:			ft-TOC		**Comments:**		
	Final Volume Purged:	3.0		Gallons				
	Final Volume Purge Rate:	250		mL/min				
	Well Purged Dry?:	No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	13:35	0.0	---	---	---	---	---	---	---	---	Start Purging
	13:40	0.3	250	49.31	13.7	7.0	0.660	3.2	44	1.26	Clear and odorless
	13:45	0.7	250	49.31	13.4	7.0	0.713	3.8	47	11.9	Clear and odorless
	13:50	1.0	250	49.31	13.3	7.0	0.718	3.8	46	5.16	Clear and odorless
	13:55	1.3	250	49.31	13.1	7.0	0.721	3.7	46	3.06	Clear and odorless
	14:00	1.7	250	49.31	13.4	7.1	0.718	3.4	46	2.15	Clear and odorless
	14:05	2.0	250	49.31	13.3	7.1	0.726	3.7	46	2.26	Clear and odorless
	14:10	2.3	250	49.31	13.3	7.0	0.721	3.7	46	1.14	Clear and odorless
	14:15	2.6	250	49.31	13.2	7.0	0.722	3.8	46	1.42	Clear and odorless
	14:20	3.0	250	49.31	13.4	7.1	0.721	3.7	46	1.26	Clear and odorless
Final:	14:20	3.0	250	49.31	13.4	7.1	0.721	3.7	46	1.3	End of Purging

Sample Method: Bladder Pump Sample Start Time: 14:25 Sample End Time: 14:30

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	NA
Source Well:	Source Landfill	Purge Time:	0 Minutes
Locked?:	Yes	Sample Date:	March 29, 2024
Sampled By:	Carter Harlan	Sample Time:	9:05
Weather:	Sunny	Air Temp:	

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:					ft-TOC
Total Well Depth:					ft-TOC
Height of Water Column:					feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume		Gal
3 * Well Volume		Gal
5 * Well Volume		Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	9:05	End Time:	9:05	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**			
Final Volume Purged:				Gallons				
Final Volume Purge Rate:				mL/min				
Well Purged Dry?:		No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	09:05	0.0	---	---	---	---	---	---	---	---	Start Purging
	09:05				15.1	6.8	3.156	7.9	-44	18.0	
Final:	09:05				15.1	6.8	3.156	7.9	-44	18.0	End of Purging

Sample Method: | Sample Start Time: 09:05 | Sample End Time:

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

APPENDIX A.
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT, LAWRENCEBURG ROAD LANDFILL
MFS-257-113

Miami Fort Station			
Well ID	**Date**	**Time**	**Depth to Water**
Lawrenceburg Rd Landfill - Unit 113			
MW-05	3/29/2024	9:50	70.32
MW-08	3/29/2024	9:51	54.21
MW-09	3/29/2024	10:00	24.42
MW-9R	3/29/2024	10:02	22.24
MW-11	3/29/2024	10:08	62.26
MW-12	3/29/2024	10:15	68.18
MW-13	3/29/2024	9:55	76.03
MW-14	3/29/2024	9:43	62.18
MW-15	3/29/2024	9:25	49.33

Pace Analytical®

ANALYTICAL REPORT

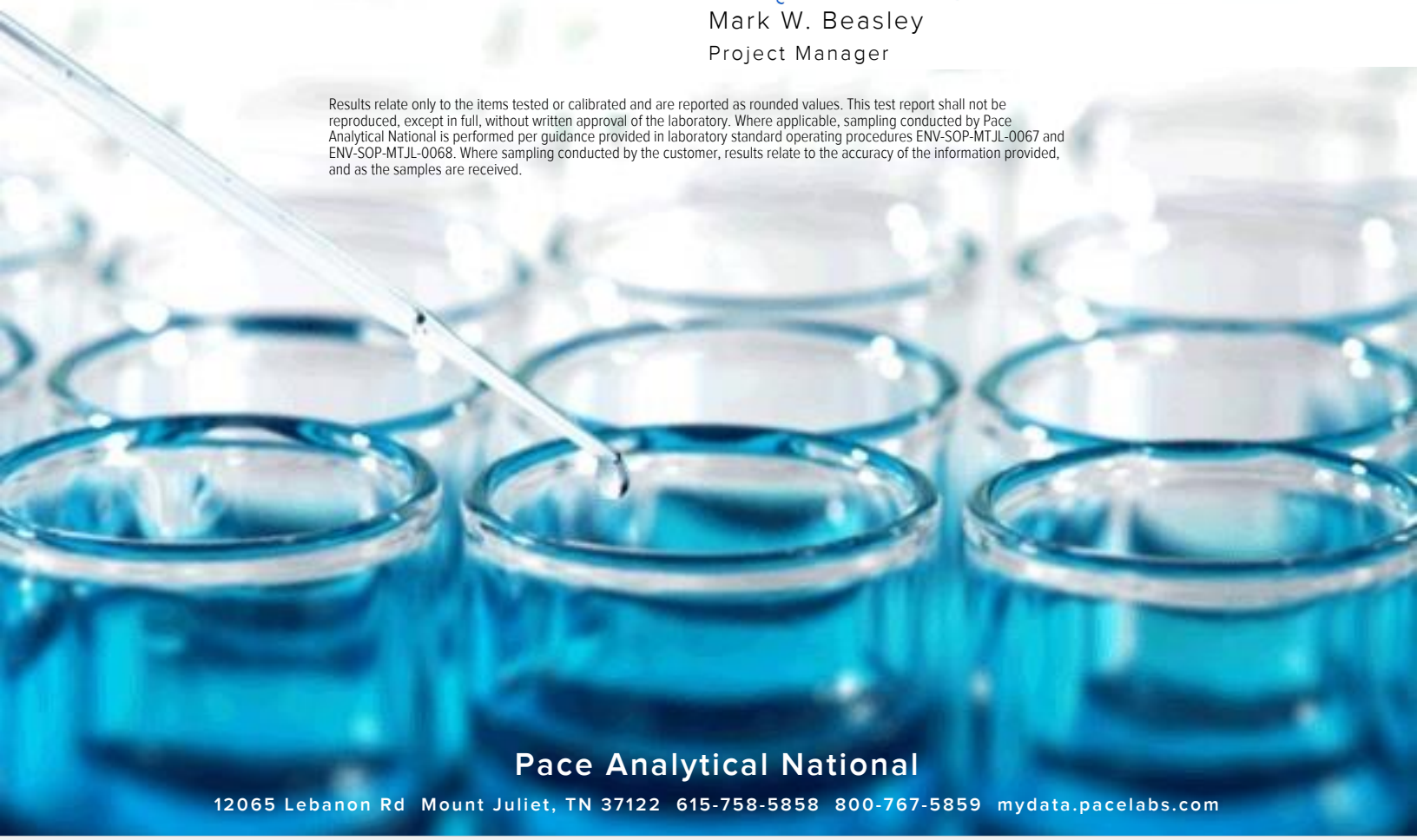
October 03, 2024

S&ME - Nashville, TN

Sample Delivery Group:	L1777963
Samples Received:	09/14/2024
Project Number:	7217-17-003D
Description:	Miami Fort Station - North Bend, OH
Site:	MFS UNIT 113 (LANDFILL)
Report To:	Vince Epps 862 East Crescentville Road Cincinnati, OH 45246

Entire Report Reviewed By:

Mark W. Beasley
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 mydata.pacelabs.com

TABLE OF CONTENTS

SAMPLE SUMMARY

MW-05 L1777963-01 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 09:40 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2363465	1	09/17/24 09:59	09/17/24 13:18	MMF	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363039	1	09/16/24 12:01	09/16/24 12:01	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363045	1	09/18/24 06:04	09/18/24 06:04	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363045	10	09/18/24 06:18	09/18/24 06:18	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	25	10/02/24 13:19	10/02/24 23:32	UNP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:28	UNP	Mt. Juliet, TN

MW-12 L1777963-02 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 13:20 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363560	1	09/17/24 10:52	09/17/24 10:52	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363045	1	09/18/24 06:31	09/18/24 06:31	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:32	UNP	Mt. Juliet, TN

MW-13 L1777963-03 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 10:55 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363560	1	09/17/24 11:00	09/17/24 11:00	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363045	1	09/18/24 06:45	09/18/24 06:45	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363045	5	09/18/24 07:25	09/18/24 07:25	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:35	UNP	Mt. Juliet, TN

MW-14 L1777963-04 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 11:45 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363560	1	09/17/24 11:04	09/17/24 11:04	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363045	1	09/18/24 07:39	09/18/24 07:39	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:38	UNP	Mt. Juliet, TN

L1-LEACHATE L1777963-05 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 08:40 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363039	1	09/16/24 12:10	09/16/24 12:10	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363031	1	09/18/24 06:10	09/18/24 06:10	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363031	5	09/18/24 06:24	09/18/24 06:24	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	25	10/02/24 13:19	10/02/24 23:35	UNP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:42	UNP	Mt. Juliet, TN

SAMPLE SUMMARY

DUP-1 L1777963-06 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 00:00 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363560	1	09/17/24 11:08	09/17/24 11:08	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363031	1	09/18/24 06:37	09/18/24 06:37	GEB	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363031	5	09/20/24 10:54	09/20/24 10:54	DLH	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	25	10/02/24 13:19	10/02/24 23:39	UNP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:45	UNP	Mt. Juliet, TN

MW-08 L1777963-07 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 10:05 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2365536	1	09/19/24 11:26	09/19/24 11:26	KA	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363031	1	09/18/24 06:51	09/18/24 06:51	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:48	UNP	Mt. Juliet, TN

MW-09 L1777963-08 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 10:55 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363039	1	09/16/24 12:15	09/16/24 12:15	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363031	1	09/18/24 07:31	09/18/24 07:31	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:51	UNP	Mt. Juliet, TN

MW-09R L1777963-09 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 11:40 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2364593	1	09/18/24 13:29	09/18/24 13:29	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2363031	1	09/18/24 07:45	09/18/24 07:45	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 22:55	UNP	Mt. Juliet, TN

MW-11 L1777963-10 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 13:10 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2364593	1	09/18/24 14:05	09/18/24 14:05	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2364071	1	09/23/24 12:13	09/23/24 12:13	AJC	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 21:33	UNP	Mt. Juliet, TN

MW-15 L1777963-11 GW

Collected by: Carter Harlan | Collected date/time: 09/13/24 12:25 | Received date/time: 09/14/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2364062	1	09/17/24 15:00	09/17/24 19:56	DLS	Mt. Juliet, TN
Wet Chemistry by Method 2320 B-2011	WG2363039	1	09/16/24 12:18	09/16/24 12:18	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2364071	1	09/23/24 13:07	09/23/24 13:07	AJC	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2366588	5	10/02/24 13:19	10/02/24 23:22	UNP	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Project Manager

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	618000		10000	1	09/17/2024 13:18	WG2363465

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	246000		8450	20000	1	09/16/2024 12:01	WG2363039
Alkalinity,Carbonate	U		8450	20000	1	09/16/2024 12:01	WG2363039

Sample Narrative:

L1777963-01 WG2363039: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	6300		547	1000	1	09/18/2024 06:04	WG2363045
Fluoride	165		76.1	150	1	09/18/2024 06:04	WG2363045
Sulfate	212000		6370	50000	10	09/18/2024 06:18	WG2363045

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	2390		241	750	25	10/02/2024 23:32	WG2366588
Calcium	116000		468	5000	5	10/02/2024 22:28	WG2366588
Magnesium	37100		368	5000	5	10/02/2024 22:28	WG2366588
Potassium	2660	J	540	10000	5	10/02/2024 22:28	WG2366588
Sodium	16000		1880	10000	5	10/02/2024 22:28	WG2366588

SAMPLE RESULTS - 02

MW-12 L1777963-02

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	552000		10000	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	434000		8450	20000	1	09/17/2024 10:52	WG2363560
Alkalinity,Carbonate	U		8450	20000	1	09/17/2024 10:52	WG2363560

Sample Narrative:

L1777963-02 WG2363560: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	22400		547	1000	1	09/18/2024 06:31	WG2363045
Fluoride	126	J	76.1	150	1	09/18/2024 06:31	WG2363045
Sulfate	69500		637	5000	1	09/18/2024 06:31	WG2363045

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	286		48.2	150	5	10/02/2024 22:32	WG2366588
Calcium	135000		468	5000	5	10/02/2024 22:32	WG2366588
Magnesium	34400		368	5000	5	10/02/2024 22:32	WG2366588
Potassium	2990	J	540	10000	5	10/02/2024 22:32	WG2366588
Sodium	13700		1880	10000	5	10/02/2024 22:32	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	800000		20000	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	404000		8450	20000	1	09/17/2024 11:00	WG2363560
Alkalinity,Carbonate	U		8450	20000	1	09/17/2024 11:00	WG2363560

Sample Narrative:

L1777963-03 WG2363560: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	240000		2740	5000	5	09/18/2024 07:25	WG2363045
Fluoride	127	J	76.1	150	1	09/18/2024 06:45	WG2363045
Sulfate	38900		637	5000	1	09/18/2024 06:45	WG2363045

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	178		48.2	150	5	10/02/2024 22:35	WG2366588
Calcium	140000		468	5000	5	10/02/2024 22:35	WG2366588
Magnesium	39100		368	5000	5	10/02/2024 22:35	WG2366588
Potassium	2890	J	540	10000	5	10/02/2024 22:35	WG2366588
Sodium	116000		1880	10000	5	10/02/2024 22:35	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	462000		10000	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	377000		8450	20000	1	09/17/2024 11:04	WG2363560
Alkalinity,Carbonate	U		8450	20000	1	09/17/2024 11:04	WG2363560

Sample Narrative:

L1777963-04 WG2363560: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	31600		547	1000	1	09/18/2024 07:39	WG2363045
Fluoride	147	J	76.1	150	1	09/18/2024 07:39	WG2363045
Sulfate	45800		637	5000	1	09/18/2024 07:39	WG2363045

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	237		48.2	150	5	10/02/2024 22:38	WG2366588
Calcium	109000		468	5000	5	10/02/2024 22:38	WG2366588
Magnesium	27200		368	5000	5	10/02/2024 22:38	WG2366588
Potassium	2760	J	540	10000	5	10/02/2024 22:38	WG2366588
Sodium	25400		1880	10000	5	10/02/2024 22:38	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	805000		13300	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	158000		8450	20000	1	09/16/2024 12:10	WG2363039
Alkalinity,Carbonate	U		8450	20000	1	09/16/2024 12:10	WG2363039

Sample Narrative:

L1777963-05 WG2363039: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	3930		547	1000	1	09/18/2024 06:10	WG2363031
Fluoride	456		76.1	150	1	09/18/2024 06:10	WG2363031
Sulfate	467000		3180	25000	5	09/18/2024 06:24	WG2363031

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	7040		241	750	25	10/02/2024 23:35	WG2366588
Calcium	240000		468	5000	5	10/02/2024 22:42	WG2366588
Magnesium	15000		368	5000	5	10/02/2024 22:42	WG2366588
Potassium	16100		540	10000	5	10/02/2024 22:42	WG2366588
Sodium	8010	J	1880	10000	5	10/02/2024 22:42	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	578000		10000	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	247000		8450	20000	1	09/17/2024 11:08	WG2363560
Alkalinity,Carbonate	U		8450	20000	1	09/17/2024 11:08	WG2363560

Sample Narrative:

L1777963-06 WG2363560: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	7360		547	1000	1	09/18/2024 06:37	WG2363031
Fluoride	168		76.1	150	1	09/18/2024 06:37	WG2363031
Sulfate	228000		3180	25000	5	09/20/2024 10:54	WG2363031

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	2560		241	750	25	10/02/2024 23:39	WG2366588
Calcium	117000		468	5000	5	10/02/2024 22:45	WG2366588
Magnesium	37000		368	5000	5	10/02/2024 22:45	WG2366588
Potassium	2740	J	540	10000	5	10/02/2024 22:45	WG2366588
Sodium	13000		1880	10000	5	10/02/2024 22:45	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	440000		10000	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	451000		8450	20000	1	09/19/2024 11:26	WG2365536
Alkalinity,Carbonate	U		8450	20000	1	09/19/2024 11:26	WG2365536

Sample Narrative:

L1777963-07 WG2365536: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	10800		547	1000	1	09/18/2024 06:51	WG2363031
Fluoride	U		76.1	150	1	09/18/2024 06:51	WG2363031
Sulfate	22900		637	5000	1	09/18/2024 06:51	WG2363031

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	305		48.2	150	5	10/02/2024 22:48	WG2366588
Calcium	114000		468	5000	5	10/02/2024 22:48	WG2366588
Magnesium	33600		368	5000	5	10/02/2024 22:48	WG2366588
Potassium	2960	J	540	10000	5	10/02/2024 22:48	WG2366588
Sodium	8280	J	1880	10000	5	10/02/2024 22:48	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	656000		13300	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	429000		8450	20000	1	09/16/2024 12:15	WG2363039
Alkalinity,Carbonate	U		8450	20000	1	09/16/2024 12:15	WG2363039

Sample Narrative:

L1777963-08 WG2363039: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	38400		547	1000	1	09/18/2024 07:31	WG2363031
Fluoride	79.3	J	76.1	150	1	09/18/2024 07:31	WG2363031
Sulfate	134000		637	5000	1	09/18/2024 07:31	WG2363031

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	1000		48.2	150	5	10/02/2024 22:51	WG2366588
Calcium	157000		468	5000	5	10/02/2024 22:51	WG2366588
Magnesium	33400		368	5000	5	10/02/2024 22:51	WG2366588
Potassium	3980	J	540	10000	5	10/02/2024 22:51	WG2366588
Sodium	31100		1880	10000	5	10/02/2024 22:51	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	643000		13300	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Alkalinity,Bicarbonate	449000		8450	20000	1	09/18/2024 13:29	WG2364593
Alkalinity,Carbonate	U		8450	20000	1	09/18/2024 13:29	WG2364593

Sample Narrative:

L1777963-09 WG2364593: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	44200		547	1000	1	09/18/2024 07:45	WG2363031
Fluoride	U		76.1	150	1	09/18/2024 07:45	WG2363031
Sulfate	102000		637	5000	1	09/18/2024 07:45	WG2363031

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	1010		48.2	150	5	10/02/2024 22:55	WG2366588
Calcium	156000		468	5000	5	10/02/2024 22:55	WG2366588
Magnesium	33000		368	5000	5	10/02/2024 22:55	WG2366588
Potassium	4290	J	540	10000	5	10/02/2024 22:55	WG2366588
Sodium	36300		1880	10000	5	10/02/2024 22:55	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	491000		10000	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	408000		8450	20000	1	09/18/2024 14:05	WG2364593
Alkalinity,Carbonate	U		8450	20000	1	09/18/2024 14:05	WG2364593

Sample Narrative:

L1777963-10 WG2364593: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	22400		547	1000	1	09/23/2024 12:13	WG2364071
Fluoride	89.1	J P1	76.1	150	1	09/23/2024 12:13	WG2364071
Sulfate	52100	J6	637	5000	1	09/23/2024 12:13	WG2364071

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	67.0	J	48.2	150	5	10/02/2024 21:33	WG2366588
Calcium	126000		468	5000	5	10/02/2024 21:33	WG2366588
Magnesium	37100		368	5000	5	10/02/2024 21:33	WG2366588
Potassium	3200	J	540	10000	5	10/02/2024 21:33	WG2366588
Sodium	7610	J	1880	10000	5	10/02/2024 21:33	WG2366588

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Dissolved Solids	387000		10000	1	09/17/2024 19:56	WG2364062

Wet Chemistry by Method 2320 B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Alkalinity,Bicarbonate	296000		8450	20000	1	09/16/2024 12:18	WG2363039
Alkalinity,Carbonate	U		8450	20000	1	09/16/2024 12:18	WG2363039

Sample Narrative:

L1777963-11 WG2363039: Endpoint pH 4.5 Headspace

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Chloride	30500		547	1000	1	09/23/2024 13:07	WG2364071
Fluoride	119	J	76.1	150	1	09/23/2024 13:07	WG2364071
Sulfate	39400		637	5000	1	09/23/2024 13:07	WG2364071

Metals (ICPMS) by Method 6020

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Boron	109	J	48.2	150	5	10/02/2024 23:22	WG2366588
Calcium	95600		468	5000	5	10/02/2024 23:22	WG2366588
Magnesium	20000		368	5000	5	10/02/2024 23:22	WG2366588
Potassium	2360	J	540	10000	5	10/02/2024 23:22	WG2366588
Sodium	17900		1880	10000	5	10/02/2024 23:22	WG2366588

Method Blank (MB)

(MB) R4122905-1 09/17/24 13:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Dissolved Solids	U		10000	10000

L1777695-26 Original Sample (OS) • Duplicate (DUP)

(OS) L1777695-26 09/17/24 13:18 • (DUP) R4122905-3 09/17/24 13:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	272000	269000	1	1.11		10

L1777963-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-01 09/17/24 13:18 • (DUP) R4122905-4 09/17/24 13:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	618000	628000	1	1.61		10

Laboratory Control Sample (LCS)

(LCS) R4122905-2 09/17/24 13:18

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8670000	98.5	85.0-115	

Method Blank (MB)

(MB) R4122059-1 09/17/24 19:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Dissolved Solids	U		10000	10000

L1777963-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-02 09/17/24 19:56 • (DUP) R4122059-3 09/17/24 19:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	552000	554000	1	0.362		10

L1778251-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1778251-02 09/17/24 19:56 • (DUP) R4122059-4 09/17/24 19:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Dissolved Solids	67000	73000	1	8.57		10

Laboratory Control Sample (LCS)

(LCS) R4122059-2 09/17/24 19:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Dissolved Solids	8800000	8500000	96.6	85.0-115	

Method Blank (MB)

(MB) R4120257-2 09/16/24 09:08

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

Method Blank (MB)

(MB) R4120257-3 09/16/24 09:17

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1776569-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1776569-01 09/16/24 09:26 • (DUP) R4120257-4 09/16/24 09:30

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	U	U	1	0.000		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1777963-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-01 09/16/24 12:01 • (DUP) R4120257-5 09/16/24 12:06

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	246000	246000	1	0.00515		20
Alkalinity,Carbonate	U	U	1	0.000		20

L1777963-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-01 09/16/24 12:01 • (DUP) R4120257-5 09/16/24 12:06

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R4120740-2 09/17/24 09:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1776990-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1776990-02 09/17/24 09:14 • (DUP) R4120740-3 09/17/24 09:18

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	125000	125000	1	0.265		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1777963-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-02 09/17/24 10:52 • (DUP) R4120740-4 09/17/24 10:56

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	434000	440000	1	1.30		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R4121246-2 09/18/24 11:58

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1777963-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-10 09/18/24 14:05 • (DUP) R4121246-4 09/18/24 14:09

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	408000	412000	1	1.06		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R4122078-2 09/19/24 11:19

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Alkalinity,Bicarbonate	U		8450	20000
Alkalinity,Carbonate	U		8450	20000

Sample Narrative:

BLANK: Endpoint pH 4.5

L1777963-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-07 09/19/24 11:26 • (DUP) R4122078-3 09/19/24 11:33

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	451000	450000	1	0.113		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

L1779004-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1779004-08 09/19/24 14:00 • (DUP) R4122078-4 09/19/24 14:05

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity,Bicarbonate	482000	484000	1	0.316		20
Alkalinity,Carbonate	U	U	1	0.000		20

Sample Narrative:

OS: Endpoint pH 4.5 Headspace

DUP: Endpoint pH 4.5

Method Blank (MB)

(MB) R4121851-1 09/18/24 00:19

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	U		547	1000
Fluoride	U		76.1	150
Sulfate	U		637	5000

L1777468-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1777468-21 09/18/24 00:46 • (DUP) R4121851-3 09/18/24 01:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	34600	34200	1	1.18		15
Fluoride	78.4	U	1	200	P1	15
Sulfate	43500	43000	1	1.12		15

L1777468-22 Original Sample (OS) • Duplicate (DUP)

(OS) L1777468-22 09/18/24 01:40 • (DUP) R4121851-6 09/18/24 01:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	150000	150000	1	0.283		15
Fluoride	795	806	1	1.40		15

L1777468-22 Original Sample (OS) • Duplicate (DUP)

(OS) L1777468-22 09/18/24 02:21 • (DUP) R4121851-8 09/18/24 02:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	542000	541000	10	0.0359		15

Laboratory Control Sample (LCS)

(LCS) R4121851-2 09/18/24 00:33

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	39000	97.6	80.0-120	
Fluoride	8000	8100	101	80.0-120	
Sulfate	40000	39500	98.6	80.0-120	

L1777468-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1777468-21 09/18/24 00:46 • (MS) R4121851-4 09/18/24 01:13 • (MSD) R4121851-5 09/18/24 01:27

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40000	34600	66400	67100	79.5	81.1	1	80.0-120	J6		0.956	15
Fluoride	8000	78.4	8010	8080	99.1	100	1	80.0-120			0.876	15
Sulfate	40000	43500	73700	74300	75.7	77.1	1	80.0-120	J6	J6	0.788	15

L1777468-22 Original Sample (OS) • Matrix Spike (MS)

(OS) L1777468-22 09/18/24 01:40 • (MS) R4121851-7 09/18/24 02:07

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	150000	159000	22.0	1	80.0-120	J6
Fluoride	8000	795	8210	92.7	1	80.0-120	

Method Blank (MB)

(MB) R4123034-1 09/18/24 00:27

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	U		547	1000
Fluoride	U		76.1	150
Sulfate	U		637	5000

L1777916-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1777916-01 09/18/24 02:28 • (DUP) R4123034-3 09/18/24 02:42

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	42500	42200	1	0.816		15
Fluoride	366	334	1	9.12		15
Sulfate	30800	30400	1	1.37		15

L1777916-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1777916-02 09/18/24 03:22 • (DUP) R4123034-6 09/18/24 03:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	19800	19900	1	0.807		15
Fluoride	203	236	1	14.9		15
Sulfate	85300	87600	1	2.69		15

Laboratory Control Sample (LCS)

(LCS) R4123034-2 09/18/24 00:40

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	38400	96.0	80.0-120	
Fluoride	8000	8310	104	80.0-120	
Sulfate	40000	38400	96.0	80.0-120	

L1777916-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1777916-01 09/18/24 02:28 • (MS) R4123034-4 09/18/24 02:55 • (MSD) R4123034-5 09/18/24 03:09

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	40000	42500	73300	72300	77.1	74.4	1	80.0-120	J6	J6	1.49	15
Fluoride	8000	366	8510	8250	102	98.6	1	80.0-120			3.09	15
Sulfate	40000	30800	65000	63500	85.4	81.7	1	80.0-120			2.35	15

L1777916-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1777916-02 09/18/24 03:22 • (MS) R4123034-7 09/18/24 03:49

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40000	19800	54300	86.4	1	80.0-120	
Fluoride	8000	203	8210	100	1	80.0-120	
Sulfate	40000	85300	109000	59.0	1	80.0-120	J6

Method Blank (MB)

(MB) R4123466-1 09/23/24 11:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	U		547	1000
Fluoride	U		76.1	150
Sulfate	U		637	5000

L1777963-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1777963-10 09/23/24 12:13 • (DUP) R4123466-3 09/23/24 12:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	22400	22200	1	0.873		15
Fluoride	89.1	117	1	27.0	J P1	15
Sulfate	52100	51700	1	0.688		15

Laboratory Control Sample (LCS)

(LCS) R4123466-2 09/23/24 12:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	38000	95.0	80.0-120	
Fluoride	8000	8160	102	80.0-120	
Sulfate	40000	38300	95.7	80.0-120	

L1777963-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1777963-10 09/23/24 12:13 • (MS) R4123466-4 09/23/24 12:40 • (MSD) R4123466-5 09/23/24 12:54

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Chloride	40000	22400	57400	57200	87.3	87.0	1	80.0-120			0.210	15
Fluoride	8000	89.1	7970	8290	98.5	102	1	80.0-120			3.95	15
Sulfate	40000	52100	82500	82200	76.1	75.4	1	80.0-120	J6	J6	0.341	15

Method Blank (MB)

(MB) R4127666-1 10/02/24 21:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Boron	U		9.63	30.0
Calcium	U		93.6	1000
Magnesium	U		73.5	1000
Potassium	U		108	2000
Sodium	U		376	2000

Laboratory Control Sample (LCS)

(LCS) R4127666-2 10/02/24 21:30

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Boron	50.0	45.0	89.9	80.0-120	
Calcium	5000	4910	98.1	80.0-120	
Magnesium	5000	4790	95.7	80.0-120	
Potassium	5000	4860	97.2	80.0-120	
Sodium	5000	4870	97.4	80.0-120	

L1777963-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1777963-10 10/02/24 21:33 • (MS) R4127666-4 10/02/24 21:40 • (MSD) R4127666-5 10/02/24 21:43

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Boron	50.0	67.0	102	112	204	224	5	75.0-125	J6		9.27	20
Calcium	5000	126000	122000	130000	0.000	81.7	5	75.0-125	V		6.69	20
Magnesium	5000	37100	39300	41300	44.7	84.4	5	75.0-125	V		4.93	20
Potassium	5000	3200	7660	8020	89.2	96.3	5	75.0-125			4.54	20
Sodium	5000	7610	11800	12400	83.0	95.8	5	75.0-125			5.30	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

APPENDIX A.
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT, LAWRENCEBURG ROAD LANDFILL
MFS-257-113

Company Name/Address:
S&ME - Cincinnati
862 E. Crescentville Rd.
Cincinnati. OH 45246

Billing Information:
Accounts Payable
smeinc_invoice@concursolutions.com

Report to: Vince Epps
Email To: vepps@smeinc.com

Project Description: Miami Fort Station
City/State Collected: North Bend, OH
Please Circle: PT MT CT ET

Phone: 513-771-8471
Client Project # 7217-17-003D
Lab Project # LITEGNTN-MIAMI

Collected by (print): Carter Harlan
Collected by (signature): Carter Harlan
Immediately Packed on Ice N ___ Y X

Site/Facility ID # MFS Unit 113 (Landfill)
P.O. #
Quote #
Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Carb/Bicarb Alk, Cl, F, SO4 125mlHDPE-No	CCR Metals 250mlHDPE HNO3	Other Metals 250mlHDPE-HNO3	TDS 250 mlHDPE-NonPres
MW-05	Grab	GW	NA	9/13/24	0990	3	X	X	X	X
MW-08	Grab	GW	NA		1005		X	X	X	X
MW-09	Grab	GW	NA		1055		X	X	X	X
MW-09R	Grab	GW	NA		1140		X	X	X	X
MW-11	Grab	GW	NA		1310		X	X	X	X
MW-12	Grab	GW	NA		1320		X	X	X	X
MW-13	Grab	GW	NA		1055		X	X	X	X
MW-14	Grab	GW	NA		1145		X	X	X	X
MW-15	Grab	GW	NA		1225		X	X	X	X
L1-Leachate	Grab	GW	NA	✓	0840	✓	X	X	X	X

ME 10/3/2024

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
CCR Metals = B and Ca
Other Metals = K, Mg, Na

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier __ _____
Tracking # 4041 0478 6683

Relinquished by : (Signature) Carter Harlan | Date: S+ME 9/13/24 | Time: 1500 | Received by: (Signature) To FedEx
Relinquished by : (Signature) | Date: | Time: | Received by: (Signature)
Relinquished by : (Signature) | Date: | Time: | Received for lab by: (Signature) Alexa Mitchell | Date: 9/14/24 | Time: 0930 0900

Trip Blank Received: Yes / No HCL / MeoH TBR
Temp: 1.4+.3=1.7 °C Bottles Received: 18
If preservation required by Login: Date/Time
Hold:
Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

9/14/24

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE
12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 777963
B069

Acctnum: LITEGNTN
Template: T164916
Prelogin: P1063307
PM: 134
PB:
Shipped Via:
Remarks | Sample # (lab only)
-01
-07
-08
-09
-10
-02
-03
-04
-11
-05

9/14/24

Company Name/Address:
S&ME - Cincinnati
862 E. Crescentville Rd.
Cincinnati. OH 45246

Billing Information:
Accounts Payable
smeinc_invoice@concursolutions.com

Report to: Vince Epps
Email To: vepps@smeinc.com

Project Description: Miami Fort Station
City/State Collected: North Bend, OH
Please Circle: PT MT CT ET

Phone: 513-771-8471
Client Project # 7217-17-003D
Lab Project # LITEGNTN-MIAMI

Collected by (print): Carter Harlan
Collected by (signature): Carter Harlan
Immediately Packed on Ice N ___ Y X

Site/Facility ID # MFS Unit 113 (Landfill)
P.O. #
Quote #

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Carb/Bicarb Alk, Cl, F, SO4 125mlHDPE-N	CCR Metals 250mlHDPE HNO3	Other Metals 250mlHDPE-HNO3	TDS 250 mlHDPE-NonPres	Remarks	Sample # (lab only)
DUP-1	Grab	GW	NA	9/13/24	—	3	X	X	X	X		-06

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE
12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 177963
Table #
Acctnum: LITEGNTN
Template: T164916
Prelogin: P1063307
PM: 134
PB:
Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:
CCR Metals = B and Ca
Other Metals = K, Mg, Na

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____
Tracking # 4041 6478 6683

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Carter Harlan	9/13/24		To FedEx		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 11.4 °C Bottles Received: 1.4+3=17 18	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/14/24 Time: 0930 0900	Hold: Condition: NCF / OK
			alisa mitchum	9/14/24	

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-9R	Purge Time:	30 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Carter H. & Colin R.	Sample Time:	11:40
Weather:	Overcast	Air Temp:	75F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				25.06	ft-TOC
Total Well Depth:					ft-TOC
Height of Water Column:					feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume		Gal
3 * Well Volume		Gal
5 * Well Volume		Gal

Well Purging Information

Purge Method:			Bladder Pump	Start Time:	11:05	End Time:	11:35	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**			
Final Volume Purged:			2.0	Gallons				
Final Volume Purge Rate:			250	mL/min				
Well Purged Dry?:			No	(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	11:05	0.0	---	---	---	---	---	---	---	---	Start Purging
	11:10	0.3	250	24.90	13.5	6.9	1.047	3.5	127	12.3	Clear, no odor
	11:15	0.7	250	24.90	13.4	6.8	1.046	3.6	125	7.14	Clear, no odor
	11:20	1.0	250	24.90	13.5	6.9	1.047	3.6	124	5.05	Clear, no odor
	11:25	1.3	250	24.90	13.4	6.9	1.050	3.8	124	4.14	Clear, no odor
	11:30	1.7	250	24.90	13.5	6.9	1.049	3.8	124	2.64	Clear, no odor
	11:35	2.0	250	24.90	13.5	6.9	1.051	3.8	124	2.05	Clear, no odor
Final:	11:35	2.0	250	24.90	13.5	6.9	1.051	3.8	124	2.1	End of Purging

Sample Method: Bladder Pump Sample Start Time: 11:40 Sample End Time: 11:47

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-05	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	9:40
Weather:	Overcast	Air Temp:	75F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				73.44	ft-TOC
Total Well Depth:				81.40	ft-TOC
Height of Water Column:				7.96	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.3	Gal
3 * Well Volume	3.90	Gal
5 * Well Volume	6.49	Gal

Well Purging Information

Purge Method:	Bladder Pump	Start Time:	9:10	End Time:	9:35		
(If Used) Bladder Pump Control Settings:	On (sec): 3.5	Off (sec):	3.5	Pressure:	100	psi	
Pump Intake Depth from Top of Casing:		ft-TOC					
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:		200	mL	
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	**Comments:**				
Final Volume Purged:	1.3	Gallons	DUP-1				
Final Volume Purge Rate:	200	mL/min					
Well Purged Dry?:	No	(Yes/No)					

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	09:10	0.0	---	---	---	---	---	---	---	---	Start Purging
	09:15	0.3	200	73.44	15.8	7.3	0.896	3.5	131	2.88	Clear, no odor
	09:20	0.5	200	73.44	15.7	7.2	0.880	3.2	124	2.36	Clear, no odor
	09:25	0.8	200	73.44	16.2	7.2	0.876	3.4	115	1.70	Clear, no odor
	09:30	1.1	200	73.44	15.9	7.2	0.872	3.2	107	1.46	Clear, no odor
	09:35	1.3	200	73.44	15.9	7.2	0.876	3.0	99	0.75	Clear, no odor
Final:	09:35	1.3	200	73.44	15.9	7.2	0.876	3.0	99	0.8	End of Purging

Sample Method: Bladder Pump Sample Start Time: 09:40 Sample End Time: 10:00

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes: DUP-1

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-08	Purge Time:	20 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Carter H. & Colin R.	Sample Time:	10:05
Weather:	Sunny	Air Temp:	70F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				56.90	ft-TOC
Total Well Depth:				70.00	ft-TOC
Height of Water Column:				13.10	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.1	Gal
3 * Well Volume	6.41	Gal
5 * Well Volume	10.69	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	9:40	End Time:	10:00	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**			
Final Volume Purged:		1.8		Gallons				
Final Volume Purge Rate:		350		mL/min				
Well Purged Dry?:		No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	09:40	0.0	---	---	---	---	---	---	---	---	Start Purging
	09:45	0.5	350	56.40	14.1	6.9	0.778	4.9	129	1.33	Clear, no odor
	09:50	0.9	350	56.30	14.0	6.9	0.777	4.8	126	0.35	Clear, no odor
	09:55	1.4	350	56.50	13.9	6.9	0.776	4.8	126	0.38	Clear, no odor
	10:00	1.8	350	56.50	13.9	6.9	0.775	4.8	125	0.39	Clear, no odor
Final:	10:00	1.8	350	56.50	13.9	6.9	0.775	4.8	125	0.4	End of Purging

Sample Method: Bladder Pump Sample Start Time: 10:05 Sample End Time: 10:12

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-09	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Crater H. Colin R.	Sample Time:	10:55
Weather:	Overcast	Air Temp:	76F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				24.88	ft-TOC
Total Well Depth:				40.00	ft-TOC
Height of Water Column:				15.12	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.5	Gal
3 * Well Volume	7.40	Gal
5 * Well Volume	12.34	Gal

Well Purging Information

Purge Method:	Peristaltic Pump		Start Time:	10:25	End Time:	10:50	
(If Used) Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:			ft-TOC				
Water Column Above Pump Intake:			feet	Flow Through Cell Vol:		200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:			ft-TOC	**Comments:**			
Final Volume Purged:	1.3		Gallons				
Final Volume Purge Rate:	200		mL/min				
Well Purged Dry?:	No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	10:25	0.0	---	---	---	---	---	---	---	---	Start Purging
	10:30	0.3	200	25.58	14.1	6.8	1.054	4.9	127	0.49	Clear, no odor
	10:35	0.5	200	25.06	14.0	6.8	1.052	5.0	127	0.54	Clear, no odor
	10:40	0.8	200	25.06	14.1	6.8	1.049	4.7	126	1.08	Clear, no odor
	10:45	1.1	200	25.06	14.0	6.8	1.048	4.9	126	1.24	Clear, no odor
	10:50	1.3	200	25.06	13.9	6.8	1.047	4.8	126	0.73	Clear, no odor
Final:	10:50	1.3	200	25.06	13.9	6.8	1.047	4.8	126	0.7	End of Purging

Sample Method: Peristaltic Pump Sample Start Time: 10:55 Sample End Time: 11:02

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes: Used Peristaltic Pump to purge and sample well.

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-11	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Colin R. & Carter H.	Sample Time:	13:10
Weather:	Sunny	Air Temp:	78F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				64.92	ft-TOC
Total Well Depth:				77.00	ft-TOC
Height of Water Column:				12.08	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	2.0	Gal
3 * Well Volume	5.91	Gal
5 * Well Volume	9.86	Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	12:40	End Time:	13:05	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet		Flow Through Cell Vol:	200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC		**Comments:**		
Final Volume Purged:		1.3		Gallons				
Final Volume Purge Rate:		200		mL/min				
Well Purged Dry?:		No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	12:40	0.0	---	---	---	---	---	---	---	---	Start Purging
	12:45	0.3	200	64.95	15.0	6.9	0.849	2.6	124	1.28	Clear, no odor
	12:50	0.5	200	64.93	14.2	6.9	0.841	2.2	120	0.67	Clear, no odor
	12:55	0.8	200	64.93	14.2	6.9	0.843	2.3	118	0.45	Clear, no odor
	13:00	1.1	200	64.92	14.1	6.9	0.843	2.2	117	0.81	Clear, no odor
	13:05	1.3	200	64.90	14.0	6.9	0.841	2.1	115	0.20	Clear, no odor
									.		
Final:	13:05	1.3	200	64.90	14.0	6.9	0.841	2.1	115	0.2	End of Purging

Sample Method: Bladder Pump Sample Start Time: 13:10 Sample End Time: 13:17

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-12	Purge Time:	35 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	13:20
Weather:	Sunny	Air Temp:	85F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				70.64	ft-TOC
Total Well Depth:				80.20	ft-TOC
Height of Water Column:				9.56	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.6	Gal
3 * Well Volume	4.68	Gal
5 * Well Volume	7.80	Gal

Well Purging Information

Purge Method:			Bladder Pump	Start Time:	12:40	End Time:	13:15	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**			
Final Volume Purged:			1.8	Gallons				
Final Volume Purge Rate:			200	mL/min				
Well Purged Dry?:			No	(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	12:40	0.0	---	---	---	---	---	---	---	---	Start Purging
	12:45	0.3	200	70.64	16.1	6.8	0.954	1.4	64	2.16	Clear, no odor
	12:50	0.5	200	70.66	16.5	6.8	0.955	1.8	65	5.75	Clear, no odor
	12:55	0.8	200	70.66	16.3	6.8	0.953	1.3	63	2.90	Clear, no odor
	13:00	1.1	200	70.66	16.1	6.8	0.953	1.0	60	2.18	Clear, no odor
	13:05	1.3	200	70.66	16.8	6.8	0.950	1.1	51	1.81	Clear, no odor
	13:10	1.6	200	70.66	16.0	6.8	0.951	0.9	55	1.17	Clear, no odor
	13:15	1.8	200	70.66	16.0	6.8	0.947	0.8	59	3.55	Clear, no odor
Final:	13:15	1.8	200	70.66	16.0	6.8	0.947	0.8	59	3.6	End of Purging

Sample Method: Bladder Pump Sample Start Time: 13:20 Sample End Time: 13:30

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-13	Purge Time:	45 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	10:55
Weather:	Overcast	Air Temp:	67F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				80.05	ft-TOC
Total Well Depth:				87.07	ft-TOC
Height of Water Column:				7.02	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	1.1	Gal
3 * Well Volume	3.44	Gal
5 * Well Volume	5.73	Gal

Well Purging Information

Purge Method:	Bladder Pump		Start Time:	10:05	End Time:	10:50	
(If Used) Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:			ft-TOC				
Water Column Above Pump Intake:			feet	Flow Through Cell Vol:		200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:			ft-TOC	**Comments:**			
Final Volume Purged:	2.4		Gallons	No key for the well			
Final Volume Purge Rate:	200		mL/min				
Well Purged Dry?:	No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	10:05	0.0	---	---	---	---	---	---	---	---	Start Purging
	10:10	0.3	200	80.33	16.9	7.1	1.683	7.5	108	2.43	Clear, no odor
	10:15	0.5	200	80.59	15.6	6.9	1.621	5.6	109	4.25	Clear, no odor
	10:20	0.8	200	80.65	16.3	6.9	1.594	4.8	104	3.27	Clear, no odor
	10:25	1.1	200	80.82	15.3	6.9	1.582	4.8	105	2.02	Clear, no odor
	10:30	1.3	200	80.95	15.5	6.9	1.578	4.1	103	1.60	Clear, no odor
	10:35	1.6	200	81.15	15.4	6.9	1.576	3.5	101	1.27	Clear, no odor
	10:40	1.8	200	81.30	15.3	6.9	1.572	3.6	97	0.98	Clear, no odor
	10:45	2.1	200	81.50	15.5	6.9	1.573	3.8	98	0.96	Clear, no odor
	10:50	2.4	200	81.60	15.4	6.9	1.570	4.0	100	0.82	Clear, no odor
Final:	10:50	2.4	200	81.60	15.4	6.9	1.570	4.0	100	0.8	End of Purging

Sample Method: Bladder Pump Sample Start Time: 10:55 Sample End Time: 11:05

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-14	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	11:45
Weather:	Sunny	Air Temp:	78F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				65.57	ft-TOC
Total Well Depth:				85.16	ft-TOC
Height of Water Column:				19.59	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	3.2	Gal
3 * Well Volume	9.59	Gal
5 * Well Volume	15.98	Gal

Well Purging Information

Purge Method:	Bladder Pump	Start Time:	11:15	End Time:	11:40		
(If Used) Bladder Pump Control Settings:	On (sec): 3.5	Off (sec):	3.5	Pressure:	100	psi	
Pump Intake Depth from Top of Casing:		ft-TOC					
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:		200	mL	
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	**Comments:**				
Final Volume Purged:	1.3	Gallons					
Final Volume Purge Rate:	200	mL/min					
Well Purged Dry?:	No	(Yes/No)					

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	11:15	0.0	---	---	---	---	---	---	---	---	Start Purging
	11:20	0.3	200	65.57	16.4	7.5	0.809	7.9	93	4.84	Clear, no odor
	11:25	0.5	200	65.57	14.8	7.0	0.860	4.6	99	1.51	Clear, no odor
	11:30	0.8	200	65.57	14.6	6.9	0.857	4.5	99.3	1.12	Clear, no odor
	11:35	1.1	200	65.57	14.8	6.9	0.858	4.5	99	0.78	Clear, no odor
	11:40	1.3	200	65.57	14.6	6.9	0.856	4.5	98	0.92	Clear, no odor
Final:	11:40	1.3	200	65.57	14.6	6.9	0.856	4.5	98	0.9	End of Purging

Sample Method: Bladder Pump Sample Start Time: 11:45 Sample End Time: 11:50

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	MW-15	Purge Time:	25 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	12:25
Weather:	Sunny	Air Temp:	80F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:				52.12	ft-TOC
Total Well Depth:				78.66	ft-TOC
Height of Water Column:				26.54	feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume	4.3	Gal
3 * Well Volume	12.99	Gal
5 * Well Volume	21.66	Gal

Well Purging Information

Purge Method:	Bladder Pump	Start Time:	11:55	End Time:	12:20		
(If Used) Bladder Pump Control Settings:	On (sec): 3.5	Off (sec):	3.5	Pressure:	100	psi	
Pump Intake Depth from Top of Casing:		ft-TOC					
Water Column Above Pump Intake:		feet	Flow Through Cell Vol:		200	mL	
DTW-TOC at 25% Drawdown of WC Above Pump:		ft-TOC	**Comments:**				
Final Volume Purged:	1.3	Gallons	No key for the well				
Final Volume Purge Rate:	200	mL/min					
Well Purged Dry?:	No	(Yes/No)					

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	11:55	0.0	---	---	---	---	---	---	---	---	Start Purging
	12:00	0.3	200	52.13	15.7	7.1	0.741	2.9	-15	1.78	Clear, no odor
	12:05	0.5	200	52.17	14.2	7.1	0.711	3.2	47	7.12	Clear, no odor
	12:10	0.8	200	52.17	14.1	7.1	0.708	3.1	60	3.90	Clear, no odor
	12:15	1.1	200	52.17	14.1	7.1	0.707	3.1	69	1.98	Clear, no odor
	12:20	1.3	200	52.17	14.1	7.1	0.707	3.1	69	1.35	Clear, no odor
Final:	12:20	1.3	200	52.17	14.1	7.1	0.707	3.1	69	1.4	End of Purging

Sample Method: Bladder Pump Sample Start Time: 12:25 Sample End Time: 12:30

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

Notes:

Form Revision Date: 2/12/18 16:00

LOW FLOW GROUNDWATER SAMPLING FORM

Project Name:	Miami Fort		
Project Location:	North Bend, Ohio		
Project Number:	7217-17-003D	Purge Date:	September 13, 2024
Source Well:	Source Landfill	Purge Time:	5 Minutes
Locked?:	Yes	Sample Date:	September 13, 2024
Sampled By:	Melkamu Awayo & Jamie Bailey	Sample Time:	8:40
Weather:	Sunny	Air Temp:	78F

Water Level & Well Data

Measuring Point:				Top of Casing	
Depth to Water:					ft-TOC
Total Well Depth:					ft-TOC
Height of Water Column:					feet
Screen Length:	20	feet	Stickup:		ft-GRD

Well Volume		
Well Diameter	2	inch
Water Volume		Gal
3 * Well Volume		Gal
5 * Well Volume		Gal

Well Purging Information

Purge Method:		Bladder Pump		Start Time:	8:30	End Time:	8:35	
(If Used)	Bladder Pump Control Settings:	On (sec):	3.5	Off (sec):	3.5	Pressure:	100	psi
Pump Intake Depth from Top of Casing:				ft-TOC				
Water Column Above Pump Intake:				feet	Flow Through Cell Vol:		200	mL
DTW-TOC at 25% Drawdown of WC Above Pump:				ft-TOC	**Comments:**			
Final Volume Purged:				Gallons				
Final Volume Purge Rate:				mL/min				
Well Purged Dry?:		No		(Yes/No)				

Field Parameters (Taken at time intervals ≥ 5 minutes and purge volumes ≥ 1 flow-through cell volume)

	Time	Volume Purged (gal)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (s.u.)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	ORP* (mV)	Turbidity (NTU)	Comment
	08:30	0.0	---	---	---	---	---	---	---	---	Start Purging
	08:35				16.2	7.3	0.224	4.2	53		
Final:	08:35				16.2	7.3	0.224	4.2	53		End of Purging

Sample Method: Bladder Pump Sample Start Time: 08:40 Sample End Time: 08:45

Analytical Data

Method	Qty	Container	Preservative	Method	Qty	Container	Preservative

Name	Signature	Date
(1)		

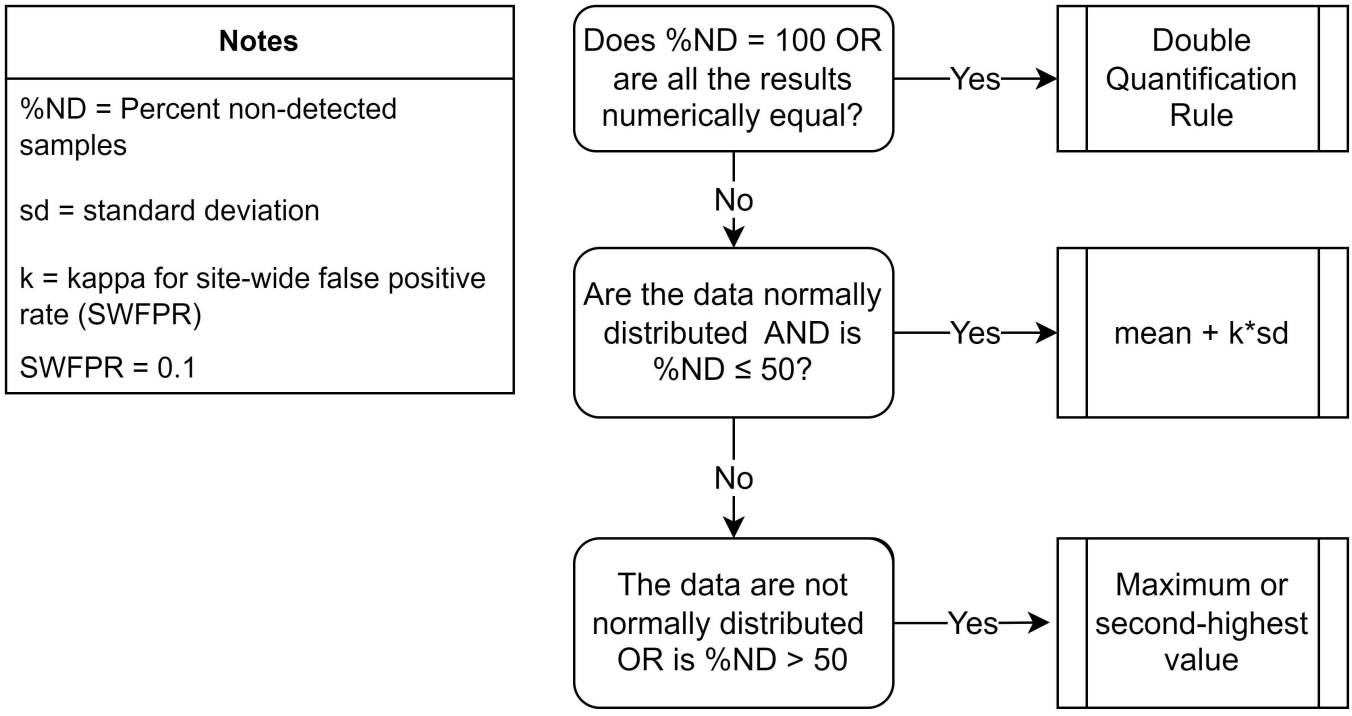
Notes:

Form Revision Date: 2/12/18 16:00

APPENDIX A.
ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
MIAMI FORT POWER PLANT, LAWRENCEBURG ROAD LANDFILL
MFS-257-113

Miami Fort Station			
Well ID	**Date**	**Time**	**Depth to Water**
Lawrenceburg Rd Landfill - Unit 113			
MW-05	9/13/2024	8:30	73.45
MW-08	9/13/2024	9:08	56.90
MW-09	9/13/2024	8:58	25.06
MW-09R	9/13/2024	8:56	24.88
MW-11	9/13/2024	8:34	64.95
MW-12	9/13/2024	8:41	70.85
MW-13	9/13/2024	8:40	80.05
MW-14	9/13/2024	8:50	65.55
MW-15	9/13/2024	8:45	52.12

APPENDIX B
STATISTICAL METHODOLOGY FOR DETERMINATION OF BACKGROUND VALUES



When data are not normally distributed or %ND > 50, the maximum value is used if the background sample size is < 60. Where the background sample size is ≥ 60, the achievable per-constituent false positive rates for the maximum and second-highest background values will be compared, and the background value with the achievable per-constituent false positive rate that is closest to, but does not exceed, the target per-constituent false positive rate of 0.015% is used.

APPENDIX C
ALTERNATIVE SOURCE DEMONSTRATIONS

Intended for
Miami Fort Power Company, LLC

Date
April 1, 2024

Project No.
1940106781-011

40 C.F.R. § 257.94(E)(2): ALTERNATIVE SOURCE DEMONSTRATION

LAWRENCEBURG ROAD LANDFILL

MIAMI FORT POWER PLANT

NORTH BEND, OHIO

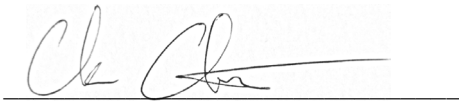
RAMBOLL Bright ideas. Sustainable change.

CERTIFICATIONS

I, Nicole M. Pagano, a qualified professional engineer in good standing in the State of Ohio, certify that the information in this report is accurate as of the date of my signature below. The content of this report is not to be used other than for its intended purpose and meaning, or for extrapolations beyond the interpretations contained herein.

Nicole M. Pagano
Qualified Professional Engineer
E-85428
Ohio
Ramboll Americas Engineering Solutions, Inc.
Date: April 1, 2024

I, Chase J. Christenson, a professional geologist in good standing in the State of Illinois, certify that the information in this report is accurate as of the date of my signature below. The content of this report is not to be used other than for its intended purpose and meaning, or for extrapolations beyond the interpretations contained herein.



Chase J. Christenson
Professional Geologist
196-001467
Ramboll Americas Engineering Solutions, Inc.
Date: April 1, 2024

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204
USA
T 414-837-3607
F 414-837-3608
https://ramboll.com

CONTENTS

TABLES (IN TEXT)

FIGURES (IN TEXT)

FIGURES (ATTACHED)

APPENDICES

ACRONYMS AND ABBREVIATIONS

40 C.F.R.	Title 40 of the Code of Federal Regulations
ASD	Alternative Source Demonstration
bgs	below ground surface
CCR	coal combustion residuals
CCR Rule	40 C.F.R. § 257 Subpart D
cm/s	centimeters per second
CSM	conceptual site model
D12	Detection Monitoring Round 12
D13	Detection Monitoring Round 13
EPRI	Electric Power Research Institute
HDPE	high-density polyethylene
Landfill	Lawrenceburg Road Landfill
LCL	lower confidence level
LOE(s)	line(s) of evidence
MFPP	Miami Fort Power Plant
mg/L	milligrams per liter
NAVD88	North American Vertical Datum of 1988
OEPA	Ohio Environmental Protection Agency
Ramboll	Ramboll Americas Engineering Solutions, Inc.
RSL	recompacted soil liner
SSI	Statistically Significant Increase
UPL	Upper Prediction Limit

1. INTRODUCTION

Title 40 of the Code of the Federal Regulations (40 C.F.R.) § 257.94(e)(2) allows the owner or operator of a coal combustion residuals (CCR) unit 90 days from the date of determination of Statistically Significant Increases (SSI) over background for groundwater constituents listed in Appendix III of 40 C.F.R. § 257 to complete a written demonstration that a source other than the CCR unit being monitored caused the SSI(s), or that the SSI(s) resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality (Alternative Source Demonstration [ASD]).

This ASD has been prepared on behalf of Miami Fort Power Company, LLC, by Ramboll Americas Engineering Solutions, Inc (Ramboll), to provide pertinent information pursuant to 40 C.F.R. § 257.94(e)(2) for the Miami Fort Power Plant (MFPP) Lawrenceburg Road Landfill (Landfill) located near North Bend, Ohio.

The thirteenth semiannual detection monitoring samples (Detection Monitoring Round 13 [D13]) were collected on September 21 and 22, 2023, and analytical data were received on October 3, 2023. In accordance with 40 C.F.R. § 257.93(h)(2), statistical analysis of the data to identify SSIs of 40 C.F.R. § 257 Subpart D (CCR Rule) Appendix III parameters over background concentrations was completed by January 2, 2024, within 90 days of receipt of the analytical data. The statistical determination identified the following SSIs at compliance monitoring wells:

- Calcium at wells MW-9 and MW-12
- pH at well MW-9

In accordance with the Multi-Site Statistical Analysis Plan (Ramboll, 2022), all wells with SSIs were resampled. Following evaluation of analytical data from the resample event, the following SSIs remained:

- Calcium at wells MW-9 and MW-12

Pursuant to 40 C.F.R. § 257.94(e)(2), the lines of evidence (LOEs) presented in **Section 3** demonstrate that sources other than the Landfill were the cause of the SSIs listed above. This ASD was completed by April 1, 2024, within 90 days of determination of the SSIs (January 2, 2024), as required by 40 C.F.R. § 257.94(e)(2).

2. BACKGROUND

2.1 Site Location and Description

The MFPP is located in the southwest corner of Ohio (Hamilton County) adjacent to the state boundaries of Indiana (west) and Kentucky (south), and approximately 5 miles southwest of North Bend, Ohio on the north shore of the Ohio River at the confluence with the Great Miami River. The Landfill is bounded to the north by Mt. Nebo Road, to the east-southeast by a bedrock upland, and to the west by the floodplain of the Great Miami River, which is located approximately 1,500 feet west of the landfill.

2.2 Description of the Landfill

The Landfill is permitted by the Ohio Environmental Protection Agency (OEPA), Division of Surface Water (Hanson, 2016). Approved wastes for disposal include bottom ash, fly ash, and ash pond materials produced as a by-product from the MFPP. The approximate volume of CCR contained in the landfill is 1,003,023 cubic yards (Loskota, 2023).

The Landfill is approximately 46 acres and consists of two existing disposal areas identified as Area 1 (14 acres) and Area 3 (25 acres), totaling approximately 39 acres. Area 1 is actively receiving CCR material. Area 3 has been constructed to the north of Area 1 but has not received CCR material to date, with the exception of minor amounts of bottom ash (less than 100 tons per year) to repair erosion in the liner protective layer. Area 2 has not yet been developed (Hanson, 2016).

Area 3 of the Landfill was constructed with a 5-foot thick recompacted soil liner (RSL) overlain with a fabricated 60-mil high-density polyethylene (HDPE) textured geomembrane liner; and a leachate management system. Leachate is directed to a leachate collection sump located in the southwestern area of the Landfill, which pumps the leachate to the sedimentation pond located west of the Landfill (S&ME, 2013).

The lower side slopes of Area 1 have been closed, consisting of (from bottom to top) a 2-foot, recompacted clay liner with a maximum hydraulic conductivity of 1×10^{-7} centimeters per second (cm/s) and a 2-foot soil cover with maximum permeability of 1×10^{-7} cm/s capable of supporting vegetative layer. Construction of the final cover system of Area 1 is projected to begin in 2024. The final cover system will cover the entire landfill (remainder of Area 1 and all of Area 3) and tie into the bottom composite liner system and will consist of a recompacted soil barrier with maximum hydraulic conductivity of 1×10^{-7} cm/s, a 40-mil textured HDPE geomembrane, a geocomposite drainage layer, and a vegetative layer (Hanson, 2016).

2.3 Geology and Hydrogeology

Multiple site investigations have been completed at the MFPP to characterize the geology, hydrogeology, and groundwater quality as required by 40 C.F.R. § 257.91 (Groundwater Monitoring Systems). The Landfill has been well characterized and detailed in the Hydrogeological Characterization Report (AECOM, 2017) [https://www.luminant.com/ccr/ohio/?dir=Ohio%2FMiami-Fort%2F2023]. A conceptual site model (CSM) has been developed and is discussed below.

In addition to the CCR present at the Landfill, there are two principal layers of unlithified material present above the bedrock, which are categorized into the hydrostratigraphic units described below (from surface downward) based on stratigraphic relationships and common hydrogeologic characteristics:

- **Glacial Deposits**: The glacial deposits consist of fine-grained fluvial and lacustrine deposits (clay and silt). These glacial deposits range in depth from approximately 2 to 27 feet below the present ground surface. No appreciable amounts of groundwater exist in the glacial till along the edge of the valley east-southeast of the Landfill. These deposits are relatively impermeable due to a high clay content and therefore do not readily transmit water (AECOM, 2017).
- **Alluvial Deposits (Uppermost Aquifer):** Underlying the glacial deposits are the coarser alluvial deposits that are composed of well-graded to poorly graded sands having greater amounts of gravel with increasing depth. The thickness of the alluvial deposits ranges from approximately 50 to 100 feet, and they cover much of the width of the terrace between the valley wall to the east-southeast and the Great Miami River located to the west (AECOM, 2017).
- **Lower Confining Unit (Bedrock)**: The bedrock consists of interbedded shales and limestones belonging to the Fairview and Kope formations of the Maysville and Eden stages (AECOM, 2017). Depth to bedrock beneath the Site varies, ranging between approximately 10 feet below ground surface (bgs) near the edge of the valley east-southeast of the Landfill to greater than 90 feet bgs along the north and northwest side of the Landfill near MW-13 and MW-14. Due to the relatively impermeable nature of the shales and limestones underlying this region, water yields in the bedrock are generally insufficient for domestic use (AECOM, 2017).

Groundwater elevations vary by more than 10 feet seasonally in response to changes in elevation of the Ohio River pool elevation and the Great Miami River. Groundwater elevations in the Uppermost Aquifer typically range from approximately 456 to 467 feet North American Vertical Datum of 1988 (NAVD88), with the lower elevations occurring in the Fall and the higher elevations occurring in the early Spring. Groundwater flow in the Uppermost Aquifer is generally to the west/southwest towards the Great Miami River (**Figures 1 and 2**). There is minimal variation in groundwater flow direction regardless of groundwater elevation.

2.4 Groundwater and Landfill Leachate Monitoring

The monitoring system for the Landfill is shown on **Figures 1 and 2** and consists of two background monitoring wells (MW-5 and MW-13) and six compliance monitoring wells (MW-8, MW-9, MW-11, MW-12, MW14, and MW-15) (Ramboll, 2023). These monitoring wells are screened within the Uppermost Aquifer along the perimeter of the Landfill. Leachate samples are collected annually from location L1 on the southwest side of the Landfill (**Figures 1 and 2**).

3. ALTERNATIVE SOURCE DEMONSTRATION: LINES OF EVIDENCE

As allowed by 40 C.F.R. § 257.94(e)(2), this ASD demonstrates that sources other than the Landfill (the CCR unit) caused the SSIs. LOEs supporting this ASD include the following:

1. The Landfill has a geosynthetic liner designed to prevent CCR contact with groundwater.
2. Concentrations of primary CCR indicators in MW-9 and MW-12 do not exceed background limits.
3. The major ion composition of compliance groundwater is similar to background and distinct from Landfill leachate.

These LOEs are described and supported in greater detail below.

3.1 LOE #1: The Landfill has a Geosynthetic Liner Designed to Prevent CCR Contact With Groundwater

Construction of the Landfill liner was completed in 2012 and is described in the Liner Construction Documentation Report (S&ME, 2013). The Landfill liner system includes the following components listed in order from bottom to top:

- 5-foot thick compacted clay liner;
- 60 mil textured HDPE flexible membrane liner;
- leachate collection system comprised of a 12-inch granular drainage layer, geocomposite drainage net, and leachate collection piping; and
- 30 inches of bottom ash as a protective layer.

The landfill liner system exceeds the design criteria for a composite liner for new CCR landfills established by 40 C.F.R. § 257.70. The composite liner design criteria were established to help prevent contaminants in CCR from leaking from the CCR unit and impacting groundwater. The liner creates a barrier to groundwater flow through the CCR managed in the landfill, suggesting that the Landfill is not the source of the SSIs.

3.2 LOE #2: Concentrations of Primary CCR Indicators in MW-9 and MW-12 Do Not Exceed Background Limits

Boron and sulfate are indicators of CCR impacts to groundwater due to their leachability from CCR, low occurrence as an anthropogenic contaminant, and mobility in groundwater (Electric Power Research Institute [EPRI], 2012). Leachate from the Landfill is elevated in both boron and sulfate, indicating that these parameters are site-specific key indicators for CCR. If the groundwater in MW-9 and MW-12 had been impacted by CCR from the unit, boron and sulfate concentrations would be expected to be elevated above their respective background Upper Prediction Limits (UPLs). The UPL is an upper bound on background concentrations calculated for the purpose of comparing compliance measurements to background. Concentrations of boron and sulfate in compliance monitoring wells MW-9 and MW-12, which had a D13 SSI for calcium, have been consistently below their respective UPLs throughout the period of monitoring for 40 CFR § 257 as summarized in **Table A** on the following page.

Table A. Summary Statistics for Boron and Sulfate Concentrations in Compliance Wells with D13 SSIs and Leachate (December 2015 to December 2023).

Location	Boron (UPL=3.41 mg/L)		Sulfate (UPL=188 mg/L)	
	Minimum	*Maximum*	*Minimum*	*Maximum*
MW-9	0.104	0.659	39.3	180
MW-12	0.0745	0.107	29.4	71.7
L1	10	17	963	1,580

mg/L = milligrams per liter

Concentrations of boron and sulfate below their respective UPLs in compliance monitoring wells MW-9 and MW-12 indicate these wells have not been affected by CCR impacts from the Landfill. Analytical data to support this LOE are included in **Appendix A**.

3.3 LOE #3: The Major Ion Composition of Compliance Groundwater is Similar to Background And Distinct From Landfill Leachate

Piper diagrams graphically represent the major ion composition of aqueous solutions. A Piper diagram displays the position of water samples relative to their major cation and anion content on the two lower triangular portions of the diagram, providing the information which, when combined on the central, diamond-shaped portion of the diagram, identifies the compositional categories or groupings (hydrochemical facies). **Figure A** on the following page is a Piper diagram that displays the ionic composition of groundwater samples from the background and compliance wells associated with the Landfill, as well as leachate. A leachate sample (L1) was collected from the Landfill during the twelfth semiannual detection monitoring sampling event (Detection Monitoring Round 12 [D12]). Wells with calcium SSIs (MW-9 and MW-12) are circled in red.

It is evident from the Piper diagram that the background (brown symbols) and compliance (blue symbols) wells are in the calcium-bicarbonate hydrochemical facies, and the leachate (green symbols) are in the calcium-sulfate hydrochemical facies. The ionic composition of the background and compliance wells demonstrate strong similarity. Additionally, the ionic compositions of the Landfill background and compliance groundwater and the Landfill leachate are dissimilar. Together, the similarity of background and compliance groundwater ionic composition and the differences between groundwater and leachate indicate that the Landfill is not the source of CCR constituents detected in Landfill groundwater.

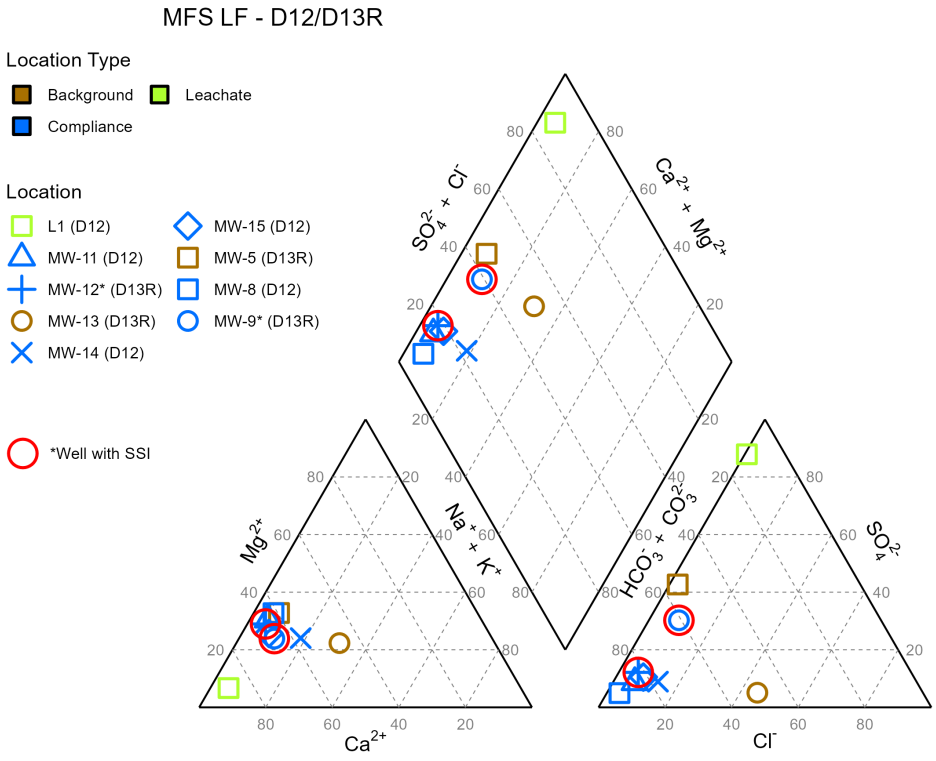


Figure A. Piper Diagram Showing Ionic Composition of Groundwater and Leachate Samples Associated with the Landfill (brown = background wells, blue = compliance wells, green = leachate). Wells with calcium SSIs (MW-9 and MW-12) are circled in red.

4. CONCLUSIONS

Based on the three LOEs presented below and described in the previous section, it has been demonstrated that the SSIs of calcium at MW-9 and MW-12 are not due to the Landfill but are from a source other than the CCR unit.

1. The Landfill has a geosynthetic liner designed to prevent CCR contact with groundwater.
2. Concentrations of primary CCR indicators in MW-9 and MW-12 do not exceed background limits.
3. The major ion composition of compliance groundwater is similar to background and distinct from Landfill leachate.

This information serves as the written ASD prepared in accordance with 40 C.F.R. § 257.94(e)(2) that the SSIs observed during the detection monitoring program were not due to the Landfill. Therefore, an Assessment Monitoring Program is not required, and the Landfill will remain in the Detection Monitoring Program.

5. REFERENCES

AECOM, 2017. *Hydrogeologic Characterization Report, CCR Management Unit 113 (Landfill)*. Miami Fort Power Station, Hamilton County, Ohio. Dynegy Miami Fort, LLC. October 11, 2017.

Code of Federal Regulations, Title 40, Chapter I, Subchapter I, Part 257, Subpart D, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, effective April 17, 2015. Accessed from URL https://www.ecfr.gov/current/title-40/chapter-I/subchapter-I/part-257/subpart-D#page-top

Electric Power Research Institute [EPRI], (2012). Groundwater Quality Signatures for Assessing Potential Impacts from Coal Combustion Product Leachate, Report 1017923. October 2012.

Hanson, 2016. *CCR Rule Report: Closure and Post-Closure Plans, Miami Fort Power Station, CCR Landfill, Hamilton County, Ohio*. October 13, 2016.

Loskota, Steven J., 2023. *Annual Inspection by a Qualified Professional Engineer, 40 C.F.R. § 257.84(b), Lawrenceburg Road Ash Landfill, Miami Fort Station*. November 21, 2023.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022. *Multi-Site Statistical Analysis Plan.* December 28, 2022.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2023. *Groundwater Monitoring Plan, Miami Fort Power Plant, Lawrenceburg Road Landfill, North Bend, Ohio. Dynegy Miami Fort, LLC*. December 31, 2023.

S&ME, 2013. *Liner Construction Documentation Report, Lawrenceburg Road Landfill, Miami Fort Power Station – Hamilton Co., OH*. January 25, 2013.

FIGURES

COMPLIANCE MONITORING WELL
BACKGROUND MONITORING WELL
LEACHATE WELL
GROUNDWATER ELEVATION CONTOUR (1-FT CONTOUR INTERVAL, NAVD88)
INFERRED GROUNDWATER ELEVATION CONTOUR
GROUNDWATER FLOW DIRECTION
REGULATED UNIT (SUBJECT UNIT)

NOTES:
1. ELEVATIONS IN PARENTHESES WERE NOT USED FOR CONTOURING.
2. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 150 300
Feet

SAMPLING LOCATIONS AND POTENTIOMETRIC SURFACE MAP MARCH 13, 2023

ALTERNATIVE SOURCE DEMONSTRATION
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22885\MXD\Alt_Source_Dem\MiamiFort_LRLD13\MFS_113_LRL_ASD_D13.aprx
PROJECT: 169000XXXX | DATED: 3/4/2024 | DESIGNER: GALARNMC

COMPLIANCE MONITORING WELL

BACKGROUND MONITORING WELL

LEACHATE WELL

GROUNDWATER ELEVATION CONTOUR (0.5-FT CONTOUR INTERVAL, NAVD88)

INFERRED GROUNDWATER ELEVATION CONTOUR

GROUNDWATER FLOW DIRECTION

REGULATED UNIT (SUBJECT UNIT)

NOTES:
1. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 150 300
Feet

SAMPLING LOCATIONS AND POTENTIOMETRIC SURFACE MAP SEPTEMBER 21, 2023

ALTERNATIVE SOURCE DEMONSTRATION
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22885\MXD\Alt_Source_Dem\MiamiFort_LRLD13\MFS_113_LRL_ASD_D13.aprx

PROJECT: 169000XXXX | DATED: 3/4/2024 | DESIGNER: GALARNMC

APPENDICES

APPENDIX A
SUPPORTING GROUNDWATER ANALYTICAL DATA

APPENDIX A.
SUPPORTING GROUNDWATER ANALYTICAL DATA
40 C.F.R. § 257: ALTERNATIVE SOURCE DEMONSTRATION
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Date	Parameter	Result	Unit
MW-9	Compliance	12/11/2015	Boron, total	0.181	mg/L
MW-9	Compliance	03/23/2016	Boron, total	0.104	mg/L
MW-9	Compliance	06/23/2016	Boron, total	0.121 B	mg/L
MW-9	Compliance	09/15/2016	Boron, total	0.111	mg/L
MW-9	Compliance	12/20/2016	Boron, total	0.119	mg/L
MW-9	Compliance	03/06/2017	Boron, total	0.163	mg/L
MW-9	Compliance	06/05/2017	Boron, total	0.113	mg/L
MW-9	Compliance	07/11/2017	Boron, total	0.119	mg/L
MW-9	Compliance	11/15/2017	Boron, total	0.106	mg/L
MW-9	Compliance	05/07/2018	Boron, total	1 U	mg/L
MW-9	Compliance	11/14/2018	Boron, total	1 U	mg/L
MW-9	Compliance	03/11/2019	Boron, total	0.142	mg/L
MW-9	Compliance	09/09/2019	Boron, total	1 U	mg/L
MW-9	Compliance	04/06/2020	Boron, total	0.198	mg/L
MW-9	Compliance	09/14/2020	Boron, total	0.108	mg/L
MW-9	Compliance	03/24/2021	Boron, total	0.259	mg/L
MW-9	Compliance	09/16/2021	Boron, total	0.131	mg/L
MW-9	Compliance	03/23/2022	Boron, total	0.140	mg/L
MW-9	Compliance	09/21/2022	Boron, total	0.127	mg/L
MW-9	Compliance	03/14/2023	Boron, total	0.216	mg/L
MW-9	Compliance	09/22/2023	Boron, total	0.220	mg/L
MW-9	Compliance	12/13/2023	Boron, total	0.659	mg/L
MW-9	Compliance	12/11/2015	Sulfate, total	45.5	mg/L
MW-9	Compliance	03/23/2016	Sulfate, total	43.7	mg/L
MW-9	Compliance	06/23/2016	Sulfate, total	50 U	mg/L
MW-9	Compliance	09/15/2016	Sulfate, total	44.1	mg/L
MW-9	Compliance	12/20/2016	Sulfate, total	50 U	mg/L
MW-9	Compliance	03/06/2017	Sulfate, total	43.4	mg/L
MW-9	Compliance	06/05/2017	Sulfate, total	50 U	mg/L
MW-9	Compliance	07/11/2017	Sulfate, total	39.3 B	mg/L
MW-9	Compliance	11/15/2017	Sulfate, total	50 U	mg/L
MW-9	Compliance	05/07/2018	Sulfate, total	42.1	mg/L
MW-9	Compliance	11/14/2018	Sulfate, total	50 U	mg/L
MW-9	Compliance	03/11/2019	Sulfate, total	43.3	mg/L
MW-9	Compliance	09/09/2019	Sulfate, total	51.0	mg/L
MW-9	Compliance	04/06/2020	Sulfate, total	53.0	mg/L
MW-9	Compliance	09/14/2020	Sulfate, total	67.3	mg/L
MW-9	Compliance	03/24/2021	Sulfate, total	73.3	mg/L
MW-9	Compliance	09/16/2021	Sulfate, total	47.1	mg/L
MW-9	Compliance	03/23/2022	Sulfate, total	50.4	mg/L
MW-9	Compliance	09/21/2022	Sulfate, total	49.9	mg/L
MW-9	Compliance	03/14/2023	Sulfate, total	60.6	mg/L
MW-9	Compliance	09/22/2023	Sulfate, total	146	mg/L
MW-9	Compliance	12/13/2023	Sulfate, total	180	mg/L
MW-12	Compliance	12/11/2015	Boron, total	0.0932	mg/L
MW-12	Compliance	03/23/2016	Boron, total	0.0783	mg/L

APPENDIX A.
SUPPORTING GROUNDWATER ANALYTICAL DATA
40 C.F.R. § 257: ALTERNATIVE SOURCE DEMONSTRATION
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Date	Parameter	Result	Unit
MW-12	Compliance	06/23/2016	Boron, total	0.105 B	mg/L
MW-12	Compliance	09/15/2016	Boron, total	0.0908	mg/L
MW-12	Compliance	12/20/2016	Boron, total	0.0941	mg/L
MW-12	Compliance	03/06/2017	Boron, total	0.0943	mg/L
MW-12	Compliance	06/05/2017	Boron, total	0.0896	mg/L
MW-12	Compliance	07/11/2017	Boron, total	0.08 U	mg/L
MW-12	Compliance	11/14/2017	Boron, total	0.08 U	mg/L
MW-12	Compliance	05/07/2018	Boron, total	1 U	mg/L
MW-12	Compliance	11/14/2018	Boron, total	1 U	mg/L
MW-12	Compliance	03/11/2019	Boron, total	0.105	mg/L
MW-12	Compliance	09/09/2019	Boron, total	1 U	mg/L
MW-12	Compliance	04/06/2020	Boron, total	0.107	mg/L
MW-12	Compliance	09/14/2020	Boron, total	0.0745	mg/L
MW-12	Compliance	03/24/2021	Boron, total	0.104	mg/L
MW-12	Compliance	09/15/2021	Boron, total	0.0891	mg/L
MW-12	Compliance	03/23/2022	Boron, total	0.0969	mg/L
MW-12	Compliance	09/21/2022	Boron, total	0.101	mg/L
MW-12	Compliance	03/13/2023	Boron, total	0.0799	mg/L
MW-12	Compliance	09/21/2023	Boron, total	0.0856 J	mg/L
MW-12	Compliance	12/11/2015	Sulfate, total	59.0	mg/L
MW-12	Compliance	03/23/2016	Sulfate, total	54.6	mg/L
MW-12	Compliance	06/23/2016	Sulfate, total	56.1	mg/L
MW-12	Compliance	09/15/2016	Sulfate, total	29.4	mg/L
MW-12	Compliance	12/20/2016	Sulfate, total	50.4	mg/L
MW-12	Compliance	03/06/2017	Sulfate, total	48.5	mg/L
MW-12	Compliance	06/05/2017	Sulfate, total	51.0	mg/L
MW-12	Compliance	07/11/2017	Sulfate, total	50 U	mg/L
MW-12	Compliance	11/14/2017	Sulfate, total	50 U	mg/L
MW-12	Compliance	05/07/2018	Sulfate, total	55.2	mg/L
MW-12	Compliance	11/14/2018	Sulfate, total	50 U	mg/L
MW-12	Compliance	03/11/2019	Sulfate, total	61.6	mg/L
MW-12	Compliance	09/09/2019	Sulfate, total	62.4	mg/L
MW-12	Compliance	04/06/2020	Sulfate, total	47.3	mg/L
MW-12	Compliance	09/14/2020	Sulfate, total	71.7	mg/L
MW-12	Compliance	03/24/2021	Sulfate, total	54.4	mg/L
MW-12	Compliance	09/15/2021	Sulfate, total	65.1	mg/L
MW-12	Compliance	03/23/2022	Sulfate, total	66.5	mg/L
MW-12	Compliance	09/21/2022	Sulfate, total	63.5	mg/L
MW-12	Compliance	03/13/2023	Sulfate, total	41.8	mg/L
MW-12	Compliance	09/21/2023	Sulfate, total	67.4	mg/L
MW-12	Compliance	12/13/2023	Sulfate, total	63.5 J-	mg/L
L1	Leachate	09/14/2020	Boron, total	10.0	mg/L
L1	Leachate	03/24/2021	Boron, total	10.8	mg/L
L1	Leachate	09/15/2021	Boron, total	17.0	mg/L
L1	Leachate	03/23/2022	Boron, total	14.2	mg/L
L1	Leachate	09/21/2022	Boron, total	13.0	mg/L

APPENDIX A.
SUPPORTING GROUNDWATER ANALYTICAL DATA
40 C.F.R. § 257: ALTERNATIVE SOURCE DEMONSTRATION
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Date	Parameter	Result	Unit
L1	Leachate	09/14/2020	Sulfate, total	1,580	mg/L
L1	Leachate	03/24/2021	Sulfate, total	987	mg/L
L1	Leachate	09/15/2021	Sulfate, total	1,330	mg/L
L1	Leachate	03/23/2022	Sulfate, total	1,430	mg/L
L1	Leachate	09/21/2022	Sulfate, total	963	mg/L
L1	Leachate	03/14/2023	Sulfate, total	1,030	mg/L

Notes:
mg/L = milligrams per liter
B = The analyte was found in sample and in associated method blank.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J- = The result is an estimated quantity, but the result may be biased low.
U = The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.

Intended for
Miami Fort Power Company, LLC

Date
October 9, 2024

Project No.
1940106781-011

40 C.F.R. § 257.94(e)(2): ALTERNATIVE SOURCE DEMONSTRATION

LAWRENCEBURG ROAD LANDFILL

MIAMI FORT POWER PLANT

NORTH BEND, OHIO

RAMBOLL Bright ideas. Sustainable change.

CERTIFICATIONS

I, Nicole M. Pagano, a qualified professional engineer in good standing in the State of Ohio, certify that the information in this report is accurate as of the date of my signature below. The content of this report is not to be used other than for its intended purpose and meaning, or for extrapolations beyond the interpretations contained herein.

Nicole M. Pagano
Qualified Professional Engineer
E-85428
Ohio
Ramboll Americas Engineering Solutions, Inc.
Date: October 9, 2024

I, Chase J. Christenson, a professional geologist, certify that the information in this report is accurate as of the date of my signature below. The content of this report is not to be used other than for its intended purpose and meaning, or for extrapolations beyond the interpretations contained herein.

Chase J. Christenson
Professional Geologist
Ramboll Americas Engineering Solutions, Inc.
Date: October 9, 2024

Ramboll
234 W. Florida Street
Fifth Floor
Milwaukee, WI 53204
USA
T 414-837-3607
F 414-837-3608
https://ramboll.com

CONTENTS

TABLES (IN TEXT)

FIGURES (IN TEXT)

FIGURES (ATTACHED)

APPENDICES

ACRONYMS AND ABBREVIATIONS

40 C.F.R.	Title 40 of the Code of Federal Regulations
ASD	Alternative Source Demonstration
bgs	below ground surface
CCR	coal combustion residuals
CCR Rule	40 C.F.R. § 257 Subpart D
cm/s	centimeters per second
D14	Detection Monitoring Round 14
EPRI	Electric Power Research Institute
HDPE	high-density polyethylene
Landfill	Lawrenceburg Road Landfill
LOE(s)	line(s) of evidence
MFPP	Miami Fort Power Plant
mg/L	milligrams per liter
NAVD88	North American Vertical Datum of 1988
Ramboll	Ramboll Americas Engineering Solutions, Inc.
SSI	Statistically Significant Increase
UPL	Upper Prediction Limit

1. INTRODUCTION

Title 40 of the Code of the Federal Regulations (40 C.F.R.) § 257.94(e)(2) allows the owner or operator of a coal combustion residuals (CCR) unit 90 days from the date of determination of Statistically Significant Increases (SSI) over background for groundwater constituents listed in Appendix III of 40 C.F.R. § 257 to complete a written demonstration that a source other than the CCR unit being monitored caused the SSI(s), or that the SSI(s) resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality (Alternative Source Demonstration [ASD]).

This ASD has been prepared on behalf of Miami Fort Power Company, LLC, by Ramboll Americas Engineering Solutions, Inc (Ramboll), to provide pertinent information pursuant to 40 C.F.R. § 257.94(e)(2) for the Miami Fort Power Plant (MFPP) Lawrenceburg Road Landfill (Landfill) located near North Bend, Ohio.

The fourteenth semiannual detection monitoring samples (Detection Monitoring Round 14 [D14]) were collected on March 29, 2024, and analytical data were received on April 12, 2024. In accordance with 40 C.F.R. § 257.93(h)(2), statistical analysis of the data to identify SSIs of 40 C.F.R. § 257 Subpart D (CCR Rule) Appendix III parameters over background concentrations was completed by July 11, 2024, within 90 days of receipt of the analytical data. The statistical determination identified the following SSIs at compliance monitoring wells:

- Calcium at wells MW-9 and MW-12

Pursuant to 40 C.F.R. § 257.94(e)(2), the lines of evidence (LOEs) presented in **Section 3** demonstrate that sources other than the Landfill were the cause of the SSIs listed above and the Landfill did not contribute to the SSIs. This ASD was completed by October 9, 2024, within 90 days of determination of the SSIs (July 11, 2024), as required by 40 C.F.R. § 257.94(e)(2).

2. BACKGROUND

2.1 Site Location and Description

The MFPP is located in the southwest corner of Ohio (Hamilton County) adjacent to the state boundaries of Indiana (west) and Kentucky (south), and approximately 5 miles southwest of North Bend, Ohio on the north shore of the Ohio River at the confluence with the Great Miami River. The Landfill is bounded to the north by Mt. Nebo Road, to the east-southeast by a bedrock upland, and to the west by the floodplain of the Great Miami River, which is located approximately 1,500 feet west of the landfill.

2.2 Description of the Landfill

The Landfill is permitted by the Ohio Environmental Protection Agency, Division of Surface Water (Hanson, 2016). Approved wastes for disposal include bottom ash, fly ash, and ash pond materials produced as a by-product from the MFPP. The approximate volume of CCR contained in the landfill is 1,003,023 cubic yards (Loskota, 2023).

The Landfill is approximately 46 acres and consists of two existing disposal areas identified as Area 1 (14 acres) and Area 3 (25 acres), totaling approximately 39 acres (**Figure 1**). Area 1 and Area 3 actively receive CCR material. Area 3 has been constructed to the north of Area 1. Area 2 was not constructed (Hanson, 2016).

2.2.1 Area 1

Area 1 of the Landfill was constructed with a 3-foot thick recompacted clay liner with a maximum hydraulic conductivity of 1×10^{-7} centimeters per second (cm/s) overlain with a fabricated 60-mil high-density polyethylene (HDPE) textured geomembrane liner, an HDPE drainage net with filter fabric, and a 12-inch protective ash blanket (Burgess & Niple, Limited, 1991).

The lower south side slopes of Area 1 had permanent cover placed in 2013 and 2015, consisting of (from bottom to top) a 2-foot, soil cover with maximum permeability of 1×10^{-7} cm/s capable of supporting vegetative layer. Construction of the final cover system is projected to begin in 2029. The final cover system will cover the entire landfill (remainder of Area 1 and all of Area 3) and tie into the bottom composite liner system and will consist of a recompacted soil barrier with maximum hydraulic conductivity of 1×10^{-7} cm/s, a 40-mil textured HDPE geomembrane, a geocomposite drainage layer, and a vegetative layer (Hanson, 2016).

2.2.2 Area 3

Area 3 of the Landfill was constructed with a 5-foot thick recompacted soil liner overlain with a fabricated 60-mil HDPE textured geomembrane liner; and a leachate management system. Leachate is directed to a leachate collection sump located in the southwestern area of the Landfill, which pumps the leachate to the sedimentation pond located west of the Landfill (S&ME, 2013).

2.3 Geology and Hydrogeology

Multiple site investigations have been completed at the MFPP to characterize the geology, hydrogeology, and groundwater quality as required by 40 C.F.R. § 257.91 (Groundwater Monitoring Systems). The Landfill has been well characterized and detailed in the Hydrogeological

Characterization Report (AECOM, 2017). A conceptual site model has been developed and is discussed below.

In addition to the CCR present at the Landfill, there are two principal layers of unlithified material present above the bedrock, which are categorized into the hydrostratigraphic units described below (from surface downward) based on stratigraphic relationships and common hydrogeologic characteristics:

- **Glacial Deposits**: The glacial deposits consist of fine-grained fluvial and lacustrine deposits (clay and silt). These glacial deposits range in depth from approximately 2 to 27 feet below the present ground surface. No appreciable amounts of groundwater exist in the glacial till along the edge of the valley east-southeast of the Landfill. These deposits are relatively impermeable due to a high clay content and therefore do not readily transmit water (AECOM, 2017).
- **Alluvial Deposits (Uppermost Aquifer):** Underlying the glacial deposits are the coarser alluvial deposits that are composed of well-graded to poorly graded sands having greater amounts of gravel with increasing depth. The thickness of the alluvial deposits ranges from approximately 50 to 100 feet, and they cover much of the width of the terrace between the valley wall to the east-southeast and the Great Miami River located to the west (AECOM, 2017).
- **Lower Confining Unit (Bedrock)**: The bedrock consists of interbedded shales and limestones belonging to the Fairview and Kope formations of the Maysville and Eden stages (AECOM, 2017). Depth to bedrock beneath the Site varies, ranging between approximately 10 feet below ground surface (bgs) near the edge of the valley east-southeast of the Landfill to greater than 90 feet bgs along the north and northwest side of the Landfill near MW-13 and MW-14. Due to the relatively impermeable nature of the shales and limestones underlying this region, water yields in the bedrock are generally insufficient for domestic use (AECOM, 2017).

Groundwater elevations vary by more than 10 feet seasonally in response to changes in elevation of the Ohio River pool elevation and the Great Miami River. Groundwater elevations in the Uppermost Aquifer typically range from approximately 456 to 467 feet[1], with the lower elevations occurring in the fall and the higher elevations occurring in the early spring. Groundwater flow in the Uppermost Aquifer is generally to the west/southwest towards the Great Miami River (**Figures 2 and 3**). There is minimal variation in groundwater flow direction regardless of groundwater elevation.

2.4 Groundwater and Landfill Leachate Monitoring

The monitoring system for the Landfill is shown on **Figure 3** and consists of two background monitoring wells (MW-5 and MW-13) and six compliance monitoring wells (MW-8, MW-9, MW-11, MW-12, MW14, and MW-15) (Ramboll, 2023a). These monitoring wells are screened within the Uppermost Aquifer along the perimeter of the Landfill. Leachate samples are collected annually from location L1 on the southwest side of the Landfill (**Figure 3**).

[1] All elevations in this report are referenced to North American Vertical Datum of 1988 (NAVD88) unless otherwise noted.

Groundwater samples are collected and analyzed in accordance with the Multi-Site Sampling and Analysis Plan (Ramboll, 2023b). Statistical evaluation of analytical data is performed in accordance with the Multi-Site Statistical Analysis Plan (Ramboll, 2022).

3. ALTERNATIVE SOURCE DEMONSTRATION: LINES OF EVIDENCE

As allowed by 40 C.F.R. § 257.94(e)(2), this ASD demonstrates that sources other than the Landfill (the CCR unit) caused the SSIs and the Landfill did not contribute to the SSIs. LOEs supporting this ASD include the following:

1. The Landfill has a geosynthetic liner designed to prevent migration of CCR leachate to groundwater.
2. Concentrations of primary CCR indicators in MW-9 and MW-12 do not exceed background limits.
3. The major ion composition of compliance groundwater is similar to background and distinct from Landfill leachate.

These LOEs are described and supported in greater detail below.

3.1 LOE #1: The Landfill has a Geosynthetic Liner Designed to Prevent Migration of CCR Leachate to Groundwater

Construction of the Landfill liner in active Areas 1 and 3 were completed in 1991 and 2013, respectively (Burgess & Niple, Limited, 1991; S&ME, 2011; S&ME, 2013). The Landfill liner system for both Areas 1 and 3 includes the following components listed in order from bottom to top:

- 3-foot thick recompacted clay liner at a maximum permeability of 1 x 10^{-7} cm/s at Area 1, and 5-foot thick recompacted clay liner at maximum permeability of 1 x 10^{-7} cm/s at Area 3;
- 60-mil textured HDPE flexible membrane liner at both Areas 1 and 3;
- HDPE drainage net with filter fabric at Area 1;
- 12-inch protective ash blanket at Area 1; and
- Leachate management system at Area 3.

The landfill liner system with Areas 1 and 3 exceeds the design criteria for a composite liner for new CCR landfills established by 40 C.F.R. § 257.70(b). The composite liner design criteria were established to help prevent contaminants in CCR from leaking from the CCR unit and impacting groundwater. The liners create a barrier to groundwater flow through the CCR managed in the landfill, suggesting that the Landfill is not the source of the SSIs.

3.2 LOE #2: Concentrations of Primary CCR Indicators in MW-9 and MW-12 Do Not Exceed Background Limits

Boron and sulfate are indicators of CCR impacts to groundwater due to their leachability from CCR, low occurrence as an anthropogenic contaminant, and mobility in groundwater (Electric Power Research Institute [EPRI], 2012). Leachate from the Landfill is elevated in both boron and sulfate, indicating that these parameters are site-specific key indicators for CCR. If the groundwater downgradient of the Landfill had been impacted by CCR from the unit, boron and sulfate concentrations would be expected to be elevated above their respective background Upper Prediction Limits (UPLs). The UPL is an upper bound on background concentrations

calculated for comparing compliance measurements to background. Concentrations of boron and sulfate in compliance monitoring wells MW-9 and MW-12, which had SSIs for calcium in D14, have been consistently below their respective UPLs throughout the period of monitoring for 40 C.F.R. § 257 as summarized in **Table A** on the following page.

Table A. Summary Statistics for Boron and Sulfate Concentrations in Compliance Wells with D14 SSIs and Leachate (December 2015 to March 2024).

Location	Boron (UPL=3.41 mg/L)		Sulfate (UPL=188 mg/L)	
	Minimum	*Maximum*	*Minimum*	*Maximum*
MW-9	0.104	0.659	39.3	180
MW-12	0.0745	0.107	29.4	71.7
L1	10	17	963	1,580

mg/L = milligrams per liter

Concentrations of boron and sulfate below their respective UPLs in compliance monitoring wells MW-9 and MW-12 indicate these wells have not been affected by CCR impacts from the Landfill. Therefore, the Landfill is not the source of the SSIs. Analytical data to support this LOE are included in **Appendix A**.

3.3 LOE #3: The Major Ion Composition of Compliance Groundwater is Similar to Background And Distinct From Landfill Leachate

Piper diagrams graphically represent the major ion composition of aqueous solutions. A Piper diagram displays the position of water samples relative to their major cation and anion content on the two lower triangular portions of the diagram, providing the information which, when combined on the central, diamond-shaped portion of the diagram, identifies the compositional categories or groupings (hydrochemical facies). **Figure A** on the following page is a Piper diagram that displays the ionic composition of groundwater samples from the background and compliance wells associated with the Landfill, as well as leachate. Wells with calcium SSIs (MW-9 and MW-12) are circled in red.

It is evident from the Piper diagram that the background (brown symbols) and compliance (blue symbols) wells are in the calcium-bicarbonate hydrochemical facies, and the leachate (green symbols) are in the calcium-sulfate hydrochemical facies. The ionic composition of the background and compliance wells demonstrate strong similarity. Additionally, the ionic compositions of the Landfill background and compliance groundwater and the Landfill leachate are dissimilar. Together, the similarity of background and compliance groundwater ionic composition and the differences between groundwater and leachate indicate that the Landfill is not the source of the SSIs detected in Landfill groundwater.

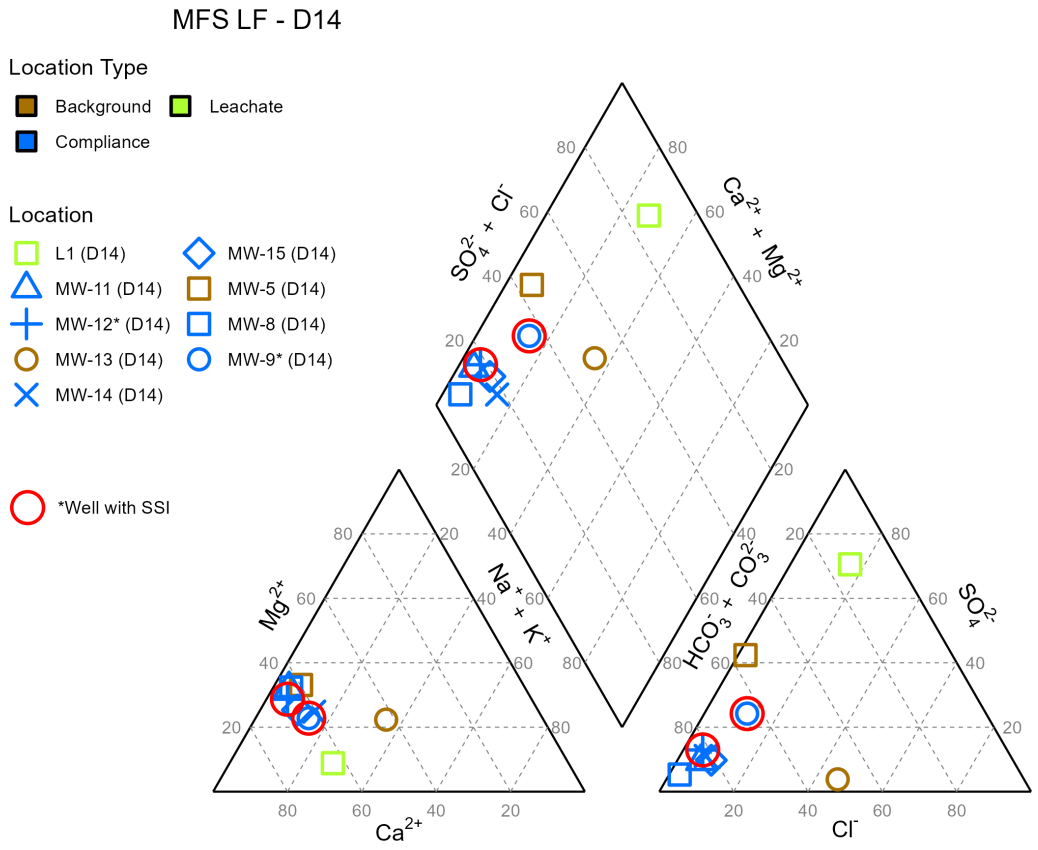


Figure A. Piper Diagram Showing Ionic Composition of Groundwater and Leachate Samples Associated with the Landfill (brown = background wells, blue = compliance wells, green = leachate). Wells with calcium SSIs (MW-9 and MW-12) are circled in red.

4. CONCLUSIONS

Based on the three LOEs presented below and described in the previous section, it has been demonstrated that the SSIs of calcium at MW-9 and MW-12 are not due to the Landfill and the Landfill did not contribute to the SSIs.

1. The Landfill has a geosynthetic liner designed to prevent migration of CCR leachate to groundwater.
2. Concentrations of primary CCR indicators in MW-9 and MW-12 do not exceed background limits.
3. The major ion composition of compliance groundwater is similar to background and distinct from Landfill leachate.

This information serves as the written ASD prepared in accordance with 40 C.F.R. § 257.94(e)(2) that the SSIs observed during D14 were not due to the Landfill. Therefore, an Assessment Monitoring Program is not required, and the Landfill will remain in the Detection Monitoring Program.

5. REFERENCES

AECOM, 2017. *Hydrogeologic Characterization Report, CCR Management Unit 113 (Landfill)*. Miami Fort Power Station, Hamilton County, Ohio. Dynegy Miami Fort, LLC. October 11, 2017.

Burgess & Niple, Limited, 1991. Synthetic Liner Details. Cincinnati Gas & Electric Company, Miami Fort Station, Lawrenceburg Road Ash Landfill. January.

Code of Federal Regulations, Title 40, Chapter I, Subchapter I, Part 257, Subpart D, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, effective April 17, 2015. Accessed from URL https://www.ecfr.gov/current/title-40/chapter-I/subchapter-I/part-257/subpart-D#page-top

Electric Power Research Institute (EPRI), 2012. Groundwater Quality Signatures for Assessing Potential Impacts from Coal Combustion Product Leachate, Report 1017923. October 2012.

Hanson, 2016. *CCR Rule Report: Closure and Post-Closure Plans, Miami Fort Power Station, CCR Landfill, Hamilton County, Ohio*. October 13, 2016.

Loskota, Steven J., 2023. *Annual Inspection by a Qualified Professional Engineer, 40 C.F.R. § 257.84(b), Lawrenceburg Road Ash Landfill, Miami Fort Station*. November 21, 2023.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2022. *Multi-Site Statistical Analysis Plan.* December 28, 2022.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2023a. Groundwater Monitoring Plan, Miami Fort Power Plant, Lawrenceburg Road Landfill, North Bend, Ohio. Dynegy Miami Fort, LLC. December 31, 2023.

Ramboll Americas Engineering Solutions, Inc. (Ramboll), 2023b. Multi-Site Sampling and Analysis Plan, Revision 1. October 10, 2023.

S&ME, 2012. Duke Energy, Ohio, Inc., Miami Fort Station, Lawrenceburg Road Ash Landfill, Area 3 – Permit Drawings – Liner Construction Record Drawings. October 5, 2012.

S&ME, 2013. Liner Construction Documentation Report, Lawrenceburg Road Landfill, Miami Fort *Power Station – Hamilton Co., OH*. January 25, 2013.

FIGURES

REGULATED UNIT (SUBJECT UNIT)

SITE FEATURE

0 150 300 Feet

SITE MAP

ALTERNATIVE SOURCE DEMONSTRATION
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\12285\MXD\Miami_Fort\LRL_Boundaries\Figure 1. Site Map.mxd

PROJECT: 169000XXXX | DATED: 9/20/2024 | DESIGNER: GALARNMC

COMPLIANCE MONITORING WELL

BACKGROUND MONITORING WELL

LEACHATE WELL

GROUNDWATER ELEVATION CONTOUR (0.5-FT CONTOUR INTERVAL, NAVD88)

INFERRED GROUNDWATER ELEVATION CONTOUR

GROUNDWATER FLOW DIRECTION

REGULATED UNIT (SUBJECT UNIT)

NOTES:

1. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 150 300 Feet

SAMPLING LOCATIONS AND POTENTIOMETRIC SURFACE MAP SEPTEMBER 21, 2023

ALTERNATIVE SOURCE DEMONSTRATION
LAWRENCEBURG ROAD LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

Y:\Mapping\Projects\22\22885\MXD\Alt_Source_Dem\MiamiFort_LRLD13\MFS_113_LRL_ASD_D13.aprx

PROJECT: 169000XXXX | DATED: 3/4/2024 | DESIGNER: GALARNMC

COMPLIANCE MONITORING WELL

BACKGROUND MONITORING WELL

LEACHATE WELL

MONITORING WELL

GROUNDWATER ELEVATION CONTOUR (1-FT CONTOUR INTERVAL, NAVD88)

INFERRED GROUNDWATER ELEVATION CONTOUR

GROUNDWATER FLOW DIRECTION

REGULATED UNIT (SUBJECT UNIT)

NOTES:
1. ELEVATION CONTOURS SHOWN IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)

0 150 300
Feet

POTENTIOMETRIC SURFACE MAP MARCH 29, 2024

ALTERNATIVE SOURCE DEMONSTRATION
LAWRENCEBURG ROAD LANDFILL

MIAMI FORT POWER PLANT
NORTH BEND, OHIO

FIGURE 3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

RAMBOLL

PROJECT: 1690000XXXX | DATED: 9/16/2024 | DESIGNER: GALARNMC

Y:\Mapping\Projects\22\22285\MXD\GW_Contours\Round_2024\Miami_Fort\LRL_113\MFS LRL 113 2024.aprx

APPENDICES

APPENDIX A
SUPPORTING GROUNDWATER ANALYTICAL DATA

APPENDIX A.
SUPPORTING GROUNDWATER ANALYTICAL DATA
40 C.F.R. § 257: ALTERNATIVE SOURCE DEMONSTRATION
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Date	Parameter	Result	Unit
MW-9	Compliance	12/11/2015	Boron, total	0.181	mg/L
MW-9	Compliance	03/23/2016	Boron, total	0.104	mg/L
MW-9	Compliance	06/23/2016	Boron, total	0.121 B	mg/L
MW-9	Compliance	09/15/2016	Boron, total	0.111	mg/L
MW-9	Compliance	12/20/2016	Boron, total	0.119	mg/L
MW-9	Compliance	03/06/2017	Boron, total	0.163	mg/L
MW-9	Compliance	06/05/2017	Boron, total	0.113	mg/L
MW-9	Compliance	07/11/2017	Boron, total	0.119	mg/L
MW-9	Compliance	11/15/2017	Boron, total	0.106	mg/L
MW-9	Compliance	05/07/2018	Boron, total	1 U	mg/L
MW-9	Compliance	11/14/2018	Boron, total	1 U	mg/L
MW-9	Compliance	03/11/2019	Boron, total	0.142	mg/L
MW-9	Compliance	09/09/2019	Boron, total	1 U	mg/L
MW-9	Compliance	04/06/2020	Boron, total	0.198	mg/L
MW-9	Compliance	09/14/2020	Boron, total	0.108	mg/L
MW-9	Compliance	03/24/2021	Boron, total	0.259	mg/L
MW-9	Compliance	09/16/2021	Boron, total	0.131	mg/L
MW-9	Compliance	03/23/2022	Boron, total	0.140	mg/L
MW-9	Compliance	09/21/2022	Boron, total	0.127	mg/L
MW-9	Compliance	03/14/2023	Boron, total	0.216	mg/L
MW-9	Compliance	09/22/2023	Boron, total	0.220	mg/L
MW-9	Compliance	12/13/2023	Boron, total	0.659	mg/L
MW-9	Compliance	03/29/2024	Boron, total	0.564	mg/L
MW-9	Compliance	12/11/2015	Sulfate, total	45.5	mg/L
MW-9	Compliance	03/23/2016	Sulfate, total	43.7	mg/L
MW-9	Compliance	06/23/2016	Sulfate, total	50 U	mg/L
MW-9	Compliance	09/15/2016	Sulfate, total	44.1	mg/L
MW-9	Compliance	12/20/2016	Sulfate, total	50 U	mg/L
MW-9	Compliance	03/06/2017	Sulfate, total	43.4	mg/L
MW-9	Compliance	06/05/2017	Sulfate, total	50 U	mg/L
MW-9	Compliance	07/11/2017	Sulfate, total	39.3 B	mg/L
MW-9	Compliance	11/15/2017	Sulfate, total	50 U	mg/L
MW-9	Compliance	05/07/2018	Sulfate, total	42.1	mg/L
MW-9	Compliance	11/14/2018	Sulfate, total	50 U	mg/L
MW-9	Compliance	03/11/2019	Sulfate, total	43.3	mg/L
MW-9	Compliance	09/09/2019	Sulfate, total	51.0	mg/L
MW-9	Compliance	04/06/2020	Sulfate, total	53.0	mg/L
MW-9	Compliance	09/14/2020	Sulfate, total	67.3	mg/L
MW-9	Compliance	03/24/2021	Sulfate, total	73.3	mg/L
MW-9	Compliance	09/16/2021	Sulfate, total	47.1	mg/L
MW-9	Compliance	03/23/2022	Sulfate, total	50.4	mg/L
MW-9	Compliance	09/21/2022	Sulfate, total	49.9	mg/L
MW-9	Compliance	03/14/2023	Sulfate, total	60.6	mg/L
MW-9	Compliance	09/22/2023	Sulfate, total	146	mg/L
MW-9	Compliance	12/13/2023	Sulfate, total	180	mg/L
MW-9	Compliance	03/29/2024	Sulfate, total	150	mg/L

APPENDIX A.
SUPPORTING GROUNDWATER ANALYTICAL DATA
40 C.F.R. § 257: ALTERNATIVE SOURCE DEMONSTRATION
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Date	Parameter	Result	Unit
MW-12	Compliance	12/11/2015	Boron, total	0.0932	mg/L
MW-12	Compliance	03/23/2016	Boron, total	0.0783	mg/L
MW-12	Compliance	06/23/2016	Boron, total	0.105 B	mg/L
MW-12	Compliance	09/15/2016	Boron, total	0.0908	mg/L
MW-12	Compliance	12/20/2016	Boron, total	0.0941	mg/L
MW-12	Compliance	03/06/2017	Boron, total	0.0943	mg/L
MW-12	Compliance	06/05/2017	Boron, total	0.0896	mg/L
MW-12	Compliance	07/11/2017	Boron, total	0.08 U	mg/L
MW-12	Compliance	11/14/2017	Boron, total	0.08 U	mg/L
MW-12	Compliance	05/07/2018	Boron, total	1 U	mg/L
MW-12	Compliance	11/14/2018	Boron, total	1 U	mg/L
MW-12	Compliance	03/11/2019	Boron, total	0.105	mg/L
MW-12	Compliance	09/09/2019	Boron, total	1 U	mg/L
MW-12	Compliance	04/06/2020	Boron, total	0.107	mg/L
MW-12	Compliance	09/14/2020	Boron, total	0.0745	mg/L
MW-12	Compliance	03/24/2021	Boron, total	0.104	mg/L
MW-12	Compliance	09/15/2021	Boron, total	0.0891	mg/L
MW-12	Compliance	03/23/2022	Boron, total	0.0969	mg/L
MW-12	Compliance	09/21/2022	Boron, total	0.101	mg/L
MW-12	Compliance	03/13/2023	Boron, total	0.0799	mg/L
MW-12	Compliance	09/21/2023	Boron, total	0.0856 J	mg/L
MW-12	Compliance	03/29/2024	Boron, total	0.0880	mg/L
MW-12	Compliance	12/11/2015	Sulfate, total	59.0	mg/L
MW-12	Compliance	03/23/2016	Sulfate, total	54.6	mg/L
MW-12	Compliance	06/23/2016	Sulfate, total	56.1	mg/L
MW-12	Compliance	09/15/2016	Sulfate, total	29.4	mg/L
MW-12	Compliance	12/20/2016	Sulfate, total	50.4	mg/L
MW-12	Compliance	03/06/2017	Sulfate, total	48.5	mg/L
MW-12	Compliance	06/05/2017	Sulfate, total	51.0	mg/L
MW-12	Compliance	07/11/2017	Sulfate, total	50 U	mg/L
MW-12	Compliance	11/14/2017	Sulfate, total	50 U	mg/L
MW-12	Compliance	05/07/2018	Sulfate, total	55.2	mg/L
MW-12	Compliance	11/14/2018	Sulfate, total	50 U	mg/L
MW-12	Compliance	03/11/2019	Sulfate, total	61.6	mg/L
MW-12	Compliance	09/09/2019	Sulfate, total	62.4	mg/L
MW-12	Compliance	04/06/2020	Sulfate, total	47.3	mg/L
MW-12	Compliance	09/14/2020	Sulfate, total	71.7	mg/L
MW-12	Compliance	03/24/2021	Sulfate, total	54.4	mg/L
MW-12	Compliance	09/15/2021	Sulfate, total	65.1	mg/L
MW-12	Compliance	03/23/2022	Sulfate, total	66.5	mg/L
MW-12	Compliance	09/21/2022	Sulfate, total	63.5	mg/L
MW-12	Compliance	03/13/2023	Sulfate, total	41.8	mg/L
MW-12	Compliance	09/21/2023	Sulfate, total	67.4	mg/L
MW-12	Compliance	12/13/2023	Sulfate, total	63.5 J-	mg/L
MW-12	Compliance	03/29/2024	Sulfate, total	66.8	mg/L
L1	Leachate	09/14/2020	Boron, total	10.0	mg/L

APPENDIX A.
SUPPORTING GROUNDWATER ANALYTICAL DATA
40 C.F.R. § 257: ALTERNATIVE SOURCE DEMONSTRATION
MIAMI FORT POWER PLANT
LAWRENCEBURG ROAD LANDFILL
NORTH BEND, OH

Well ID	Well Type	Date	Parameter	Result	Unit
L1	Leachate	03/24/2021	Boron, total	10.8	mg/L
L1	Leachate	09/15/2021	Boron, total	17.0	mg/L
L1	Leachate	03/23/2022	Boron, total	14.2	mg/L
L1	Leachate	09/21/2022	Boron, total	13.0	mg/L
L1	Leachate	03/29/2024	Boron, total	12.5	mg/L
L1	Leachate	09/14/2020	Sulfate, total	1,580	mg/L
L1	Leachate	03/24/2021	Sulfate, total	987	mg/L
L1	Leachate	09/15/2021	Sulfate, total	1,330	mg/L
L1	Leachate	03/23/2022	Sulfate, total	1,430	mg/L
L1	Leachate	09/21/2022	Sulfate, total	963	mg/L
L1	Leachate	03/14/2023	Sulfate, total	1,030	mg/L
L1	Leachate	03/29/2024	Sulfate, total	1,180	mg/L

Notes:
mg/L = milligrams per liter
B = The analyte was found in sample and in associated method blank.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J- = The result is an estimated quantity, but the result may be biased low.
U = The analyte was analyzed for, but was not detected above the level of the adjusted detection limit or quantitation limit, as appropriate.